

# Part A

## Approach





*This Part of the NCF lays down the basic structure of the curriculum.*

*Any curriculum should be a response to some fundamental Aims of Education. **Chapter 1** articulates the **Aims of School Education** as well the broad curricular design to achieve these aims. This Curriculum Framework has another unique responsibility. It must respond to the 5+3+3+4 School Stage design as envisioned by NEP 2020. **Chapter 2** gives the logic and thinking behind this **four-stage design** and the curricular considerations specific to each Stage. **Chapter 3** gives the **overall approach to the curriculum**. This includes the approach to defining Learning Standards, principles for content selection, pedagogy, and assessment.*

*Any curricular imagination is necessarily constrained by the overall time available for teaching and learning. The last chapter, **Chapter 4**, engages with considerations related to time allocation for different areas of the curriculum.*



# Chapter 1

## Aims and Curricular Areas of School Education

Education must have clear Aims, and the curriculum and the overall education system must strive in every way to achieve these Aims. This first chapter of this NCF describes the Aims of School Education and outlines the elements of the curriculum that enable the achievement of these Aims. For our country's education, these Aims are derived from NEP 2020.

This chapter begins by reiterating the vision of Indian education as envisaged by NEP 2020, including the purposes of education and the characteristics of individuals that such an education would strive to develop.

The chapter then organises this vision provided in NEP 2020 into specific Aims of School Education that provides clear direction for the NCF, aligns its curricular elements, and also guides other elements of the education system. These Aims are to be fulfilled by developing appropriate Knowledge, Capacities, Values, and Dispositions in the students which this chapter articulates.

School curriculum consists of all the deliberate and organised set of arrangements, mechanisms, processes, and resources in a school (of any kind) that are intended to help achieve the Aims of Education. These include the subjects that are taught, the pedagogical and classroom practices, books and other Teaching-Learning Materials (TLMs), examinations and other forms of assessment, and school culture and processes. The last section of the chapter gives a brief outline of these arrangements that are appropriate for achieving these Aims.

There are a range of matters that are not a part of the curriculum, but directly affect the curriculum in practice and therefore learning, such as the appointment of Teachers and their professional development, admission of students and the composition of students, engagement with parents and the community, and physical infrastructure. These aspects are thus touched upon in this NCF but are not addressed comprehensively.

### Section 1.1

#### Vision of Education Drawn from NEP 2020

Education is, at its core, the achievement of valuable Knowledge, Capacities, Values, and Dispositions.

Society decides the Knowledge, Capacities, Values, and Dispositions that are 'valuable' enough to be developed through education, and so they are informed by the vision that the society has for itself. Hence it is through the development of Knowledge, Capacities, Values, and Dispositions in the individual that education contributes to the realisation of the vision of a society.

The overarching vision of India is articulated in the Constitution of India and is also informed, therefore, by the civilisational heritage of India. Drawing from this vision of India, the vision of education in India is enunciated in NEP 2020 as follows:



*This National Education Policy envisions an education system rooted in Indian ethos that contributes directly to transforming India, that is Bharat, sustainably into an equitable and vibrant knowledge society, by providing high-quality education to all, and thereby making India a global knowledge superpower.*

*[NEP 2020, The Vision of this Policy]*

The vision is, thus, of an education system that contributes to the development of an equitable and vibrant knowledge society. Education can achieve this by developing appropriate desirable qualities in the individuals who participate in the education system as students.

These qualities of individuals, along with their contribution to society are further enunciated in NEP 2020:



*The purpose of the education system is to develop good human beings capable of rational thought and action, possessing compassion and empathy, courage and resilience, scientific temper and creative imagination, with sound ethical moorings and values. It aims at producing engaged, productive, and contributing citizens for building an equitable, inclusive, and plural society as envisaged by our Constitution.*

*[NEP 2020, Principles of this Policy]*



*The aim of education will not only be cognitive development, but also building character and creating holistic and well-rounded individuals equipped with the key 21<sup>st</sup> century skills.*

*[NEP 2020, 4.4]*

Thus, the development of well-rounded individuals capable of rational thought and action, equipped with appropriate knowledge and capacities, and possessing desirable moral and democratic values, is at the core of the vision of education.

## Section 1.2

### Aims of School Education

School Education must develop in students appropriate values, dispositions, capacities, and knowledge required to achieve the above vision of education.

A curriculum, therefore, must systematically articulate what these desirable values, dispositions, capacities, and knowledge are, and how they are to be achieved through appropriate choice of content and pedagogy and other relevant elements of the education system, and present strategies for assessment to verify that they have been achieved.

### Definitions

Before we elaborate on the Aims of School Education, it is useful to clarify the meanings of the words — knowledge, capacities, values, and dispositions as used in this document. Here is a brief explanation of what is meant by these words in this NCF:

**a. Knowledge** refers to descriptive knowledge, i.e., ‘knowing that’ — for example, knowing that the earth revolves around the sun or knowing that Mahatma Gandhi played a central role in India’s independence movement. A very large part of the understanding of the world is attained through this form of knowledge. This form of knowledge is expressed through theories, concepts, and principles. In a way, this form of knowledge reveals to us the truths about the world. While knowledge of this form might appear to be factual, the focus of acquiring such knowledge is not merely on remembering these facts, but also on the ability to think about why these facts are true, to inquire further, to connect together pieces of such knowledge, and to foster the development of new knowledge and insight and use such knowledge in life. For example, how can we know if the statement ‘Earth and other planets of our solar system revolve around the Sun’ is true? What are the sources of evidence? What are the methods of justification? Where can this knowledge be used? School education must focus on all these aspects of knowledge.

**b. Capacities** refer to procedural knowledge, i.e., ‘knowing how’ — for example, knowing how to communicate effectively or think critically or how to play Kho Kho. The abilities and skills acquired through this form of knowledge enable us to act based on our understanding. Usually, procedural knowledge is used in the context of embodied abilities, such as the ability to drive a car; however, problem solving and reasoning, for example, are procedural knowledge too. We refer to such broad know-how, such as critical thinking, problem solving, and effective communication as capacities, and these capacities can be broken down into narrower skills such as addition or decoding. Often, acquiring descriptive knowledge requires capacities too; for instance, in Science, the capacities and skills of observation and experimentation are central to building descriptive scientific knowledge. For example, without the skills of observation, it is difficult to truly justify that the Earth and other planets revolve around the sun. For a student to attain a capacity or a skill, the ability needs to be consistent and repeatable, and it also needs to be adaptable to different situations. For instance, to be skilled in making pots or performing addition, the student should be able to exercise that ability successfully not just once, but multiple times consistently and accurately, and should be able to work with different materials or numbers.

Capacities are broader and deeper than skills. A capacity often consists of multiple skills. Thus, skills are sub-elements of capacities. In other contexts or documents, ‘skills’ and ‘capacities’ may have been used interchangeably or ‘skills’ would have been used for what is classified as ‘capacities’ in this NCF. This NCF should be read with these distinctions in mind.

**c. Values and Dispositions.** Effective action needs strong motivation in addition to knowledge and capacities. Our values and dispositions are the sources of that motivation. Values refer to beliefs about what is right and what is wrong, while dispositions refer to the attitudes and perceptions that form the basis for behaviour. Thus, in addition to developing knowledge and capacities, the school curriculum should deliberately choose values and dispositions that are derived from the Aims of Education and devise learning opportunities for students to acquire these values and dispositions.

### 1.2.1 Aims of School Education in this NCF

The Aims of Education in this NCF are derived from the vision and purpose of education described above and are organised into five Aims.

These five Aims give clear direction to the choice of Knowledge, Capacities, Values, and Dispositions that need to be included in the curriculum:

- a. Rational Thought and Independent Thinking/Autonomy:** Making choices based on rational analysis, creativity, and a grounded understanding of the world, and acting on those choices, is an exercise of autonomy. This indicates that the individual has gained the capacity for rational reasoning, critical thinking, knowledge with both breadth and depth, and discernment to understand and improve the world around them. Developing such independent thinkers who are curious, open to new ideas, think critically and creatively, and thereby form their own opinions and beliefs is thus a very important aim for school education.
- b. Health and Well-being:** A healthy mind and a healthy body are the foundations for an individual to pursue a good life and contribute meaningfully to society. School education should be a wholesome experience for students, and they should acquire knowledge, capacities, and dispositions that keep their bodies and mind healthy and free from any forms of abuse. Health and well-being thus also include, in particular, the ability and inclination to help ensure the health and wellness of others, of one's surroundings, and of the environment.
- c. Democratic and Community Participation:** The Knowledge, Capacities, and Values and Dispositions developed are to be oriented towards sustaining and improving the democratic functioning of Indian society. Democracy is not just a form of governance, but it is a 'mode of associated living,' a sense of collaborative community. The goals articulated in NEP 2020 point to the development of an individual who can participate and contribute meaningfully to sustaining and improving the democratic vision of India and the Indian Constitution.
- d. Economic Participation:** A robust economy is a critical aspect of a vibrant democracy, particularly for achieving dignity, justice, and well-being for all. Effective participation in the economy has positive impacts on the individual and on society. It provides material sustenance for the individual and generates economic opportunities for others in society, while also contributing to purpose and meaning for the individual.
- e. Cultural Participation:** Along with democracy and the economy, culture plays an important, if not central, role in the lives of all individuals and communities. Cultures maintain continuity as well as change over time. NEP 2020 expects students to have 'a rootedness and pride in India, and its rich, diverse, ancient and modern culture and knowledge systems and traditions.' Culture is thus not seen as merely an ornament or a pastime, but an enrichment which equips the student (and Teacher alike) to face the many challenges of life, challenges which may be personal or collective in nature. Understanding the culture and heritage embedded in the family and community and relatedness to nature is at the core of cultural participation. Students should also acquire capacities and a disposition to contribute meaningfully to culture. In a globalised world, understanding and engaging with other cultures from a position of being confident and deeply rooted in Indian culture is very desirable.

**A society with individuals who are healthy, knowledgeable, and with capacities, values, and dispositions to participate effectively and meaningfully in a community, economy, culture, and democracy would make for a pluralistic, prosperous, just, culturally vibrant, and democratic knowledge society.**

## Section 1.3

### Knowledge, Capacities, and Values, and Dispositions

The five Aims of Education as articulated in the previous section would be achieved by schools by developing relevant and appropriate knowledge, capacities, values, and dispositions in their students. The Knowledge, Capacities, Values, and Dispositions that are to be developed in students to achieve the five Aims are described this section.

#### 1.3.1 Values and Dispositions

India has been a significant contributor to the discourse on values and of their practice, from ancient times to today. The exploration of humanistic and pluralistic values is embedded in our civilisational and local cultural traditions, and our Constitution is a beacon of democratic values. NEP 2020 derives its values from our heritage and traditional sources, from broad humanistic values, and from our Constitution.

Attaining the aims of rational thinking, health and wellbeing, and democratic/economic/cultural participation require the following broad categories of values in individuals and in society:

- a. Ethical and moral values.** The ‘values of *seva*, *ahimsa*, *swacchata*, *satya*, *nishkam karma*, tolerance, honest hard work, respect for women, respect for elders, respect for all people and their inherent capabilities regardless of background, respect for environment, etc. will be inculcated in students.’ [KRCR 2019, 4.6.8.2] These values are virtues that students need to develop, and these are beneficial to the individual, in terms of their health and well-being, as well as to society as a foundation for democratic values.
- b. Democratic values.** These values include ‘democratic outlook and commitment to liberty and freedom; equality, justice, and fairness; embracing diversity, plurality, and inclusion; humaneness and fraternal spirit; social responsibility and the spirit of service; ... commitment to rational and public dialogue; peace; social action through Constitutional means; unity and integrity of the nation...’ [KRCR 2019, 4.6.8.3]
- c. Epistemic values.** These are values that we hold about knowledge and truth. Developing a scientific temper is as much a value orientation towards the use of evidence and justification, as much as understanding current scientific theories and concepts. ‘Inculcate scientific temper and encourage evidence-based thinking throughout the curriculum.’ [KRCR 2019, 4.6.1.1] Recognising the sources of knowledge and truth in different domains and having the integrity to adhere to the relevant and acceptable methods of finding the truth is an important value orientation.

Along with the above values, the NCF would intend to develop the following dispositions in students:

- a. A positive work ethic.** Any form of achievement, if it needs to be achieved through just and equitable means, requires honest, deliberate, and sustained work. This includes learning achievements too. While hard work and perseverance are important, being responsible and taking up and completing an honest share of work are equally so, especially in situations where work is accomplished collectively. Respect towards all modes of work – with hands, with technology, household work, office work, outdoor work, or factory work – is very desirable. Developing these dispositions in students becomes a very important goal for school education.
- b. Curiosity and wonder.** Curiosity and wonder are at the core of learning, and, with this disposition, students can become lifelong learners. The very young child comes with natural curiosity to engage with the social and practical world around them. This needs to be sustained, extended, and expanded. If knowledge needs to be active and alive and not passive and inert, students have to approach knowledge with curiosity and wonder. The world around us is a limitless source for developing this disposition.
- c. Pride and rootedness in India.** The Aim of cultural participation indicates that students should develop dispositions that make them rooted in the overall Indian context and in their local context, while being an engaged citizen of the world. The vision of NEP 2020 states that



The vision of the Policy is to instil among the learners a deep-rooted pride in being Indian, not only in thought, but also in spirit, intellect, and deeds, as well as to develop knowledge, skills, values, and dispositions that support responsible commitment to human rights, sustainable development and lifestyles, and global well-being, thereby reflecting a truly global citizen.

The notion of *Vasudhaiva Kutumbakam*, the world as one family, emerges from this rootedness along with a sense of justice, service, self-discipline and self-fulfilment, compassion and empathy, and acceptance of unity in diversity. With the vibrancy, range, and the depth of our culture and heritage, Indians must engage with the rest of world with assurance and confidence and with empathy and openness.

### 1.3.2 Capacities

While values and disposition are sources of motivation to act, acting effectively requires students to have specific capacities. These capacities can be developed through deliberate and conscious engagement and practice. The Aims of Rational Thought and Independent Thinking, Health and Well-being, and Democratic/Economic/Cultural Participation necessitates the following broad set of capacities.

- a. Inquiry.** To act rationally, we need an understanding of the world around us. This understanding requires the abilities of observation, collection of evidence, analysis, and synthesis. Experimentation and innovation are the practical aspects of this capacity. Beyond these general capacities of inquiry, there are discipline-specific skills, such as laboratory skills or field techniques, which assist in the process of inquiry. These capacities of inquiry are fundamental in achieving all five Aims.

- b. Communication.** The abilities to listen, speak, read, and write in multiple languages are also indispensable capacities. To be able to express oneself - both orally and in writing - in a lucid, well-articulated, and coherent manner - is very important throughout life; this also includes the skilled use of digital media. The ability to use varied forms of communication in different contexts that are appropriate for the intended audience is very valuable in achieving all the Aims.
- c. Problem Solving and Logical Reasoning.** The ability to formulate problems, develop many alternative solutions, evaluate different solutions to choose the most optimal solution, and implement the solution is again indispensable in achieving all five Aims. Problems that require quantitative models require the mastery of various mathematical procedures, starting from simple arithmetic skills of addition and subtraction to more complex solving of algebraic equations. The use of computational models for solving problems would require computational skills. Skills for logical reasoning include constructing and evaluating arguments, both formally and informally.
- d. Aesthetic and Cultural Capacities.** The Aims emphasise creativity and aesthetic and artistic expression. Creating works of art requires skills specific to different forms of art - visual arts, music, dance/movement, and theatre. Culturally relevant skills in art forms enable effective cultural participation. Aesthetic and cultural capacities also help strengthen creativity across domains and thus strengthen the capacities of inquiry and problem solving and also improve language and communication, and are also, therefore, critical in achieving all five Aims. Artistic skills further enable students to effectively express emotions and thoughts through art, thus improving their sense of health and well-being.
- e. Capacities for Health, Sustenance, Self-management, and Work.** Developing skills and practices that enable students to lead a healthy life is one of the important Aims. Developing strength, endurance, and perseverance is not just in terms of physical capacities, but also related to the capacities of the mind. Capacities of self-management, including emotional capacities are important. Such capacities are foundational for not just well-being, but also contribute positively towards autonomy and democratic participation. These capacities, along with the disposition of a positive work ethic, should enable students to participate in the economy meaningfully and significantly.
- f. Capacities for Social Engagement including Affective Aspects.** Empathy and compassion are not only values or dispositions; these are capacities that are developed through deliberate practice. Cooperation, teamwork, and leadership are fundamental capacities for social engagement. Along with the capacities for logical reasoning and problem solving, these capacities are crucial for democratic participation. And these capacities have an affective (emotional) aspect - which too needs to be addressed.

Indeed, all capacities enumerated above promote the five Aims - Rational Thought and Independent Thinking, Health and Well-being, and Democratic/Economic/Cultural participation. With the desirable values and dispositions and equipped with appropriate capacities, it is expected that students will live healthy, independent lives and participate actively in the community, economy, culture, and democracy. But these values and capacities do not operate in a vacuum; they must be based on a clear understanding of the world. This understanding is gained through the achievement of knowledge in breadth and depth.

### 1.3.3 Knowledge

Education is often thought of and practised only as the acquisition of knowledge. While this is an inadequate view, without a doubt, knowledge has a central role and place in education.

Knowledge about the self, others, the social world, and the physical and natural world is at the base of all the five Aims of Education. The achievement and practice of values, dispositions, and capacities, which are also equally important aims of education, are not primarily about acquisition of knowledge, but intrinsically depend on knowledge.

The vast and ever-increasing knowledge of humanity is and should be made available to all. All that humans know has developed over history through specific modes of inquiry — both through more formalised methods of knowledge development, and also through less formalised and more experiential, organic approaches. The theories and concepts within a mode of inquiry have emerged sometimes through incremental explorations of a whole community, and sometimes through dramatic insights of a few remarkable individuals. Equally, or perhaps even more so, knowledge has developed through the accumulated experience and wisdom of ordinary people. There are no neat divisions on how human knowledge develops — formal inquiry and knowledge through life experience merge and reinforce each other. Our accumulated and expanding knowledge is a human heritage and it is the responsibility of schools to share this heritage with every new generation.

Given the centrality of knowledge to education, there are many matters related to knowledge that have a deep implication on curriculum. Some of these matters are:

- How does something become knowledge? In other words, how do we know that something is true and valid?
- How do we search for, discover, and build more knowledge?
- What are the interconnections within knowledge? What knowledge becomes the basis for some other knowledge and why?
- Can there be contradictions in knowledge? Why and how do they arise? How are these resolved?
- How is knowledge acquisition by humans influenced by context and by values?
- What are the ethical and moral issues associated with the pursuit of knowledge?

These matters may seem esoteric and more suitable for a Philosophy book than for school education. But the reality is that Teachers, curriculum and syllabus developers, and others grapple with these very issues in school education every day. The implications of these matters directly influence many aspects of the curriculum. For example:

- What should be taught? What should be the content of subjects?
  - What ensures that content is true and valid?
  - What should be included to give adequate understanding of a subject area?
  - What should be the sequence of teaching concepts, considering the interconnections?
  - How should the developmental stage of the students be accounted for?
  - How should knowledge that is yet uncertain or has many alternative perspectives be included?

- How should we teach? How should we assess? How can we make TLMs effective?
  - Which pedagogical approach is best for which kind of knowledge? What are the options?
  - How should we teach so that the integrated, holistic nature of human knowledge and experience is developed?
  - How should we teach so that students form a full picture and are also able to apply their knowledge?
  - How do we know that a student has truly 'learnt' something?
  - What TLMs are best suited to what knowledge? How should we develop them?
- What are the ways to ensure that students learn existing knowledge while also discovering new things?
  - Since no one can be taught 'all the knowledge,' how can students be encouraged to continue to search for and learn existing knowledge from the wider world, at present and later in their lives, and also gain the capacity to develop new knowledge?
- What kind of knowledge is required to develop the capacities and values that are aimed for?
  - How are moral and ethical capacities best developed?
  - How are cognitive and socio-emotional capacities, such as critical thinking, empathy, and wonder, best developed?

While this is a long list of direct curricular questions that arise from questions related to the nature of knowledge, this is not an exhaustive list.

We must also note that many of these matters have subject-specific implications in school education. For example, the nature of knowledge in Mathematics is such that many topics must have a certain sequence; the nature of knowledge in Social Sciences is such that it requires many perspectives; and the nature of knowledge in Science is of a kind where learning by doing experiments is particularly useful.

Thus, in this NCF, each subject chapter (*as in Part C, Chapters 2-9*) has a section on the '**Nature of Knowledge**' particular to that subject. However, a vast amount of human thought and discourse related to knowledge has a common base across all spheres, including school education. The subsection that follows discusses this common base.

### 1.3.4 Knowledge — the Foundations

India has a vibrant tradition of thought and discourse on the theory and practice of knowledge. Without doubt, other cultures too have had rich traditions on this matter – both widely recognised, such as the Greeks and the Japanese, and the less recognised, such as the Native Americans. However, the richness, nuance, and range of Indian thought on this matter is very special, if not unique.

If we consider the most current thoughts on knowledge, anywhere in the world, one can often observe similar ideas in Indian thought from two millennia earlier – in many senses directly anticipating it and perhaps having deeply influenced it through cultural transmission. Thus, it is both important and useful to ground our thinking and practice on this Indian heritage.

The nine 'Schools of Thought' in Indian philosophy (*see Box 1.3i*) form an important source of views and discourse on the nature of Knowledge.

### ***Indian Schools of Thought — a Brief Glimpse***

*There are nine main darsanas or world views (sometimes translated as 'schools of thought') in classical Indian philosophy: 1) Nyaya; 2) Vaishesika; 3) Sankhya 4) Yoga 5) Mimamsa; 6) Vedanta; 7) Buddhist; 8) Jaina; 9) Lokayata/ Carvaka all of which date back to at least a few centuries BCE*

*The Nyaya darsana was founded by the sage Gautama. This darsana was primarily occupied with formal reasoning, rhetoric, and epistemology, although it also made substantial contributions to metaphysics. The Vaishesika system was founded by Kanada. This darsana was known for its efforts to make sense of the material world, the various categories and components of matter and their properties, behaviour, etc. It has similarities with Nyaya, but its focus was more on metaphysical questions and less on principles of reasoning. At a later stage, some Nyaya and Vaishesika authors became increasingly syncretistic and viewed their two schools as sister darsanas.*

*Sankhya is the oldest of the systematic schools of Indian philosophy and dates back to the Vedic period. Its views are heavily based on the Upanisads. Sankhya argues for a dualistic ontology comprising Prakrti (nature) and Purusa (person). Just as Nyaya and Vaishesika are sister darsanas, so too are Yoga and Sankhya. Yoga accepts the Sankhya dualism and calls on the practitioner to disentangle the Purusa from the Prakrti, thus freeing the former to achieve its full dimension and powers. Their main difference becomes evident in the relative importance of mind and body, as well as in their accounts of how liberation (moksa) is attained.*

*The Mimamsa darsana concerns itself largely with ethical questions and takes as its main goal the elaboration and defence of the contents of the early, ritually-oriented part of the Vedas. This school also contributed a great deal to the philosophy of language. Unlike the four darsanas discussed previously, Mimamsa holds that the Vedas are epistemically foundational. This founding principle is shared by the Vedanta darsana. The Vedanta darsana concerns itself, however, with the latter part of the Vedas, where the principal concern is knowledge and moksa.*

*The Lokayata were materialists who denied the existence of an atman that persisted through many lives. The Buddhists denied the existence of such a thing as a coherent self. The Jainas argued for a variety of jivas, so that even nature and not just humans and Gods — was seen as ensouled.*

*Despite this apparent split, all these different darsanas influenced and were influenced by each other and, for the most part, classical Indian philosophy is best seen as a series of complex dialogues within and between these darsanas. For example, Jainism was very influential for the Yoga darsana. Nyaya and Buddhist thinkers were in continual, spirited dialogue. The Nyayasutra itself is one of our best sources for Lokayata thought and presents and responds to a series of Lokayata objections.*

*Beyond these nine schools, many others developed, which is a reflection of the acceptance of multiple paths and the freedom of thought that prevailed in early India.*

The **theory of knowledge, or *pramana-sashtra***, is one of the richest areas of classical Indian philosophy, spanning several centuries and with the liveliest of debates. Indeed, claims about ‘how we come to know’ is often the principal criterion that distinguishes different schools or *darsanas* of Indian philosophy. For example, the *Vaisesika* philosophers argue that validity arises from the right source, whereas the *Yogacara* argue that validity is that which guides successful action. Furthermore, questions about knowledge are also related to other fundamental questions about the nature of reality and language. The *pramana-sashtras* are a key basis for **Indian Knowledge Systems** and are described in greater detail below.

### 1.3.4.1 **Pramanas — Vibrant Tradition of Epistemology**

While there are many similarities and vibrant dialogues amongst them, these different *darsanas* (See Box 1.3i) represent a wide range of views on what constitutes an appropriate *pramana* (evidence/proof/justification) or basis for knowledge. The main *pramanas* used are a) perception; b) inference; and c) testimony.

A brief description of the range of views on this matter follows, merely to give a flavour of the vibrant nature of this Indian discourse.

- a. The different *darsanas* are all in agreement about the fact that we attain knowledge through **perception (*pratyaksha*)**. However, there are considerable debates about the nature of perception. According to the *Nyaya*, all perception requires a sensory connection with an object that gives the perception its content (*nirakara-vada*); for instance, in *Nyayasutra*, it is stated ‘Perception is an awareness which, when produced from the connection between sense organ and object, is non-verbal, accurate and reliable, and definite.’

According to early *Mimamsa*, perception essentially happens through language; there is no such thing as concept-free perception. Not only do later *Mimamsa* thinkers, such as Kumarila Bhatta, disagree with this, the *Yogacara* do as well.

Many **Buddhist** thinkers argue that we do not perceive any object at all, but only bundles of sense data, such as colour, sound, and smell, in opposition to the realist *Nyaya* doctrine.

- b. Different kinds of inferences were considered in *pramana-sashtras*.
  - i. *Anumana*: Using inferences to come to new conclusions from observations is one way of coming to know.
  - ii. *Upamana*: Knowing through analogy and comparison is *upamana*. Relating to existing knowledge and identifying the similarities and differences and, thus, coming to know new things or experiences is another valid way of knowing.
  - iii. *Arthapatti*: Knowing through circumstantial implication is *arthapatti*.
  - iv. *Anupalabdi*: Perception of non-existence is considered a valid form of knowledge. Observing that the well is empty of water is knowing something about the well. People have come to significant conclusions because ‘the dogs did not bark that night.’

In general, **inference** is accepted as a secondary knowledge source in cases where what is known cannot be evident through perception alone. Unlike western philosophy, logic is an essential part of the theory of knowledge in the Indian tradition and not a separate discipline.

Its value is in its ability to help us arrive at truth. Logic and inference are also understood in a much broader sense, including not just rules of reasoning, but also as a psychological process that allows us to know, via *hetu* (a sign), indirectly.

The *Nyaya-sutra* has many examples of how we come to know through hypothetical induction. The *Vaisesikasutra* spells out how we can infer through extrapolation, e.g., through the presence of its horns, we can know through inference the presence of an entire cow. It provides us with a series of rules for when such extrapolation is warranted. On the other hand, some in the *Lokayata* tradition deny that we can ever know via inference, because inference is prone to mistakes.

- c. **Testimony (*sabda*)** is a highly debated source of knowledge. Not just Lokayata, but also **Vaisesika** and Buddhist schools, deny that testimony in general can be an independent source of knowledge. The *Lokayata* accept only perception, whereas Buddhism is founded on the idea of experience and reasoning as the only ways of learning anything, while **Nyaya** and **Mimamsa** thinkers argue for use of testimony under specific conditions and from specific sources.

This brief glimpse points to the significant contribution of Indian thinkers to the field of epistemology and the understanding of the nature of knowledge.

### 1.3.4.2 Implications on Curriculum

The depth and range of thought on the matter of knowledge in India, including contemporary Indian thought, along with relevant thinking from across the world, must inform our curricula. This is operationalised by a method of organising knowledge which is on sound foundations and is useful for curriculum.

Informed by these range of discourses, school knowledge has, for practical purposes, been organised into different kinds or forms. Each kind has its own conventions on:

- a. the scope of inquiry (what questions to explore)
- b. specific ways of giving meaning to concepts
- c. specific methods of validating the truth of the claims being made (how to answer those questions)

Each form of knowledge has distinct but related methods of reasoning and justification, procedures and protocols, and what is to be admitted as evidence. In a way, each form of knowledge has its own kind of ‘critical thinking’ and its own ways of being ‘creative.’

Mathematics, the Sciences, the Social Sciences, the Arts and Aesthetics, and Ethics are some of these kinds of knowledge that have their own sets of concepts and theories through which we make meaning of our experiences. These forms give clear direction as to what knowledge all students in schools should acquire. They help, in part, determine the different **Curricular Areas** of this NCF.

Through engagement with these kinds of knowledge, students develop *disciplinary knowledge*. While the capacity for problem solving depends heavily on such disciplinary knowledge, often real-life situations pose problems whose solutions are informed by many disciplines that need to

be integrated. For instance, the problems of sustainability and climate change are not merely informed by the Sciences, but also by our understanding of the Social Sciences and Mathematics. Thus, engagement with interdisciplinary knowledge becomes an important goal for school education along with disciplinary knowledge.

## Section 1.4

### Towards a Curriculum

Schools must arrange to develop in students the desirable Values, Dispositions, Capacities, and Knowledge. As mentioned before, these arrangements range from the selection and appointment of Teachers to school culture and the actual subjects that are taught in the school.

The curriculum includes all those arrangements that directly impact the engagement and learning of students. While the curricular imagination for a school is often restricted to the arrangements of classroom interactions, the school culture, practices, and ethos also play a very important role, both in enabling a positive learning environment as well as promoting desirable values and dispositions.

In this section, the specific curricular arrangements that schools must organise — so that students gain the desired Values, Dispositions, Capacities, and Knowledge — are explored.

#### 1.4.1 School Culture

Schools achieve educational aims not just through teaching within the confines of the classroom, but also through the inclusion and assimilation of the students into the extant culture and ethos of the school.

Values and dispositions, in particular, are deeply influenced by immersion in the school ethos and culture, and so forms an integral part of the curriculum. Thus, to develop specific values and dispositions, there has to be a deliberate shaping of the school culture and ethos. In the absence of such deliberate shaping, whatever be the school culture that has emerged will have significant influence on the students, which may even be at odds with the Aims of Education.

Values and dispositions are also profoundly shaped by the family, community, religion, local and popular culture, art, literature, media, and other influencers. The school is somewhat different from many of these influencers because it has clearly articulated goals for the values and dispositions and presents the opportunity to work towards them systematically and methodically.

Hence, it is equally important for a curriculum framework to explicitly articulate the arrangements and organisation of the school in terms of its culture and ethos that would promote the desired values and dispositions. This NCF has made specific recommendations for school culture and ethos in *Part D, Chapter 1*.

#### 1.4.2 School Processes

In addition to school culture, more formal and well-defined school processes have a significant role to play in both ensuring the smooth functioning of the school, as well as enabling the achievement of Curricular Goals. Processes for maintaining academic accountability towards

achieving the aims, both from the Teachers and students, are important to be articulated, understood, and followed. Thoughtfully designed school processes are required to address simpler matters, such as maintaining the cleanliness of the school premises, and more complex matters such as responding to Learning Outcomes of students. This NCF makes specific recommendations related to school processes in *Part D, Chapter 2*.

### 1.4.3 Curricular Areas

Box 1.4i

எண்ணென்ப ஏனை யெழுத்தென்ப இவ்விரண்டுங்

கண்ணென்ப வாமும் உயிர்க்கு

***Ennenpa enai yeluttenpa ivvirantun kannenpa valum uyirkku.***

*The learning of numbers and letters –*

*these are the two eyes of the living person..*

*[Tirukkural 392, Tiruvalluvar. Transliteration and translation by Narayanalakshmi]*

*Ancient Indians had clear conceptions of what is valuable in education. As the above couplet from the ancient Tamil poet Tiruvalluvar indicates, Language and Mathematics were seen as two eyes through which we make sense of the world. It is not surprising then that Language and Mathematics continue to be two of the most important Curricular Areas, even many centuries since this verse was written!*

To achieve the aforementioned Knowledge, Capacities, Values, and Dispositions, the curriculum also needs to enumerate specific Curricular Areas. This division is not just a pragmatic necessity for organising classrooms, timetables, and Teachers.

While pragmatic considerations are equally relevant, these distinct Curricular Areas have an internal logic. The internal logic is determined by the conceptual structures and methods of inquiry that are specific to that 'kind of knowledge.' Each Curricular Area has interconnections within, arising from specific methods used to arrive at the knowledge, as well as aspects of and perspectives on the world that they highlight. Pragmatically, each Curricular Area leads to its own time slot in the timetable, as well as its own textbooks and other TLMs, Teacher allocations, and so on.

Box 1.4ii

*This NCF uses 'Curricular Area' as a broader category, to distinguish it from 'discipline,' 'field,' and 'subject':*

- **'Discipline'** is a branch of knowledge — for example, sociology, economics, biology, mathematics.
- **'Field'** is used with the connotation of being focussed on application and use in the world and is often informed by multiple disciplines — for example, engineering, public health, sustainability.

- **'Subject'** is most often used in the context of schools — and is what students 'study' — it could be a discipline, a field, or a combination or part thereof.
- **'Curricular Area'** is a group of disciplines and/or fields with an underlying logic for grouping them together — for example, Science, Social Science.

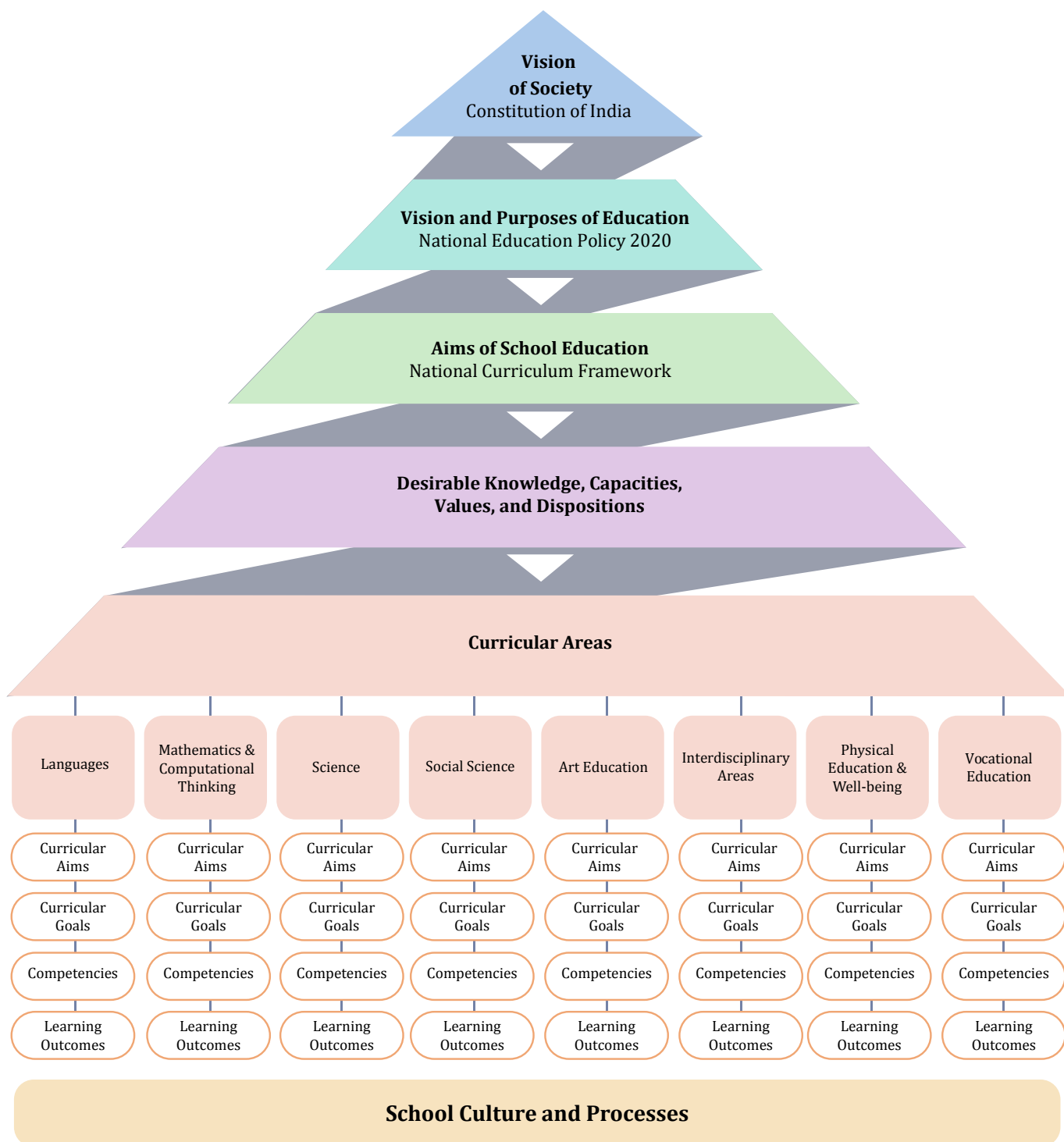
***In this NCF, 'subject' will continue to be used for what the students' study. Subjects will be grouped within 'Curricular Areas' in the NCF for practical purposes.***

*'Disciplines,' 'fields' may be used only to refer to the sources of knowledge for the construction of subjects, where required.*

*The usage of this terminology (and nested hierarchy) is not a conceptual matter but is merely for the ease of communication of the design of certain critical aspects of this NCF.*

1. **Languages:** Language is not just a medium of thinking, nor merely a tool for acquiring different forms of understanding. Language education makes effective communication possible and equally develops aesthetic expression and appreciation. Analytical reasoning and critical thinking are very closely linked with language use, and these are valuable capacities to be developed through the learning of languages. Particularly in the context of India, multilingualism, sensitivity to and appreciation of a diverse set of languages, and cultural literacy and expression are desirable outcomes of language learning as articulated in NEP 2020.
2. **Mathematics and Computational Thinking:** Mathematics is a form of understanding the world through patterns, measurements, and quantities. Mathematics education also develops capacities for problem solving, logical reasoning, and computational thinking.
3. **Sciences:** Science (also sometimes referred to in this NCF as the Natural Sciences) is a form of understanding the natural world. It has its own specific methods of inquiry, reasoning, theories, and concepts. Beyond aiding in gaining an understanding of the natural phenomena around us, Science Education helps develop rational thought and scientific temper.
4. **Social Sciences:** Social Science (which, in this NCF, includes the Humanities) aims to understand the human world. The methods of inquiry in the Social Sciences are evidence based and empirical through specific methods of reasoning. Social Science also promotes rational thought and scientific temper, as well as an understanding of one's community and society. Additionally, subjective experiences are analysed through interpretation and reflection. Social Science helps in promoting students' effective cultural/economic/ democratic participation.
5. **Art Education:** Art is a form of understanding through which we make aesthetic sense of our experiences. Engagement with art also builds our capacities for being creative across subjects and develops cultural sensibilities. Learning art allows students to engage and participate meaningfully in our culture and, because art involves the physical, emotional, aesthetic, and intellectual parts of ourselves, learning it also helps contribute to the student's general well-being and integrated development.

Figure 1.4i



- 6. Interdisciplinary Areas:** While forms of understanding give disciplinary knowledge and depth, interdisciplinary knowledge and thinking is also an important goal as discussed earlier. Engagement in interdisciplinary areas develops capacities for interdisciplinary thinking and problem solving. This Curricular Area therefore complements the disciplinary thinking of the aforementioned five disciplinary Curricular Areas.

Beyond these forms of understanding, Physical Education and Vocational Education are important Curricular Areas. These areas become important due to the specific Curricular Aims of health and well-being and economic participation. NEP 2020 has given specific directions for Physical and Vocational Education.

- 7. Physical Education and Well-being:** Physical Education and Well-being focusses on developing capacities for maintaining health, well-being, and emotional balance. Through engagement in sports, games, yoga, and other techniques, important ethical, moral, Constitutional, and democratic values are also developed.
- 8. Vocational Education:** Vocational Education intends to develop capacities for sustenance, work, and economic participation. It also develops values and sensibilities towards physical work and an appreciation of the dignity of all labour. NEP 2020 has given a strong emphasis to giving vocational exposure and developing vocational skills from the very early stages of school through higher education.

These eight Curricular Areas have their own specific Learning Standards, and have specific recommendations for content selection, pedagogical approaches, and methods of assessment. These details have been outlined in *Part C, Chapters 2 to 9*.

*Figure 1.4i* depicts how the NCF — which includes the Curricular Areas (its goals, pedagogy, books, assessment etc.), school culture, and school processes necessary to achieve Aims of School Education — flow from the vision of society that is envisaged in our Constitution.



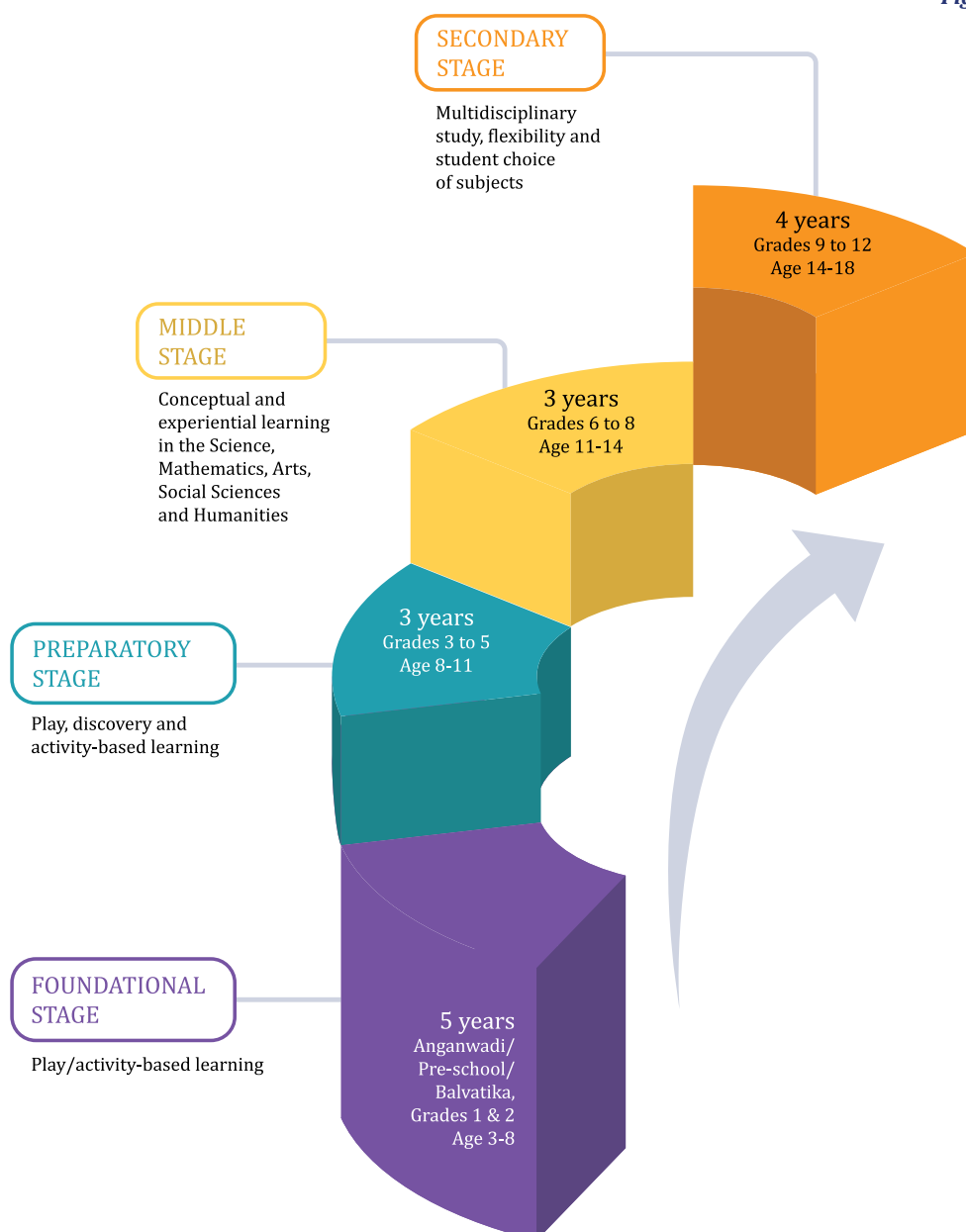


# Chapter 2

## School Stages — Logic and Design

The previous chapter articulated the Aims of School Education for this NCF, and the corresponding set of desirable Values, Dispositions, Capacities, and Knowledge required to achieve these aims. The chapter also touched upon the curricular arrangements required to achieve these Aims, including the different Curricular Areas that are part of this NCF.

Figure 2i



NEP 2020 recommends that schooling will now be imagined in four Stages in a new 5+3+3+4 design covering ages 3-18, which is based on the Stages of physical, cognitive, and socio-emotional-ethical development of children/students. The Policy states:



*The curricular and pedagogical structure and the curriculum framework for school education will therefore be guided by a 5+3+3+4 design, consisting of the Foundational Stage (in two parts, that is, 3 years of Anganwadi/pre-school + 2 years in primary school in Grades 1-2; both together covering ages 3-8), Preparatory Stage (Grades 3-5, covering ages 8-11), Middle Stage (Grades 6-8, covering ages 11-14), and Secondary Stage (Grades 9-12 in two phases, i.e., 9 and 10 in the first and 11 and 12 in the second, covering ages 14-18).*

[NEP 2020, 4.1]

Thus, the aims of education are to be achieved in a 5+3+3+4 structure in schools, covering ages 3-18. This chapter outlines the logic of these four Stages of schooling, the specific considerations for curricular structure, content, pedagogy, and assessments for each of these Stages, and their relevance for achieving the Aims of School Education.

The central logic of dividing schooling into the four Stages is based on our current understanding of child (human) development and the increasing complexity of concepts and requirements of capacities in different curricular areas. The first two sections of this chapter describe the process and Stages of child development and development of complexity in concepts and requirements of capacities in the different Curricular Areas. The last section elaborates on the four-stage design of this NCF.

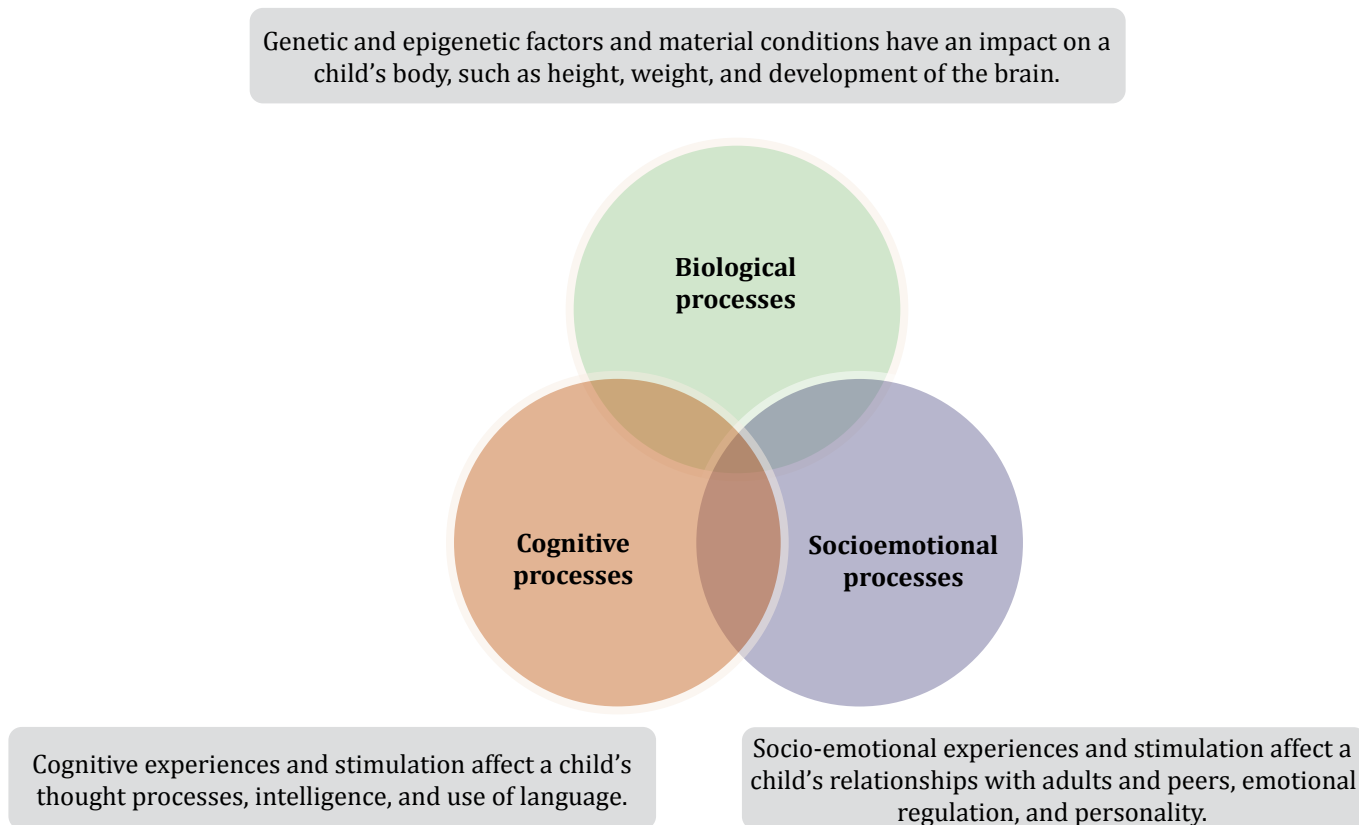
## Section 2.1

### Child Development

Around the world, the experiences of children growing up are different, depending on various circumstances — social, cultural, and economic. But there are some common processes and Stages in the maturation and growth of the child. It is critically important to understand the development of a child to have appropriate educational expectations at a particular age. Understanding the trajectory of child development helps in developing a quality curriculum with developmentally-appropriate pedagogy and assessment.

Child development is influenced by the interplay of three different processes, namely, biological processes, cognitive processes, and socio-emotional processes. These processes are intricately interwoven with each other. Each of these processes plays a role in the physical, cognitive, linguistic, socio-emotional, and moral development of a child.

Figure 2.1i



A child's development is usually described in terms of periods corresponding to approximate age ranges.

- a. Infancy:** This period ranges from birth to 3 years. A child in this period is highly dependent on adults. Children are beginning to learn about the things around them and to focus their vision and explore.
- b. Early childhood:** This period begins around age 3 and usually extends up to 6-7 years of age. Children begin to become more self-sufficient and spend more time with peers. This is also a period of intense exploration through play.
- c. Middle to late childhood:** This developmental period is roughly from 8 years to 11-12 years of age before they hit puberty. During this period, children master the fundamental capacities and understanding for survival and growth. They grow physically, emotionally, and cognitively through exposure to the wider world around them and their culture.
- d. Adolescence:** This period is the transition period from childhood to early adulthood. A child enters adolescence at approximately the age of 12. Adolescence begins with rapid physical changes — gains in height and weight, changes in body contour, and development of secondary sex characteristics. At this Stage, the development of identity and the quest for independence is the central theme in children.

## 2.1.1 Development across Domains

### 2.1.1.1 Physical Development

**Height and weight** increase rapidly during infancy. By their first birthday, infants nearly triple their weight. As the child reaches early childhood, the percentage growth of height and weight decreases with each additional year. Growth patterns vary individually, while some variation is due to hereditary factors, certain environmental factors have significant influence as well, such as nutrition and stress. Middle and late childhood is the calm before the rapid growth spurt in adolescence. It involves slow and consistent growth in height and weight. There is improved muscle tone, and the strength capacity also doubles during these years. Adolescents experience a growth surge during puberty. Puberty occurs approximately two years earlier for girls than boys. The features and proportions of the body change as the individual becomes capable of reproduction. Among the most important factors that influence the onset and sequence of puberty are heredity, hormones, weight, and body fat.

**Sensory and motor development:** Infants and children begin rolling, sitting, standing, and develop other motor skills in a particular sequence and within specific time frames. Infants are also born with certain **reflexes**, which are built-in reactions to stimuli. Reflexes govern the newborn's movements, which are automatic and beyond their control. Reflexes are genetically carried survival mechanisms. They allow infants to respond adaptively to their environment before they have had an opportunity to learn. They include sucking, rooting, and moro reflexes (when the baby gets startled by an unexpected sound, light, or movement), all of which typically disappear after three to four months. Some reflexes, such as blinking and yawning, persist throughout life. Components of other reflexes are incorporated into voluntary actions.

**Gross motor skills** involve large-muscle activities. Key skills developed during infancy include control of posture and walking. Mastering a motor skill requires the infant's active efforts to coordinate several components of the skill. Infants explore and select possible solutions to the demands of a new task; they assemble adaptive patterns by modifying their current movement patterns. Gross motor skills improve dramatically during the childhood years. Boys usually outperform girls in gross motor skills involving large-muscle activity.

**Fine motor skills** involve finely tuned movements. The onset of reaching and grasping is a significant accomplishment. Fine motor skills continue to develop throughout the childhood years and, by 4 years of age, are much more precise. Children can use their hands as tools by middle childhood and start to show fine motor skills similar to those of adults at 10 to 12 years of age.

### 2.1.1.2 Cognitive Development

Children construct their own cognitive worlds, building mental structures to adapt to the world. They actively construct their meaning and understanding. The progression of cognitive development from infancy to adolescence can be seen as described below.

**Infancy:** The infant organises and coordinates sensory experiences (such as seeing and hearing) with physical movements. They quickly learn and are able to understand that things they see continue to exist even though these things are no longer around them. They can scan patterns actively and display a growing capacity for remembering in ways that current neuroscience is still exploring.

**Early Childhood:** The child's mental life is becoming more expansive with experiences. They have pictures in their minds about various things in the world. Their capacity for new vocabulary and making mental pictures allows for more learning about the world and other people. They begin to make sense of others, getting a sense of how people and things work. Their memories can hold much more than adults sometimes give them credit for.

**Middle Childhood:** By now, the child can think through reasons using language and ideas, understand well how people and things work around them, and give order to these things in terms of value and size. Their capacity to remember and use what they remember to engage in activities grows in leaps and bounds. They even devise ways to remember better and are able to analyse, problem solve, and imagine alternatives.

**Adolescence:** The adolescent individual thinks in diverse and complex ways with a growing capacity for working with ideas and logical analysis. This enables them to plan, solve problems, and systematically test solutions. They are able to mentally look back at their own actions and evaluate, form a sense of themselves as different and similar to others, and are able to engage with ideas of right and wrong. They can be focussed and flexible in their thinking and make decisions with reasoning.

### 2.1.1.3 Language Development

The development of language is a significant aspect of a child's development. The trajectory of this development across the age ranges is described below.

**Infancy:** Among the milestones in infant language development are crying (birth), cooing (1 to 2 months), babbling (6 months), using gestures (8 to 12 months), recognition of their name (as early as 5 months), first word spoken (10 to 15 months), vocabulary spurt (18 months), rapid expansion of understanding words (18 to 24 months), and two-word utterances (18 to 24 months).

**Early Childhood:** Young children increase their grasp of language's rule systems. In terms of phonology, most young children become more sensitive to the sounds of spoken language. Children learn and apply rules of syntax and of how words should be ordered. Vocabulary development increases dramatically during early childhood, and their conversational skills improve. They increase their sensitivity to the needs of others in conversation, and they learn to change their speech style to suit the situation.

**Middle Childhood:** Children gradually become more analytical and logical in their approach to words and grammar. They become increasingly able to use complex grammar and produce narratives that make sense. Improvements in metalinguistic awareness — knowledge about language — become evident as children start defining words, expand their knowledge of syntax, and understand better how to use language in culturally appropriate ways.

**Adolescence:** In adolescence, language changes include more effective use of words; improvements in the ability to understand metaphor, satire, and adult literary works; and improvements in writing. Young adolescents often speak a dialect with their peers, using jargon and slang.

### 2.1.1.4 Socio-emotional Development

A child's socio-emotional development impacts the other domains of development. Physical, cognitive, and language development is highly influenced by how children feel about themselves and how they are able to express their ideas and emotions.

#### a. Emotional and Personality Development

**Infancy:** Emotions are the first language with which parents and infants communicate and emotions play a key role in parent-child relationships. Infants display a number of emotions early in their development. Crying is the most important mechanism newborns have for communicating with the people in their world.

**Early Childhood:** Advances in young children's emotional development involve expressing, understanding, and regulating emotions. Young children's range of emotions expands during early childhood as they increasingly experience self-conscious emotions such as pride, shame, and guilt. They also show a growing awareness of the need to manage emotions to meet social standards.

**Middle Childhood:** Self-understanding increasingly involves social and psychological characteristics, including social comparison. The development of self-regulation is an important aspect of this Stage. Developmental changes in emotion include increased understanding of complex emotions, such as pride and shame, improvements in the ability to suppress and conceal negative emotions, and the use of strategies to redirect feelings. Children use a greater variety of coping strategies.

**Adolescence:** Identity development is complex and takes place in bits and pieces. Some researchers have found that self-esteem declines in early adolescence for both boys and girls, but the drop for girls is often greater perhaps due to unfortunate and asymmetric societal expectations that need to be broken. Self-esteem reflects perceptions that do not always match reality.

#### b. Role of Families

**Infancy:** In infancy, contact comfort and trust are important in the development of attachment. Infants show a strong interest in their social world and are motivated to understand it. Infants orient to the social world early in their development.

**Early Childhood:** Families play a significant role in the socio-emotional development of the child. The child takes emotional cues from the family and the socio-emotional state of family interactions. The sense of emotional security and comfort in interactions largely depends on the family environment.

**Middle Childhood:** Children begin to form strong bonds with peers, while families continue to play a significant role in their emotional development. The socio-emotional state of peer groups and social groups also has a strong influence on the child's socio-emotional dispositions.

**Adolescence:** There is a significant shift in the influence of peers. Identity formation, rebelling against authority, conflict, and aggression are sometimes markers of this age. Families' influence is often significantly lower on socio-emotional development, but the way conflicts are handled within the family has a significant impact.

### c. Role of Peers

**Early Childhood:** Peers are powerful socialisation agents. Peers provide a source of information and comparison about the world outside the family. In early childhood, children distinguish between friends and non-friends, with a friend often described as someone to play with. Rough-and-tumble play is more likely to occur in peer relations, whereas, in times of stress, children often turn to parents rather than peers for support.

**Middle Childhood:** Children form stronger bonds with peers that go beyond play. Friendships are formed and friend groups become an important source for emotional development. Children continue to seek confirmation from adults at home and in school.

**Adolescence:** There is a significant shift in the influence of peers. Identity formation, rebelling against authority, conflict, and aggression are sometimes markers. Fitting in and receiving confirmation from peer groups often becomes a priority at this age.

### 2.1.1.5 Moral Development

**Infancy:** The sense of right and wrong in infants depends on their feelings and desires. Their sense of rightness depends on whether their needs are met or not.

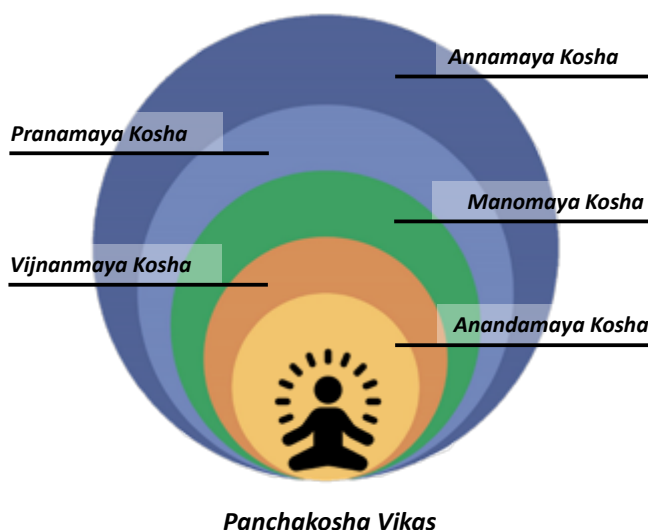
**Early Childhood:** Children think of justice and rules as unchangeable properties of the world and beyond the control of people. They judge the rightness of behaviour by considering the consequences and not the intentions of the individual.

**Middle Childhood:** Children begin to express objective ideas on fairness. They believe that equity can mean that people with disabilities or merit need special treatment.

**Adolescence:** Closer to adulthood, children begin to develop their own moral values while questioning and analysing the ones set by their parents or society. They value rules, but also negotiate. As they develop abstract reasoning abilities, they display interest in the larger good for society.

## 2.1.2 Panchakosha Vikas (Five-fold Development) A Keystone in Indian Tradition

Figure 2.1ii



*Panchakosha Vikas* (Five-fold Development) is a keystone in the Indian tradition of the imagination of the development of human beings. The child is a whole being with *panchakoshas* or five sheaths. The layers are *annamaya kosha* (physical layer), *pranamaya kosha* (life force energy layer), *manomaya kosha* (mind layer), *vijnanamaya kosha* (intellectual layer), and *anandamaya kosha* (inner self). Each layer exhibits certain distinct characteristics. The holistic development of a child takes into account the nurturing and nourishment of these five layers.

Specific types of practices are designed to enable the development of each of these koshas. However, the practices are designed keeping in mind that the *koshas* are interconnected and so activities that focus primarily on one would also contribute to the development of the others.

For example, the physical dimensions are developed through a focus on a balanced diet, traditional games, and adequate exercise, as well as *yoga asanas* (at the appropriate ages), which build both gross and fine motor skills. Learning to breathe in a way that provides necessary oxygen for the entire body is important; it trains the voice and provides direction for increased self-awareness. A wide variety of stories, songs, lullabies, poems, and prayers enable children to not only develop a love for their cultural context, but also provide value-based insights. This contributes to language development beginning with listening or *shravana*, as well as the ability to focus and concentrate. The senses, *indriyas*, are to be sharpened to be able to experience the world around in all its beauty and wonder. *Seva* integrated into everyday life enables the experience of joy of relationships along with being a part of and doing good for one's community.

The *Panchakosha* concept and imagination also maps into the different Curricular Areas as envisaged in the NCF.

**a. Physical Development (*Sharirik Vikas*) and Development of Life Energy (*Pranik Vikas*):**

Age-specific balanced physical development, physical fitness, flexibility, strength, and endurance; development of senses; nutrition, hygiene, personal health, expansion of physical abilities; building body and habits keeping in mind one hundred years of healthy living in a human being. Balance and retention of energy, positive energy and enthusiasm, smooth functioning of all major systems (digestive, respiratory, circulatory, and nervous systems) by activation of the sympathetic and parasympathetic nervous system. Physical Education and Well-being as a Curricular Area plays a vital role in this development.

**b. Emotional/Mental Development (*Manasik Vikas*):** Concentration, peace, will and will power, courage, handling negative emotions, developing virtues (*maulyavardhan*), the will to attach and detach from work, people, and situations, happiness, visual and performing arts, culture, and literature. This aspect of socio-emotional development needs to be addressed in almost all Curricular Areas, particularly in Art and Vocational Education.

**c. Intellectual Development (*Bauddhik Vikas*):** Observation, experimentation, analytical ability, abstract and divergent thinking, synthesis, logical reasoning, linguistic skills, imagination, creativity, power of discrimination, generalisation, and abstraction. The knowledge and capacities developed in all the Curricular Areas lead to intellectual development in breadth and depth.

**d. Spiritual Development (*Chaitisik Vikas*):** Happiness, love and compassion, spontaneity, freedom, aesthetic sense, the journey of 'turning the awareness inwards'. A healthy body, with appropriate emotional balance and knowledge in depth, allows human beings to

explore the wonders of this Universe. This exploration in its ultimate form, done with appropriate humility and curiosity, often reveals the true nature of the individual and the Universe, which indeed is a spiritual experience.

*Panchakosha* is an ancient explication of the importance of the body-mind complex in human experience and understanding. This non-dichotomous approach to human development gives clear pathways and direction for meaningful education. The NCF, through the eight Curricular Areas outlined, inspired by the concept of *Panchakosha*, aspires towards a more holistic education.

## Section 2.2

# Development of Concepts in a Curricular Area and Requirements of Capacities

Child development describes the process of growth and maturation of children in different domains and associated faculties, which have a direct implication on what can be learnt by children in each Stage and how they can learn it, thus informing the 5+3+3+4 structure. The other matter that directly informs this curricular structure is the nature of the 'what', its complexity, its demands on faculties, and its other characteristics. The nature of knowledge and capacities to be learnt have implications on the sequence in which such learning and development of concepts and skills can occur. This section explores some of these sequences and their implications for the four Stages of schooling.

### 2.2.1 Reading Development

Reading has become central to education and schooling. Most learning materials, whether in the form of textbooks or worksheets, have printed text in them and students are expected to read and comprehend them. So it is important to consider the stages of reading development in the design of the School Stages. Reading develops in the following stages [Chall. J.S, 1983]:

- a. Stage 1: Pre-reading:** Children develop oral language capacities and begin to recognise individual sounds in parts of speech. Exposure to rich language use, specifically directed at children, is critical for developing oral language and vocabulary that are necessary for initial reading. Exposure to the use of printed texts by adults helps develop the concept of print.
- b. Stage 2: Initial Reading:** Children start making connections between oral sounds and the visual symbolic form of the written system. This aspect of reading is termed as 'decoding', where the effort is focussed on establishing letter-sound relationships and using this understanding to read familiar and unfamiliar words.
- c. Stage 3: Fluency and Ungluing from Print:** Their decoding abilities become fluent and, thus, place low cognitive demand on the process of converting the textual symbols to sounds. With the release of this burden, their focus shifts to grasping the meaning in the text.
- d. Stage 4: Reading for Learning the New:** In this stage, children are not just reading familiar texts and engaging with familiar ideas in a textual form. They are able to learn new ideas and concepts through the process of reading. They are not relying only on their concrete physical experience, but are able to imagine possibilities based on what they read. Reaching this stage is especially important for students to become independent learners.

- e. **Stage 5: Multiple Viewpoints:** In this stage, a more critical understanding of the text being read becomes possible. The students can understand that the author of the text has a specific viewpoint and that there are possible other viewpoints. They can bring in their own understanding and critically evaluate the piece of text.
- f. **Stage 6: Construction and Reconstruction:** The reader forms a worldview based on what they are reading. They consciously choose books to further deepen their worldview or challenge the worldview that they hold. They are able to identify the core thesis of the author(s), identify their agreements and disagreements with that thesis, and are able to synthesise and construct a new thesis through this process.

In this approach to stages of reading, by the end of the Preparatory Stage students should be reaching stage 3, and by end of the Middle Stage they should be at stage 4. In the Secondary Stage, they should achieve stage 5 and begin stage 6.

## 2.2.2 Perceptual, Practical, and Theoretical Concepts

Concept formation is at the core of the cognitive development of the child. A concept is a mental model that we make to understand the world. These models are created by a process of abstraction and categorisation. Understanding different kinds of concepts is very relevant for curricular planning.

**Perceptual concepts** are concepts formed through our perception or senses. Very young children can start differentiating objects based on their colour, shape, texture, and perhaps even taste and smell. More complex concepts, such as birds having feathers and dogs having legs and bark, are perceptual concepts too. They are formed through careful observation and the use of the senses. Children almost automatically form these concepts through their experiences. By giving names to objects and experiences, language plays an important role in developing and expressing these concepts.

**Practical concepts** are concepts formed not just by perception, but the practical use that is embedded. For example, a table or a chair is not a mere perception of the colour or shape of the object, but the practical use of the object. While the chair is an object on which people sit, a table is not usually used for sitting but to put objects on it or use for work. To form practical concepts, children need to have some understanding of social life. To understand a practical concept, one must grasp what people do with an object and what they use it for [Dearden. R.F., 1968]. Again, through engagement and exposure to exercises in practical life, children develop practical concepts.

Language development plays a very important role in the development of perceptual and practical concepts. Language enables us to check our experiences with others and ensure we have a shared meaning emerging from these experiences. This ensures that we grasp the socially accepted use of the practical concept or the socially accepted vocabulary that represents the perceptual concept.

**Theoretical concepts**, on the other hand, explore in highly systematic ways our ordinary 'common sense' experience. These concepts make sense only within a form of understanding. While a spherical or rectangular shape can be perceived, the mathematical understanding of a sphere or a rectangle has a very precise meaning. A rupee coin might perceptually mean a shiny,

round object. The practical use of it can also be grasped. But to understand money as an economic concept, children need an introduction to a whole lot of theories and conceptual structures in economics.

While perceptual and practical concepts require not much more than a normal intuitive mind, theoretical concepts often are counterintuitive. To grasp that the earth is rotating around the sun at 30 kilometres per second and we are standing on a spinning orb rotating at the speed of 460 meters per second, we cannot rely on our perceptions, nor can ordinary practical experience be of any assistance. We need an understanding of physics and mathematics. There is often a discontinuity between our intuitions and ordinary practices and the nature of reality.

Thus theoretical concepts cannot be acquired merely through experiences or learning by doing. They need a more deliberate attempt of the Teacher and the student to grasp the meaning behind the experience by connecting it to various conceptual structures and the methods of inquiry specific to a form of understanding.

This indicates that very young children can grasp and develop perceptual and practical concepts through experience and human interaction along with effective use of language. Theoretical concepts, on the other hand, make sense only through the introduction of a form of understanding and perhaps can wait till the Middle Stage. In the Secondary Stage, students gain deeper disciplinary knowledge and methods. This enables them to grasp the deeper meanings of theoretical concepts by placing the concepts within the overall framework of the disciplines, explaining them using the current valid theories of the discipline, and also by linking these concepts to theoretical concepts in other disciplines.

## 2.2.3 Modes of Inquiry

The modes of inquiry used by children to develop conceptual understanding play a very important role in the selection of content, pedagogy, and assessment. The progression of these modes of inquiry also has implications for the Stages of schooling.

### 2.2.3.1 Play and Exploration

Young children learn various concepts, particularly perceptual and practical concepts, largely through play and open exploration. Their incredibly curious and absorbent minds are constantly exploring the natural and social world around them. They are intuitive problem solvers and grasp conventions of language use and social behaviour through observation and imitation. At this Stage, a stimulating environment and the freedom to explore and play are the biggest and most effective sources of learning. The stimulation does not come only from the material environment, but also from an attentive and active adult and peer group.

### 2.2.3.2 Capacities for Inquiry

From a broad and free exploration, children need to acquire more specific capacities that have an important role in further inquiry. In addition to the foundational capacities of literacy and numeracy, they acquire skills of observation, data collection, analysis, and more. Gross motor and fine motor skills relevant to Physical Education, Art Education, and Vocational Education are developed. Further, capacities for attention, perseverance, and memory are also developed. These capacities are utilised in informal methods of inquiry to make sense of the world around them and to respond to the practical necessities of life. These capacities can be developed by

giving learning experiences that are practical and within the social context of the student. The opportunities for learning can be guided explorations with the specific intent to develop these capacities.

### 2.2.3.3 Methods of Inquiry

To gain a deeper understanding, particularly of theoretical concepts, students need to gain knowledge and capacities for specific methods of inquiry. These methods are particular to different types of knowledge. Mathematics, Science, and Social Science have their own methods of inquiry and logic of reasoning. They have specific theories and a web of concepts, the understanding of which gives insight into a new way of thinking about the world. These methods, theories, and concepts increase the depth of inquiry within a specific convention or tradition.

Similarly, Art has its specific forms and traditions in, e.g., visual art, music, dance, and theatre. Understanding these forms and acquiring the relevant practices enables the students for a deeper exploration of aesthetic experiences. Specific forms of sports and practices such as yoga have their own methods.

By getting introduced to these methods, students gain capacities for systematic and rigorous methods of inquiry in specific forms of understanding.

Teaching, in this Stage, is more formal and the emphasis is on understanding the conventions and the 'rules of the game' of each form of understanding, and the necessary capacity to 'play' within these 'rules'.

### 2.2.3.4 Disciplinary Exploration

In this Stage, students gain disciplinary depth within each type of knowledge. The mode of inquiry becomes exploratory again like in the first Stage, but within a framework of a discipline or a form. For example, a student with sufficient capacities/skills for dancing and a grounded knowledge of *Bharatanatyam* as a form of dance can now use these capacities and knowledge for creative expressions through dance. Similarly, after gaining sufficient capacities for scientific inquiry through experimentation and instrumentation in Biology, students can pursue interesting and challenging questions about life forms and attempt to answer these questions within the discipline of Biology. A more sophisticated form of exploration would be to utilise their knowledge in multiple disciplines and approach problems with interdisciplinary solutions.

## Section 2.3

### Stage Design

The curriculum for the four Stages of schooling has been designed based on the vision of NEP and on the considerations of child development, conceptual nature (complexity, abstraction) of subjects, and the appropriate modes of inquiry at each age range.

#### 2.3.1 Foundational Stage

The Foundation Stage is for children of ages between 3 and 8. Children start schooling in the Foundational Stage. The design is based on the principles of Early Childhood Care and Education (ECCE). NEP 2020 states:



*ECCE ideally consists of flexible, multi-faceted, multi-level, play-based, activity-based, and inquiry-based learning, comprising of alphabets, languages, numbers, counting, colours, shapes, indoor and outdoor play, puzzles, and logical thinking, problem-solving, drawing, painting and other visual art, craft, drama and puppetry, music and movement. It also includes a focus on developing social capacities, sensitivity, good behaviour, courtesy, ethics, personal and public cleanliness, teamwork, and cooperation. The overall aim of ECCE will be to attain optimal outcomes in the domains of: physical and motor development, cognitive development, socio-emotional-ethical development, cultural/artistic development, and the development of communication and early language, literacy, and numeracy.*

[NEP 2020, 1.2]

- a. Curricular Structure:** The Foundational Stage curriculum of the NCF is divided into domains that are closely linked to the developmental domains of the child — Physical Development, Socio-emotional-ethical Development, Cognitive Development, Language and Literacy Development, and Aesthetic and Cultural Development. The mother tongue is emphasised for language and literacy development and to ease, and make more effective, learning in other domains as well. The five domains of development are also informed by the *Panchakosha* imagination.
- b. Content:** Textbooks are used only from Grade 1 and most of the content consists of concrete materials — toys, puzzles, and manipulatives. Along with these materials, learning experiences organised through physical exploration of the classroom and outdoor space becomes the most appropriate content. In later years of this Stage, worksheets can start playing a bigger role. Children's literature is a very important source of content for language and literacy development.
- c. Pedagogy:** The pedagogical approach suggested is play based and emphasises the nurturing, caring relationships between the Teacher and the children. The pedagogical design should allow for a balance between self-paced individual learning to a more social group-based learning. Development of foundational capacities in literacy and numeracy would require systematic guidance from the Teacher as well as adequate time for the child to practise and repeat on their own. Whole class instruction should be balanced with time for children to work on their own, either with materials or with worksheets.

- d. Assessments:** Most assessments are observations made by Teachers and not explicit testing of abilities of students. Worksheets used by children can give information to Teachers about progress in learning.
- e. Classroom Arrangement:** Children of this age group need to move freely and have adequate opportunities for engaging their natural curiosity and exploration. Classroom arrangements should reflect this need of the children and should not restrict their movement, e.g., through the placement of play/activity/learning corners that keep the centre of the room free and open.
- f. Teachers:** Since the relationship between children and the Teacher is critical for this Stage, the same Teacher would engage in all the domains and there would not be any subject/domain-specific Teacher. The Pupil-Teacher Ratio (PTR) is also expected to be lower since individual attention and assessment through observation are necessary.

The Foundational Stage bridges the divide between the home environment of the child and the formal school environment. It develops capacities in Foundational Literacy and Numeracy that enable the student to learn all other subject areas. In addition to these capacities, it develops valuable dispositions for active learning and enables students to become engaged learners in formal school environments. Play and exploration are the natural modes through which children learn and the Foundational Stage utilises these modes to promote valuable capacities and dispositions.

### 2.3.2 Preparatory Stage

The duration of the Preparatory Stage is three years and includes Grades 3, 4, and 5.



*The Preparatory Stage will comprise three years of education, building on the play-, discovery-, and activity-based pedagogical and curricular style of the Foundational Stage, but also gradually beginning to incorporate textbooks as well as aspects of more formal classroom learning. There would mostly be generalist teachers during this stage, with the possible exception of some specialist language and art teachers (who may be shared across the school or school complex). The aim of this stage will be to lay the general groundwork across subjects, including reading, writing, speaking, physical education, art, languages, science, and mathematics, so that students are prepared to delve deeper into learning areas through specialised subjects and subject teachers in the stages that follow.*

[KRCR 2019, 4.1.1]

- a. Curricular Structure:** The Preparatory Stage curriculum of the NCF is divided into the following Curricular Areas — at least two Languages, Mathematics, Art Education, Physical Education and Well-being, and The World Around Us. The World Around Us is an interdisciplinary area that encourages exploration and understanding of both the natural world and the social world. Aspects of work in Vocational Education are also incorporated into this Curricular Area. The preparation is largely focussed on capacities and dispositions at this Stage.
- b. Content:** Textbooks start playing a bigger role in the areas of Language and Mathematics. A variety of children's literature should complement the Language textbook to consolidate students' literacy capacities. Materials and manipulatives continue to play a role in

Mathematics, though emphasis shifts to symbolic representation in correspondence with concrete materials. The World Around Us should rely less on the textbook and more on experiential learning with physical exploration as the main source of content. The content needs to be within the familiar contexts of the student.

- c. **Pedagogy:** Activity- and discovery-based pedagogy continues in this Stage, gradually encouraging students to be active within a formal classroom arrangement. The ability to concentrate and pay continuous attention to classroom lectures and discussions needs to be encouraged. Some proportion of the self-paced individual work should be part of the classroom activity, while some amount of homework can be included.
- d. **Assessments:** Assessments in this Stage are a combination of observation of students' activity, correcting their worksheets, and short, formal written evaluations. Periodic summative assessments should supplement the more frequent formative assessments.
- e. **Classroom Arrangement:** The classroom setting is a balance between a formal environment and an arrangement that encourages movement and exploration. Students sitting and working in groups should be encouraged.
- f. **Teachers:** Teachers continue to be generalists and teach across Curricular Areas. For Art and Physical Education and Well-being, specialists from the school complexes can be invited for the development of specific capacities and skills, but the Class Teacher should continue to be present and mediate these interactions with the students.

The Preparatory Stage consolidates the capacities and dispositions that begin to develop in the Foundational Stage. Students are expected to develop fluency in literacy and numeracy and develop further capacities that are helpful in a systematic exploration of the natural and social worlds around them.

### 2.3.3 Middle Stage

The duration of the Middle Stage is also three years and includes Grades 6, 7, and 8.



*The Middle Stage will comprise three years of education, building on the pedagogical and curricular style of the Preparatory Stage, but with the introduction of subject teachers for learning and discussion of the more abstract concepts in each subject that students will be ready for at this stage across the sciences, mathematics, arts, social sciences, and humanities. Experiential learning within each subject, and explorations of relations among different subjects, will be encouraged and emphasized despite the introduction of more specialised subjects and subject teachers.*

[NEP 2020, 4.2]

- a. **Curricular Structure:** The Middle Stage expands the Curricular Areas to include Science (i.e., the study of the physical and natural world) and Social Science (i.e., the study of the human world), and students also get exposure to Vocational Education. Based on the capacities and dispositions in the Preparatory Stage, students engage more formally with knowledge and values in the Middle Stage. Curricular Areas are dealt with as 'forms of understanding' with explicit engagement with paradigmatic theories and conceptual structures that frame each area. The more generic capacities (such as observation and data collection) developed in the Preparatory Stage are now specialised into specific methods of

inquiry that are appropriate for each form of understanding. For example, students gain an understanding of the methods of inquiry in Science and also contrast them with the methods of inquiry in History or in the Arts. The conventions and protocols of each form of understanding are also introduced in the Middle Stage.

- b. Content:** The content in the Middle Stage needs to reflect the engagement with theoretical concepts and the introduction of theories and conceptual frameworks specific to each form of understanding. There is a shift to more abstract ideas and the students are expected to engage with unfamiliar contexts and situations. The textbooks begin to play a central role in mediating the content in the Middle Stage. Both the expansion of Curricular Areas and the engagement with abstract ideas and unfamiliar contexts could be challenging for students. Well-designed textbooks with clear expectations and specific learning goals would support students in entering these forms of understanding in a structured and systematic manner.
- c. Pedagogy:** Pedagogy is a judicious balance of direct instruction and opportunities for exploration and inquiry. As mentioned before, the expansion of content areas and the abstract nature of theories place a heavier cognitive demand on students. The focus on concept development indicates that the Teacher must pay attention to the prior concepts that students might already have and how to use those concepts to bring about active learning. The emphasis is not on accumulating facts, but on becoming fluent in the methods of inquiry within each form of understanding.
- d. Assessments:** Assessments can become more formal and explicit. The focus of assessments should be on the specific ways of reasoning within each form of understanding and not primarily on the recall of facts. Formal tests and examinations play a role with the expectation that students can process larger chunks of information together for analysis and synthesis. Periodic summative assessments should again supplement the more frequent formative assessments.
- e. Classroom Arrangement:** The classroom is increasingly a formal space allowing for group work and peer interactions. Subject-specific classrooms become effective when equipped with appropriate TLMs and other resources.
- f. Teachers:** Subject-specific Teachers handle different Curricular Areas in this Stage. Teachers need a profound understanding of the Curricular Area in terms of vertical connections of concepts within the subject and horizontal connections with concepts in other areas. Students of this age benefit from engaging with a diverse set of adults who have their own personalities and interests. Art Education, Physical Education and Well-being, and Vocational Education can have visiting faculty who have specialised knowledge and skills.

The Middle Stage utilises the capacities and dispositions developed during the Preparatory Stage and introduces the students to different forms of understanding. Students gain systematic knowledge through rational thought and enquiry. The capacities for critical thinking and problem solving are consolidated in this Stage and they acquire the desirable values and dispositions for democratic/economic/cultural participation.

## 2.3.4 Secondary Stage

### 2.3.4.1 NEP 2020 — Considerations

- a. **No Hard Separation.** NEP 2020 gives clear mandate to move away from the current practice of streaming into Science, Arts/Humanities, and Commerce. Instead, students can choose subjects across Curricular Areas. Thus, the Secondary Stage design should enable both breadth through engagement with a variety of subjects across streams — including Art Education, Physical Education and Well-being, and Vocational Education — as well as depth in areas chosen by students.
- b. **Breadth and Depth.** Students should have breadth and depth across multiple disciplines and depth in chosen subjects.
- c. **Choice and Flexibility.** Students should have flexibility and choice across subjects and Curricular Areas.
- d. **Reduced Content Load.** ‘Curriculum content will be reduced in each subject to its core essentials, to make space for critical thinking and more holistic, inquiry-based, discovery-based, discussion-based, and analysis-based learning.’ [NEP 2020, 4.5]
- e. **Reduced Exam Pressures.** ‘Board exams will also be made ‘easier’, in the sense that they will test primarily core capacities/competencies rather than months of coaching and memorization.’ [NEP 2020, 4.37]

### 2.3.4.2 Curricular Structure

- a. To enable the vision of NEP 2020, the Secondary Stage will be designed in two phases — Grades 9 and 10, and Grades 11 and 12. In Grades 9 and 10, students engage with a breadth of curriculum across Curricular Areas. In Grades 11 and 12, more specialisations and choices are available to students while still maintaining significant breadth.
- b. Grades 9 and 10 will ensure breadth, building on the learning achieved in the Middle Stage with clear continuity between the two stages.
  - i. Study 3 Languages — R1, R2, R3 — at least two of which are native to India  
Study 7 subjects — Mathematics and Computational Thinking, Social Science, Science, Art Education, Physical Education and Well-being, Vocational Education, and Interdisciplinary Areas. Each of these subjects will be a well-integrated and coherent study of multiple disciplines; for example, in Science — Biology, Chemistry, Physics, and Earth Science. Again, the emphasis would be on learning core concepts/competencies rather than the memorisation of facts. (See Figure 2.3i)
  - ii. Learning Standards for these subjects are articulated in the corresponding Curricular Areas for this phase in this NCF, and it is expected that all students attain these Learning Standards. (See Part C, Chapters 2-9)
  - iii. All Secondary Schools will need to offer 3 Languages as well as all the 7 subjects, so that all students are able to complete Grade 10. Out of these, Art, Physical Education and Well-being, and Vocational Education would be examined locally. (See §2.3.4.7 on Assessment)

Figure 2.3i

| Curricular Areas                     | Subjects                | Examinations                            | 10 <sup>th</sup> Board Certification |
|--------------------------------------|-------------------------|-----------------------------------------|--------------------------------------|
| Languages                            | Language 1              | External Examination                    |                                      |
|                                      | Language 2              | External Examination                    |                                      |
|                                      | Language 3              | External Examination                    |                                      |
| Mathematics & Computational Thinking | Mathematics             | External Examination                    |                                      |
| Science                              | Science                 | External Examination                    |                                      |
| Social Science                       | Social Science          | External Examination                    |                                      |
| Art Education                        | Art Education           | Local Assessment with External Examiner |                                      |
| Interdisciplinary Areas              | Environmental Education | External Examination                    |                                      |
| Physical Education & Well-being      | Physical Education      | Local Assessment with External Examiner |                                      |
| Vocational Education                 | Vocational Education    | Local Assessment with External Examiner |                                      |

- c. Grades 11 and 12 will enable depth of study based on choices that students make.
- i. To ensure that students have a depth of learning across a range of human knowledge, students will have to:
- 1) Choose two Languages from Group 1, at least one of which is native to India.
  - 2) Choose four subjects (with an optional fifth subject) from at least two of the following groups:
    - **Group 2: Art Education, Physical Education and Well-being, Vocational Education**
    - **Group 3: Social Science and Humanities, Interdisciplinary Areas**
    - **Group 4: Science, Mathematics & Computational Thinking**

(See Figure 2.3ii)

These Groups have been created to address the requirement of breadth of study in NEP 2020, which is why there is a requirement to choose subjects from at least two groups. In the longer term, as schools develop the requisite capacity, it will be desirable for students to have to take subjects from all three Groups above to develop well-rounded thinking. (For more details on Groups, Curricular Areas, and Subjects see Figure 2.3ii)

The following are some of the key considerations for designing the subject courses in Grades 11 and 12.

- 1) In the case of subjects based on academic disciplines, the intent would be to give adequate exposure to the key conceptual structures and theories of the discipline and develop capacities of inquiry in that discipline. The students would develop an understanding of how this discipline behind the subject fits within the Curricular Area and the open questions that the discipline is currently engaging with. This would enable students to make informed decisions about the pursuit of this discipline in higher education or to study it on their own.
- 2) In case of Interdisciplinary Areas, a very wide range of subjects can be offered. Art Education can offer specific forms of art as subjects, while Physical Education and Well-being can offer specialisations based on practices such as Yoga. In the case of vocational areas, the subject should equip students to enter the world of work in a particular vocation. Contemporary subjects, such as Artificial Intelligence, Design Thinking, Holistic Health, Organic Living, and Global Citizenship Education, as recommended by NEP 2020 can be offered as courses in appropriate Groups. An illustrative list of subjects is given in Figure 2.3ii.
- 3) This NCF states the broad aims for the Curricular Areas and does not specify the Learning Standards for Grades 11 and 12 that must be achieved in each subject. These have to be articulated specifically in terms of Competencies and Learning Outcomes for each subject by syllabus developers. However, this NCF has specific illustrations of a few disciplines (See Part C, Chapter 10).
- 4) Since students would have a wide choice, syllabus/course designers of subjects should not assume that students would choose a 'complementing' subject. For example, the Biology courses in Grade 11 and 12 cannot be designed on the assumption that students are enrolled in Chemistry in their Grade 11 and 12.

Figure 2.3ii

| Group 1                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                           | Group 2                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Languages                                                                                                                                                                                                                                                                                               | Art Education                                                                                                                                                                                                                                                                                                             | Physical Education & Well-being                                                                                                                                                                    | Vocational Education                                                                                                                                                                                                                                                                                                                                                                                           |
| <ul style="list-style-type: none"> <li>Languages native to India (Compulsory)</li> <li>Other Languages (Compulsory)</li> <li>Modern Indian Languages</li> <li>Classical Languages</li> <li>Foreign Languages</li> </ul>                                                                                 | <ul style="list-style-type: none"> <li>Indian Classical Music</li> <li>Folk Music</li> <li>Contemporary Music</li> <li>Theatre</li> <li>Puppetry</li> <li>Sculpture</li> <li>Fine Arts</li> <li>Folk Painting</li> <li>Graphic Design</li> <li>Motion Pictures</li> <li>Photography</li> <li>Textile Designing</li> </ul> | <ul style="list-style-type: none"> <li>Yoga &amp; Lifestyle</li> <li>Sports &amp; Nutrition</li> <li>Physical Education for Students with Disabilities</li> <li>Biomechanics and Sports</li> </ul> | <ul style="list-style-type: none"> <li>Agriculture - Cereal Production</li> <li>Agriculture - Seed production</li> <li>Agriculture - Gardening</li> <li>Automobile Servicing</li> <li>Machining</li> <li>Electronics</li> <li>Community Health</li> <li>Accounting Services</li> <li>Data Entry &amp; Management</li> <li>Banking Services</li> <li>Retail Services</li> <li>Textile &amp; Garments</li> </ul> |
| Group 3                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                           | Group 4                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                |
| Social Science                                                                                                                                                                                                                                                                                          | Interdisciplinary Areas                                                                                                                                                                                                                                                                                                   | Mathematics & Computational Thinking                                                                                                                                                               | Science                                                                                                                                                                                                                                                                                                                                                                                                        |
| <ul style="list-style-type: none"> <li>History</li> <li>Geography</li> <li>Political Science</li> <li>Psychology</li> <li>Psychology &amp; Mental Health</li> <li>Economics</li> <li>Development Economics</li> <li>Sociology</li> <li>Philosophy</li> <li>Anthropology</li> <li>Archaeology</li> </ul> | <ul style="list-style-type: none"> <li>Business Studies</li> <li>Accounting</li> <li>Sustainability and Climate Change</li> <li>Journalism</li> <li>Indian Knowledge Systems</li> <li>Legal studies</li> </ul>                                                                                                            | <ul style="list-style-type: none"> <li>Mathematics</li> <li>Computer Science</li> <li>Business Mathematics</li> <li>Advanced Mathematics</li> <li>Probability &amp; Statistics</li> </ul>          | <ul style="list-style-type: none"> <li>Physics</li> <li>Chemistry</li> <li>Biology</li> <li>Earth Sciences</li> <li>Astronomy</li> <li>Modern Physics</li> <li>Biology</li> </ul>                                                                                                                                                                                                                              |

- 5) Subjects can be offered at different levels. For example, there can be a Basic Mathematics subject as well as Advanced Mathematics. Students will be given the choice of opting for different levels.
- ii. Students are expected to make their choices on the basis of their passions and interests, and their future plans either in the world of work or in higher education after their school completion. See *Figure 2.3iv* for some illustrative combinations that students may choose.

### 2.3.4.3 Implications for Schools and Boards of Examination

#### a. For Phase 1: Grades 9 and 10

- i. Schools should offer all the ten subjects required for 10<sup>th</sup> grade certification (*see Figure 2.3i*)

#### b. For Phase 2: Grades 11 and 12

- i. Schools should offer a minimum of 2 Languages.
- ii. Schools should, at a minimum, offer subjects from at least two Groups amongst Groups 2, 3 and 4.
- iii. In 5 years, schools should offer subjects from all four Groups.
- iv. Within 10 years, many more subjects should be offered within Groups to give more choice and flexibility to students and all Curricular Areas should be covered.

#### c. Boards of examination

- i. Boards of examination should offer all subjects for Grade 10.
- ii. For Grade 12, Boards should not restrict students to choose subjects within streams (such as Science or Commerce), and instead allow flexibility to choose from different Groups.
- iii. A wide range of examinations for different subjects within Groups should be designed to increase choice and flexibility for students and schools.
- iv. Subject examinations at different levels (e.g., basic and advanced) should be offered.
- v. Processes for empanelling external examiners for Art Education, Physical Education and Well-being, and Vocational Education should be defined.
- vi. Board examinations should be made 'easier', in the sense that they test primarily core capacities/competencies rather than months of coaching and memorisation.

### 2.3.4.4 Implementation in Phases

The NCF 2023 aims to respond meaningfully to the recommendations of NEP 2020 in giving more flexibility and choice to students and not creating hard separations between disciplines. Along with these responses, the Curricular Areas of Art Education, Physical Education and Well-being, Vocational Education, and Interdisciplinary Areas have received additional attention. In order to fully realise the vision of NEP 2020 in a practical manner, the NCF 2023 recommends a phased approach towards implementing the curriculum.

Figure 2.3iii

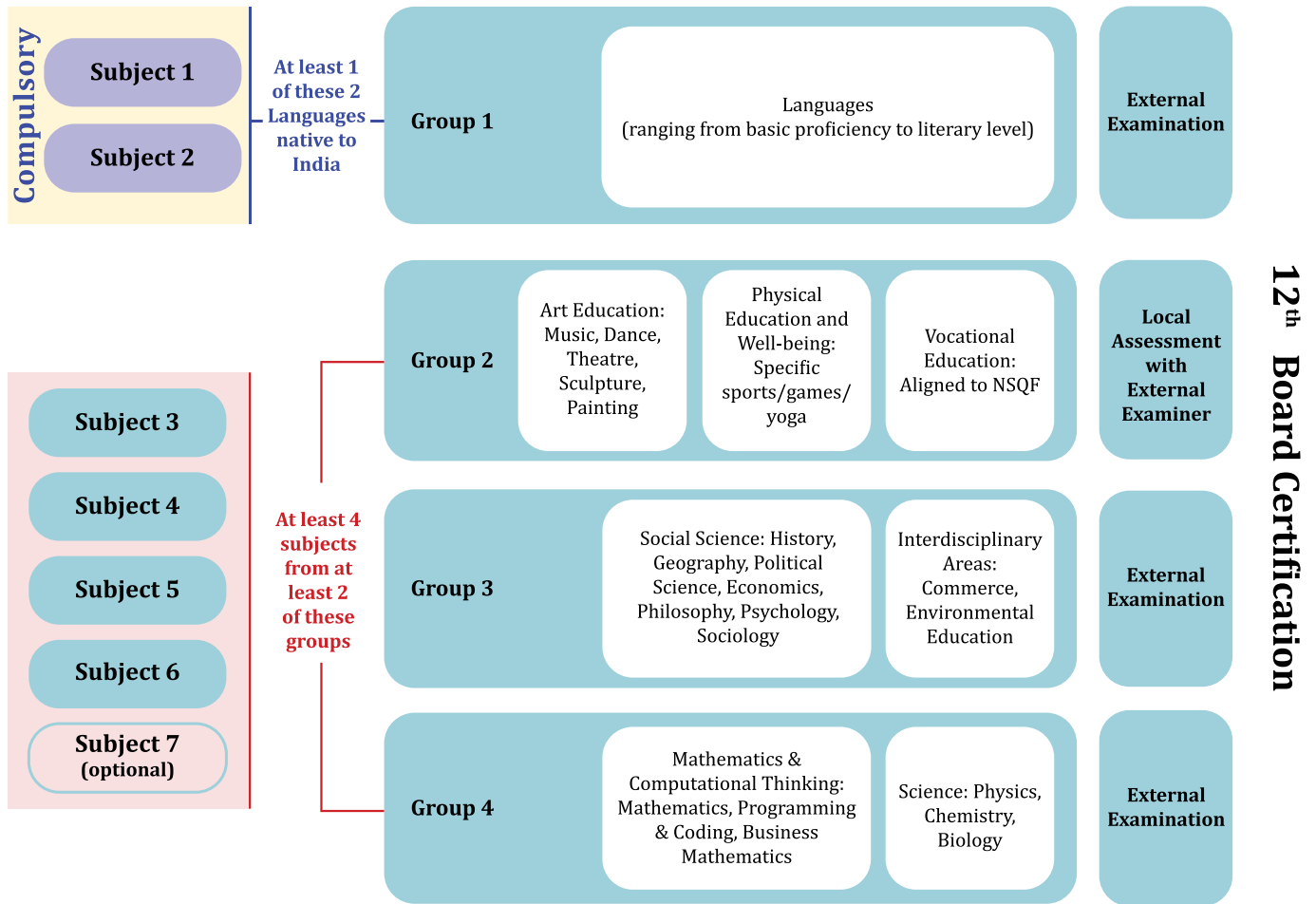


Figure 2.3iv

| Combinations for Commerce                                                                                                                            | Combinations for Science                                                                                                                                            | Combinations for Social Science                                                                                                                                       | Multidisciplinary Combinations                                                                                                                                                           |
|------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Combination 1</b><br>Hindi, English<br>Business Studies, Accounting, Economics from Group 3<br>Business Mathematics from Group 4                  | <b>Combination 1</b><br>Classical Telugu, Sanskrit<br>Mathematics, Physics, Chemistry from Group 4<br>Sustainability and Climate Change from Group 3                | <b>Combination 1</b><br>Marathi, French<br>History, Economics, Psychology from Group 3<br>Contemporary Music from Group 2                                             | <b>Combination 1</b><br>Classical Tamil, Hindi<br>Gardening from Group 2<br>History, Journalism from Group 3<br>Mathematics from Group 4                                                 |
| <b>Combination 2</b><br>Bengali, English<br>Business Studies, Accounting from Group 3<br>Business Mathematics from Group 4<br>Fine Arts from Group 2 | <b>Combination 2</b><br>Gujarati, English<br>Biology, Physics, Chemistry from Group 4<br>Indian Classical Music from Group 2<br>[Optional] Mathematics from Group 4 | <b>Combination 2</b><br>Assamese, Sanskrit<br>Geography, Political Science from Group 3<br>Indian Classical Music from Group 2<br>[Optional] Mathematics from Group 4 | <b>Combination 2</b><br>Pali, Malayalam<br>Folk Music from Group 2<br>Automobile Servicing from Group 2<br>Business Studies from Group 3<br>[Optional] Business Mathematics from Group 4 |

- a. Schools and Examination Boards should be prepared to offer and assess all the ten Curricular Areas for Grade 10 right from the beginning of the implementation of this NCF.
- b. Schools and Examinations Boards should be prepared to offer a minimum of two Languages for Grade 12 from the beginning of the implementation of this NCF.
- c. Schools should be prepared to offer subjects from at least two Groups amongst Groups 2, 3, and 4, immediately. Within 5 years, schools should be ready to offer subjects from all the four Groups. Within 10 years, schools should offer many more subjects covering all Curricular Areas.
- d. The Secondary Stage has been divided into two phases — Grades 9 and 10, and Grades 11 and 12. In 10 years, all school systems should move to a single unified stage for secondary, where students have choice and flexibility with breadth right from Grade 9 through 12 — thus realising the NEP vision of the Secondary Stage as being ‘four years of multidisciplinary study’.
- e. The current system of study in annual patterns should move to a semester design. This would allow for greater flexibility in design of courses.
- f. In ten years, Boards of Examination should be prepared to offer certification through ‘easier’ modular examinations — ‘that each test far less material and are taken immediately after the course is taken in school’ [NEP 2020, 4.38] — in order to eliminate the need for studying large amounts of material at once and to thereby further reduce coaching culture and the need for coaching.

#### 2.3.4.5 Content

For Grades 9 and 10, textbooks can continue to be an important source of content. For Grades 11 and 12, each semester-long course can have its own specific course compendium. At this Stage, a variety of content addressing specific concepts and methods of inquiry should be made available to Teachers and the Teachers should choose appropriate content packages to meet the Learning Objectives of the courses.

#### 2.3.4.6 Pedagogy

Pedagogy, at this Stage, should take into consideration the knowledge and capacities that students will bring from the previous stages of schooling. The pedagogy should encourage more self-study and exploration, with a focus on becoming fluent in the methods of inquiry specific to the Curricular Area. At this stage, students can be reasonably expected to become independent learners and the pedagogy in the classroom should reflect this expectation. Classroom interactions should be a judicious mix of more direct instruction from the Teacher with discussion, seminars for discussion, exploration and discovery, and opportunities for students to prepare individual and group projects and present key concepts of the discipline.

#### 2.3.4.7 Assessment

##### a. Grades 9 and 10

- i. Students must successfully ‘pass’ Board examinations at the end of Grade 10. These examinations are conducted by the respective Boards of examinations with central evaluation. These examinations should assess the Competencies defined in the Learning Standards for each Curricular Area:

- 1) The Languages Curricular Area would have 3 examinations — for R1, R2, and R3.
  - 2) The Curricular Areas of Mathematics and Computational Thinking, Science, Social Science, and Interdisciplinary Areas would have one examination each adding to 4 examinations.
- ii. Assessment schemes (question papers) for Art, Physical Education and Well-being, and Vocational Education can be prepared by the appropriate Board of examinations, and both the assessment and evaluation can be done locally at the school level with external examiners.
  - iii. Boards must offer these examinations multiple times (each being a 'cycle') in the same academic year — and students' final certification must be on the basis of their best performance across these cycles, including taking the best performance from different Curricular Areas from different cycles within three academic years.

#### b. Grades 11 and 12

- i. To complete Grade 12, students should 'pass' the following Board examinations:
  - 1) 2 examinations in Languages, at least one of which is native to India. These Languages may or may not be continuations of R1, R2, or R3 — for example, they may be a specialised literature class in R1, R2, or R3, or a new Indian Language (such as Sanskrit or classical Tamil) and/or a foreign language.
  - 2) 4 examinations from at least 2 Groups (plus an optional 5<sup>th</sup> exam):
    - **Group 2:** Art Education, Physical Education and Well-being, Vocational Education
    - **Group 3:** Social Science, Interdisciplinary Areas
    - **Group 4:** Science, Mathematics & Computational Thinking
- ii. The mode of conducting examinations should be liberalised in due course from the rigid annual examinations. Modular Examinations can be offered by Boards as opposed to a single examination at the end of the year. These can be offered at different times of the year. In due course, Boards of examinations should develop capacities to offer 'on demand' examinations. The final certification will be based on the cumulative result of each of the examinations.
- iii. Assessment schemes (question papers) for Art Education, Physical Education and Well-being, and Vocational Education can be prepared by the appropriate Board of examinations, and both the assessment and evaluation can be done locally at the school level with external examiners.

*The matter of assessment and examinations are dealt with in greater detail in Part A, Chapter 3, §3.4 — which are equally relevant to the Secondary Stage.*

### 2.3.4.8 Classroom Arrangement

The classroom arrangement should take into consideration that students are expected to be more independent learners. The physical arrangement should facilitate group discussions and explorations. Laboratory spaces can be utilised for science classrooms, with adequate safety

precautions, instead of separating the sites of learning theory and practice. Dedicated classrooms for specific subjects are very effective at this stage, where the classrooms are equipped with the necessary TLMs.

#### 2.3.4.9 Teachers

Teachers at this stage must be subject specialists with deep understanding and interest in the discipline. Art Education and Physical Education and Well-being would need specialists who are able to teach theory and practice both.





# Chapter 3

## Approach to Learning Standards, Content, Pedagogy, and Assessment

Chapter 1 articulated the Aims of School Education for this NCF which in turn were derived from the vision and purposes of education outlined in NEP 2020. Chapter 2 detailed the four-Stage design of schooling as recommended by NEP 2020.

This Chapter describes the approach taken by the NCF towards defining Learning Standards, selection of content, methods of teaching, and assessments to achieve these Aims in the context of the four-Stage schooling structure.



## Section 3.1

### Approach to Learning Standards

Education can be seen both as a process and as an outcome. When we view education as an outcome, we think about a student's achievement of the desirable knowledge, capacities, values, and dispositions as derived from the Aims of School Education. To bring clarity to all stakeholders on what students must achieve in schools, this NCF has articulated these desired educational achievements as Learning Standards.

'Goal clarity' or 'clarity of objectives' is a critical element for success in any endeavour; Learning Standards are intended to provide such clarity in school education to all participants and stakeholders — Teachers, students, educational functionaries, parents, and society as a whole.

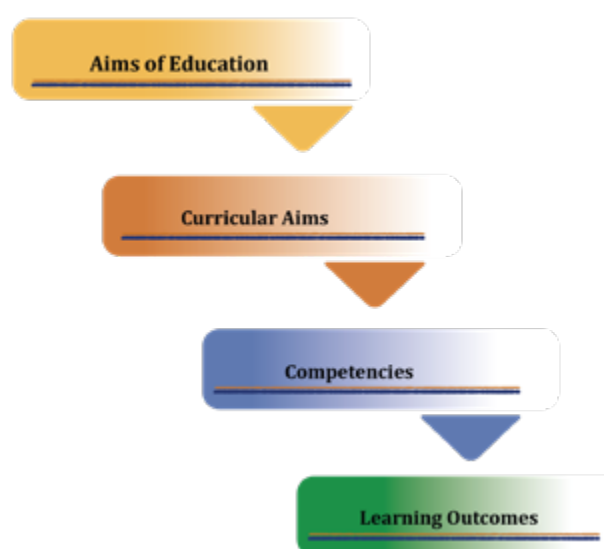
While providing and having such clarity has many aspects, three things are critical:

- Any such 'objective' must be at a level of detail and time-horizon that the person using it should be able to relate to it and to draw relevant actions. For example, a Preparatory Stage Language Teacher would require goals that are to be achieved by the end of the Stage in Language and only having goals at the end of schooling will not be helpful to them; most parents would be able relate to goals that are for the particular age of their child and would find it difficult to relate to the Aims of Education as goals in a useful manner.
- All such 'objectives' must be derived from the Aims of Education and together must achieve the Aims — this is operationalised by the process of 'rigorous flow-down' as mentioned later in this chapter.
- The entire set of 'objectives' must be cogent, consistent, and connected, which would be essential to achieving the Aims.

**These objectives, starting from Aims of School Education, are referred to as Learning Standards in the NCF.**

The first section below defines a few terms used in this NCF in the context of Learning Standards and then gives an approach to arriving at the Learning Standards.

*Figure 3.1i*



### 3.1.1 Definitions

- a. **Aims of School Education:** Aims are educational vision statements that give broad direction to all deliberate efforts of educational systems — curriculum development, institutional arrangements, funding and financing, people’s capacities, and so on. Aims of School Education are usually directed by education policy documents. The NCF has derived the Aims of Education from NEP 2020 and these Aims were articulated in Chapter 1. These Aims of Education are to be achieved through the gaining and development of Knowledge, Capacities, Values, and Dispositions, which guide the Aims within each of the subjects/areas of study.
- b. **Curricular Goals:** Curricular Goals are statements that give directions to curriculum development and implementation. They are derived from Aims and are specific to a Stage in education (e.g., the Foundational Stage). This NCF, which would guide the development of all curricula, lists and states the Curricular Goals for each Stage. For example, *‘Develops effective communication skills for day-to-day interactions in two languages’* is such a Curricular Goal for the Foundational Stage.
- c. **Competencies:** Competencies are learning achievements that are observable and can be assessed systematically. These Competencies are derived from the Curricular Goals and are expected to be attained by the end of a Stage. Competencies are articulated in Curriculum Frameworks including this NCF. However, curriculum developers can adapt and modify the Competencies to address specific contexts for which the curriculum is being developed. The following are examples of some of the Competencies derived for the above Curricular Goal in this NCF — *‘Converses fluently and can hold a meaningful conversation’* and *‘Understands oral instructions for a complex task and gives clear oral instructions for the same to others.’*
- d. **Learning Outcomes:** Competencies are attained over a period of time. Therefore, interim markers of learning achievements are needed so that Teachers can observe and track learning and respond to the needs of learners continually. These interim markers are called Learning Outcomes. Thus, Learning Outcomes are granular milestones of learning and usually progress in a sequence leading to the attainment of a Competency. Learning Outcomes enable Teachers to plan their content, pedagogy, and assessment towards achieving specific Competencies. Curriculum developers and Teachers should have the autonomy to define Learning Outcomes as appropriate to their classroom contexts, while maintaining clear connection to the Competencies.

The following table is an example of Learning Outcomes derived for the Competency *‘Converses fluently and can hold a meaningful conversation’* in the Foundational Stage:

Table 3.1i

| Illustration |                                                                                   |                                                                                               |                                                                                      |                                                                                     |                                                                    |
|--------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------|
|              | A                                                                                 | B                                                                                             | C                                                                                    | D                                                                                   | E                                                                  |
|              | Competency: Converses fluently and can hold a meaningful conversation             |                                                                                               |                                                                                      |                                                                                     |                                                                    |
|              | Ages 3 - 8                                                                        |                                                                                               |                                                                                      |                                                                                     |                                                                    |
| 1            | Listens attentively and speaks in short conversations with familiar people around | Initiates conversations in daily life with peers and Teachers in a variety of school settings | Engages in conversations based on events, stories, or their needs and asks questions | Engages in conversations, waits for their turn to speak, and allows others to speak | Maintains the thread of the conversation across multiple exchanges |

|              |   |                                                                       |                                                                                                       |                                                                             |                                                                                                                                               |                                                                          |
|--------------|---|-----------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| Illustration | 2 | Expresses their needs and feelings through short meaningful sentences | Narrates daily experiences in simple sentences and asks simple questions, using what/ when/ how/ whom | Narrates daily experiences in elaborate descriptions and asks why questions | Engages with non-fictional content read aloud or discussed in class, is able to link knowledge from their own experiences, and talks about it | Engages in discussion about a topic and raises and responds to questions |
|              |   |                                                                       |                                                                                                       |                                                                             |                                                                                                                                               |                                                                          |

### 3.1.2 From Aims to Learning Outcomes

**This NCF strongly emphasises the importance of the clear ‘flow-down’ that must connect Aims to Curricular Goals to Competencies to Learning Outcomes.** Each set must emanate from the immediate level above while ensuring full coverage of the objectives at that higher level.

This is a process of ‘breaking down and converting’ relatively abstract and consolidated notions to more concrete components in order to make them useable in the practice of education. This process, including other considerations that must be accounted for in this ‘flow-down,’ are described in this Chapter. It is only such coherence, coverage, and connection arising from a rigorous flow-down, from Aims to Learning Outcomes, which can align syllabus, content, pedagogical practices, institutional culture, and more to achieving what we desire from education.

This is simply because, in the everyday life of the Teacher and institutions, efforts are (or should be) made towards achieving very specific, observable, and short-period learning objectives which are marked as Learning Outcomes. These Learning Outcomes arise from the process of flow-down described below. They guide the trajectory of educational efforts towards the attainment of Competencies, which in turn accumulate to Curricular Goals. When the achievement of the Learning Outcomes, Competencies, and Curricular Goals are all taken together, they achieve the relevant Aims of Education.

**NEP 2020 has articulated the vision and purpose of education. This NCF has drawn the Aims of School Education from this vision, which informs the knowledge, capacities, values, and dispositions that must be developed in students in order to achieve the Aims of education. The aforementioned desirable knowledge, capacities, values, and dispositions are thereby reflected in the Aims of each subject of study and also in the recommended school culture and practices.**

**The Curricular Goals are, in turn, derived from the Aims of Education, along with other relevant considerations. The Competencies are then drawn from these Curricular Goals, and the Learning Outcomes from those Competencies.**

It must be noted that the Competencies given in this NCF are illustrative and may be modified by curriculum developers to achieve the Curricular Goals more optimally, based on their context.

Thus, curriculum developers should carefully consider the set of Competencies in the NCF and use these after making relevant changes where and if required. Given the relative stability and cross-cutting relevance of Competencies across contexts (and time), there may be fewer requirements for changes in the Competencies articulated in the NCF. However, decisions on this matter should be carefully considered by curriculum developers.

The Learning Outcomes can often be more contextual and will, therefore, require close attention and contextualisation for the curriculum or syllabus being developed.

**Thus, the States and their relevant institutions, and other institutions responsible for curriculum and syllabus development, would need to conduct such a flow-down to arrive at a full set of Learning Standards for their use.**

### 3.1.2.1 From Aims to Curricular Goals

The Aims of School Education, as envisaged in Chapter 1, give direction to the intended educational achievements for the four School Stages, through the Aims of each subject. As mentioned earlier, Curricular Goals to achieve these Aims are stage specific.

In this NCF, Curricular Goals for the Foundational Stage are defined for the different domains of development. It is appropriate that, at the Foundational Stage, the curriculum is closely aligned with the domains of child development. From the Preparatory Stage onwards, the Curricular Goals are defined for specific Curricular Areas. These Curricular Areas have been enumerated in Chapter 1 along with their aims.

While the Aims of Education are the primary source for the Stage-specific Curricular Goals, there are two other kinds of considerations in arriving at their articulation. The Curricular Goals are arrived at by considering:

- a. the Aims of School Education, as articulated in the NCF (*Part A, Chapter 1*)
- b. the Nature of Knowledge relevant to the Curricular Area
- c. Age appropriateness specific to the Stage of schooling

The Aims of School Education flow-down into the Curricular Goals. More specifically, the Curricular Goals are arrived at from the desirable Knowledge, Capacities, Values, and Dispositions within the Aims that are relevant to the Curricular Area, and which would contribute to achieving those Aims.

### 3.1.2.2 From Curricular Goals to Competencies

The four main considerations for arriving at the list of Competencies are:

- a. Curricular Goals, which flow-down into Competencies
- b. Research appropriate for the Stage and Curricular Area that informs the choice of content, pedagogy, and assessment
- c. Experience of various educational efforts in the country
- d. Our context, which includes resource availability, time availability, and institutional and Teachers' capacities

Each Stage has its own specific considerations regarding student's development and the increasing complexity of concepts and requirements of capacities (*elaborated upon in Part A, Chapter 2*). These considerations, in turn, have an impact on the choices of Competencies within each Curricular Goal.

All stakeholders in school education should have clarity on the Competencies that are expected to be achieved. Keeping track of progress in the attainment of these Competencies for every student would allow school systems to ensure that all students receive appropriate learning opportunities towards reaching the Curricular Goals of the NCF.

### 3.1.2.3 From Competencies to Learning Outcomes

Learning Outcomes are interim markers of learning achievement towards the attainment of Competencies. They are defined based on the specifics of the socio-cultural contexts, the materials and resources available, and the contingencies of the classroom. A set of illustrative Learning Outcomes have been defined in this NCF, based on the broad understanding of the context of our education system.

**These Learning Outcomes need to be seen as enabling guidelines for Teachers and school leaders and not as constraining demands on them. They must have the autonomy to reimagine the Learning Outcomes based on their contexts.**

## 3.1.3 Nested Learning Standards

In the Curricular Areas of Art Education and Physical Education and Well-being, this NCF has defined *Nested Learning Standards*. These Curricular Areas have been given due attention in terms of specifying clear Learning Standards that outline the expected learning achievements of students. To achieve these Learning Standards, particularly at the Middle and Secondary Stages, schools would need specialist Teachers and resources (such as playgrounds and equipment). Giving due consideration to the time schools might require to make such Teachers and resources available, the Learning Standards for these two Curricular Areas have been defined as two sets.

The first set, called Learning Standards —1, details the full range of Curricular Goals and Competencies to achieve the educational aims of the Curricular Area. These should be accomplished by all schools as soon as they add the required resources. Nested within this is a subset called Learning Standards — 2. These should be accomplished by all schools from the very initiation of the implementation of this NCF.

## Section 3.2

### Approach to Curriculum Content

Content of the curriculum will be contained in and manifest directly in the various resources and materials used in the teaching-learning process, including:

- a. **Books:** for example, textbooks, workbooks, playbooks, and any other kinds of books and their extracts
- b. **Other kinds of TLM:** for example, toys, puzzles, technology-based material including videos, and experimental kits
- c. **Learning environment:** for example, classroom space, activities in the local environment, and engagement with the community. The learning environment of students must be safe, inclusive, and stimulating.

Developing books (including textbooks) must follow a rigorous process based on an appropriate syllabus. Carefully selected TLMs play an essential role in all classrooms. The arrangement and organisation of the learning environment is also important across all Stages, and especially in the Foundational and Preparatory Stages.

### 3.2.1 Content Selection

This section describes the broad approach for selecting appropriate curricular content. More specific considerations for choosing content within particular curricular areas are elaborated upon in their respective chapters.

Curricular Goals, Competencies, and Learning Outcomes give clear direction as to what content is to be used for creating learning experiences for students.

Concepts formed in the Foundational and Preparatory Stages are largely perceptive (e.g., colour as visually discriminated) and practical (e.g., spoon used as a lever to open a tin cover, money to buy things in a shop), but not theoretical (e.g., colour as a spectrum of light, lever as a simple machine, or money as a medium of exchange). Exploring the theories behind the perceptive and practical concepts is expected in the Middle and Secondary Stages of schooling. Choices of content for each Stage must be based on these considerations.

Content in the Foundational and Preparatory Stages should be derived from children's life experiences. It should also reflect the cultural, geographical, and social context in which the child is developing and growing. As students move through the Middle and Secondary Stages, content can move away from the familiar and include ideas and theories not necessarily represented in the immediate environment.

Content should be tied to capacities and values that students need to develop through the Stages of schooling. Special care should be taken to avoid the promotion of stereotypes.

These are general principles of content selection; subsequent chapters on Curricular Areas describe the specifics.

### 3.2.2 Textbooks

#### 3.2.2.1 Role of Textbooks

Textbooks have been given great importance in Indian school education. In fact, it is a widely shared notion that, in practice, in too many of our schools and in the culture of our education system, textbooks stand in for all of the curriculum and syllabus, and the use and importance of most other materials and resources fades in comparison to textbooks. This is unhealthy and unhelpful for developing a robust system of school education.

This NCF has emphasised the achievement of Learning Standards as the central purpose of schooling. This emphasis signals a desirable shift in the role of textbooks. The current practice of 'covering' the textbook as the focus of classroom interaction should be avoided. Instead, the focus of classroom interactions should be the achievement of specific learning outcomes, and textbooks are one of the many resources available for Teachers and students for achieving the Learning Outcomes. Some important considerations regarding textbooks include:

- a. **Reduction in ‘textbook centricity’:** As mentioned, our education is over-dependent on textbooks — this must change. Other kinds of TLMs, other kinds of books, and the surrounding environment must be fully utilised.
- b. **Expansive and inclusive notion of textbook:** The sharp distinction between textbooks, workbooks, playbooks, and other kinds of books is suboptimal from a student’s perspective. The content and the form must be designed from a lens of ‘what will get the student to learn better’, and not from a textbook definition of ‘textbooks’.
- c. **Availability of multiple textbooks:** Even the best of textbooks have their limitations. So, from a perspective of improving learning, it will be more effective to have multiple textbooks made available for the same subject and class, which can be compared and selected by school systems (or schools), and some may even choose to use more than one textbook. [NEP 2020, 4.31]
- d. **Quality of textbooks must be high:** Students deserve textbooks with high design and production values with respect to both content and form. The design, layout, and illustrations all matter for ensuring quality, as does the final printing and production.
- e. **Cost of textbooks:** The public system does and should make available textbooks free to all students. However, the cost of textbooks matters [NEP 2020, 4.32] and so must be optimised. Since textbooks have the connotation of being mandatory, this should not be used for profiteering by some publishers.

### 3.2.2.2 Key Principles of Textbook Design

With these important basics in place, the principles and process of textbook development are mentioned below.

- a. **Curriculum Principle:** The textbook should be designed specifically to achieve the Competencies for the Stage and the Learning Outcomes for the Grade. Textbook developers and designers should not only be aware of the Competencies of the particular domain or Curricular Area for which the textbook is being developed, but also the Competencies for the whole Stage. This would allow them to bring in horizontal connections across the domains and curricular areas of the Stage.
- b. **Values Principle:** The content chosen in the textbooks should also reflect the desirable values and dispositions articulated by the NCF. While values are often not explicitly taught, the school culture and environment should embody the desirable values. In addition, the content in textbooks play an important role in reflecting these values. For example, compassion in general and compassion for animals in particular can be reflected in using phrases such as ‘We take milk from cows’ rather than ‘Cows give us milk’ or ‘Amundsen was the first to reach the South Pole’, rather than ‘Amundsen conquered the South Pole.’
- c. **Discipline Principle:** Textbook developers should have sound knowledge of the discipline associated with the textbook being developed. The content and sequence included in the textbook should be carefully selected so as to not contradict some of the core principles of these disciplines.
- d. **Pedagogy Principle:** Textbook developers need to have a clear understanding of the pedagogy that is appropriate for the Competency and content (e.g., in Language, the balanced approach of including oral language, phonics and word-solving instruction, and

meaning making needs to be incorporated all together for the Foundational Stage). They should also strive to keep textual matter to a careful minimum, avoiding the earlier common practice of overloading textbooks with details of questionable significance.

- e. **Language Principle:** The language used in the content of the textbooks should be fully cognizant of the Language Competencies expected for that particular grade in the Learning Standards. Particularly in the early grades (Foundational and Preparatory Stages), students are still learning to read and textbook developers of all subjects must take this into consideration. Unfamiliar vocabulary and sentence structures should be appropriately scaffolded in the textbooks through glossaries and explanations. In higher grades (Middle Stage onwards), developing academic linguistic proficiency should not be seen as the responsibility of only language textbooks. Subject textbooks should highlight language use specific to that subject.
- f. **Technology Principle:** Textbook developers should be aware of the current technology and audio-visual materials available for enhancing the learning experiences of students. Activities that involve digital technology and references to external material should be embedded appropriately in the textbook.
- g. **Context Principle:** The local context and environment are important considerations for the choice of content in textbooks for the Foundational and Preparatory Stages. Moving from the familiar to the unfamiliar is an important aspect of learning. The textbook should also contain a balance of familiar contexts that is a comfort for the students and unfamiliar contexts that should generate curiosity and challenge their thoughts and preferences. For the Middle and Secondary Stages, this may not be a strong consideration in all Curricular Areas.
- h. **Presentation Principle:** The textbooks should be so well designed that they grab the attention of students. For the Foundational and Preparatory Stages, the balance between visual material and text should be tilted towards visual materials. The colour schemes and design themes should be attractive and consistent. The fonts and size of text material should be visible and least confusing for young children to decode. For the Middle and Secondary Stages, attention should be given to the flow of concepts, clarity in articulation, and the design of illustrations, not only to clearly illustrate the concepts, but also to initiate discussions and invite students to ask questions.
- i. **Diversity and Inclusion:** It is important to maintain the principles of diversity and inclusion in the choice of content for textbooks. Even within States, there are regional variations and these need to find adequate representation in textbooks.

### 3.2.2.3 Important Elements in Textbooks

Important elements that textbook developers need to keep in mind are:

- a. **Design aesthetics and Consistency:** The look and feel of textbooks are nearly as important as the content presented in the textbooks. Design aesthetics and consistency across textbooks make it easier for the students to engage with textbooks.
- b. **Learning Standards:** Chapters in all textbooks should be explicit and clear about the intended Learning Outcomes of the content presented in the chapter.

- c. **Consistent Design Elements:** Each Curricular Area would have specific elements that consistently occur in each chapter of a textbook. These elements are particular to the Curricular Area and Stage. For example, language textbooks in the Foundational Stage can have elements, such as Oral Language, Read Alouds, Phonics and Word Solving, Comprehension, Writing, and so on. A common design theme that clearly identifies and distinguishes these elements would make textbook design clear and the expectations explicit.
- d. **Activities and Exercises:** Exercises need not be only at the ends of chapters. Appropriate activities and exercises can be embedded in the flow of content in the textbook. Exercises should reflect a judicious mix of recall as well as exploratory and higher order thinking tasks. Recommended activities that have clear instructions and expectations allow for engagement outside the classroom. Where appropriate, recommendations for homework should also be included as part of activities and exercises.
- e. **Reference to Additional Materials:** It has to be emphasised that textbooks are not the only source of content. Along with this, it has to be acknowledged that, while the internet offers almost limitless access to content and knowledge, often the sheer choice is bewildering and confusing for a young learner. Textbook writers should also play the role of curators and provide references to additional materials available freely on the internet through QR-codes, provided that they have verified the genuineness and relevance of such materials. This should be a standard feature of every chapter in the textbook.

### 3.2.2.4 Process for Textbook Development

Applying the principles of textbook development, the process could be the following:

- a. **Creation of a syllabus document** that draws from the Curricular Goals, Competencies, and Learning Outcomes and the nature, pedagogy, and assessment of a subject. The syllabus document could include the objectives of teaching the subject, approach to the content to be included (concept or theme), structure of the syllabus document (as questions, key concepts, suggested strategies or activities), and choosing content that is cognitively and socio-culturally relevant. The syllabus document could also use literature from research studies, policy papers, Teacher experiences, and subject matter expert opinions for deciding the extent and depth of the content.
- b. **Panel of textbook writers, reviewers, and designers/illustrators** — The people involved in textbook development could be:
  - i. **Textbook writers and reviewers.** Teachers must be part of this group; others could include subject experts and university faculty and research scholars. Textbook authors should include people from diverse backgrounds to bring in diverse perspectives for content.
  - ii. **Designers/Illustrators.** People/organisations that have design experience and understanding of the local context, preferably local experts, should be involved from the start of the process.
  - iii. **Technical Experts.** A lot of content that complements the textbook can be made available through digital media. It is thus important for technical experts to be part of the textbook development team from the start — media content should not be an afterthought.

The group should work together from the beginning to develop a shared vision of the textbook and create a common understanding of the process and be open to feedback, suggestions, and multiple iterations of the textbook.

- c. **Choice of content, pedagogy, and assessment.** The topics/themes chosen would need to include the context of the student (including previous experiences and language) and scope for further exploration. The content for each Grade should be a precursor to the next. It is essential to ensure an alignment of the pedagogy and assessment with the content and the Learning Outcomes.
- d. **Structure of the textbook.** Considering that the textbook is one important source of connection between the Teacher and the student, the textbook should be useful for both. Content in textbooks is largely directed towards students. It has been a practice to include notes for Teachers in the textbook. This approach is limiting. Therefore, this NCF recommends that each textbook released for students should be accompanied by a Teacher's version of the same textbook. (*Please see Box 3.2i below*)
- e. **Presentation and Design.** The presentation of a textbook relies on the font size, images, sketches, the colours used, and their amalgamation, e.g., textual content in the early Grades may be limited with a large number of images, font size should be large, and the illustrations used should be sensitive and inclusive. The language used should be Grade appropriate and relevant to the subject.
- f. **Writing, review, and pilot run** — The writing of a textbook needs sufficient time, regular peer reviews, and panel reviews. It requires regular interactions with the illustrators to define and reiterate the requirement of the content being worked on. This adds to the rigour of textbook creation and assists in avoiding repetitions in the text, images, and ideas across subjects as the illustrators work with all the writers.

The reviews provided should be constructive and encouraging. The feedback should include suggestions and alternative ideas. The writers should be open to multiple iterations and be cognizant of the principles of writing content. The review process must be done chapter-wise and then for the textbook as a whole. Meticulous proofreading of the textbook is essential and contributes to its quality.

Selected schools must be identified pilot runs of the textbooks. During such a pilot run, the writers must visit schools and schedule classroom observations, conversations with Teachers, student, and parents and receive feedback about the textbook.

- g. **Teacher orientation to the textbook.** There must be a provision for Teacher orientation on the genesis of the textbook, its rationale, and the approach to pedagogy and assessment to ensure its appropriate use in the classroom. This orientation must be followed up through school visits, webinars, sharing of best practices, and regular interactions with the Teachers to understand the challenges being faced in the use of the textbook.
- h. **Multiple textbooks:** Many agencies and teams must be encouraged to develop textbooks based on the same syllabus.

**Teacher's Handbook**

*It has been a practice to include notes to Teachers in the textbook. This approach is limiting. If notes are kept to their briefest minimum, it is not really useful for the Teacher. If they are elaborate and detailed, it unnecessarily increases the size of the textbook for the students and it perhaps would also be intimidating.*

*It is recommended that each textbook being published be accompanied by a Teacher's version (Textbook+) of the same textbook. The Textbook+ should be organised in the same sequence of chapters as the students' textbook, but can include additional materials:*

- *Intended learning objectives of the chapter and how it is connected to the Learning Standards of the curriculum.*
- *Recommended pedagogical strategies relevant for that chapter.*
- *Alternative activities for students who are struggling to grasp the content.*
- *References (through QR-Codes) for resources, such as digital materials, additional worksheets, formative assessments, and pedagogical content knowledge packages that provide additional teaching aids and also develops a more profound understanding in the Teacher of the topic under consideration.*

*Thus, the Textbook+ would be a valuable compendium for the Teacher to go well beyond the textbook's content without burdening or intimidating the students.*

### 3.2.3 Learning Environment and Teaching-Learning Materials

A safe, inclusive, and stimulating environment that supports every student's participation is critical for achieving the Learning Standards outlined in the NCF.

Classrooms (and schools overall) that are clean, well-ventilated, well-lit, and organised with appropriate access and safety provisions are important to facilitate learning. Safety provisions include physical, social, and emotional safety.

Schools must be equipped with adequate resources and materials. Classrooms should allow for individual work and cooperative work. Classroom displays should be available for student work. Students with developmental delays or disabilities may need specific accommodations for physical space and TLMs to enable physical and curricular access.

For the Foundational and Preparatory Stages, classrooms may be organised into Learning Corners for specific domains of learning. The availability of a range of safe and stimulating material that encourages learning in different domains of development, literacy, and numeracy would be necessary for all students.

Well-resourced libraries and laboratories would be necessary for the Middle and Secondary Stages. Art Education, Physical Education and Well-being, and Vocational Education would require specific kinds of spaces and materials available and organised in particular ways.

The local context and the resources of the community may also be significantly helpful, when used and integrated thoughtfully.

It is important that the full potential of the environment and various kinds of TLMs are utilised, all of which is intimately tied to the approach adopted in pedagogy (elaborated upon in the next section). Not only would this enable aspects of learning that are difficult to foster only through books, but it also makes the process more engaging.

Thus, the curriculum content selected (including pedagogical aspects) must be carefully distributed and balanced between books, other TLMs, and the use of the surrounding environment.

## Section 3.3

### Pedagogy

NEP 2020 states:



*A good educational institution is one in which every student feels welcomed and cared for, where a safe and stimulating learning environment exists, where a wide range of learning experiences are offered, and where good physical infrastructure and appropriate resources conducive to learning are available to all students.*

*[NEP 2020, Principles]*

Pedagogy is the method and practice of teaching used in classrooms by the Teacher to help students learn. Effective pedagogy is based on a good understanding of how children grow and learn, and a clear focus on Curricular Goals, Competencies, and Learning Outcomes to be achieved for students.

#### 3.3.1 How do Children Grow and Learn?

Healthy physical development requires basic needs of adequate nutrition and appropriate sensory and emotional stimulation. There are ‘critical periods’ in sensory development, e.g., normal visual experience is critical within the first few months of life. There are ‘sensitive periods’ in cognitive and emotional development as well, e.g., early childhood and adolescence. Physiological changes have ramifications on the psychological and social aspects of a child’s life.

From an evolutionary point of view, human beings are born to learn, so we come with a drive to understand the world and explain things around us. We constantly make our own theories and refine them based on our perceptions and experiences.

Children are, therefore, natural learners. They are active, eager to learn, and respond with interest to new things. They have an innate sense of curiosity — they wonder, question, explore, try out, and discover to make sense of the world. By acting on their curiosity, they continue to discover and learn more.

Research from across the world has provided us with a set of ideas about how children learn that have practical implications for teaching. Some of these key aspects are:

- a. **The brain plays an important role in learning.** The brain is a complex organ made up of neurons, glial cells, blood vessels, and many, many cells organised into specialised areas. The working of the brain is the ever-changing patterns of connections between millions of neurons. Learning is a physical process in which new knowledge is represented by new brain cell connections. The brain both shapes and is shaped by experience, including opportunities the child has for cognitive development and social interaction. The brain is designed to learn and remember new things through life, as long as it continues to be challenged and stimulated.
- b. **Learning is based on the associations and connections that children make.** Children are far from blank slates on which we can simply write pages and pages of information. They have knowledge and understandings based on their experience; they have intuitive theories about varied subjects. Nothing is ever recorded in a child's brain exactly as it is experienced. It is their interpretation of what they experience that becomes new knowledge. Interpretation is always in the light of whatever knowledge they already possess. Children are continuously fitting new experiences into existing knowledge and adjusting existing knowledge to allow new experiences.
- c. **Emotions are deeply connected to learning.** Emotions are inextricably intertwined with attention, motivation, and cognition. Positive emotions, such as curiosity, wonder, joy, and excitement aid attention, cognition, and memory and, therefore, learning. Positive emotions are often best nurtured through positive relationships with Teachers and among students. When students feel they belong in a classroom and they can trust their Teacher and classmates, they feel free to try out and explore and learn better in the process. As trust grows, the classroom becomes emotionally safer, and students have fewer obstacles to building their confidence and their learning.
- d. **The learning environment matters:** The word 'environment' refers to both the physical space and the 'atmosphere' or psychological environment in the classroom. The physical environment provides a structure that allows safe exploration, cognitive growth, and challenge. The atmosphere or psychological environment is made up of all the relationships and social interactions that happen in the classroom. A safe, secure, comfortable, and happy classroom environment can help children learn better and achieve more. For this, it is important that the necessary facilities, such as learning materials, aids, equipment, and space for doing activities, working together, and playing so as to help each child learn better, are made available. The classroom must be an inclusive, enabling learning environment that provides every child with respect, openness, acceptance, meaningfulness, belonging, and challenge.
- e. **Learning occurs in particular social and cultural environments:** Learning in school becomes meaningful when it connects to students' lives and experiences. Most children grow up with stories, songs, games, food, rituals, and festivals special to their families and community along with local ways of dressing or working or travelling or living that are an integral part of their everyday lives. The diverse experiences of children must find a place in the classroom. As children grow up, while there may often be a difference between the culture of a student's home and the culture of the classroom, it is important to continue to listen to student's voices and honour their cultural traditions in the classroom.

### 3.3.2 Effective Pedagogy for Achieving Aims of School Education

As stated in Chapter 1, §1.3, the central purpose of schools as formal educational institutions is the achievement of valuable knowledge, capacities, values, and dispositions by students. Based on how children learn, some key elements of pedagogy for achieving these aims are described below.

#### a. Knowledge (knowing that — concepts, theories, principles)

Children form concepts and intuitive theories right from infancy. To learn a new theory or concept or principle, students fit this new experience into their existing knowledge and adjust their existing knowledge to allow new experiences in.

To help students do this well, Teachers need to structure and sequence the teaching of concepts appropriately. They need to connect new concepts to students' existing experiences and understanding, pose questions that challenge their existing understanding, and make clear demonstrations that push their thinking beyond their existing understanding. All this should take place while ensuring their full participation in open discussions and hands-on activities. Teaching concepts, theories, or principles in disconnected chunks or expecting students to reproduce them in the same way they were received makes true conceptual understanding impossible.

*Box 3.3i*

#### **Importance of Memory**

*The ancient Indian emphasis on **smriti (memory)** is critical to learning and development. It has often been misunderstood as an emphasis on rote learning, which in principle and when practised with fidelity, it is not.*

*Current cognitive science research indicates that **smriti (memory)** — both working memory and long-term memory — plays an important role in cognition and comprehension. Insufficient emphasis on memory often results in inadequate outcomes in the classroom. When we use memory inappropriately, we are ignoring its powers and capacities.*

*Using memory for learning in the classroom encompasses a variety of activities — deliberate and regular practice, deep processing, generating cues, making connections, and forming associations.*

#### b. Capacities (knowing how — abilities and skills)

Abilities and skills are learnt best by doing and they improve with repeated exposure and practice. Good practice involves meaningful variety must be done in appropriate quantity and is supplemented with continuous discussions on why certain procedures work and others do not.

### **Importance of Practice**

*Learning is a time-consuming process. Organised, regular, and steady practice yields steady and positive impact on learning. Practising helps to internalise information, access more complex information stored in long-term memory, and apply knowledge or skills automatically.*

*Across Curricular Areas, differences in students' performances are affected by how much they engage in deliberate practice. Deliberate practice is not the same as rote repetition. Rote repetition does not improve performance by itself. Deliberate practice involves attention, rehearsal, and repetition and leads to new knowledge or skills that can later be developed into more complex knowledge and skills.*

*When a skill becomes automatic, attention and mental resources can be freed up for higher-level thinking and reasoning.*

Most Teachers are aware of two contradictory facts — drill can be boring, and yet practice is the only way for their students to master certain procedures. The problem with drill comes when we assume that it will substitute for understanding. Concepts and procedures are two different things, both of which students need to learn. Practice *alone* cannot lead to conceptual knowledge; understanding *alone* cannot lead to mastery of a procedure.

### **c. Values and Dispositions**

'Telling' students about what values they should develop or uphold usually has little effect. It either becomes 'boring' or is perceived as 'preaching.'

Development of values and dispositions in school education happens primarily in the following ways:

- i. Through school and classroom culture: Sensitivity and respect for others is encouraged when opportunities are provided for all students to participate in activities and select students do not end up participating in all activities. Students also learn from seeing exemplars.
- ii. Through school and classroom practices: Seeing exemplars, listening to/reading stories about particular values, or participating in bal sabhas and bal Panchayats that help build notions of democracy, justice, and equality.
- iii. As part of learning through school subjects: Laboratory experiments and trials help build scientific temper and thinking.
- iv. As direct goals of some school subjects: Learning to win and lose with grace during sports and games helps build resilience.

### **Importance of Questioning**

*There has existed a long and ancient tradition of questioning in India. Debate and discussion have always been held as a critical part of the Indian knowledge tradition.*

*The Upanishads were written in response to the questions of shishyas. The literal meaning of the word Upanishad is the sitting down (of the shishya) near (the guru). The usual method of argument utilised reason and went from simple to complex, from concrete to abstract, and from known to unknown.*

*In the Katha Upanishad, is the powerful story of Nachiketa, a young boy, who dared to ask Yama, the lord of death, a very simple but fundamental question: 'Is there life after death, or is death the end?'*

*The Brihadaranyaka Upanishad narrates the debate of Yajnavalkya with Janaka and Gargi about the nature of the Self. In the Chhandogya Upanishad, Uddalaka Aruni debates with his son Shvetaketu on the nature of the ultimate reality. The Mahabharata's Yakshaprashna has the famous dialogue between Yudhishtira and his own father, Dharma.*

*At different points in Indian history, there have been extraordinary scholars who were outstanding masters in their respective schools of thought. It was very common among learned people to debate the worth and limitations of these various systems of philosophy publically.*

*The legendary debates between Adi Shankara and Mandana Misra are a good example. Hordes of scholars often came from afar every day to watch and learn from them. These debates between two exceptional masters show how healthy competition existed so routinely among followers of different philosophies. Many such learned masters demonstrated open mindedness and the willingness to test their faith, beliefs, and philosophies, and if the reason arose, even changed their beliefs and the contours of the philosophies. Innumerable Indian scholars had to be accepting towards new concepts, experiments, or questionings in this way*

*Countless popular stories, such as those of King Vikram and Vetal, of Birbal and Akbar, of Tenali Raman, also bear testimony to scholars debating and challenging each other through riddles, intellectual games, or profound philosophical questions using simple everyday language.*

Some values are developed better through particular processes; illustratively,

- Regular dialogue and discussion with active listening as part of classroom culture and processes will help develop democratic values (e.g., pluralism, equality, justice, fraternity) and appreciation of others' viewpoints.
- Curricular Areas such as Art Education and Physical Education and Well-being will help build individual virtues (e.g., honesty, courage, perseverance, teamwork, empathy, respect for others).
- Curricular Areas such as Science and Mathematics will help build epistemic values (e.g., scientific temper, rigour in reasoning).
- Marking important days through community service as part of school culture and practices will help build cultural values (e.g., *nishkama karma, seva, ahimsa, shanti*) and respect for one's own and other's cultural traditions. Keeping the classroom and school premises clean

and tidy reinforces the importance of *swacchata*. Practicing reducing, recycling, and other green practices in schools encourages harmony with the environment and sustainable lifestyles.

- e. Regular practices at the school assembly will help promote pride in India's cultural unity and diversity.

### 3.3.3 Key Elements that Enable Effective Pedagogy in the Classroom

#### a. Ensuring respect and care.

Our schools are committed to providing an environment where children feel secure, and relationships are governed by care, equity, and respect. Any form of discrimination based on religion, caste, gender, community, beliefs, disability, or any other factor is unacceptable. Teachers must value and respect all students. Classrooms should be spaces that will offer all students equal access and opportunity to achieve learning outcomes. All students will participate in a variety of activities and school processes, not just those with the best chances of success. Our schools will create an environment that enhances the potential and interests of each student.

Care is central to learning in schools. Care is an attitude of concern and responsibility for people and relationships. Empathy and respect are at the heart of caring.

#### b. Building positive Teacher-student relationships.

A safe, positive relationship between Teacher and student is enriching both for cognitive and socio-emotional development.

Some important ways to build such a positive relationship are:

- i. **Getting to know each student individually** — this helps understand and plan individualised learning experiences for each student
- ii. **Listening carefully to students** — this conveys care and respect, builds trust, and helps students gain confidence
- iii. **Observing students** — this helps discover how each student thinks, reasons, and responds to different situations, which is critical to planning for teaching and learning
- iv. **Encouraging student responses** — this helps meaningfully build on student's naturally creative and resourceful selves
- v. **Encouraging questioning** — questions to and from the Teacher help students think through a particular subject in depth while responding.
- vi. **Recognising and responding to the emotions and moods of students** — this helps them settle and learn better, learn to regulate their own emotions, and understand and respond to the emotions of others.
- vii. **Responding gently** — if a student behaves inappropriately, the Teacher should have a range of strategies to handle it, starting with gentle, compassionate one-to-one interaction to understand what might cause such behaviour. Most students respond much better to such strategies than to scolding or punishment.

### ***Ways of the Guru***

*According to Sri Aurobindo, the three instruments of the Guru are teaching, example, and influence.*

*Wise Teachers do not seek to impose themselves or their opinions on the passive acceptance of receptive minds. They seek to awaken much more than to instruct, and they aim for the growth of faculties and experiences by a natural process and free expansion. They prescribe a method as an aid, as a utilisable device, and not as an imperative formula or a fixed routine.*

*As the Taaittiriya Upanishad tells us, the Teacher is the first letter, the student is the last letter, knowledge is the meeting place, and instruction is the link.*

#### **c. Providing scaffolding.**

Students can easily learn new knowledge when systematic support from other experienced students or adults is provided. Learning new knowledge should be a challenge, but the challenge should be within the reach of students — something that relates to their existing knowledge and can be done with the support of an experienced person.

Scaffolding refers to providing support, structure, and guidance during instruction. Scaffolding differs depending on the task but occurs when the Teacher carefully assigns students a learning task and provides support along the way until gradually fading as the student reaches expertise.

One way of scaffolding is through a ‘Gradual Release of Responsibility’ (GRR), where first, Teachers model or explain ideas or skills, after which students and Teachers work together on the same ideas and skills where the Teacher provides guided support. Finally, students practise individually and independently.

#### **d. Using differentiated instruction.**

Teachers will need to plan classes in a way that engages students with varying interests and capabilities meaningfully and encourages better learning.

One way to think about this is differentiated instruction, i.e., tailoring the teaching process according to the individual needs of students. Content, methods of learning, material, and assessment may be different for different students. It is often difficult to do this for individual students, especially in a large class. In that case, the Teacher could identify small groups of students who have similar needs and address them differently as a group.

Before planning for this, it is important for the Teacher to observe students carefully, analyse their work, and gather as much information as possible about them. For example, the Teacher could plan to use worksheets of varying levels, starting with simple worksheets and progress to more complex ones according to what different groups of students in the class are able to do.

#### **e. Providing opportunities for independent and collaborative work.**

Classroom processes should provide opportunities for students to work individually and to work together. Teachers may ensure that students work in pairs, in small and large groups, as

well as independently. Teachers must help students listen, understand, appreciate, and reflect on their own thought process and other's experiences with empathy and critical understanding.

Working with others often increases involvement in learning. Sharing one's own ideas and responding to others' reactions improves thinking, deepens understanding, and also leads to new insights and ideas. In carefully crafted collaborative learning situations, students require each other's contributions to successfully complete a learning task because of which they need to learn to take on varied roles, such as observers, mediators, score managers, and note-takers based on the objectives of the task.

**f. Using varied resources.**

Using the textbook meaningfully is important for learning. In addition, other resources and materials must be used to engage students beyond the textbook. Classroom processes should incorporate use of resources made by students, Teachers, and the local community, as well as those available in the immediate environment. Digital resources must also be incorporated appropriately.

Classroom displays constitute an important part of the learning process which does not have to be limited to finished products alone — they could also include aspects of work in progress. Where possible, classroom displays should be dynamic, updated regularly, and aim to be aligned to the topics and questions students are engaging with. Permanent displays should be kept to a minimum.

**g. Helping students develop appropriate work habits and responsibility.**

Developing appropriate work habits and taking responsibility are critical to learning. These include aspects such as students' organising space and materials before and after use, organising time, ensuring time on tasks, taking responsibility for tasks, persisting with and completing work, staying on a given task even without a Teacher present, and allowing others to work without disturbance.

**h. Giving prompt and meaningful feedback.**

Students need immediate and appropriate feedback to benefit from classroom processes and improve their learning. Integration of suitable technology can also be considered to support students with disabilities. Feedback helps students reflect on what they have learnt and what they still need to know.

Providing feedback means giving students an explanation of what they are doing correctly and incorrectly, with the focus of the feedback on what the student is doing right. Waiting too long to give feedback might make it difficult for the student to connect the feedback with the learning moment. It is vital that we take into consideration each individual when giving student feedback. Some students need to be nudged to achieve at a higher level and others need to be handled gently so as not to discourage their learning and damage self-esteem.

### 3.3.4 Planning for Teaching

Teaching is a deliberate act carried out with the intention of bringing about learning in students. This deliberate act needs to be well planned. Planning is central to good teaching. Planning includes construction and organisation of classroom tasks as per Competencies and Learning

Outcomes to be achieved, pedagogy to be followed, resources to be used, and assessment to be carried out. Planning also includes support activities for students, home assignments, and displays in the class relevant to what is being taught.

Good planning requires understanding of Aims of Education, Curricular Goals, Competencies, and Learning Outcomes to be achieved, along with prior learning of the students for whom the plan is being made and available TLMs and content to be used.

The major components of a teaching plan are:

- a. Competencies, Learning Outcomes, and intended lesson objectives
- b. Teacher-directed, Teacher-guided, and/or student-led activities to achieve objectives
- c. Prior understanding of the student on which choice of pedagogy is based
- d. Content and material to be used
- e. Duration and sequence of activities
- f. Classroom arrangements (e.g., seating, displays, arrangement of material)
- g. Specific strategies for students who need extra help
- h. Methods of assessment

**Box 3.3v**

### ***Panchpadi — Five-Step Learning Process***

*The five-step learning process — panchpadi — is a good guide to formulating the sequence that a Teacher may adopt in planning for instruction for certain concepts and contexts:*

***Aditi (Introduction):*** As a first step, the Teacher introduces a new concept/topic by establishing a connection with the child's prior knowledge. Children gather relevant information regarding the new topic with the help of the Teacher by asking questions, exploring, and experimenting with ideas and material.

***Bodh (Conceptual Understanding):*** Children try to understand core concepts through play, inquiry, experiment, discussion, or reading in the second step. The Teacher observes the process and guides the children. The teaching plan has the list of concepts to be learnt by the children.

***Abhyas (Practice):*** The third step is about practice to strengthen understanding and skills through a range of interesting activities. Teachers can organise group work or small projects to reinforce conceptual understanding and attainment of Competencies.

***Prayog (Application):*** The fourth step is about applying the acquired understanding in the child's everyday life. This can be accomplished through various activities and small projects.

***Prasar (Expansion):*** The fifth step is about spreading the acquired understanding (pravachan) and using other resources to learn further (swadhyay). Pravachan is largely mediated through peer learning — conversations with friends, telling each other new stories, singing new songs, reading new books together, and playing new games with each other. Swadhyay is mediated through engaging with materials and experiences related to learning. For each and every new topic learnt, a neural pathway is created in our brain. Sharing and enhancing knowledge strengthens our learning. A neural pathway is incomplete if we do not teach what we have learnt. Teaching makes learning clear and long-lasting.

### 3.3.5 Managing Classrooms/Student Behaviour

Students behave inappropriately for many reasons. Behaviour is often the unspoken language through which young students act out feelings and thoughts. Sometimes, they use behaviour to seek extra attention. Adolescents could be angry or helpless and do not know any other way to express these feelings. Sometimes, this behaviour could be because of lack of sleep, poor nutrition, health issues, developmental delays or deficits, or even family dysfunctionality or stress.

Norms, rules, and conventions must enable students' learning. Evolving clear classroom norms that can be implemented would help everyone own them rather than have a classroom function on the basis of fear.

Instances of indiscipline must be seen through the lens of development, with a balance of humour and compassion, and with careful intervention that is firm yet kind. These should be used as learning opportunities in helping students to solve problems.

Discipline must be seen from the lens of self-regulation and self-discipline and as a necessary condition for development and the pursuit of learning. It is important for students to take responsibility for their behaviour and face appropriate consequences as they grow older.

Adults bear greater responsibility than students in creating an environment of respect and equality. Illustratively, school staff is expected to intervene if they see students using physical violence, bullying each other, or being unkind/unfair to each other, and must put a stop to it immediately and firmly. They must encourage students to settle differences of opinion through dialogue and communication.

**Box 3.3vi**

#### **Importance of Concentration**

*The Taittiriya Upanishad says that the secret of learning lies in the power of concentration in thought. The science of Yoga is based on the process of concentration and the methods by which concentration can be achieved on the object of knowledge so that the contents, powers, and states of knowledge concerning that object can be realised by the seeker.*

*Sri Aurobindo also lays central importance on concentration and speaks of four principal methods by which concentration can be attained: meditation, contemplation, witnessing the passage of thoughts as they pass through the mind, and quieting and silencing the mind.*

*Concentration is a psychological process — it involves no rituals or ceremonies and is free from any doctrines. Hence, the cultivation of the powers of concentration is independent of any activity necessitating faith, belief, or religious prescription.*

### 3.3.6 Responding to Students with Disability or other Individual Learning Needs

Classroom processes should respond to the diverse needs of students. Students learn best when they are challenged, but not so much that they feel threatened or overwhelmed by the level of challenge. Therefore, Teachers would need to know and understand the learning needs of every student in their class and provide the appropriate level of challenge and support to each student.

During the normal course of teaching, based on routine observations and assessments, Teachers could identify those students that may require additional support or individualised attention. This in no way should lead to labelling of students as ‘bright,’ ‘slow,’ or ‘problem’ students, nor does it imply ‘lowering’ of standards.

Some of the ways in which this additional support could be provided or students could be offered varying levels of challenge are listed below.

- a. A ‘bridge’ course for a month or so at the beginning of the year, which will enable students to refresh their previously learnt concepts and prepare for the new class.
- b. Specific work on designated days to supplement what has been done in class.
- c. Differentiated assignments — the Teacher could provide assignments/class tests of varying levels of difficulty using the same content.
- d. Making specific resources available to students who need them, such as extra worksheets for those who need additional practice and ‘extra-challenging’ worksheets for those who might enjoy or benefit from it.
- e. Set up a ‘buddy system’ wherever appropriate — pair a student who needs help with another student who can provide it informally, e.g., to help with homework, offer explanations after class, or carry out projects together.
- f. Setting up a conference time once a month or so with every student in class so that the Teacher has a chance to communicate one-on-one with every student and identify conceptual problems, learning difficulties, or individual needs of all students.
- g. Communicate regularly with all parents, but particularly those parents whose students may need special help and support so that parents are also able to provide support when required. The nature of this communication needs to be specific and clear to parents so that they know and understand what needs to be done to help their child.
- h. In cases where the school is not equipped to help or support a student with an identified disability adequately, it may rely on external resources or resource persons. Integration of suitable technology can also be considered to support students with disabilities. Schools will understand and opt for all exemptions provided by Boards of Education in specific situations. All such decisions should be made in partnership with families.

### 3.3.7 Homework

Homework is an extension of the learning process. Work done at home is a consolidation of work done in school and helps make students capable of doing things on their own. It is based on the teaching provided to them in class. At the same time, homework should not be intended to merely repeat what has been learnt in class, but rather to apply it to different contexts.

Homework tasks must therefore be meaningful for learning. It may include practice work (e.g., worksheets to be completed) as well as application of concepts through specific tasks (e.g., survey of local water resources).

Tasks and allocation of time spent on homework must be age appropriate. Teachers must also ensure that students can do these tasks on their own and they do not require parents or others to do anything on their behalf.

Homework can be fun and provides a different kind of interesting challenge to students. It can also help to connect school with the student's home, especially in the Foundational and Preparatory Stages.

### 3.3.8 Pedagogy across Stages

An effective approach to pedagogy in a particular School Stage is based on how children grow and learn (i.e., physical, cognitive, socio-emotional, language, and moral development) and the overall aims of education to be attained in that Stage. Such an approach will help achieve Curricular Goals, Competencies, and Learning Outcomes without compromising the holistic and expansive notion of individual development that NEP 2020 focusses on.

As stated earlier in this document, while the Stages are distinct, students' growth and maturation are part of a gradual transition with overlaps and commonalities, especially across two adjacent Stages (e.g., teaching for sensorial and perceptual ways of learning in the Foundational and Preparatory Stages, and teaching independent learning habits and discerning use of media gadgets in the Middle and Secondary Stages). It can also be seen that some changes occur in a continued fashion over the same facets within physical, emotional, social and ethical, and cognitive development over the Stages (e.g., changes in physical strength and flexibility, in expressed need for emotional support, in the need for conformity and peer approval, and in abstract thinking and independent reasoning abilities).

#### a. Pedagogical considerations related to physical development.

- i. **Foundational Stage:** Early years of school are formative and crucial in paving a positive experience of the learning environment. Any teaching strategy in this Stage that speaks to vibrant energies, enables playful interactions, engages in enjoyable stories, uses curious toys, and allows for full-body engagement with learning would be ideal and effective. Children continuously engage through their senses and make the most of the world around them this way. Pedagogy that encourages them to engage physically in aesthetic experiences of music, dance, art, and crafts makes for an enjoyable school day. Teaching about health and hygiene practices ensures physical well-being in the long term.

- ii. **Preparatory Stage:** Students continue to be physically active, highly perceptual, and engage with hands-on activities and make sense of concepts with the help of concrete physical learning aids. This requires Teachers to demonstrate energetic and active participation in the things the students are required to do as part of their learning. The Teacher needs to teach through modelling how to make sense of concepts more perceptually and practically with low levels of verbal complexity and theorising. The content that is chosen, the teaching plan, assessment, and classroom arrangement would need to be activity-based, playfully experimental, and lend themselves to a conversation and consolidation after 'doing.'
  - iii. **Middle Stage:** This is a Stage of gradual and sudden changes in physical development. With adolescence and prepubescence on the cards, Teachers will need to be prepared for handling growth pains and growth spurts with changes in strength and increased restlessness in their students. A good understanding of gender and sexuality would also help Teachers understand their students better. Understanding families and local culture will help with understanding student behaviour in school. It is also a time when students must be encouraged to independently practise their learning despite the resistance that might come up.
  - iv. **Secondary Stage:** At this Stage, students grapple with their changing bodies, may become self-conscious, and may be trying to make sense of their maturation. Pedagogy across subjects must accommodate for changes in students' perceptions of their bodies and abilities, provide adequately challenging physical tasks, and encourage greater participation in both group and individual activities, especially sports and games.
- b. Pedagogical considerations related to emotional development.**
- i. **Foundational Stage:** Children would require Teachers to help them learn about understanding their own emotions and the emotions of others. The context of a school allows for a safe space for such conversation and learning. Learning to regulate feelings and behaviour, delaying the need for instant gratification, and practising positive learning habits will go a long way in the lives of children so these aspects must be facilitated and encouraged actively and regularly. Children will require close individualised attention and care.
  - ii. **Preparatory Stage:** Students at this Stage are also rapidly learning to make sense of their thoughts and feelings and would need guidance with learning emotional regulation. Many of them would already display temperaments and preferences and Teachers will need to engage and tease out emotional habits coming in the way of learning through their teaching interactions. They will also need to provide alternative possibilities to the emotional experiences of the students. Gradually, students must be supported and encouraged to become emotionally independent.
  - iii. **Middle Stage:** The classroom and the school as a site for emotional learning, growth, and expression are probably the most occupying for Teachers at this Stage. Students themselves go through unpredictable mood and energy fluctuations, often grappling with a sense of unexplainable wellness or not-so-wellness. Middle Stage pedagogy must allow for some amount of engagement with emotional experiences through quiet discussion and reflection. Curricular Areas can be used as contexts in which individual

responses can be parsed. The Teacher will have to find a balance in the approach to students' emotions — an approach that is neither intrusive nor indulgent, but reasonably firm, rationally clear, and emotionally caring towards students of this Stage.

- iv. **Secondary Stage:** It would be necessary for pedagogic strategies to guide individual reflection and group conversation on thoughts and feelings that emerge through engaging with curricular components. A philosophical understanding that feelings are transient and not set in stone, that individuals can act upon their emotions in healthy and unhealthy ways, and the social consequences of rational versus irrational decision-making based on emotional reactions are good discussions to have at this Stage. The focus on emotional regulation must continue. Teachers will have to be discerning about when students require one-on-one attention and find ways to communicate with them effectively.

**c. Pedagogical considerations related to social and ethical development.**

- i. **Foundational Stage:** Teaching students social norms and strategies to adhere to, teaching valuable social participation and contribution in accomplishing simple tasks, and teaching the meaning of cooperation and respect for others are all immensely important in social and ethical development at the Foundational Stage. Social life is a long-lasting reality that children must learn to intelligently navigate early on. Ethical and moral instructions at this Stage are aimed at teaching children simply the 'good' and appropriate from the 'bad' and inappropriate actions.
- ii. **Preparatory Stage:** This Stage is also a time for learning about social participation and contribution. The pedagogic strategies must enable pair work, small group work, and individual work in mixed proportions so that students are actively learning to work together with sensitivity, mutual respect and listening, cooperate with others, and also accept cultural differences and diversity of approaches in thinking and feeling. Teachers must engage students with basic ethical and moral questions about equality, fairness, sharing, and cooperation.
- iii. **Middle Stage:** Peers seem to become far more prominent in the lives of students at this point and this can be leveraged to the advantage of the learning atmosphere. Like the Preparatory Stage, the pedagogic strategies here too must plan for pair work, small group work, and individual work in good proportions. Mixed small group work would allow for listening to and thinking together with different people. Many lessons must allow for learning to work together with others, for healthy ways of testing one's abilities through social facilitation, and for respectful and sportive competition. The pedagogy must explicitly aim (through content selection and interactional strategies) at fostering sensitivity and respect for diversity in gender, class, and cultural background. Students will need to learn to navigate their social world (including parents, Teachers, and community) and will require clear expectations and rules set in these interactions. Teachers could discuss equity and respect for others as part of ethical reflection in class. It is also a time when they start learning about the world as much bigger than their immediate surroundings, so it is important to give them a sense of the cultural diversity that they are part of in our historically, geographically, and culturally rich country.

**iv. Secondary Stage:** Students at this Stage are young people with emerging opinions and loyal allegiances and with capacities for energetic participation and vehement dissent. Forming strong allegiances, explicit interest in varied ideologies that one can identify with, idealising individuals (from politics or sport or the entertainment industry) and other similar impulses seem to show up in this age group based on the need for belongingness in students. Actual friendships, tightly knit small groups (ingroups and outgroups), and peer conformity would be features that can be used to the advantage of learning about oneself and the world around them. This is also the time to actively encourage individuation in thinking and reasoning while being able to respectfully listen to and understand others. Challenges, such as bullying, isolation, and confusion, with boundaries will need to be met in the context of the classroom and outside. Teaching strategies can include delegating responsibilities, allowing students to take charge of their own learning, and regulating each other's learning with a focus on helping others learn better. Teachers could actively talk with students about ethical and moral actions connected to social participation and change. It is also an important time in the lives of students to address ideas of identity and heritage about what it means to be Indian (*Bharatiyata*) and belong to our vast and culturally rich nation.

**d. Pedagogical considerations related to Cognitive development.**

- i. Foundational Stage:** Pedagogic strategies for this Stage must ensure Foundational Literacy and Numeracy for all children as this forms the basis of all further learning. Exposure to rich learning experiences in Language and Mathematics, and rich aesthetic and cultural experiences through art, crafts, music, dance, stories, and theatre would enable sound overall cognitive development. Multimodal forms of TLMs, adequate outdoor experiences, one-on-one Teacher attention, and physical wellness would also address the cognitive developmental needs of children at this Stage.
- ii. Preparatory Stage:** Pedagogy at this Stage will require a gradual move to more thinking and analysing after doing and observation, with plenty of material to engage with, repeat, and practise. This repeated practise will form the basis for study habits, independent thinking, and independent learning that is to come in the Middle Stage. Multimodal TLMs and one-on-one attention are still necessary to a good extent at this Stage, as these strategies will form a strong conceptual basis for students across Curricular Areas. Planning for field visits in the various subjects, apportioning sufficient time outdoors in a working week, encouraging students to demonstrate logic in their reasoning, encouraging thoughtful questioning, encouraging creative and artistic activity, learning skills to inquire through conversations with people, and reading/referring to books are important pedagogical strategies in this phase.
- iii. Middle Stage:** This Stage often demonstrates the most accelerated learning possibilities — individual learning abilities and individual creativity begin to show sharply in distinction from others. This will require pedagogic attention, especially for those who struggle and for those who excel in their achievement levels given the context of group learning processes. Teaching students how to assimilate understanding and shifting from practical to theoretical concepts across curricular areas, demanding greater rigour in and capacity for working would be essential pedagogic considerations at this point.

With the introduction of newer Curricular Areas, it would be important to create adequate scaffolds for students to keep their interest and confidence in their intellectual capacities. Students' capacities for abstract thinking and formulating one's own innovative ideas improves markedly and Teachers can present challenging material that requires abstract reasoning and application. Rules for technology and media usage become necessary in this Stage. Teachers need to demonstrate in their teaching transactions (and explicitly teach) a discerning educational use of the internet and media gadgets in learning. This would require conversations about safe and healthy practices in using the internet, new media technology, and gadgets in the context of the curriculum.

- iv. **Secondary Stage:** There exist ample possibilities for maturation in thinking, learning, practising, and creative expression in this Stage spread over four years of student life. Teaching students how to independently assimilate understanding and encouraging abstraction and theoretical concepts across curricular areas, demanding rigour, and encouraging creativity and innovation in working, and presenting their views would be very important pedagogical considerations for Secondary students. Newer Curricular Areas and choices in specialisations begin at this Stage, and it would be important to help students make their decisions (in subject choices) and create adequate opportunities to sustain practice in these. Given their age and independence, technology and media use rules will need strong follow-up and reminders. As less supervision is possible, and the 'discerning educational use of the internet and media gadgets in learning' principle taught in the previous Stage is likely to wane, this will require repeated reminders. Caution against distractions while learning, cyberbullying, compulsive use, and many other unhealthy practices in using the internet will be required from Teachers, especially as students will be engaging with online research for learning much more in this Stage.

### 3.3.9 Overall Principles of Pedagogy

Given all of the above, the following principles of pedagogy must inform classroom planning and instruction across all Stages:

**Every child is capable of learning. Children are natural learners.**

- a. Learning is an active process that involves both understanding and doing.
- b. Children learn best when they are respected, valued, and involved in the learning process.
- c. Children learn in a variety of ways, illustratively, through making something, participating in discussion, listening, speaking, reading, writing, questioning, exploring, discovering, and experimenting.
- d. Learning happens best when classroom processes make connections with the life of students and their prior experiences, focus on conceptual clarity, and provide variety and challenge to students.
- e. Practice is a critical and integral part of the learning process.

**The following are non-negotiable:**

- Punishment and fear are detrimental to learning and must not be used in the classroom.
- Inequity in the classroom on the basis of caste, gender, religion, socio-economic conditions, student performance, or any other factor is unacceptable.
- Memorisation must not be the primary form of learning or of assessment.
- Students must not be treated as passive receivers of information — this makes classroom processes lead to boredom and monotonous routines. Students must be seen as active agents in their own education.

Effective pedagogy, therefore, encourages conceptual understanding, active discovery, questioning and debating, and independent learning. It gives serious consideration to student experiences and student voices, acknowledges and accommodates student diversity, builds on students' previous knowledge, uses a range of teaching techniques, and gives timely feedback on work done.

## Section 3.4

### Approach to Assessment

NEP 2020 states:



*The aim of assessment in the culture of our schooling system will shift from one that is summative and primarily tests rote memorization skills to one that is more regular and formative, is more competency-based, promotes learning and development for our students, and tests higher-order skills, such as analysis, critical thinking, and conceptual clarity. The primary purpose of assessment will indeed be for learning; it will help the teacher and student, and the entire schooling system, continuously revise teaching-learning processes to optimize learning and development for all students. This will be the underlying principle for assessment at all levels of education.*

[NEP 2020, 4.34]

The Policy further continues:



*The progress card will be a holistic, 360-degree, multidimensional report that reflects in great detail the progress as well as the uniqueness of each learner in the cognitive, affective, and psychomotor domains. It will include self-assessment and peer assessment, and progress of the child in project based and inquiry-based learning, quizzes, role plays, group work, portfolios, etc., along with teacher assessment. The holistic progress card will form an important link between home and school and will be accompanied by parent-teacher meetings in order to actively involve parents in their children's holistic education and development. The progress card would also provide teachers and parents with valuable information on how to support each student in and out of the classroom. AI-based software could be developed and used by students to help track their growth through their school years based on learning data and interactive questionnaires for parents, students, and teachers, in order to provide students with valuable information on their strengths, areas of interest, and needed areas of focus, and to thereby help them make optimal career choices.*

[NEP 2020, 4.35]

### 3.4.1 Purposes of Assessment

Assessment has two purposes — measuring achievement of student learning and gauging effectiveness of classroom processes and teaching materials used for teaching and learning.

In the everyday of the classroom, assessment refers to any process of gathering information about student learning that can be interpreted, analysed, and used by the Teacher (and others, where relevant) for guiding the teaching-learning process, aggregating student learning at relevant junctures, and reporting student progress over time. Educational assessment thus plays a critical role in continually improving teaching and learning.

Assessment is also used for certifying student learning and education completion at key stages (e.g., Grade 10, Grade 12).

### 3.4.2 Assessment of Learning; Assessment for Learning; Assessment as Learning

*Assessment of learning* refers to the measurement of achievement of student learning.

*Assessment for learning* refers to evidence of student learning gathered by the Teacher that provides inputs to guide teaching-learning processes. Assessment, when designed meaningfully, can be used as a powerful tool that contributes to and supports better student learning and teaching practices. Teachers who have a good sense of where students in class do well and where they struggle can take more informed decisions about their pedagogical practices.

Recent studies have shown that students can play an active role in taking charge of their own learning. When assessments are introduced as non-threatening tools for self-reflection and introspection, they become developmental and constructive in nature. This is referred to as *assessment as learning*.

In school education, one needs to look at all three approaches to assessments mentioned above — *assessment of learning, for learning, and as learning*.

### 3.4.3 Current Challenges in Assessment

In our schools currently, assessment has mostly become mechanical and routinised. It is mostly focussed on measuring rote learning of content rather than on measuring achievement of Competencies and Learning Outcomes. Assessment is also generally experienced by students as an intimidating process that generates fear and leads to labelling and segregation based on 'marks' that they have scored in tests and examinations with significant social consequences.

The stress caused by Board examinations at Grades 10 and 12 is even more, leading to deep anxiety among students and families almost universally in our country. The examinations place an enormous amount of pressure on students over what are perceived as life-altering days and milestones of their lives. Many other matters contribute to Board Examinations becoming severe stressors, e.g., examinations being available only on particular days, little real possibility of improvement if the student has had one 'bad day' during the examinations, and use of board examination results in college admissions.

The current structure of many (but not all) Board Examinations forces students to concentrate only on a few Curricular Areas at the expense of others, preventing truly holistic development. Rote memorisation and coaching for performing on these examinations becomes primary, while real learning through understanding, thinking, analysing, and doing becomes secondary.

Ideally, examinations should be seen as certification and also learning experiences, from which one can learn and improve in the future. The current Board Examination system does not lend itself to this.

India has over 60 Boards of Examination, some of whom have taken definitive actions to address many of these issues.

### 3.4.4 Key Principles of Effective Assessment

Key principles that could guide our thinking on effective use of assessments to aid better teaching and learning are listed below:

**a. Assessment should measure achievement of Competencies and Learning Outcomes leading to attainment of Curricular Goals.**

Assessments should explicitly track student progress on all aspects of learning as stated in the Competencies for each Stage and Learning Outcomes for each Grade. Assessments should accurately reflect the intent of evaluating the achievement of a Competency or Learning Outcome. The connection between the Competency or Learning Outcome and the assessment should be clear and precise. Appropriate forms of assessments may be chosen in alignment with the Competencies and Learning Outcomes to be assessed.

**b. Assessments should be constructive, developmental, and learning focussed.**

Assessments need to be visualised as an ongoing process which Teachers integrate within the teaching-learning process using formal and informal ways to elicit reliable evidence about student learning. Collecting such evidence helps Teachers understand the effectiveness of their pedagogy in terms of what the students have understood, what needs to be worked on further, which methods of teaching work, what kinds of resources work, and so on. For students, assessments need to be placed as an important tool that will help them understand and reflect on their own learning. Assessment should not become an intimidating process that involves the labelling and segregation of students.

**c. Assessments should be Stage appropriate.**

At the Foundational Stage, Teachers would primarily drive all assessment activities, which are largely based on observation. At the Preparatory and Middle Stages, multiple tools and methods should be introduced. Students should also be given a more proactive role in assessing their own learning trajectories. Additionally, at the Secondary Stage, students should be prepared to take standardised tests including Board and other examinations.

**d. Assessments should accommodate student diversity.**

It is important to move away from the 'one size fits all' approach while designing assessments. A variety of assessment methods, e.g., paper-pencil tests, oral assessments, project work, and group assignments should be used. Assessment tools and processes must accommodate for

students performing at different levels in a classroom. Well-designed, graded assessments can be used to understand individual student needs better so that their learning needs can be adequately catered to.

**e. Assessments should be supported by timely, credible, and constructive feedback to students.**

Students should be given useful feedback on their performance. Such feedback needs to be constructive with information on what has worked well and what areas might need improvement and how can this be achieved. Use of Holistic Progress Cards (HPCs) that detail out student performance in multiple aspects, including formative and summative assessments, should be explored.

**f. Assessments should support in meaningful aggregation/summation of student learning.**

While the formative function of assessment is critical, the summative function of assessment is also important. Summative examinations, including certification examinations, continue to be relevant as they serve as a necessary test to understand students' achievement of Competencies and Learning Outcomes. While the significance of summative examinations is well established, what needs immediate attention is the approach to the same. Examinations should move away from testing rote memorisation and instead focus on conceptual understanding, application of concepts, problem solving abilities, critical thinking, and other such capacities.

### 3.4.5 Types of Assessment

Assessments could be formative or summative, and both are important for improving teaching and learning.

- a. Formative assessments** are continuous and ongoing. They are used to track student learning to provide ongoing feedback that can be used by Teachers to improve their teaching and by students to improve their learning. Formative assessments are generally low stake and do not have strong consequences. Some examples of formative assessments include observing student behaviour in class; asking students to draw a concept map in class to represent their understanding of a topic; and asking students to write a few sentences with a friend on a poem they have read.
- b. Summative assessments** evaluate student learning at the end of a lesson or a logical period of teaching. Summative assessments are normally higher stake in that they compare student performance to a benchmark or standard and have some consequence. Some examples of summative assessments include a term-end test or a Board exam. Results of summative assessment can also be used for formative purposes, i.e., for informing teaching and learning.

It is very important to note that the core difference between summative and formative assessment is the purpose for which the assessment is used. Formative assessment is used as a part of and as input to the teaching-learning process, whereas summative assessment is about evaluation of achievement of learning over a period of time. The same tool, instrument, method, or form can be used for summative or formative assessment when suitably designed. For example, the often-used 'paper-pencil test' or written test can be used to assess what a student is struggling with

and focus the next class on that matter, which is formative assessment. On the other hand, as we know well, paper-pencil tests or written tests are used as the standard for year-end ‘examinations,’ which are summative assessments.

### 3.4.6 Forms of Assessment

There are several forms of assessment that can be used across both formative and summative assessments.

- a. **Written Tests.** These require written responses to questions from students. They are the most common form of assessment used across various Stages of school education. Forms of written tests include:
  - i. **Objective Type Questions:** The most commonly used form of objective-type questions is Multiple Choice Questions (MCQs) that require students to think through and select correct responses from a variety of options. Other forms include filling in blanks, matching, sorting lists based on select criteria, picking the odd one out, labelling a diagram, solving a crossword, unscrambling a word, solving riddles, and word grids that require a very short or one-word answer.
  - ii. **Constructed Response Questions:** These are questions that require students to frame and write answers. They can be being close ended (requiring one correct and short answer) or open ended (requiring a short or long essay with multiple correct/alternate answers). It is important to have clear and detailed scoring guides/marking schemes for such questions to avoid subjectivity in assessment.
  - iii. **Graphic Organisers:** These are visual representation of ideas and concepts that allow students to sort information and make connections. They help students organise their learning and assimilate new knowledge. These organisers are particularly useful in diverse classrooms where writing skills may not be a strength for all students. These can be used across subjects.
- b. **Oral Tests.** These require an oral response from students and can be used in many ways. The most common forms are reading aloud, responding to questions, recitation, and debates and discussions. Other forms including group discussions, presentations, and extempore talks, which could also be used for assessment.
  - i. **Reading Aloud:** Reading assessments could include reading aloud a passage, a poem, or any other form of writing. Word recognition, fluency, and voice modulation skills could be assessed along with comprehension through asking students to summarise or talk about what they have read.
  - ii. **Listening and responding:** Students listen to a text and respond either orally or on a worksheet. This form of assessment can be used in language as well as other subjects, especially when Teachers wish to remove any barriers that might hinder expression of what a student has learnt.
  - iii. **Recitation:** This is a commonly used assessment especially at the Foundational and Preparatory Stages. It helps the Teacher assess spoken language with specific focus on pronunciation, intonation and comprehension through observation of the students’ expressions and actions.

- iv. **Debates and Discussions:** In the Middle and Secondary Stages, students' fluency of language as well as proficiency in making strong arguments using knowledge and reasoning to persuade and convince an audience can be assessed while also developing an ability to understand and respect others' viewpoints and opinions. Teachers can also include other parameters such as diction, deportment, ability to take criticism positively, and manage their emotions and body language during public speaking. Sharing parameters before setting the task helps students focus on developing these skills and serve as good learning opportunities as well. Debates in Science and Social Science can help seamlessly integrate ethical and environmental dimensions of the curriculum into subject-specific tasks.
- c. **Practical Tests.** These require students to demonstrate specific skills and applications of their new learning. Some key illustrations are described below.
  - i. **Experiments:** Using experiments helps assess students' understanding of concepts of science and the scientific method. This is also a good way of finding out whether students can 'do' science and not just answer questions about science.
  - ii. **Artefacts:** An artefact refers to an object created by students. Artefacts provide a rich source of information about a student's strengths and abilities. These could include art and craft products, costumes for theatre, products in vocational education, and making models in particular subjects.
  - iii. **Demonstration:** In Curricular Areas such as Art Education, Physical Education and Well-being, and Vocational Education, assessment is based on demonstration of a student's skills and abilities. Illustratively, dribbling in basketball, use of mudras in dance, hitting the right notes while singing, keeping rhythm during a song, using a chisel and mallet in woodwork, and mixing manure in the right proportion in gardening.
  - iv. **Projects:** Projects are longer, structured activities completed by individual students or groups of students that result in a product. For example, a model, a substantial report, or a collection of artefacts. While doing projects, students investigate, explore, and respond to complex questions, real-world challenges, and problems. Projects help assess collaboration, communication, perseverance, creativity, and problem solving along with assessing subject-specific knowledge and skills.
  - v. **Portfolios:** A student portfolio is a purposeful collection of student work that tells a story about a student's efforts, progress, and achievement in one or more subjects over a period of time. It could be a collection of the student's day-to-day work or a selection of the student's best pieces of work. Portfolios may include writing samples, laboratory reports, journals, artwork, short surveys and research papers, projects, photos, worksheets, tests, map work, Teacher's qualitative comments on the student's work, peer feedback, and the student's own reflections on his or her learnings. It becomes a cumulative record of performance from which emerges a clear picture of what student knows and can do and how they have progressed over the period. Portfolios are good sources of evidence of learning that can provide rich information to Teachers about where students are and how they can be supported to improve.

- d. Open-Book Tests.** An open-book test is one where the students have access to resources and references (e.g., textbooks, class notes, library books) while answering questions. These tests assess the ability to process or use available information and apply the same in various contexts. These tests shift the focus from recall to application and synthesis.

### 3.4.7 Designing Good Questions

All assessment should measure achievement of Competencies at the Stage and Learning Outcomes for the Grade, leading to attainment of Curricular Goals. This is the basis of designing good questions.

Designing good questions is a skill that is built over time with practice. Some key thumb rules for designing good questions are as follows:

- Questions should assess a relevant concept/capacity that is core to the subject/area being tested (e.g., assessment in language should test skills of language learning, not the content used to teach those skills).
- Questions should be clear, and factually and conceptually correct.
- Vocabulary used in the questions should be contextual, age appropriate, and sensitive to bias.
- While developing MCQs, obviously incorrect or correct responses should be avoided. The incorrect options or distractors should indicate misconceptions that students commonly have.
- All descriptive questions should be coupled with a clear and concise marking scheme.

*See Part C, School Subjects, Assessment Sections for Samples of the above.*

### 3.4.8 Designing Marking Schemes

- All questions that require descriptive answers and measure the achievement of more complex Learning Outcomes need to have a detailed marking scheme. This ensures clarity and helps to reduce subjectivity.
- Marking schemes should lay out specific expectations of what is expected for a fully correct, partially correct, and incorrect response.
- For questions assessing conceptual understanding, application and reasoning, it is necessary to include specific samples of responses. There could be variations in student responses and marking schemes should account for that. This is particularly necessary in open-ended questions where student opinions could differ; or in solving mathematics or science problems where their approaches could vary.
- Assessment of projects and portfolios also need explicit criteria for evaluation.

*See Part C, School Subjects, Assessment Sections for Samples of the above*

### 3.4.9 Assessment across Stages

#### 3.4.9.1 Foundational Stage

- a. Assessment tools and processes should be designed such that they are a natural extension of the learning experience for the child. Assessment should not contribute to any additional burden for the child. Explicit tests and examinations are completely inappropriate assessment tools for this Stage.
- b. Assessment should allow for diversity among children and in their learning. Children learn differently and express their learning differently too. There might be many ways to assess the achievement of a Learning Outcome or Competency. The Teacher should have the ability to design different kinds of assessment for the same Learning Outcome and use each assessment appropriately.
- c. Assessment should enable recording and documentation. Children's progress should be described and analysed through systematic collection of evidence.
- d. Assessment should not overly burden the Teacher. The Teacher should have the autonomy to judiciously choose the appropriate tool for assessment and the periodicity in which assessment-related record keeping is maintained. While such autonomy is important, systematic record keeping of children's assessment should be seen as an important part of a Teacher's professional responsibilities.
- e. **At the Foundational Stage, two primary methods of assessment are appropriate: observations of the child and analysing artefacts that the child has created as part of their learning experience.**

#### 3.4.9.2 Preparatory Stage

- a. With the start of more formal learning across Curricular Areas, a robust system of formative assessment is required to track progress of individual students. Assessment should act as an instructional tool and help to provide a comprehensive account of student learning.
- b. Students from this Stage onwards learn better when they are more aware of the Competencies to be attained. Teachers should help make them understand the desired Competency to be achieved through a lesson or a unit of study.
- c. **At the Preparatory Stage, in addition to observation of students and analysis of artefacts created by students, a variety of formative oral and written assessments should be introduced. These assessments should test conceptual understanding and Competencies, and should include questions that encourage creativity.**
- d. **At the end of each year of the Preparatory Stage, there will be a comprehensive summative assessment of the student's readiness to enter the next Grade, with robust options for support during the break between Grades to help ensure such readiness.**

#### 3.4.9.3 Middle Stage

- a. With the introduction of more concepts in each subject at this Stage, assessment will continue to be Competency based, covering all dimensions of learning.

- b. At this Stage, the focus of the curriculum moves to conceptual understanding and higher-order capacities. Therefore, various formative assessment techniques, such as projects, debates, presentations, experiments, investigations, role plays, journals, and portfolios should be used to assess learning.
- c. Regular assessments comprising MCQs and constructed responses (e.g., short answer, long answer), with the aim to test conceptual understanding and higher-order capacities rather than merely rote learning, may be used to track student progress, give valuable feedback to students, and continuously revise teaching-learning plans and practices. Questions that require creativity are especially encouraged at this Stage.
- d. **At the Middle Stage, in addition to a variety of oral and written tests, a variety of practical tests and projects should also be introduced. At the end of each year of the Middle Stage, there will be a comprehensive summative assessment of the student's readiness to enter the next Grade, with robust options for support during the break between Grades to help ensure such readiness.**

#### 3.4.9.4 Secondary Stage

- a. Given the demand of greater subject depth, regular formative assessments should be effectively practised for facilitating meaningful learning and constructive feedback.
- b. Classroom assessments, like in the Middle Stage, will continue to play an important role considering the nature and complexity of the Competencies at this Stage. Self-assessment will also play a key role in student learning at this Stage. Students should be facilitated to monitor what they are learning and use the feedback from this monitoring to adjust, adapt, and decide their own strategies for learning.
- c. Assessments can be designed using case-based questions, simulations, and essay-type questions to enable the assessment of Competencies, in order to continually replan and revise the teaching-learning process. Questions that require creativity are again especially encouraged at this Stage.
- d. **At the Secondary Stage, a variety of written tests, practical tests, projects, and openbook tests should be used. At the end of each year (or term) of the Secondary Stage, there will be a comprehensive summative assessment of each subject, which in relevant cases would be the Board examinations.**

#### 3.4.10 Holistic Progress Cards (HPC)

- a. Progress cards are a formal means of communication between the school and home, informing parents and families of a student's progress and providing an opportunity for self-evaluation to students, thereby motivating them to do better.
- b. A Holistic Progress Card (HPCs) is an individualised and comprehensive reporting of a student's progress in all domains/areas of learning on the basis of Competencies and Learning Outcomes to be achieved.
- c. This brings out each student's progress and interests and enables the development of a unique plan to support each student.

- d. Unlike a single score or letter grade, an HPC provides disaggregated reporting, which does not represent performance in an entire subject area. It is based on evidence of student work beyond performances on tests (e.g., assessment of writing samples, projects, portfolios, artwork, participation in games).
- e. The HPC will enable focus on the student's progress as opposed to comparison with others. The comparison will be with the student's earlier report card and not with the performance of other students in the class.

### 3.4.11 Progression across Grades

- a. Students should not be detained from Grades 1 to 8.
- b. It is the responsibility of the education system to ensure that all students achieve requisite Competencies by Grade 8 so that they can successfully continue onwards from Grade 9.
- c. There must be clear checkpoints and support systems in place to help all students acquire the requisite Competencies by Grade 8.
- d. NEP 2020 (4.40) requires all students to take examinations in Grades 3, 5, and 8, conducted by an appropriate authority that tests Competencies.
  - i. These examinations will be conducted by a body which is outside the school as mentioned in NEP 2020 — it may be a State/District body or any other appropriate body.
  - ii. These will be competency-based examinations and not be based on memorisation and procedural skills.
  - iii. It is important that these examinations are based on the core key competencies. For Grades 3 and 5 the focus could be on FLN competencies. This would not cover the entire curriculum, but core competencies that are crucial for study in later grades.
  - iv. These must be conducted by an independent body (e.g., a district board) which has the capacity to conduct valid and reliable tests with high integrity. This is the lynchpin of executing this particular NEP 2020 recommendation.
- e. The assessment of achievement of Competencies will be shared by the school with individual students and their parents/families/guardians with a developmental and improvement objective.
- f. Those students who have achieved satisfactory levels of Competencies will be helped by this very specific engagement and discussion on their progress.
- g. For students who have not achieved levels of Competencies satisfactory enough to begin the study of the next Grade, clear and definite actions will have to be taken immediately by the school with support from the system to ensure that such students achieve requisite Competency levels to be able to study in the next grade in the coming session.

One immediate action would be, where possible, providing a summer school (6-8 weeks) for these students with adequate number of Teachers.

- i. At the end of the summer school, the examination will be reconducted by the same appropriate authority and if the student has still not achieved requisite Competencies, then actions as per points below will be taken.

- ii. Grade 3 students will move to Grade 4, and Grade 4 students to Grade 5. However, the school must ensure that the students acquire the requisite Competencies in the first two months of the new session.
- iii. Students in Grades 5 and 8 and their parents/families/guardians will be given the option for the students to continue for one more year in Grade 5 or 8, as the case may be.
- iv. The decision to continue in the same Grade would entirely be that of the students and their parents/families/guardians.
- h. In case students and their parents/families/guardians choose to continue in the same grade, and despite a second year in the same grade, the student's achievement is not at the level of adequate Competencies, then:
  - i. An appropriate evaluation of the school will be done by a competent academic institution (e.g., DIET, BRC, another school); this evaluation would be of the entire school, and not only the Teacher who is teaching that particular Grade, because the overall school and previous grade teaching has effects on this matter.
  - ii. Clear actions to improve the conditions that are causing this lack of achievement (including poor attendance if that is the case) will be planned and implemented. This will form a part of the School Development Plan and discussed with the School Management Committee (SMC).
  - iii. Also, the student's Competencies will be assessed through the common Grade 5 or 8 exam as the case may be and they will be progressed to the next Grade and given the requisite extra support as described below. No student will be retained in the same Grade for a second time, even if the students and their parents/families/guardians wish to do so.

For those students who are progressed from Grade 5 to 6, or, Grade 8 to 9, without having achieved the requisite Competencies, in either of the cases mentioned earlier — parents and student choose to progress (Point g., subpoint v.) or it is after an additional year in the same grade (Point h., subpoint iii.). It will be ensured that the student gains the Competencies required to study in the next Grade and to enable that extra resources including Teachers will be provided in the next Grade, as also other measures will be taken, such as:

- 1) 4-6 weeks of 'reinforcement' or 'catch-up' for these students at the beginning of the next grade (including others who have not performed well on the examinations)
- 2) A longer daily programme of 'catch-up' as part of the Language or Mathematics class with a well-defined structure and materials (such as workbooks)
- 3) Additional homework during the summer break can be considered with some follow-up by Teachers during the break.
- iv. These students will not face any discriminatory action (e.g., be made to sit in another class) — it will be an integrated classroom that will be treated like a multilevel classroom.
- i. While the school and the system must take responsibility for students' learning (and inadequate learning), the matter of irregularity of attendance has to be accounted for.

- i. If a student has not attended school regularly, say less than 60%, then if the student does not achieve the requisite competencies, the school/Teacher must include this matter in the discussion with the parents (as in item e., earlier, and in continuing discussions with parents). And, at least for Grade 8, there should be an encouragement for continuing for one more year in the same grade.
- ii. The discussions also must be used to understand if there were special family/health situations that caused irregular attendance. The pattern of attendance and scores of previous examinations could be reviewed to understand if the student has otherwise been attending and doing better in earlier grades and this examination/attendance is an aberration.
- j. An annual report on this matter and progress on it — on the number of students achieving adequate Competencies in Grades 5 and 8, and actions taken in this regard — will be prepared by each school.
- k. This report must ensure that students who have not achieved requisite competencies remain anonymous. A block — and district-level aggregation of this report will also be carried out and made available to the public.
- l. Data privacy will be a very important issue. This must be rigorously designed into the system, with respect to both the IT system and the process.

## 3.4.12 Approach to Board Examinations in Grades 10 and 12

### 3.4.12.1 Current Challenges

- a. Board examinations currently cause severe stress in students and their families for a variety of reasons, including:
  - i. **Social factors.** A student's performance in Board examinations is often considered a marker of intrinsic worth. There is also a widespread feeling that Board examinations are milestones which have life-altering effects.
  - ii. **High stakes.** The results of Board examinations are often used for college admissions and other purposes. Given the relative paucity of good Higher Education Institutions, this becomes a very important issue.
  - iii. **No second chances.** The way the Board examinations are currently held, underperformance on one day can severely affect Board examination results. Since these examinations are held only once in a year, there is no practical possibility of improvement for any student who has just had one bad day despite having learnt well.
  - iv. **Nature of examinations.** Since most such examinations tend to test accumulation of facts, it is a significant stressor, because remembering and reproducing a vast range of facts across multiple subjects in a high-stakes situation is far more difficult than responding to something which is assessing genuine understanding.
  - v. **Other influencers.** There is an ecosystem with commercial interests that creates artificial competitive pressures around Board examinations, hoping to benefit by offering coaching and tutoring services.

- b. Board examinations conducted at the end of Grades 10 and 12 are certification examinations to ascertain the extent to which students have achieved Competencies across curricular areas leading to the attainment of Curricular Goals. Most Board examinations struggle to do this well in a meaningful and consistent manner.
- c. Board examinations tend to focus on the capacity of students to reproduce learnt facts and little else. There is a misalignment between what these examinations should test and what they do test. Given that most examinations largely test rote memory, a very narrow range of Competencies are assessed. This gives an incomplete (at best) or incorrect (at worst) picture of student learning. Most test instruments are not backed by clear and detailed marking schemes, which leads to subjectivity by evaluators and questions of consistency. Thus, there remain serious concerns over the validity and reliability of these tests at the current time.
- d. The burden of the students from the existing content overload of the curriculum is exacerbated by this approach of the Board examinations.

### 3.4.12.2 Changes in Board Examinations

- a. Board examinations should **assess the achievement of Competencies** for the Secondary Stage as stated in the Curriculum. These examinations should provide a valid and reliable picture of student performance as per the Competencies in the Curriculum.
- b. The **burden** of Board examinations on students must be **reduced** through multiple actions:
  - i. Making them **easier and lighter** with significantly reduced content load
  - ii. Focussing sharply on Competencies rather than recounting facts
  - iii. Offering the same examination at least **twice a year**, so that students have an option to take the exam a second time and improve (See Point d. below)
  - iv. In the long term, all Boards should change to semester or term-based systems, where students can test in a subject as soon as they have completed the subject, which would further reduce the content load being tested in any one examination.
- c. It is the responsibility of Boards of Examination to **design and implement fair, reliable, and valid testing processes** and instruments to assess achievement of the articulated Competencies and certify students on the basis of this achievement. Articulation of Competencies is the responsibility of the appropriate academic authority (e.g., NCERT or SCERT).
- d. Board examinations should be offered at least twice a year to ensure that students have enough time and opportunity to perform well. Students can then appear for a Board examination in subjects they have completed and feel ready for. This process could be made possible through the creation of a comprehensive test item bank which can be used to create tests using suitable software. This will enable the move towards a system of on-demand examinations in the near future as described in NEP 2020.
- e. Vocational Education, Art Education, and Physical Education and Well-being are an integral part of the curriculum in this NCF. However, in this case, much of the assessment will have to be demonstration-based and not written-exam based. It is recommended that 75% of weightage in overall certification be given to such demonstration-based assessment, and

- only 25% to any written examination. Boards will also need to design and implement high-quality systems which can locally (at the school) assess on the basis of demonstration. This will need to be independent from the school, yet operationally feasible.
- f. Science and other subjects also need to have demonstration-based assessment, e.g., conducting experiments. This should have 20-25% weightage in the overall certification of the subject. This kind of assessment currently happens but needs significant improvement for validity and objectivity (similar to item e. above).
  - g. **Selection of test developers**, reviewers, translators, and evaluators for Board Examinations should be based on a rigorous process based on detailed guidelines. Boards of Examination should ensure that all test developers, reviewers, and evaluators go through formal University-certified courses on test development before they begin this work. In addition, there should be ongoing capacity building of test developers, evaluators, and reviewers to support them in the design of high-quality test instruments.
  - h. **Test development processes** for written examinations should be significantly streamlined. Some illustrative steps are given below:
    - i. Creating Assessment frameworks is the first step to start the process. Assessment frameworks ensure a well-articulated basis for deciding what to test. Such frameworks detail out the Competencies, Learning Outcomes, and content domains to be assessed.
    - ii. Designing a blueprint based on the assessment framework is the next step. A blueprint is a planning document where all the relevant information for a test is listed. The blueprint is usually a working document which undergoes change during the process of test item designing. The information in the blueprint includes Competencies, Learning Outcomes, and content domains to be tested, format of test items (e.g., MCQs, short written answers, others), length of the test, and marking schemes.
    - iii. Designing good quality test items and scoring guides is the third step. Broadly, test item formats are of two kinds — Selected Response questions (e.g., MCQs, True/False) where students must select the correct response from the options provided and Constructed Response questions where the student must develop the correct response. Some important quality parameters to be kept in mind while designing test items are language clarity, factual accuracy, quality of distractors, and choice of stimulus materials (e.g., graphics, illustrations, maps) used. The marking schemes are as important as the test items themselves.
    - iv. Once test items are developed, rigorous review procedures (e.g., test item panelling with an expert group) should be ensured. Marking schemes should also be reviewed along with test items.
  - i. Boards of examination should ensure periodic, rigorous reviews of the quality of test instruments designed.

### 3.4.12.3 Assessing Values and Dispositions in Board Examinations

Development of values and dispositions is best assessed through everyday school processes and based on observation and recording by the Teacher. This is described in Part B, Chapter 2.

If values and dispositions must be assessed through Board examinations, they should be done with very careful thought and thorough preparation. While standardised psychometric tests and individual diagnostic tests are available, these are best avoided for this purpose. Two possible methods are given below in options 1 and 2. Boards of examination may devise their own methods based on similar underlying principles.

**Option 1:** Give students questions based on the subject being assessed that are written in story formats and involve a certain conflict in their premise. The idea is to understand how students expect the protagonist in the story to respond to the said conflict. These conflicts could range from matters of inequality to issues of collaboration to using problem solving abilities. What matters is to allow the student being assessed to be a third party providing an opinion or solution to a problem given in a story. Removing the onus of direct personal response to a given situation may help students choose a response that reflects the students' own thought and not that which the student perceives as 'acceptable.' Designing such story-questions must be done with care. The rubrics for assessing responses to these story questions also need to be carefully crafted and consistently applied across student responses.

**Option 2:** Focus on the assessment of values and dispositions through examinations for Physical Education and Well-being, Vocational Education and Art Education, all of which have significant practice and demonstration components. All these three subjects have values and dispositions strongly built into their Curricular Goals and Competencies. Assessment of achievement of these Competencies will also need carefully designed tasks and rubrics for assessment that are coherent, consistent, and meaningful across student groups.

### 3.4.12.4 Challenges of Entry into Higher Education

As NEP 2020 explicitly recognises, India currently has a shortage of high-quality Higher Education Institutions. This has created a situation where the vast majority of students wanting to pursue Higher Education are 'competing' for the relatively small capacity available in the high-quality Higher Education Institutions. This situation is a significant cause of many of the most serious problems being faced by Secondary Stage students in India, including:

- a. High stress, and unfortunately too often, serious mental health issues. This is not limited to the students themselves but also affects their families.
- b. A widespread culture of coaching and tutoring, feeding commercial interests, leveraging this 'high competition' situation.
- c. A tendency to ignore real learning and focus on 'cracking' the entrance test or the Board examinations, whichever are used for college admissions.

NEP 2020 has a comprehensive set of recommendations to address this very significant set of challenges, including some that have been implemented already, such as the Common University Entrance Test, and some that are being planned and implemented such as substantial expansion of the number of high-quality Higher Education Institutions.

This NCF is taking clear steps to address the curricular matters in schools that contribute to the current undesirable situation including the significant matters pertaining to Board examinations addressed in this chapter.

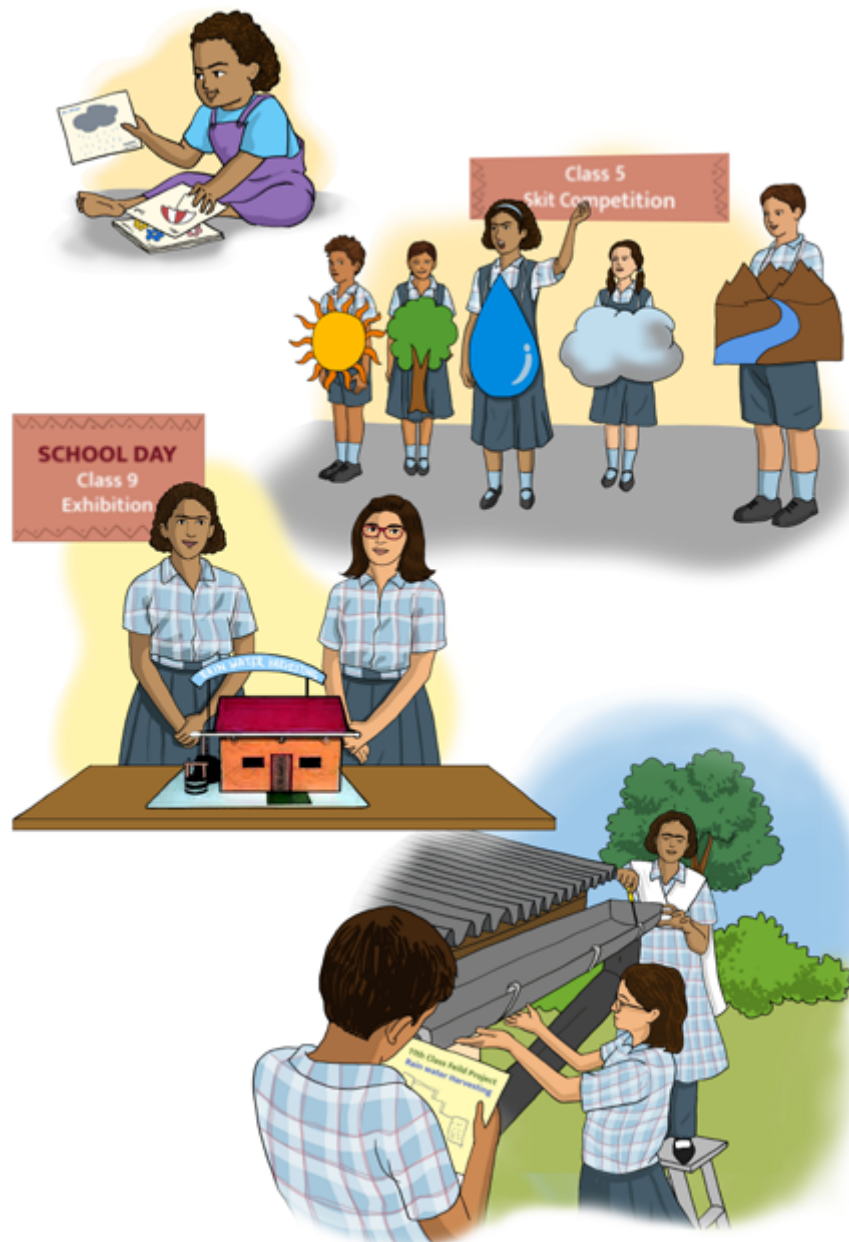


# Chapter 4

## Time Allocation

Time is an invaluable resource in every school. Thus, the allocation of time to different activities and areas of learning (often referred to as the 'timetable') must be carried out very carefully. It must consider practical aspects, such as time available, but also must enable the operationalisation of the curriculum including its priorities and balance.

This section describes the principles and approach to time allocation in a school that would bring this NCF to life. **The specific time allocations described in this section must be seen as illustrative, and the actual time allocations must be conducted by schools, in accordance with their contexts, using these principles and approach.**



## Section 4.1

# Considerations for Reduction of Content Load

As mentioned in NEP 2020 and discussed earlier in §3.2, care has been taken to ensure a reduction in the content load across Curricular Areas while designing the Learning Standards of this NCF.

This reduction in the content load across the Stages has been chalked out with the following considerations.

- a. Adequate time and space must be created for the development of genuine conceptual understanding, and of the development of capacities, rather than mere procedural or rote learning which often occurs due to content overload.
- b. Requisite space and time are needed for the Curricular Areas that have renewed focus and emphasis — like Art Education, Physical Education, and Vocational Education. Often, these areas have earlier been considered ‘co-curricular’ or ‘not important,’ without (or inadequate) specific Learning Standards and expectations. In this NCF, they need explicit and significant time allocation.
- c. The teaching time available in a working day, over an academic year for various Curricular Areas, and their distribution in a week’s timetable is limited and poses a challenge to the achievement of ‘content knowledge’ focussed learning.

These three factors imply that the content load in some Curricular Areas need to be rationalised and reduced. This will ensure both that these Curricular Areas are learnt meaningfully and that space is created for other Curricular Areas.

- a. The curriculum has been designed with an explicit focus on a range of essential Competencies and not coverage of content knowledge. Hence the content load (in terms of the amount of content to be learnt in a particular school Stage) has been reduced. This also means that the **Competencies must be viewed as the core essentials**, and the overall time available must enable their achievement.
- b. The illustrative timetable given later in this section might show an increased amount of time in the working day and week when compared to the existing school time. This increase in the number of daily hours at school does not directly indicate a heavier content load in individual Curricular Areas. The actual decision on the exact number of working hours would be taken by schools/school systems, and the proportion and rhythm of the illustrative timetable in the NCF could still be held.
- c. In the illustrative timetable given here, Curricular Areas such as Languages, Mathematics, Science, and Social Science may show a lower number of annual hours apportioned to them compared to the number of hours they may have received earlier in school. This has been made possible **by focussing on the core essentials in terms of Competencies (as in the Learning Standards)** in these areas.

Some of the points relevant to specific Curricular Areas, for the design choices made to reduce content are as follows:

- a. In Science, the focus on essential capacities of scientific inquiry allows for rationalisation of content. The concepts are therefore chosen based on the opportunities they provide for developing these capacities, thus reducing content load.
- b. In Mathematics, whatever is specialised prerequisite knowledge for certain types of higher education needs has been moved out from the compulsory curricular content to the choice-based curriculum in the Secondary Stage, while retaining all concepts/areas that are foundational to the subject.
- c. In Social Science, the approach based on themes and levels ensures the learning of essential Competencies while reducing content load.
- d. In Language education, there are three languages to be learnt in school education through Grade 10. A range of literary Curricular Goals are transferable from a known language to the learning of unfamiliar languages, and those that are specialised linguistic and literary goals have been moved to the choice-based Curricular Areas of the Secondary Stage, keeping only the core essential Competencies until Grade 10.

## Section 4.2

### Foundational Stage

Young children enjoy using their free time to explore their immediate environment. However, as they grow older, they also need organised, structured and guided activities that are play-based.

The day needs to be carefully organised so that all Developmental Domains receive adequate time and attention. While activities of each domain are connected with other domains (e.g., a good story will help language development as well as socio-emotional and ethical development), the routine must ensure that children get ample opportunity for a range of experiences in every domain.

#### 4.2.1 Considerations for the Daily Routine

The organisation of the day is based on the institutional setting, the number of working days, and the number of daily working hours for each day.

Each activity may be planned keeping in mind the attention span of the child. There may be a balance between child-initiated and Teacher-guided activities, group (whole group or small group) and individual or pair activities, and alternating activities (e.g., quieter activity after physical activity, group activity after individual activity, indoor activity after outdoor activity).

**Art and Craft, Outdoor Play, and Free Play must have adequate time and focus in the day.**

##### 4.2.1.1 Illustrative Daily Routine for Ages 3-6

There are multiple ways to organise the daily routine for children of ages 3-6.

Two illustrations are given below.

The first illustration is more appropriate in contexts where experiences such as Circle Time, Story Time, and Concept/Pre-numeracy Time are Teacher-guided, and Free Play and Corners Time are independent activities for the children.

Table 4.2i

| From                                          | To    | Duration   | Activity                       |
|-----------------------------------------------|-------|------------|--------------------------------|
| <b>Morning Routine/Free Play/Corners Time</b> |       |            |                                |
| 09:30                                         | 10:15 | 45 minutes | Circle time/Conversation       |
| 10:15                                         | 10:30 | 15 minutes | Snack Break                    |
| 10:30                                         | 10:45 | 15 minutes | Rhyme/Song/Music/Movement      |
| 11:45                                         | 11:45 | 1 hour     | Concept Time/Pre-numeracy      |
| 11:45                                         | 12:15 | 30 minutes | Art/Craft/Free Play            |
| 12:15                                         | 13:00 | 45 minutes | Corners Time                   |
| 13:00                                         | 13:45 | 45 minutes | Lunch Break (ages 3-4 go home) |
| 13:45                                         | 14:30 | 45 minutes | Emergent Literacy/Story Time   |
| 14:30                                         | 15:00 | 30 minutes | Outdoor Play and Wind Up       |

The second illustration is more appropriate in contexts with fewer children and where there is a range of appropriate material available for them to use. Emphasis is on self-learning and children learn to use materials independently and with care.

‘Work Time’ is allotted for children to independently choose the activity they would like to engage with. Children select activities of their choice and work with materials on those activities independently. Teachers observe children’s activities and extend support as and when required. Teachers also decide and present the next activity to an individual child, based on their observations during Work Time. Activities and the corresponding materials are arranged according to the domains of development (e.g., Physical, Cognitive, Language, Art) and children are made familiar with this arrangement.

Table 4.2ii

| From                                 | To    | Duration           | Activity                                  |
|--------------------------------------|-------|--------------------|-------------------------------------------|
| <b>Morning Routine + Silent Game</b> |       |                    |                                           |
| 09:30                                | 10:15 | 45 minutes         | Circle Time (Conversation, Songs, Poems)  |
| 10:15                                | 10:30 | 15 minutes         | Snack Break                               |
| 10:30                                | 12:15 | 1 hour, 45 minutes | Work Time                                 |
| 12:15                                | 13:00 | 45 minutes         | Art/Crafts/Sports/Free Play               |
| 13:00                                | 13:45 | 45 minutes         | Lunch Break (ages 3-4 go home)            |
| 13:45                                | 15:00 | 1 hour, 15 minutes | Language and Emergent Literacy (ages 4-6) |

Both the illustrations have a five-and-a-half-hour school day with about four-and-a-half hours of active instructional time for children of ages 4-6.

### 4.2.1.2 Illustrative Daily/Weekly Routine for Ages 6-8

The daily routine for ages 6-8 would be slightly longer and a little more structured.

While all Language classes for children 3-6 years can be handled together, for this age group dedicated time for each language is necessary. Specific blocks of time for literacy, numeracy, and art can be incorporated. R1 would need 90 minutes every day and R2 would need 60 minutes. Mathematics and numeracy would require 60 minutes a day. These periods of time can be organised into four blocks.

Table 4.2iii

| From  | To    | Duration   | Activity                             |
|-------|-------|------------|--------------------------------------|
| 09:00 | 09:30 | 30 minutes | Circle Time - Song/Movement          |
| 09:30 | 10:00 | 30 minutes | R1 - Oral Language                   |
| 10:00 | 10:30 | 30 minutes | R1 - Word Recognition                |
| 10:20 | 10:35 | 15 minutes | Snack Time                           |
| 10:35 | 11:35 | 1 hour     | Mathematics                          |
| 11:35 | 12:05 | 30 minutes | Art and Crafts                       |
| 12:05 | 12:45 | 30 minutes | R1 - Reading/Writing                 |
| 12:45 | 13:30 | 45 minutes | Lunch Break                          |
| 13:30 | 14:30 | 1 hour     | R2 - Oral Language, Word Recognition |
| 14:30 | 15:00 | 30 minutes | Play                                 |

A longer day would allow more time for activities such as art, sports and gardening. The illustrative weekly timetable below allows for such possibilities. As mentioned earlier, Mathematics and R1 would include activities in blocks of time.

Table 4.2iv

| From  | To    | Monday  | Tuesday   | Wednesday | Thursday  | Friday |
|-------|-------|---------|-----------|-----------|-----------|--------|
| 9:00  | 10:00 | Maths   | Maths     | R2        | Math      | R2     |
| 10:00 | 10:45 | R1      | R1        | R1        | R1        | R1     |
| 10:45 | 11:00 | Snacks  |           |           |           |        |
| 11:00 | 12:00 | R1      | R1        | R1        | R1        | R1     |
| 12:00 | 13:00 | R2      | R2        | Maths     | R2        | Art    |
| 13:00 | 13:45 | Lunch   |           |           |           |        |
| 13:45 | 14:45 | Art     | Maths     | Art       | Art       | Maths  |
| 14:45 | 15:30 | Library | Gardening | Sports    | Gardening | Sports |

## Section 4.3

### Considerations for Time Allocation across Preparatory, Middle, and Secondary Stages

- a. The annual working year for schools has 220 instruction/school-going days after taking into consideration national holidays, term breaks, and vacations.
- b. Of these 220 days, around 20 days may be considered for assessments and other assessment-related activities across Stages.
- c. Another 20 days may be set aside for school events and other similar activities (or as a buffer for less foreseeable events) in schools. The ten bagless days mandated by NEP 2020 can come from these 20 days spread across the year for the Middle and Secondary Stage students.
- d. Therefore, a safe estimate can be of 180 days of instruction time across these three Stages at school.
- e. Given the wide range of contexts in which schools operate across the country, a working school week has been taken as five and a half days (with Saturdays as half working days).
- f. Since not all Saturdays are likely to be working for all students, the model here has considered five and a half days of school every alternate week only.
- g. Given the range of subjects in the different Stages and the reasonable number of hours students can spend in school, a working school year would have around 34 working weeks of around 29 hours of instruction hours every week.
- h. The exact timings and order of subjects may be chosen to be the same each day (e.g., Language and Mathematics in the morning after a nutritious breakfast) in order to establish a daily rhythm for students; or they may be varied on a weekly basis to give different subjects different priorities each day within the time schedule. What works best for each school would depend on the local context, on whether breakfast or snacks can be offered to all students each morning, on the daylight hours in the local region, etc.

## Section 4.4

### Stage-specific Considerations

#### 4.4.1 Time Allocation for the Preparatory Stage

- a. Weekdays begin with an assembly for 25 minutes with 05 minutes to reach the classroom.
- b. Class time for all subjects is 40 minutes. Some subjects will require a block period of 80 minutes (1 hour 20 minutes).
- c. The transition time for students to prepare for the next class is 05 minutes.
- d. The two working Saturdays a month have a slightly different schedule compared to other working weekdays. No assembly on Saturdays.

- e. A snack break of 15 minutes and a lunch break of 45 minutes has been built in (see the illustrative timetable) on weekdays. Lunch is 30 minutes on Saturdays.
- f. R1 Language has Curricular Goals for the Library built into it in the design of Learning Standards. Therefore, the time is shared between these two subjects on the timetable.
- g. Languages (R1 and R2 together) have been given adequate time for students to become independent readers and writers in these, as the basis of learning other Curricular Areas.
- h. R2 has been given more time than R1 as gaining proficiency in the language by the end of this Stage will require additional time. Also, all other Curricular Areas are taught in the language of R1 and so add to the learning of R1.
- i. The World Around Us (TWAU) has also been given adequate time as the Preparatory Stage is a developmentally critical time to learn essential multidisciplinary skills of inquiring about and learning from the world around the students.
- j. Art Education and Physical Education (PE) have been given a fair share of their time considering the Learning Standards built into this Curriculum Framework.

Table 4.4i

| Preparatory                | Annual Hours | Annual Periods |
|----------------------------|--------------|----------------|
| R1+Library                 | 180          | 270            |
| R2                         | 190          | 285            |
| Mathematics (Maths)        | 185          | 277.5          |
| The World Around Us (TWAU) | 200          | 300            |
| Art Education (Art)        | 100          | 150            |
| Physical Education (PE)    | 100          | 150            |

*Number of classes in each subject on the illustrative timetable (see Table 4.4ii) matches these numbers approximately.*

## 4.4.2 Time Allocation for the Middle Stage

- a. The weekday begins with an assembly for 25 minutes with 05 minutes to reach the classroom.
- b. Class time for all subjects is 40 minutes. Some subjects will require a block period of 80 minutes (1 hour 20 minutes) for activities, lab work, and other such pedagogic requirements.
- c. The transition time for students to prepare for the next class is 05 minutes.
- d. The two working Saturdays a month have a slightly different schedule compared to other working weekdays. No assembly on Saturdays.
- e. A snack break of 15 minutes and a lunch break of 45 minutes has been built in (see the illustrative timetable) on weekdays. Lunch is 30 minutes on Saturdays.
- f. R1 Language has Curricular Goals for the Library built into it in the design of Learning Standards. Therefore, the time is shared between these two subjects on the timetable.

Table 4.4ii

| Illustrative timetable for the Preparatory Stage (Two Working Saturdays) |             |             |             |             |             |           |             |
|--------------------------------------------------------------------------|-------------|-------------|-------------|-------------|-------------|-----------|-------------|
| Time (hrs)                                                               | Monday      | Tuesday     | Wednesday   | Thursday    | Friday      | Saturday  |             |
| 830-855                                                                  | Assembly    | Assembly    | Assembly    | Assembly    | Assembly    | 830-910   | TWAO        |
| 900-940                                                                  | R1          | R1          | R1          | R1          | R2          | 915-955   | TWAO        |
| 945-1025                                                                 | R1          | Library     | R1          | Library     | R2          | 955-1015  | Snack break |
| 1030-1045                                                                | Snack break | Snack break | Snack break | Snack break | Snack break | 1020-1100 | R2          |
| 1050-1130                                                                | Maths       | Maths       | R2          | Maths       | Maths       | 1105-1145 | Art         |
| 1135-1205                                                                | Maths       | Maths       | R2          | Maths       | Maths       | 1150-1230 | PE          |
| 1205-1250                                                                | Lunch       | Lunch       | Lunch       | Lunch       | Lunch       | 1230-1300 | Lunch       |
| 1250-1330                                                                | TWAO        | R2          | TWAO        | R2          | TWAO        |           |             |
| 1335-1415                                                                | TWAO        | R2          | TWAO        | R2          | TWAO        |           |             |
| 1420-1500                                                                | PE          | Art         | Art         | TWAO        | PE          |           |             |
| 1505-1545                                                                | PE          | Art         | Art         | TWAO        | PE          |           |             |

Table 4.4iv

| Illustrative timetable for the Middle Stage (Two Working Saturdays ) |             |             |             |             |             |           |             |
|----------------------------------------------------------------------|-------------|-------------|-------------|-------------|-------------|-----------|-------------|
| Time                                                                 | Monday      | Tuesday     | Wednesday   | Thursday    | Friday      | Saturday  |             |
| 830-855                                                              | Assembly    | Assembly    | Assembly    | Assembly    | Assembly    | 830-910   | Library     |
| 900-940                                                              | R1          | Maths       | Maths       | Maths       | Maths       | 915-955   | Library     |
| 945-1025                                                             | R2          | R2          | R1          | Maths       | R1          | 955-1015  | Snack break |
| 1030-1045                                                            | Snack break | Snack break | Snack break | Snack break | Snack break | 1020-1100 | VE          |
| 1050-1130                                                            | SS          | SS          | SS          | SS          | SS          | 1105-1145 | Art         |
| 1135-1205                                                            | SS          | Science     | SS          | Science     | Science     | 1150-1230 | PE          |
| 1205-1250                                                            | Lunch       | Lunch       | Lunch       | Lunch       | Lunch       | 1230-1300 | Lunch       |
| 1250-1330                                                            | Science     | Art         | Science     | Art         | R2          |           |             |
| 1335-1415                                                            | Science     | Art         | Science     | Art         | R3          |           |             |
| 1420-1500                                                            | PE          | VE          | R3          | PE          | VE          |           |             |
| 1505-1545                                                            | PE          | VE          | R3          | PE          | VE          |           |             |

- g. A third Language (R3) gets introduced in the Middle Stage and requires an adequate amount of time to develop basic interpersonal communication skills. R3 has been given more time than R2 and R1 as the learning of a third unfamiliar language in the Middle Stage requires adequate time and practice.
- h. Science, Social Science, and Vocational Education as new Curricular Areas have been given a fair share of their time considering the Learning Standards built into this Curriculum Framework.

Table 4.4iii

| Middle                    | Annual Hours | Annual Periods |
|---------------------------|--------------|----------------|
| R1+Library                | 65           | 97.5           |
| R2                        | 70           | 105            |
| R3                        | 75           | 112.5          |
| Mathematics (Maths)       | 115          | 172.5          |
| Science                   | 160          | 240            |
| Social Science (SS)       | 160          | 240            |
| Art Education (Art)       | 100          | 150            |
| Physical Education (PE)   | 100          | 150            |
| Vocational Education (VE) | 110          | 165            |

*Number of classes in each subject on the illustrative timetable (see Table 4.4iv) matches these numbers approximately.*

### 4.4.3 Time Allocation for the Secondary Stage

- a. The weekday begins with an assembly for 25 minutes with 05 minutes to reach the classroom.
- b. Class time for all subjects is 50 minutes. Some subjects will require a block period of 100 minutes (1 hour 40 minutes) for hands-on work, activities, lab work, and other such pedagogic requirements.
- c. The transition time for students to prepare for the next class is 05 minutes.
- d. The two working Saturdays a month have a slightly different schedule compared to other working weekdays.
- e. A lunch break of 55 minutes has been built in (see the illustrative timetable) on weekdays and 30 minutes on Saturdays.
- f. There is an optional 'Additional Enrichment Period' (AEP) every evening and on the two working Saturdays after class. This is for students to use as additional time for enrichment in any subject of the curriculum. In Curricular Areas such as Art Education, Physical Education and Well-being, and Vocational Education, extended time for group/team practice, interschool competitions, subject clubs, etc. can be facilitated by the school in AEP if students choose to participate.

Table 4.4vi

| Illustrative timetable for the Secondary Stage (Grades 9 & 10) |          |          |           |          |          |             |       |
|----------------------------------------------------------------|----------|----------|-----------|----------|----------|-------------|-------|
| Time                                                           | Monday   | Tuesday  | Wednesday | Thursday | Friday   | Saturday(2) |       |
| 0800-0825                                                      | Assembly | Assembly | Assembly  | Assembly | Assembly | 800-850     | SS    |
| 0830-0920                                                      | R1       | R2       | Maths     | R2       | R1       | 855-945     | IDA   |
| 0925-1015                                                      | Maths    | Maths    | Maths     | Maths    | R3       | 950-1040    | R2    |
| 1020-1110                                                      | Art      | Science  | Science   | Science  | Art      | 1045-1135   | R3    |
| 1115-1205                                                      | Art      | PE       | Science   | Science  | Art      | 1140-1230   | R1    |
| 1205-1300                                                      | Lunch    | Lunch    | Lunch     | Lunch    | Lunch    | 1230-1300   | Lunch |
| 1300-1350                                                      | SS       | SS       | SS        | SS       | SS       | 1305-1355   | AEP*  |
| 1355-1445                                                      | IDA      | VE       | PE        | VE       | IDA      |             |       |
| 1450-1540                                                      | IDA      | VE       | PE        | VE       | IDA      |             |       |
| 1545-1635                                                      | AEP*     | AEP*     | AEP*      | AEP*     | AEP*     |             |       |
| *AEP = Additional Enrichment Period                            |          |          |           |          |          |             |       |

Box 4.4i

### Ten Bagless Days

Every student will take a fun course, during Grades 6-8, that gives a survey and hands-on experience of a sampling of important vocational crafts, such as carpentry, electric work, metal work, gardening, pottery making, etc., as decided by States and local communities and as mapped by local skilling needs. A practice-based curriculum for Grades 6-8 will be appropriately designed by NCERT while framing the NCFSE 2020-21. All students will participate in a 10-day bagless period sometime during Grades 6-8 where they intern with local vocational experts such as carpenters, gardeners, potters, artists, etc. Similar internship opportunities to learn vocational subjects may be made available to students throughout Grades 6-12, including holiday periods. Vocational courses through online mode will also be made available. Bagless days will be encouraged throughout the year for various types of enrichment activities involving the arts, quizzes, sports, and vocational crafts. Children will be given periodic exposure to activities outside school through visits to places/monuments of historical, cultural, and tourist importance, meeting local artists and craftsmen and visits higher educational institutions in their village/Tehsil/District/State. [NEP 2020, 4.26]

Learning in school is not limited to the experiences in the classroom. Recognising and legitimising this possibility, NEP 2020 has stated that provisions be made in the annual calendar of schools for ten bagless days in the Middle and Secondary Stages where students do not have to carry their books to school and use that time valuably in learning from local professionals from various walks of life and engage with various educational activities, such as vocational crafts and field trips.

The illustrative timetable given here in this NCF has accounted for these ten bagless days in the twenty days kept aside for school events.

- g. There is no separate Library time built into the timetable - students may use time from the AEP for this purpose.
- h. All three Languages (R1, R2, and R3) will continue in this Stage. By the end of Grade 10, schools will ensure the development of the capacity for basic communication for social purposes in R1, R2, and R3, and linguistic proficiency for academic use in the classrooms in R1 and R2, and to the extent possible, in R3.
- i. Interdisciplinary Areas (IDA) is a new Curricular Area and has been given a reasonable share of time on the timetable.

Table 4.4v

| Secondary                    | Annual Hours | Annual Periods |
|------------------------------|--------------|----------------|
| R1                           | 70           | 84             |
| R2                           | 70           | 84             |
| R3                           | 70           | 84             |
| Mathematics (Maths)          | 135          | 162            |
| Science                      | 135          | 162            |
| Social Science (SS)          | 125          | 150            |
| Interdisciplinary Area (IDA) | 125          | 150            |
| Art Education (Art)          | 115          | 138            |
| Physical Education (PE)      | 90           | 108            |
| Vocational Education (VE)    | 110          | 132            |

Number of classes in each subject on the illustrative timetable (see Table 4.4vi) matches these numbers approximately.

