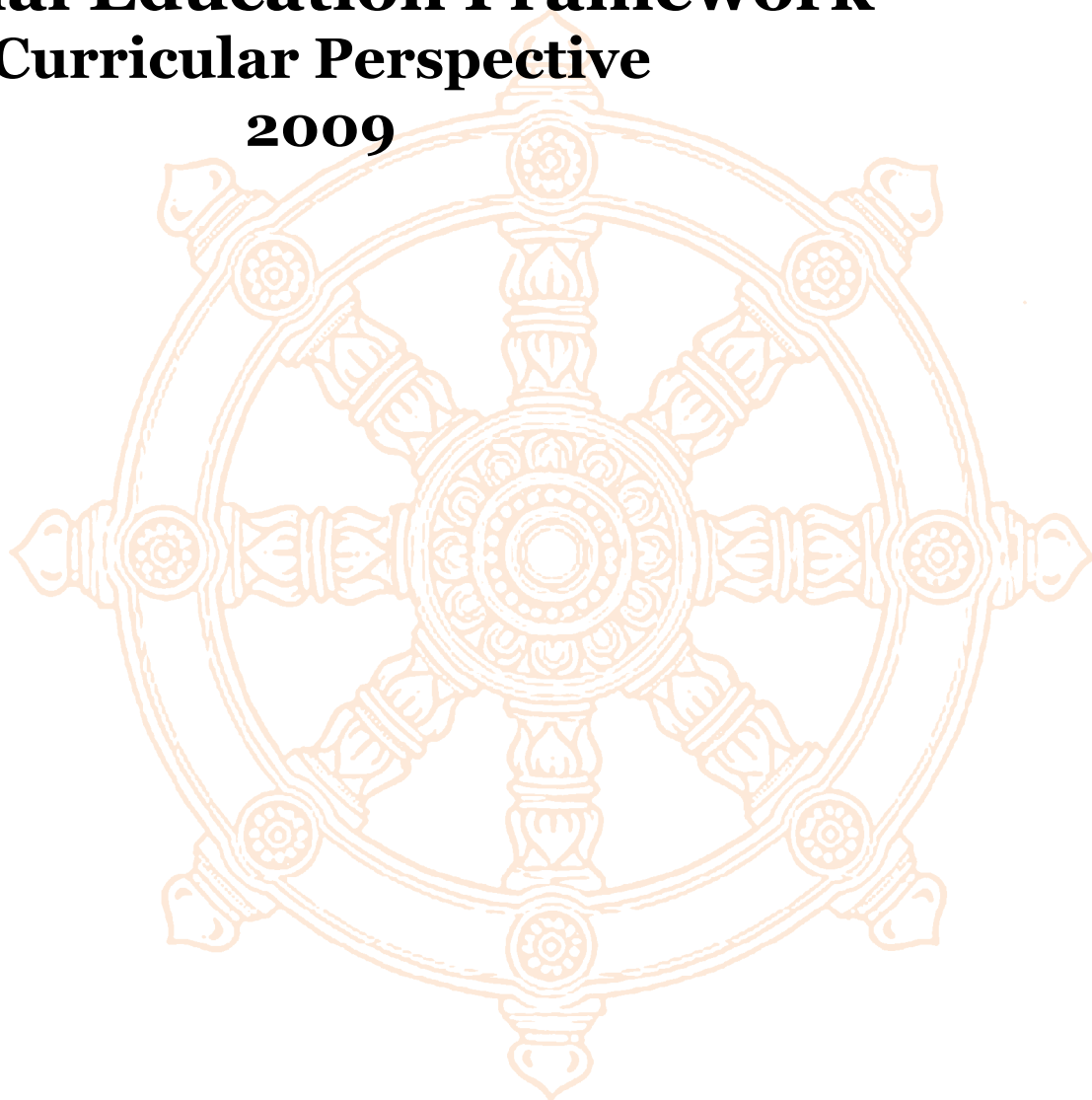




**National Education Framework
Curricular Perspective
2009**

National Education Framework Curricular Perspective 2009



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CHAPTER

1

Vision, Goals and Objectives of School Education

1.1 EXECUTIVE SUMMARY

The National Education Framework (NEF) intends to ensure equitable access to education, improve the quality of learning and create a systemic framework that provides scope for success and raise the standards of learning. With His Majesty's statement that the "nation's Vision can only be fulfilled if the scope of our dreams and aspirations are matched by the reality of our commitment to nurturing our future citizens", and the constitutional obligation that provides "education for the purpose of improving knowledge, values and skills of the entire population with education being directed towards the full development of the human personality", the NEF sets out to organize the curriculum to achieve its objectives.

The core group held a visioning workshop with the key stakeholders to capture the vision for the Bhutanese Education system that nurtures an ideal Bhutanese citizen. The Honorable Minister of Education made a key note address urging the participants to "dream our most cherished dreams and spin our most cherished dreams" and create a third space to identify the current reality and where Bhutan wants to move as a nation. The visioning workshop

strengthened the vision for Bhutan as a whole, and more specifically the vision of a Bhutanese citizen.

To unfold the vision into a reality certain goals are identified to provide a road map and the relevant indicators that demonstrate how the country is doing. People have a vision to create an economically prosperous, environmentally sustainable, well governed and a culturally vibrant Bhutan.

The principles described in this document are derived from philosophical orientation, psychological principles and socio cultural perspectives and have the child as the focus. It provides a clear direction of how curriculum is organized in a school. The Buddhist way of life, the Bhutanese culture and the societal values are an integral part of the child's life and are encouraged and modeled in the everyday curriculum.

One of the significant aspects of the curriculum is its contribution to the gross national happiness by providing scope for demonstrating relevant actions in daily life. This curriculum also focuses on the development of life skills that enable the individuals to translate their knowledge, skills and values into actual abilities.

The key objectives of a school curriculum and the vocational education and training are elaborated which creates a base for structuring the stages of schooling. The entire schooling is organized into three key stages, namely **Key Stage 1** (K1 to Class 2), **Key Stage 2** (Class 3 to 6) and **Key Stage 3** (Class 7 to 10) and the stage of higher secondary education.

One of the significant steps taken is to create a strong Early Childhood Education and Care component before the formal schooling begins. The emphasis is to provide access to early stimulation and a program on school readiness and to ensure that the window of opportunity is not lost. In the primary and secondary education the curricular focus is on making the learning meaningful and relevant to the students and providing the scope for students constructing their knowledge and not just acquiring information. The curriculum up to this level is broad based in the sense that the schools provide a diversity of experiences that develop the individual holistically. In the higher secondary stage the diversification of curriculum ensures that students who want to pursue higher education have the opportunity to do so and those who wish to enter the world of work get adequate preparation.

This means that reforms are required in the teaching learning processes, relevant resources are required to improve the quality of classroom transactions, the nature of assessment needs to be modified and most importantly the professional development of teachers has to be organized to align with the objectives. With the demand for English and the wish to retain the learning of Dzongkha there are suggestions for simultaneous introduction of both languages initially with the use of mother tongue as a facilitative language in the early years. With school experience and a strong language acquisition approach students are ready in the key stage 2 to use English

as a medium of instruction. In this context the instructional time is an equally important consideration. Considering the fact that students take long hours to reach the school, the terrain is difficult and weather conditions are severe, the time given is suggestive and can be modified suitably for local contexts.

In this document the rationale and scope of the key learning areas (subjects offered) are explained and significant changes are recommended that focus on integrating knowledge, understanding concepts and acquiring of skills relevant in the present world and for future needs. Children learn differently and at different pace. The learning standards for each subject area at the key stages are suggested they provide the time and scope for students to achieve the level at their pace. All the subject areas till Class 10 form the core curriculum that each student is expected to achieve.

In the context of pedagogical practices this document elaborates certain principles that determine the effective transaction of the curriculum and establish a relationship between the teacher and the student. The assessment principles focus not only on learning and achievement but also on changing the way teachers teach and students learn.

Finally the document aspires to involve all the stakeholders of education to make the reform successful and meaningful for the child.

1.2 PURPOSE OF NEF

The National Education Framework seeks to enhance the quality and raise progressively the standards of education in Bhutan.

We recognize that realizing the education rights of all Bhutanese children will necessitate complementary measures for (i) ensuring equitable access to education and (ii) improving quality and relevance

of education to enhance student learning. While enhancing the outreach of primary and secondary education to children in rural and remote communities and others who are unable to enroll in schools remains a major priority, the task of improving quality assumes more significance in the context of the phenomenon of under achievement. Research shows that expanding educational access without ensuring acceptable levels of educational quality results in low efficiency – children do not learn, grade repetition remains high and a large number of students drop out before completing basic education. Therefore, efforts to promote equitable access and improve quality ought to go hand in hand.

Efforts to promote qualitative improvement will involve a package of interventions designed to improve quality at three levels:

- at the level of the individual learner;
- at the school/institutional level, and
- at the level of the education system as a whole.

Interventions designed to improve quality at the level of the individual learner will seek to improve the quality of his/her learning, i.e. the extent to which the expected essential learnings are attained both in terms of their breadth and depth and the degree in which the potential of the learner is realized.

Interventions designed to improve quality at the institutional level will focus on enabling the schools to attain the high standards of performance that are set up and on improving the ways in which the learners are helped to realize them. We want to move towards a system where the schools take responsibility to create a learning climate, enable teachers to deepen their knowledge and skills required and make informed decisions to improve their school performance.

At the level of the education system as a whole, qualitative improvement initiatives will focus on improving the policies which make possible the learning gains for the individual learners and the creation of a climate of achievement and creativity in the institutions and other learning places. We want to move from a system which is focused mainly on providing and monitoring inputs to schooling—access, financing, teacher certification, school facilities, etc. -- to a system in which the districts and local efforts play an active role in monitoring school performance and developing alternative structures for the delivery of schooling and build an interdependence of local structures taking decisions on what students should know and be able to do.

1.3 HIS MAJESTY'S ADDRESS TO THE NATION

In the context of education reform the most inspiring personality is His Majesty Jigme Khesar Namgyel Wangchuck himself. People of Bhutan draw their inspiration and the motivation to move forward from His Majesty's involvement in the development of the education system in Bhutan. As his Majesty¹ rightly puts it, "if there is one word that will stand out above all other words when we describe our country's amazing journey of modernization over the last few decades - **it is Education**. Our institutions, our leaders of today – all of us, including me – are the proud products of the Bhutanese education system."

He goes on to state that, "Our education system built and nurtured with your hard work and dedication has served us well. But we must understand that the times have changed here in Bhutan and all around us in the world. We cannot face new challenges with the same tools. The private sector is adjusting itself to new challenges and opportunities; the bureaucracy is finding its place in a new system of governance; the entire country is adapting to new

roles in our young democracy. Thus, every person and institution must evolve to meet the aspirations of our people and the changing needs of our nation. Therefore it is the duty of parents, policy makers and the government to put the right tools in their hands – the right books, the right curriculum, and the right direction.”

Going further he elaborates that to realize the vision of Bhutan, “we must build an education system that nurtures people with the right skills, knowledge and training to fulfill this Vision. The sooner we realize this better. We can dream of a strong bureaucracy of the highest standards but we must not forget that those standards must be set in school where our future bureaucrats are. We can dream of world class IT parks, of being an international financial centre, of competing at international standards but we must not forget that we can have none of these if our schools and colleges do not bestow such talents and skills. We can dream of a nation of environmental conservation, GNH, a strong economy, a vibrant democracy and yet none are possible or sustainable if we have not already toiled and sweated in the building of a strong education system.”

It is thus imperative that the country must also bring new plans and preparation to meet the changing realities. He points out that in all the countries where progress has been strong in the areas they strive to develop, the strength of the education system has been in Math and Science. In Bhutan, Mathematics is one of our main weaknesses - most students do not like Math and the majority scores less than 50%. We have similar weaknesses in Science and amazingly, even English.

He states that, “a nation’s future will mirror the quality of her youth – a nation cannot fool herself into thinking of a bright future when she has not invested wisely in her children.”

As he rightly puts it – “Our nation’s Vision can only be fulfilled if the scope of our dreams and aspirations are matched by the reality of our commitment to nurturing our future citizens.” With this encouraging note it becomes all the more imperative to reorganize and restructure the curriculum framework to meet the present day challenges of education.

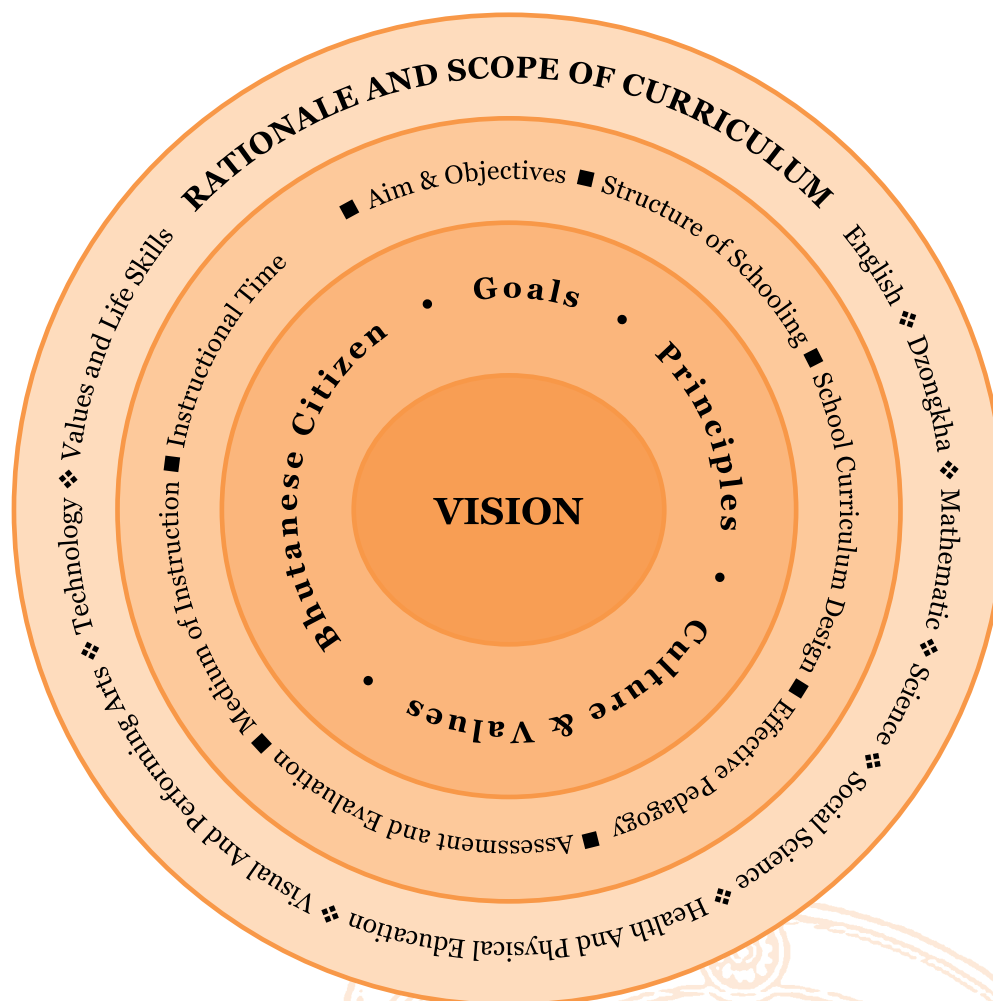
1.4 CONSTITUTIONAL OBLIGATION

The Constitution of the Kingdom of Bhutan has clear statements regarding the educational principles of state policy. It gives direction to the people of Bhutan about their responsibilities towards the development and nurturing of young Bhutanese Citizen. The education framework upholds the educational principles stated in the constitution and makes efforts to realize it for its citizens.

Article 9 of The Constitution of the Kingdom of Bhutan² elaborates on the Principles of State Policy. The following statements elaborates on the areas that the state provides to its citizens.

- The state shall strive to promote those circumstances that will enable the successful pursuit of Gross National Happiness.
- The state shall endeavour to provide the right to work, vocational guidance and training, and just and favourable conditions of work.
- The state shall endeavour to provide education for the purpose of improving knowledge, values and skills of the entire population with education being directed towards the full development of the human personality.
- The state shall provide free education to all children of school going age up to tenth standard and ensure that technical and professional education shall be generally available and that higher education shall be equally accessible to all on the basis of merit.

1.5 SCHEMATIC VIEW OF THE CHAPTER



1.6 THE NATIONAL VISION³

Vision for Bhutan

- An economically prosperous, environmentally sustainable, well governed, and culturally vibrant Bhutan.
- A creative and highly skilled citizen capable of responding to the emerging global challenges.
- Young people who will be contributing to equitable and sustainable socio-economic development and well-being of the community in which they live.

1.7 EDUCATION GOALS AND INDICATORS

The 12 education goals⁴ that Bhutan aims to achieve are:

1. All children aged 0-5 years are supported to ensure that they grow healthy, develop to their full potential, and receive care and stimulation to promote best possible start in life; and all 4 - 5-year olds are adequately prepared to commence primary schooling and enabled to attain the learning readiness required to make steady progress in the early years of primary education. To ensure:
 - Health index: all children immunized by age 1 (BCG, polio, DPT, MMR, Hepatitis B) by 2015
 - Nutrition : Weight for Age and Weight for Height (MDG Indicators)
 - Early Stimulation Programmes in home and community and early

- learning centres
 - Sensitize communities through multimedia public information including radio, TV, newspapers and other emerging technologies.
2. All school-age children (6-16 years) are enabled to complete quality basic education that is inclusive, learner-centered and gender-equitable resulting in:
 - Increase in the High school completion rate
 - Decrease in the High school dropout rate
 - Achieve gender parity at the secondary level
 3. All basic school graduates will have to be provided with opportunity to complete higher secondary education. Key indicators are:
 - Each Dzongkhag has a higher secondary school with boarding facilities
 - Achieve gender parity at higher secondary and tertiary level so that girls get more opportunity for better remunerative jobs and high profile occupations.
 - Well designed assessment system for tracking progress and public examination at the end of Classes 10th and 12th.
 4. Higher secondary education diversified to ensure that:
 - At least 70 per cent of basic education graduates are provided with opportunities to complete general higher secondary education by 2020.
 - At least 30 per cent of basic education graduates are provided with opportunities to complete vocational education and training and to prepare them for productive employment by 2020.
 - Set up Career Information systems for making informed choices on vocation taken up
 5. At least 70 per cent of higher secondary education graduates are provided with opportunities to pursue and complete tertiary education by 2020.
 6. All differently-abled children and young people are provided with opportunities to access basic education.
 7. Ensure that all pupils are enabled to attain the standards established for the essential learnings (knowledge, skills, attitudes and values). Key actions are to:
 - Raise the Student achievement level aligned to the grade level expectancies.
 - Achieve Science, Math and language proficiency level comparable to international benchmarks
 - Conduct national education assessment every four years, at the end of Class 4, 6 and 10 to track the quality of learning.
 8. Curricular relevance is enhanced to promote holistic development of pupils and to make learning contents more relevant to the diverse needs of learners and to the changing national goals and educational priorities. Key action is:
 - Implement standards based curriculum in all subject areas from 2010.
 9. The system of teacher education reformed to ensure adequate supply of teachers with quality, character and competence and to institutionalize continuing professional development of practicing teachers. Resulting in
 - A criterion based system of selection, recruitment and retention of teachers.
 - Defined Career path for teachers in the school system
 - All teachers are graduates by the year 2020
 - Ongoing school embedded profes-

- sional development program
 - Four week professional development course for in service teachers every three years in the university.
10. The entire population is made literate in the national language (Dzongkha) and numerate, and the productivity of young people and adults in the age group 18-40 is enhanced through expanded access to life long learning, skill training and life-skills programmes. To be achieved by:
- Continuing Education opportunities in more number of towns and remote places.
 - Increase in the percentage of adults becoming literate and numerate by providing different models of learning.
11. The structures for the planning and management of the education sector are strengthened, decentralised and made more responsive to the emerging educational priorities and to the demands of the expanding school education;
12. Partnership between schools, parents, communities, employers and private providers (public-private partnership) established to support the expansion and qualitative improvement of educational services. Important step:
- Pace setting schools of excellence in partnership with the private sector with a government regulatory mechanism.
 - Parent Association active in influencing decisions in schools

The need to improve the quality of learning in the schools has long been recognized. Bhutan as a nation needs clear education goals with visible and measurable indicators to achieve the desired results. These goals will provide direction to improve the quality of education, create a strong support for education reform, provide comparable data for informed

decision making, and make the district and local initiatives successful. While there is a link between the goals and the indicators of measurement it is important to interpret these results in the context of the reform that could perhaps influence the estimates of the progress.

1.8 PRINCIPLES GUIDING NATIONAL EDUCATION FRAMEWORK

The immediate goal of this document is to provide a framework that can aid current educational reform efforts. The curriculum framework is based upon certain guiding principles. These principles are derived from (a) philosophical orientation of learning in Bhutan, (b) psychology of human development and learning, (c) the socio cultural environment and (d) economic - political situation of Bhutan and the child itself as an individual entity. The principles keep the learner at the centre and affirm that curriculum adheres to all the principles described. This section focuses on the child as a learner, who constructs its own knowledge, that childhood is a period of growth and change and that the significant adults and the society form a scaffold that supports the growth and development of the child.



1.8.1 Developmental Appropriateness

A developmentally appropriate curriculum is based on knowledge about how children

develop and learn. As Katz states⁵, “In developmental approach to curriculum design....(decisions) about what should be learned and how best it should be learned depend on what we know of the learner’s developmental status and our understanding of the relationship between early experience and subsequent development.” The period from infancy to adolescence is marked by rapid growth and change. Because development and learning are so complex, no one theory is sufficient to explain these phenomena. Theories have undergone changes, they are constantly questioned, and researchers obtain new knowledge. However a broad based review of literature shows that there is a wide agreement about certain patterns in children’s growth and development. Following is a list of principles that guide decisions about developmentally appropriate curriculum.

1.8.2 Learner and Learning

Children learn in a variety of ways..... through experiences, making and doing things, experimentation, reading and researching, thinking and reflecting, expressing themselves in speech, writing, through movement both individually and with others. Different kinds of research contribute to the understanding of learner and learning. These are experimental studies, observational studies, ethnographic studies, and field studies in the schools and classrooms. Most recent technologies have made it possible to learn about the brain functioning and optimal conditions for learning. Brain research contributes new understandings about how children learn. Brain research extends and supports the contributions of Piaget (1969) — that children learn through interactions and experiences within their environments

Development follows a pattern

- o Children’s growth and development proceed in a predictable direction towards greater complexity, organization and internalization.
- o Development occurs in a relatively ordered sequence with later knowledge, skills and values built on those acquired earlier.
- o Early development is critical and can have a cumulative and deferred impact on later development.

Development is holistic

- o Development is holistic; comprises of five major domains that are inter-dependent. The five domains of children’s development are physical; cognitive; personal, social and emotional, language and creative. The child develops as a whole and development in one domain can significantly impact the development in other areas.

Development rate varies

- o Development and intelligence do not proceed at the same rate. Different intelligence develops at different time and pace.
- o Growth is uneven. Learning comes in spurts and be followed by periods of consolidation.

Environment and heredity interact

- o Development and learning result from the interaction of biological maturation and the environment that the child lives in.
- o Development and learning is distinctly influenced by culture, environment and personality
- o Children are active learners; draw on their varied experiences to construct their understanding of the world around them.
- o Children develop and learn best in a safe and secure environment, where they are valued and their needs are met.

— and of Vygotsky (1978) — that both personal and social meanings are socially constructed; furthermore, that language is central to this process rather than just reflecting thought (Braunger & Lewis 1997, p. 12). Learning takes place within and outside schools. Schools can provide opportunity for all the learners to learn with understanding and relate to the world.

The Bhutanese system of learning consists of the triadic activities of (*thos pa*, literally hearing), reflection (*bsam pa*, literally thinking) and meditation (*sgom pa*, literally practising), of which the first two constitute scholarly activities. These three are also sometimes presented in the binary sets of reading (*klog pa*), which includes the first two, and renunciation (*spong ba*), which corresponds to the third activity of practice or meditation (Karma, 2000)⁶. While the above teachings are done through oral transmission, it may be noted here that the tradition of thirteen crafts (*bzo rig bcu gsum*), the concept of which is unique to Bhutan, is less associated with religious education and is often practised outside religious institutions. It concentrates more on hands on activities practiced outside the monasteries.

The dominance of modern education, brain research and recent findings has influenced the traditional system of learning in the country. Bhutan will have to respond to the growing demands of scientific methods of learning while retaining the essentials of its traditional approach. What is required is to accept and create a common ground on which modernists can recognize the value of traditional thinkers and traditionalists can quench the spiritual thirst of the modernists. Within the gamut of emerging modern approach to learning we try to conserve the essential value system of Buddhist philosophy. Only then the cultural and linguistic gap between the two can be merged. This convergence has a significant

impact on the learning system of Bhutan.

Since the focus is to make learning meaningful it is important to understand how children learn and what implication it has on the child centered pedagogy.

Children learn through active participation.

- Children learn best when they are physically, intellectually, and emotionally engaged in meaningful experiences. When children are motivated, they maintain engagement, attention, and focus, they persist though the activity may be difficult.
- Play engage the child's whole being. Through their play, children develop sensory motor control, eye-hand co-ordination, problem solving skills, social skills and creativity. Physical, social, intellectual, and emotional development is all enhanced through play.
- Children represent their understanding in a variety of ways. As children grow their repertoire of the forms of representation expands. Learning a variety of ways of representing allows students with diverse backgrounds, interests, and abilities to be successful.
- Children learn by reflecting on their own learning. Reflection develops as a process. Children first learn about their thinking through discussion and dialogue, then they internalize the reflective talk with others as "inner speech" (Vygotsky 1978) or "inner dialogue" (Lindfors 1999).

Children learn in diverse ways and at a different pace.

- Children vary in their thinking and learning styles, their previous experiences and the pace at which they learn. Current understanding is that intelligence is multidimensional

and that it cannot be captured by a single ability. One useful model for education is Gardner's (1983; 1993) Theory of Multiple Intelligences. Gardner identifies several distinct types of intelligence, including linguistic, musical, logical-mathematical, spatial, bodily - kinesthetic, interpersonal, and intrapersonal.

- Children vary in their learning needs, they learn at different rates and in different degrees. Some learn fast, while others learn at a slow and easy pace. However children's need for safety, security, belongingness, care and equal opportunities remain similar to all.
- Children come from different cultural and linguistic backgrounds. Connecting language to their direct experiences allows children to create various ways of thinking about and understanding the world.

Learning is both an individual and a group process.

- Children begin to learn from birth and it continues through its life. As children learn they begin to make connections between new and previously known information. They acquire knowledge, skills and attitudes. Thus learning is an interplay of development and experience, personal and social, and in which cognition and emotion play an equally important role.
- Children construct meaning by integrating new information with prior knowledge, cognitive changes occur due to conceptual reorganization. Brain actively analyses patterns and relationship and also creates patterns by synthesizing the information. Language plays an important role by mediating learning by moving the child from the concrete activity to the abstract realm of concepts (Vygotsky, 1978).

- Competent learners self-regulate their learning. Successful learners understand their learning process, adapt their learning to different situations, transfer their learning to new and unfamiliar situations. Self-regulation develops through learning experiences that promote autonomy rather than dependence (Deci et al. 1991; Sweet & Guthrie 1996).
- Because learning is also a social and cultural process, children learn through social interaction, construct their own understanding of concepts, and they benefit from instruction by more competent peers and adults. Vygotsky's (1978) Theory of the Zone of Proximal Development provides a framework for understanding the relationship between the personal and social, between development and learning. Vygotsky viewed the primary role of the adult as one of facilitator or mediator, who guides the child's participation in a learning task by providing directions and clues. These actions of the adult or the competent peer provide a **scaffold** for the learning child: "the adult observes what the child does, determines the degree and type of support needed, guides the child's participation and gradually removes support to allow the learner to take on the tasks independently."

1.8.3 Teaching for Constructing Knowledge

Traditionally teachers use didactic instructional methods, where they provide students with information, considered by the teacher as 'true knowledge'. Students are expected to memorize this information and reproduce the same in the examinations. This kind of information loading education puts a lot of stress on students. The question that arises is, how can the school make learning more meaningful for students. In order to understand this shift, teachers must first understand that their existing teaching-learning practices

are output driven and does not provide the scope for constructing knowledge by the children.

Constructivism is a philosophy founded on the belief that we construct our own understanding of the world by reflecting on our experiences that had meaning and importance to us. We connect new ideas with our existing ones; each of us generates our own “rules” and “mental models”, which we use to make sense of our experiences. Learning is the process of adjusting our mental models to accommodate new experiences. These situations had to occur in a social context such as a classroom where students joined in manipulating materials and thus created a community of learners who built their knowledge together.

Some of the principles on which constructivism⁷ is based upon are:

- Teacher provides opportunities to trigger the students’ own thinking. One of the prerequisites for this would be that the teacher believes that students can think.
- Apart from being familiar with the subject matter of the curriculum; teachers also have to have a repertoire of situations that evokes the students’ spontaneous interest, encourages learner initiative and autonomy, nurtures learners natural curiosity and enquiry learning.
- Many words that teachers associate with specialized meanings in the particular discipline evoke very different associations in the beginning student. In order to foster reorganization of existing meaning and the formation of new conceptual relations, teachers must have at least an inkling of the students’ present ideas and theories.
- The formation of concepts requires reflection, and teachers must have some means to provoke it. By far the easiest way is to get students to talk about what

they are thinking. This review is a form of reflection and often brings to the surface inconsistencies or gaps in a train of thought.

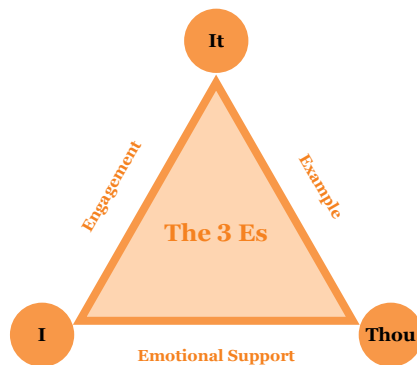
Learning takes place through interactions with the environment, nature and people, both through actions and language. A Student in Constructivist Classroom typically explores, debates, asks questions, formulates, applies and reflects, tests hypothesis and draws his own conclusions. Since it encourages cooperative learning the students compare their findings and results with those of others and learn from each other. The child demonstrates solutions and procedures, elaborates and interprets ideas and gets the opportunity to verify and validates his own beliefs.

A Constructivist Teacher is like the leader of a democratic learning group who accepts student autonomy and initiative. The teacher creates tasks and situations that are challenging and allows independent thinking and multiple ways of solving the problem and encourages creativity and self discipline in learners. Learning experiences are designed in such a way that students go beyond the textbooks to seek knowledge and understanding. The teacher adjusts the teaching strategies to students’ responses, encourages students to analyze, interpret and predict, asks open- ended questions and uses evidence, primary sources and interactive material in the teaching repertoire. In other words the teacher provides support with appropriate challenge to move the child’s understanding forward.

1.8.4 Effective Pedagogy

Learning is a result of active interaction between a teacher, student and the surrounding world to which they belong to. Teacher and student engagement is critical because it has the potential to define whose knowledge becomes a part of the school related knowledge and whose voice will eventually shape it. Children are not

passive learners, they need opportunity to reason and think and have the courage to dissent. What children bring to the school is important to further the learning process. Participatory teaching and learning, emotion and experience need to have a place in the classroom. David Hawkins (1974)⁸ elaborates upon this idea in his model of “I – thou – It”



“I” the child has a special relationship with the adults **“Thou”**. From the day the child is born it has an emotional connect first with the mother and then with other adults around. In a school setting specifically the teacher is the “thou”. Learning starts the moment children come in contact with the world around. They have a knack for sorting their experiences and fitting them together like a jigsaw. This helps them in developing relationships with people and objects around them. They test and try things out before arriving at any conclusions. It is the relationships that one forms with those around that shape the personality and character of an individual.

Indeed, even the great hero Achilles cannot be lord of anything, much less know his own worth, except through a “resonance with others”. Similarly, children acquire competence and knowledge only when they are able to communicate with others who are involved with them in their learning and activities.

Hence, as Hawkins says, “without a **Thou**, the **I** cannot evolve. Without an **It** there is no content for the context, no figure

and no heat, but only an affair of mirrors confronting each other”.

How does the third corner of the triangle⁹ affect the relations between the other two corners? How does the “IT” enter into the pattern of mutual interest and exchange between the teacher and the child?

Teaching entails a set of practices or methodologies that can be used to attain this goal. A teacher must necessarily intervene and connect so that she and the students can actually be involved together in the process of sharing the world they are already a part of. This is very important. The **IT** forms the context, the subject matter and the goal that both teacher and the student strive for. The teacher creates an opportunity for the students to nurture their imagination, foster creativity, challenge their thinking, and encourage students to be independent learners. While the teacher encourages and scaffolds the student to engage (physically, emotionally and behaviourally) with the **IT**, she also takes a participatory role with the students to seek knowledge of the **IT**. She sets an example of being curious, imaginative, questioning and seeking knowledge and in the process observing, sharing and reflecting along with the students.

There are bound to be several challenges, but the attitude should be not to give up. Perseverance, optimism and hope are essential. The positives to be gained from this ‘I-Thou’ relationship between the teacher and the child are ‘confidence’, ‘trust’ and ‘respect’. The teacher has done something for the child which he/she could not do for himself/herself, and he/she knows it. Of course, this function of the teacher isn’t going to go on forever: it is bound to end when the children leave school. By that time it is expected that they would have internalized this function and, in a sense, become educated enough to be their own teacher.

1.8.5 Language Learning

Languages are national resources. Learning different languages enables children to engage meaningfully with people of other cultures and languages, and this in turn enhances their understanding of their own language. Children understand that language is a system for communication of meanings deeply embedded in a culture. It provides opportunities to children and adults to engage in real life situations and connect with the wider world. Most importantly language develops the critical thinking and reasoning of an individual and as a result enables them to be lifelong learners.

Children are born with an innate ability to learn different languages, and that individual languages are acquired in specific socio-cultural and political contexts. As Aurorin (1977)¹⁰ points out, “language cannot exist and develop outside society. Development of language is ultimately stimulated by our cultural heritage and the needs of social development, but we should not overlook the reverse dependence either. Human society cannot do without language as it is the most important, most perfect and universal means of communication, formation of thought and accumulation and transmission of expression.” It is equally important to realise that language are not ‘discrete objects out there’, almost frozen in time and space, both physical and mental. They are actually constantly changing, fluid systems of behaviour that human beings acquire and change to define themselves and the world around them. Very often languages are treated as entities and people form strong stereotypes about them. We need to be aware of both these aspects of language.

Language learning is also developmental. It takes considerable amount of time to become fluent in a new language. Young children take at least 5 to 6 years to develop the basic skills in their first language and second language learning may take much

longer. Second language acquisition takes many years and is often described in terms of Cummins¹¹ (1976) construct of two types of proficiency. The first is called Basic Interpersonal and Communication Skills (BICS) and the second type of proficiency is called Cognitive Academic Language Proficiency (CALP). BICS is the language skill used for everyday communication and is related to the context, real life events and helps in achieving the daily routine functions. However BICS proficiency does not ensure that it will translate into academic and abstract language of school learning. Academic tasks require deeper cognitive engagement and this is achieved through CALP, which is less context dependent, has technical vocabularies, complex grammar, and requires higher order thinking and expression.

There is a strong and yet complex relationship among language, culture, and thought. It has remained one of the most challenging puzzles for linguists, psychologists, and cognitive scientists in general. According to the strong version of the Sapir-Whorf Hypothesis, our thought is entirely constructed by our linguistic system: “The background linguistic system of each language . . . is itself the shaper of ideas, the programme and guide for the individual’s mental activity” (Whorf quoted in Carroll 1956: 212–14). The cognitive, social, and cultural patterns that govern our perception of the world are largely shaped, formulated, and even dictated by the structures of the languages we speak.

In Bhutan Dzongkha and other dialects exist in the society. However English in Bhutan is becoming a part of this matrix, though marginally at the moment, but with a clear indication of becoming an inevitable part of the overall Bhutanese linguistic and cultural repertoire. One of the major objectives of language teaching is to equip learners with the ability to become literate, and read and

write with understanding. Our effort is to sustain and enhance the degree of multilingualism and the metalinguistic awareness that children have.

1.8.6 Knowledge and Understanding

The school curriculum has certain aims and it seeks to fulfill those aims. The curriculum needs to provide opportunities to create a knowledge base where children can think rationally and appreciate their culture, be a productive member of the society. The knowledge children acquire and the understanding that they develop is organized in various disciplines. Knowledge is a creation of the human mind. It involves experience, concept formation, ways of investigation and ways of validating the findings. In other words there has to be some kind of experience base for knowledge. The knowledge has several forms and there are certain specific features in the developed forms of knowledge.

- Each discipline involves certain central concepts and sub concepts.
- These concepts denote a certain kind of experience, and a form of possible relationships in which the experience can be understood.
- The form has expressions or statements that in some way or the other are testable against experience.
- There are specific techniques and skills for exploring experience and their distinctive expressions.

Yet the dividing lines that can be drawn between different disciplines by means of the four suggested distinguishing marks are neither clear enough nor sufficient for demarcating the whole world of modern knowledge as we know it. The central feature to which they point is that the major forms of knowledge, or disciplines, can each be distinguished by their dependence on some particular kind of test against experience for their distinctive expressions. If we want children to be conscious human

being they must have a good knowledge base as well as learn the process to acquire and organize that knowledge.

Thus the selection and organization of curricular content for children becomes important. This scheme of organisation of knowledge considers seven basic forms of understanding, namely: mathematics, natural sciences, social sciences, history, aesthetic, ethics, and philosophy. (adapted from Dhankar, 2005)¹².

It is important to understand how knowledge is organized and at the same time have a unitary philosophy of the curriculum. This provides a basis to make a choice of what shall be included and excluded from the course of study. Since we focus on a holistic development of a person, the curriculum we decide should also reflect that unifying quality. A curriculum planned as a comprehensive design for learning contributes as a basis for the growth of community.

A complete person should be

- skilled in the use of speech, symbol, and gesture
- factually well informed
- capable of creating and appreciating objects of aesthetic significance
- endowed with a rich and disciplined life in relation to self and others
- able to make wise decisions and to judge between right and wrong
- possessed of an integral outlook.

These are the aims of general education for the development of whole persons. A curriculum developing the above basic competences is designed to satisfy the essential human need for meaning. Instruction in language, mathematics, science, art, personal relations, morals, history, religion, and philosophy constitutes the educational answer to the formation of a mature person.

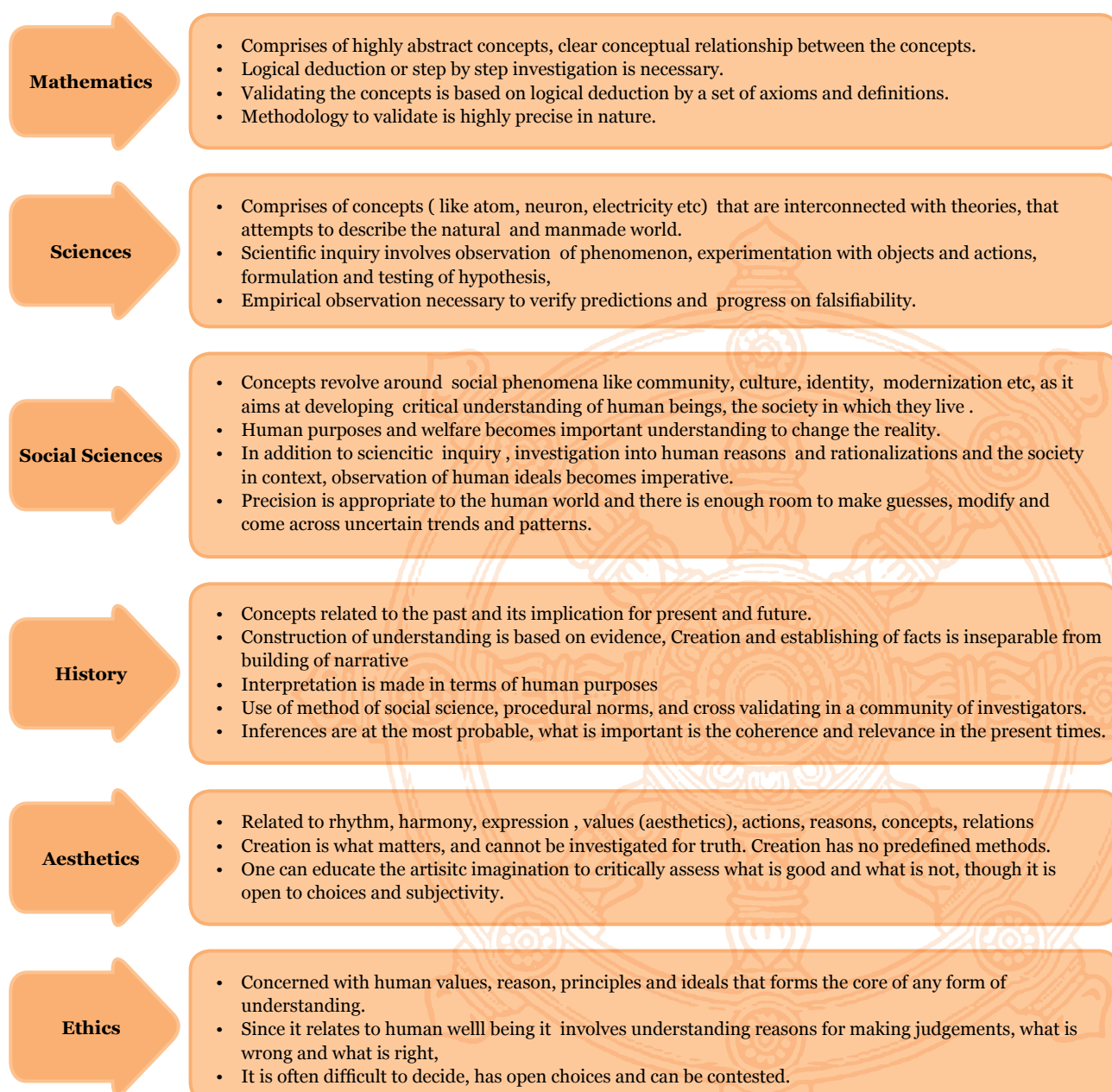
While making curricular choices it is important

to move from facts to understanding, movement away from the textbook culture, emphasis on cross disciplinary approach, inclusion of new subject areas in the contemporary society and the developmental considerations to make it meaningful, engaging and relevant for the children. The figure below represents how knowledge is organised into different disciplines.

1.8.7 Culture and Values

Deeply embedded in Bhutan culture is the philosophy and practices of Buddhism, profoundly influencing their spiritual, cultural and traditional way of living.

Traditional Bhutanese values not only address individual self discipline and the conduct of interpersonal relationships but also delineate the responsibility of all sentient beings. Values are described as a set of ideas and beliefs which influences the thought(s) and action(s) of a person. Values help people to organize social relations by distinguishing between what is socially acceptable from what is not. The concept of *ley judrey*¹³ (actions have consequences) and *tha damtshig* (sacred commitment to others) is central to Bhutanese values. It is vital to appreciate and value life by understanding the preciousness of human



(adapted from Dhankar, 2005)

life (*M-lue-Rinpoche*) and its impermanence (*me-tagpa*). Thus, values education forms the apparatus that would help the Bhutanese youth to bloom into responsible, productive and compassionate citizens. Students will be encouraged to value:

- **Individual self discipline:** Bhutanese values emphasizing the *domba nga* or the five lay Buddhist undertakings namely not killing, not taking what is not given to you rightfully, not lying, not consuming intoxicants and avoiding sexual misconduct. This is important for harmonious co existence and the practice of *domba nga* is said to foster personal development and accumulation of positive *karma* or merits. In the present world respecting self and others, integrity (which involves being responsible, honest, ethical and accountable) and innovation with curiosity (think reflectively and creatively) makes an individual discipline oneself.
- **Individual relationship with nature:** This reflects the idea of interdependence which is viewed as, "the fundamental law of nature where all forms of life regardless of religion, law, education survive by mutual cooperation based on their interconnectedness". This philosophy extends reverence to all species, the values of environmental care and protection, aversion to pollution of land, air and water as important aspects of traditional values.
- **Relationship with others in the society:** The idea of *tha damtshig* outlines the sacred commitment to others in society. Students value community and participation for the common good. This is best illustrated in the pairing of duty and obligation between: *pha da bhu gi damtshig* (parent and child), *lobey da lobtu gi damtshig* (teacher and pupil), *nyen da drok gi damtshig* (husband and wife), and *poen da yok gi damtshig* (master

and servant). The pairing of duty and obligation reinforces the need for social responsibility. The need for respecting interdependence featured strongly in traditional societies for pragmatic reasons also. People living in harsh and isolated conditions necessitated that they have cordial relation with community people.

Since culture and values form the bedrock of Bhutanese national identity it is important for the Bhutanese to ensure that its culture and values are transmitted through education. The values should find expression in school's philosophy, curriculum, classrooms and relationships. With strongly articulated values it is possible to demonstrate it in practices in their everyday actions and interactions in home, school and community.

1.8.8 Community Involvement

The connection between what is written in the textbooks and curriculum and what one finds in the community or the socio cultural world is very strong. Children may read about plurality of peoples, their ways of working or how a particular social group functions. However it makes sense to the child when it makes real life connections with the immediate world and the global community at large. To make this happen it demands a great sense of awareness and deep engagement on the part of the curriculum developers and teachers.

While school knowledge provides a perspective through which students can develop a critical understanding of the community, it becomes the responsibility of the local community representatives and people from different walks of life to be engaged with students from time to time. Communities may have a say in making curricular choices and the school should be prepared to engage in a conversation with the community to reason out the educational values of such decisions. In other words the community becomes

an active stakeholder in the curriculum decision and transaction of curriculum in the schools.

1.8.9 Local Knowledge

Communities are a storehouse of knowledge about different aspects of Bhutan's environment, traditional knowledge passed over generations and local traditions and people's practical ecological understanding. The third principle of Education as rightly put by Sri Aurobindo is to work from the near to the far, from that which is to that which shall be. The child's community and local environment forms the context for learning and constructing knowledge. The need to bring out the relevance of context means to make the boundaries of school and local environment porous, use the context as different entry points to learning and to enable children make the connect with their world around. Hence it becomes important to contextualize education and more specifically in the early stages of schooling.

While children acquire knowledge about different concepts and their relationships it is important to connect this knowledge to the natural environment around them, see their relevance in the outside world and derive meaning out of it. Else it becomes a mere accumulation of facts and information.

When children come to school they bring along with them their experiences of the natural world, rich repertoire of language and a base for small numbers. So it is the responsibility of the teachers to build upon it rather than disregarding it and beginning something that is alien to the child. The local environment is a natural learning resource, which must be considered while making choices of what should be included in the curriculum and concrete examples from the environment can be cited while transacting lessons in the classroom. The local environment not only includes the natural surroundings, but also the socio

cultural context that has a rich source of local stories, songs, folk tales and art that makes the curriculum even richer. When children get to know their immediate environment they can compare it with other remote environment and appreciate the differences and similarities.

1.9 VISION FOR BHUTANESE CITIZEN

The profile of a Bhutanese citizen gives direction in the shaping of the curriculum and its effective transaction.

- We aspire our young minds¹⁴ to be
 - o **Creative:** intellectually curious, open minded, questions and innovates and strive for excellence; appreciates beauty of Bhutan and the world, ideates (think about ideas); thinks divergently and analyses critically, good problem solver
 - o **Industrious:** keen to share and collaborate, energetic, masters proficiency in specific skills related to work life,
 - o **Communicator:** makes connections between home and school, secure, socially adjusted, globally aware, interactive, cooperative, builds relationships beyond community
 - o **Knowledgeable:** curious & seeks knowledge, enjoys learning and is self motivated learner; constructs knowledge and makes sense of the world, global view of the issues that confront Bhutan and how they relate to the rest of the world
 - o **Caring:** respects, cares and loves the family and the community respects peers, care for ecological sustainability; values team work and collaboration; cognizant of

the struggle and contribution of its people and leaders

understanding of the world, shows leadership qualities, manage conflict.

- o **Mindful:** conscious of self and others, culturally aware, self disciplined and believes in self; discover their own world view, ideals & identity to establish identity of the self; appreciates Buddhist values and tolerance of other cultures and diversity; global citizen with strong cultural and moral values, integrity and tolerance
- o **Reflective:** a lifelong learner who is able to develop an identity, use knowledge to make a difference in community and country, adaptive and flexible, deductive, sets narrow goals directly related to self, evaluates the consequences of action of self and others
- o **Disciplined:** responsibility to self and others; understand the rules of life; spirit of entrepreneurship; national pride; analyses and evaluates the consequences of the actions of self; accommodative, adaptive, flexible; judges situations and constructs his own code of morality; moral values are internalized; equity and diversity as hallmark of life
- o **Productive:** competent to apply the concepts of academic disciplines learnt in the working world, participate and contribute; knows the value of hard work; apply reason to thinking and action
- o **Skillful:** Makes decisions that are considerate of others, committed to sustainability and the preservation of the environment, work to solve the issues that confront Bhutan, connects knowledge from all curricular areas to enhance

1.10 AIM OF THE SCHOOL CURRICULUM

The entire foundation of school curriculum is based on the principles, culture and values and the objectives of GNH that the country aspires for its citizens. The overall aim of school education is to enable the learners to discover their talents and develop their potentialities to the fullest. It aspires to develop their physical and interpersonal skills, cognitive abilities and subject-matter expertise, attitudinal and emotional predispositions, character formation and work habits. It further develops the social and human values needed for enhancing one's life-long well-being, functioning as responsible citizens, contributing to Bhutan's economic prosperity and to the social and cultural life of the community in which they live. The citizens respond to the global challenges and changes that are shaping the lives of Bhutanese people.

1.10.1 Key objectives of school curriculum

Towards the ideal of enabling all children and young people in Bhutan to achieve the maximum benefit from their learning experience, the school curriculum will seek to develop and promote among learners the following:

- Language abilities (listening, speaking, reading and writing) and communication skills needed for social living and further learning;
- Mathematical abilities to develop a logical mind and enable learners to perform mathematical operations and their application in everyday life;
- Scientific temper characterised by spirit of enquiry, courage to question, objectivity, divergent and independent thinking, and knowledge of scientific methods of enquiry and its use in solving problems;

- Abilities to explore and understand the environment in its totality (natural and social, political and their interactive processes), the environmental problems and the ways and means to preserve the environment, including conservation of natural resources and energy for sustainable development;
- Abilities to investigate into various issues and problems at the local, regional, and national and global levels and the make one's own independent assessment;
- Competencies necessary for self-learning, self-directed learning to acquire new knowledge and skills on a lifelong basis;
- Knowledge, attitude and habits necessary for keeping physically and mentally fit and strong in conformity with the normal developmental pattern;
- Pre-vocational skills, willingness to work hard, and entrepreneurship necessary for increasing productivity and for participating in economic process; and broad generic competencies such as problem solving skills, evaluative skills and interpersonal and team skills that can be applied to a variety of work situations;
- Capability to obtain and accumulate factual information, including through the use of information and communication technologies, as well as to reflect, evaluate and internalise information, and to reach rational conclusions and make appropriate decisions in situations of increasing complexity and uncertainty.
- Values that make a person humane and socially effective in various social settings and including inculcation of democratic, moral and spiritual values; development of self confidence to innovate and face unfamiliar situations;; fostering a health attitude to the dignity of labour and hard work; a commitment to principles of secularism and social justice; dedication to uphold sovereignty, integrity and foster the development of the country; promotion of international understanding.
- Knowledge and appreciation of the diverse cultural and social systems of people living in different parts of Bhutan and the country's composite cultural heritage;
- Capability of appreciating and tolerating differences and diversities of various sorts/ideologies and the ability to choose between alternative value systems with strong commitment to the national goal of creating a vibrant democracy and an economically prosperous Bhutan;
- Ability to appreciate and discover beauty in various life situations, including art forms, and to participate in activities that promote one's creative expression and capacity for aesthetic appreciation;
- Capability of preserving Bhutan's national identity, and appreciation for the need of a balanced synthesis between the change-oriented technologies, modernity and the continuity of the country's traditions and cultural heritage;
- Appreciation of the need for global fraternity and the positive and negative impact of the processes of globalization and localisation in the context of Bhutan's drive for economic prosperity;
- To develop the knowledge, skills, attitude and values required for entrepreneurship and self-employment.
- To develop dignity of labour and a healthy attitude amongst students towards work and life.

1.11 STRUCTURE OF SCHOOLING

The entire schooling till class 10th is organized into three key stages with certain underlying principles. The key stages are organized considering the developmental stages of

children. From the developmental perspective there is a movement in the child's language and thought at different period in life. The stages are elaborated as follows:

Key Stage 1: This stage ranges from early childhood education to Grade 2. In the **early years (4 to 8 years)** children learn through exploration and concrete experience and their different abilities progress at different pace. While their physical growth and language develops faster in the preschool years, their thinking is still based on perceptual cues and cannot take others perspective into account. This period is best termed as the "period of symbolic mastery". In the early years what is most crucial is the opportunity to **explore**, to work intensively with materials that nourish the human intelligences and combination of intelligences. The developmental tasks expected from children are developmentally organized. Children at age 8 are **ready to respond** to the demands of formal schooling.

Key Stage 2: In the **Primary Years (8-12 years)** when children move towards age 7 to 8 there is a new quality of mind that emerges and they can take perspectives, two sided thinking emerges and their memory capacity increases. What we expect children to learn also varies at each stage. The curriculum is organized based on how children learn at each stage. Children are capable of making mental operations, think logically and ready for a deeper understanding of different subject areas. As children move towards middle childhood children they are exposed to a broad range of disciplines in a systematic way; they aim to achieve **excellence** in different skills.

Key Stage 3: In the **Adolescent years (12 to 16 years)**, one of the significant aspect is the movement towards abstract thinking, dealing logically with multifaceted situations and the development of metacognitive abilities. For older students **education for understanding, disciplinary mastery** and

apprenticeship is the goal. At this stage students complete their basic education and are ready to make decisions about their way forward.

Higher Secondary Stage: At this stage (16 to 18-19 years) the young mind is moving towards making critical decisions about one's career and physically and cognitively ready to enter into the world of work. Diversification of curriculum at this stage is important and necessary so that students are maturationally ready to enter the world of work, and make informed choices and be a productive member of the society.

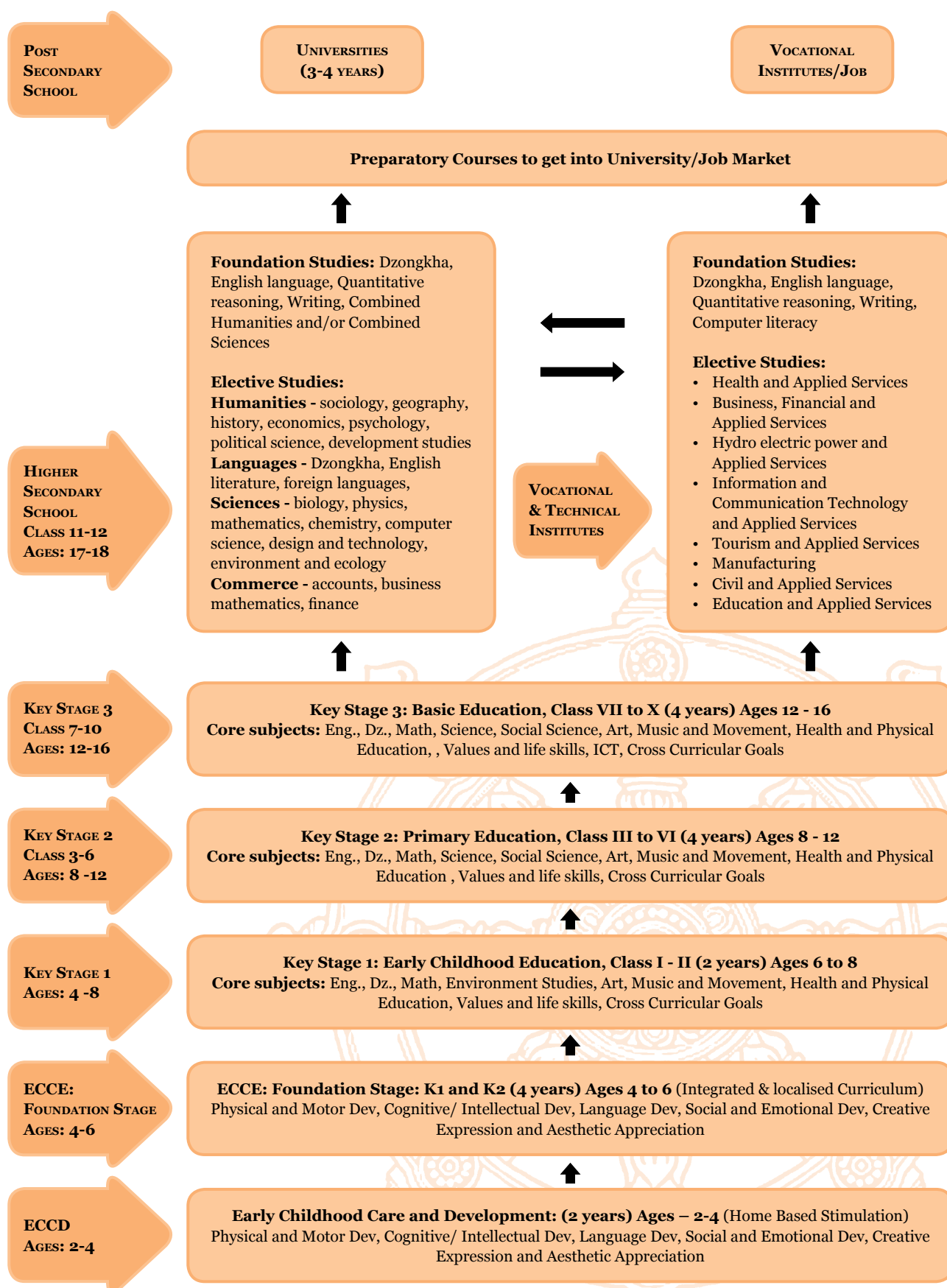
The pedagogical practices required at each stage is aligned to the needs of the children and how children learn at each stage. In the early years the organizing principle of the curriculum is the physical environment of the program. The caregiver/teacher creates a warm, inviting environment, ensures that children are safe, and follows practices that promote children's physical and mental health and learning. For example in the key stage 1 teacher provide routines and structures; consider what children already know about a given subject and how to help them to construct new understandings based on that knowledge.

By organizing into key stages it is easy to have attainment targets at each key stage as a checkpoint to see how children are doing. Children progress at different pace and reach the level of expectation at different time. Children take time and need space to reach the level of expectation. The key stages give the children a range of time and opportunity to achieve their goals. Also it is a checkpoint for the teachers and relevant adults to know the progress and developmental delays if any.

1.11.1 Pace Setting Schools

Pacesetting schools are centers of excellence that not only demonstrates high quality of education but also sets an example for other schools to strive for excellence. The

Structure of Schooling



objective of setting up pace setting schools is to strive for excellence coupled with equity and social justice, provide opportunities for talented children to develop their full potential and facilitate the process of school improvement. While it comprises of the same curriculum organized for the basic education, it models good infrastructure, curriculum and evaluation and school governance. By setting an example it gives impetus to other schools to raise their level and achieve greater heights.

It gives opportunity to the policy makers to set up pace setting schools or model schools in the Key Stage 3 that will comprise of the same curriculum as that of other schools with significant difference in the benchmarking of quality.

1.12 SCHOOL CURRICULUM DESIGN

The curriculum for each of the key stages will have a specific focus. The following sections elaborate the key aspects of each stage.

1.12.1 Early Childhood Education and Care (ECCE)

Every child has a right to safe and a nurturing environment - a place where the child is not only cared for but his/her strengths is recognised and encouraged. Family plays the key role in nurturing the young child. Early childhood services supplement and support the care provided to a young child at home and aim at providing a secure and a stimulating environment to the children, where each child grows into a happy, responsible, confident and a competent individual. This foundation period is the most significant & critical period of growth for children. The focus needs to be on:

- High quality educational program that stimulates the different domains of development.
- Providing a comprehensive package, in terms of nutrition, health and education to all children.
- School readiness for success in future

learning.

- Schools and community centers providing venues for community activities and for facilitating community connectedness, especially for the young children. Services for young children need to be delivered in an integrated way to make the whole system work for every child, as early childhood programmes have the potential to be effective centres for integrated services for children and families.
- Early childhood learning and development programs are designed in such a way that it seeks the active participation of families.

1.12.2 Basic Education (Primary, Secondary)

According to ISCED classification basic education comprises of primary and lower secondary schooling with basic life skills for youth and adults. Bhutan has set itself a challenge and opportunity to provide basic education till Class 10th. Our attempt is to make all the children complete basic education to be able to adapt in the knowledge driven society and make informed choices for their career and life. A broad based basic education implies

- All children will acquire the knowledge, skills and dispositions laid out in the curriculum till grade 10.
- These curricular areas provide minimum required knowledge base and skill proficiency needed for survival and adaptation. A broad based education helps students develop qualities like creativity, confidence and perseverance, skills essential in a rapidly progressing world.
- Children will complete their studies in all the disciplines provided and this is imperative to make informed decisions for their future studies and employment.
- The curriculum up to this level is broad based in the sense schools provide rich diversity of experiences that develops

the students holistically. Apart from academics equal importance is given to develop themselves in music, art and movement and sports and demonstrate practices that are closely related to the values imbibed. Students develop knowledge and skills in all the key learning areas.

1.12.3 Higher Secondary Education and VET

In the recent times there has been growing demand for and participation in secondary education as more and more countries move towards universal primary education. At this stage of development some show keen interest to pursue general or academically oriented programs that leads them to tertiary education. There are a group of children who show inclination towards vocational and technical field of study. Worldwide vocational education and training (VET) enrolments are more prominent at the higher secondary level than lower secondary level. Hence there is a need for reorganizing the structure and composition of higher secondary level programmes of study. Developmentally children are mature to make informed decision about their career and life at the higher secondary stage of education.

Vocational orientation to sensitize children to work life, develop dignity of labour, and appreciate different kinds of craft work and to develop skill set needed for work life in future is introduced in the secondary grades.

Vocational Education and Training (VET) begins at the higher secondary level where students take diverse pathways depending on their interest, needs and abilities. Students interested in the academic path can follow and complete courses needed to enter the university education. Students inclined towards to enter the job market opt for the VET stream. The curricular emphases are designed to match their learning abilities and interests.

One of the aims of the tenth plan is to achieve

a critical mass of highly skilled, learning oriented, entrepreneurial workforce with upgraded skills and knowledge base. The Bhutan Labour Market Study (2009) recommends industry's participation in the development and delivery of coursework, focus on apprenticeship programs, supplement tertiary education with vocational skills, and improve student's core competencies in critical thinking and problem solving skills at the basic education level.

1.13 RATIONALE AND SCOPE OF THE CURRICULUM

The curriculum framework is based on the guiding principles which acknowledge a developmentally appropriate curriculum; how children learn and make meaning of their experiences through a constructivist approach and how teachers make the effort to bridge the learners' prior knowledge with their learning styles in the context of the new experiences. The curriculum ensures that development and learning are interrelated and that it is an ongoing process.

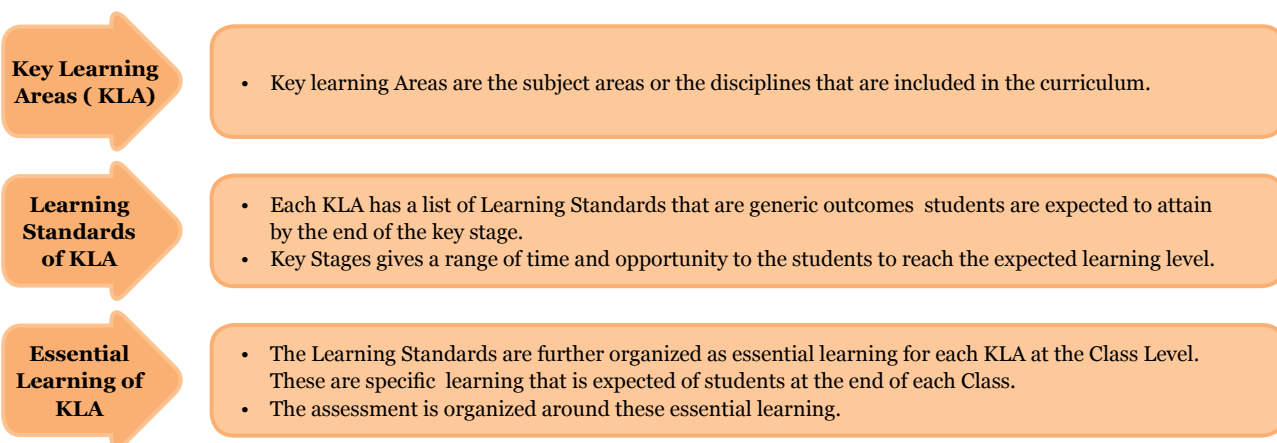
The curriculum is organized around the essential elements of concepts, skills, disposition and actions and each of these elements are reflected in the learner profile as well as the scope and sequence of what children should learn in each of the subject areas. The learning is developmentally appropriate, relevant and meaningful, intellectually and emotionally engaging, and adequately challenging for the students. It is understood that children learn the best when they are able to connect with the experiences, search for meaning and make sense of their world around.

The **learning standards** define what students are expected to know and to do at key stages along the learning continuum prescribed for school education. The **essential learning** for each key learning areas and at grade level encompass knowledge, skills and attributes that are content-based, performance-based or both. They may include (i) knowledge,

skills and attributes that are specific to key learning areas such as english, mathematics, and science etc., (ii) skills such as higher-order thinking skills, and social and interpersonal skills that are required for meeting real-life challenges, (ii) skills such as literacy, numeracy, life skills, information and communication technologies, and cultural skills that are

needed for good communication and continued learning. Essential learning, thus, describes 'what students know and can do' and describes the progression of learning at key milestones of school education.

This Diagram shows the organization of the key areas of the curriculum and further the subject specific scope is elaborated.



Subject offered at key stages:

KLA	SUBJECTS	KS 1				KS 2				KS 3			
		KG1	KG2	I	II	III	IV	V	VI	VII	VIII	IX	X
LANGUAGES	Mother Tongue												
	Dzongkha												
	English												
MATHEMATICS													
ENVIRONMENT STUDIES													
SCIENCE	Integrated Science												
	Physics												
	Chemistry												
	Biology												
SOCIAL SCIENCES	Social Studies												
	History												
	Civics												
	Geography												
VISUAL AND PERFORMING ARTS													
HEALTH & PHY EDU													
ICT													

Index

	Home language for facilitative purpose
	Key learning areas

1.13.1 English

The advent of the English language to Bhutan was a matter of choice. When Bhutan looked beyond its borders and began to prepare itself to modernize and join the community of nations, it was English language that enabled it to interact with the international community. English is seen as the most advantageous language to assist Bhutan in the articulation of its identity and the elevation of its profile in the many organizations to which it would belong. English has enhanced its capacity to participate more effectively and purposefully in the global community.

Considering the fact that the Bhutanese community aspires to be proficient in English language and at the same time retain the learning of Dzongkha till higher grades we propose a DUAL IMMERSION language framework from Kindergarten to Grade 12. There is a simultaneous introduction of both languages in the kindergarten and transition from basic interpersonal communicative skills (BICS) in the lower grades to Cognitive Academic Language Proficiency (CALP) in the primary and higher grades. Research in this field has typically indicated that proficiency in the language can be achieved when subject matter is taught through that language. Since one of main aims of the bilingual curriculum program is to achieve proficiency in both languages (Dzongkha & English), it is proposed that core subjects be taught in both languages (*details provided in the medium of instruction section below*).

LANGUAGE, in its broadest sense, encompasses oral, written, and visual modes of communication. Communication skills develop in a social environment that encourages children to communicate in natural, meaningful ways. Students develop essential communications skills, deep understanding of how language is constructed and how language is interpreted. Students develop a sense of appreciation for the language, and produce

creative and imaginative texts. As children listen, speak, read, write, or represent, they construct meaning through language. In order to derive meaning from spoken or written words the students must actively search for meaning, and bring meaning to the experience. As they progress students use their skills to engage with different kinds of tasks and texts that are challenging in nature and of increasing depth.

English language is organized into strands like

- **Listening, speaking & communicating**
- **Reading and viewing**
- **Writing and presenting.**

By engaging in the process of language acquisition and literacy development the students will be:

- Confident and fluent speakers and good listeners
- Appreciative and critical readers and viewers
- Creative writers and designers
- Effective communicators with flexible language usage

1.13.2 Dzongkha

Dzongkha, the national language of Bhutan is taught as a major language subject in the schools across the country. Dzongkha is considered as an important national identity of Bhutan. Being the national language, study of Buddhist philosophy, official correspondences, public speeches, public meetings and parliamentary sessions are conducted in Dzongkha. The constitutional post holders and the parliamentarians must possess very good knowledge of Dzongkha.

LANGUAGE, in its broadest sense, encompasses oral, written, and visual modes of communication. Communication skills develop in a social environment that encourages children to communicate in natural, meaningful ways. Students develop essential communications skills,

deep understanding of how language is constructed and how language is interpreted. Students develop a sense of appreciation for the language, and produce creative and imaginative texts. As children listen, speak, read, write, or represent, they construct meaning through language. In order to derive meaning from spoken or written words the child must actively search for meaning, and bring meaning to the experience. As they progress students use their skills to engage with different kinds of tasks and texts that are challenging in nature and of increasing depth.

Dzongkha language is organized into strands like

- **Listening, speaking and communicating**
- **Reading and viewing**
- **Writing and presenting.**

By engaging in the process of language acquisition and literacy development the students will be:

- Confident and fluent speakers and good listeners in formal and informal situations.
- Appreciative and critical readers and viewers of Dzongkha literature
- Creative writers and designers
- Effective communicators with flexible language usage
- Understand how language changes over time to meet new demands.
- Explore the relationship between language and culture.
- Develop study habits so they will become lifelong learners.

1.13.3 Mathematics

Mathematics is an exploration of patterns and relationships of quantities, space and time. To achieve these students need to think and act mathematically and develop intuition to apply concepts to explore and solve everyday problem situations. Study of mathematics equips students with a powerful set of tools that include logical reasoning, problem solving skills

and the ability to think in abstract ways. Statistics focuses on the use of patterns and relationship in the data. Both help in interpreting, explaining and making sense of the world around.

The mathematics curriculum is organized into strands like

- **Reasoning, problem solving and communicating**
- **Numbers , Number systems and Operation**
- **Algebra**
- **Geometry and patterns**
- **Measurement**
- **Data handling**

By engaging in relevant mathematical learning experiences students will:

- Develop relevant concepts, skills and dispositions to operate confidently in the areas of numbers, algebra, measurement, geometry and data handling.
- Develop the ability to think critically, strategically and logically in varying contexts.
- Develop the skills to structure and organize, work out procedures and represent and communicate information effectively.
- Create models and predict outcomes to reason and justify, seek patterns and generalizations.
- Make reasonable estimate and calculate with precision and use step by step investigation to make interpretations.

1.13.4 Science

Science is a way of investigating and questioning phenomena, exploring the natural and physical world, experimenting with objects and tools and testing hypothesis. It encompasses generating, testing and justifying ideas, gathering evidences and communicating inferences... in order to develop scientific knowledge and understanding of the immediate world and the wider universe. It involves very precise and logical investigations, curiosity and

intuition to get deeper into the mysteries of nature to test and confirm, and make informed decisions about real world issues. In the process the students will have to make judgments about moral, social and ethical issues and the role of science and technology in the present times.

The strands that the science curriculum is organized into are:

- **Scientific Inquiry**
- **Life Processes**
- **Materials and their processes**
- **Physical processes**

By engaging in science study students will:

- Appreciate the biology of living things, relationship and interdependence of living things.
- Develop an understanding of the structure and properties of materials and their usage
- Use scientific knowledge and skills to make informed choices about the implication of science in their quality of life and culture
- Develop a scientific perspective to issues and good scientific practices useful for themselves and the society and to the sustainability of the environment.

1.13.5 Social Science

Social science learning area in the curriculum provides opportunities to understand how the life experiences of people are the result of particular social, cultural, economic, political and environmental relationships that characterise communities at particular times and places. Students develop an understanding of Bhutan's history, culture, society natural and built environments, and the political and economic systems. Furthermore they go beyond Bhutan and understand the socio political, economic systems of the wider world and they appreciate different cultures. As they progress they develop a sense of identity where they relate to their culture and heritage, deal with contemporary issues and

make informed decisions for themselves and the society.

The strands of social sciences are:

- **Social Inquiry Skills**
- **Geography**
- **History and Community**
- **Citizenship**

While engaging with experiences related to social science the students will

- Understand the influence of past ideas, events and the contributions of people to their local community, contemporary Bhutan and its neighbouring countries and the global community,
- Explore and understand peoples perspectives and values, the ways people make decisions on issues and actively participate in social actions
- Question, gather information, develop perspectives on relevant issues and make choices while decision making
- Appreciate Bhutan's historic and geographical context and its place within regional and global contexts
- Appreciate Bhutan's cultural heritage and relate to different cultures across the world
- Understand the legal, political and economic systems, including contemporary institutions and practices in local, national, regional and global contexts to ensure a sustainable future for all

1.13.6 Visual and Performing Arts

Dance, music, theatre, visual arts have endured in all cultures and it is the universal basic language that celebrates unique artistic expression of oneself, the community and the wider culture. The arts convey knowledge and meaning not learned through the study of other subjects. It stimulates imagination, activates the senses and feelings and develops a sense of well being. Students get the opportunity to envision, set goals, determine a method to reach a goal and try it out, identify

alternatives, evaluate, revise, solve problems, imagine, work collaboratively, and apply self-discipline. As they study and create in the field of arts, students use the potential of the human mind to its full and unique capacity. The visual and performing arts are a vital part of a well-rounded educational program for all.

The strands of Visual and Performing arts are:

- **Visual Art**
- **Music**
- **Movement: Dance and Drama**

While engaging in the experiences students

- Process, analyze and respond to sensory information through language and skills specific to the different Arts area.
- Create, perform and participate in dance and movement, visual arts and music
- Understand the historical and cultural dimension of dance, music and visual arts
- Respond and relate to different art forms and make connections between them
- Appreciate and critically analyse to make judgments about music, dance and visual arts.
- Learn to work both independently and collaboratively to construct meaning and produce work, respect and value other's work.

1.13.7 Health and Physical Education

In this section the focus is on the health, physical well being, psychosocial well being of children and the community. Through physical education students acquire knowledge, skills and values towards the pursuit of a lifelong physically active and healthy lifestyle. Students get the opportunity to participate in a variety of sports and games and acquire concepts and skills to participate both for leisure and competition. They develop a sense of

reliance, perseverance, sense of personal and social responsibility for themselves and others, of the environment and wider society.

The strands of health and physical education are:

- **Physical Growth and development**
- **Personal Health and Community health**
- **Social relationship**
- **Mental and Emotional health**

While engaging in such activities students:

- Develop and maintain health related fitness, endurance and muscular strength, coordination and balance, flexibility and agility.
- Demonstrate positive traits like fairplay, teamship and sportsmanship in a variety of tasks
- Develop understanding, skills and attitudes that enhance interaction with others
- Develop healthy communities and environments by taking responsible and critical actions.

1.13.8 Information & Communication Technology

In the present times Information and Communication technology prepares students to move along in a rapidly changing world in which different activities, and different kinds of work is transformed by access to developing technology. Increasingly students use technology to explore, investigate, analyse, interpret and present information and understanding using ICT tools. Students use ICT tools for accessing as well as representing information. Thus it has implication for schools, home and at work.

In the early stages ICT is used as tool develop ideas and record work, exchange and share information and as students' progress they use a range of tools to support their work in other subject areas. In the later stages

of learning students develop a better understanding of how different tools work, how to use it and what are its limitations. They are able to carry out increasing range of complex tasks. In the higher grades students study about the ICT, choose and design ICT systems for a specific purpose and evaluate its implementation.

While engaging in the use of ICT students:

- Explore a variety of ICT tools for gathering information, investigating and presenting it
- Use ICT to share and exchange information in different forms.
- Use various tools for measuring, recording and interpreting data related to subject areas, test predictions and discover patterns and relationships in the data.
- Use varied range of tools for efficiency and developing capability, compare their use of tool with how it is used in the wider world

1.13.9 Values and Life Skills

The true quintessence of education is not just about endowing the children with literacy and numeracy skills but also about building moral fibre and preparing responsible citizens who are aware of *Ley Judrey* (actions have consequences) and *Tha Damtshig* (mutual trust and affection). It is vital to appreciate and value life by understanding the preciousness of human life (*M-lue-Rinpoche*) and its impermanence (*me-tagpa*). Thus, values education forms the apparatus that would help the Bhutanese youth to bloom into responsible, productive and compassionate citizens.

The term values education in Bhutan is equated with *Tsi-thong Shey-yon* (*Tsi-thong*, values and *Shey-yon*, Education). The term *Sam-choed Shey-yon* is also widely used as it explains the concept of values education better. The words *sam* and *choed* which are the contracted forms of *sampa* (thought) and *choedpa* (action) makes us understand that this *shey-yon* (education) concerns the development of right thought and action.

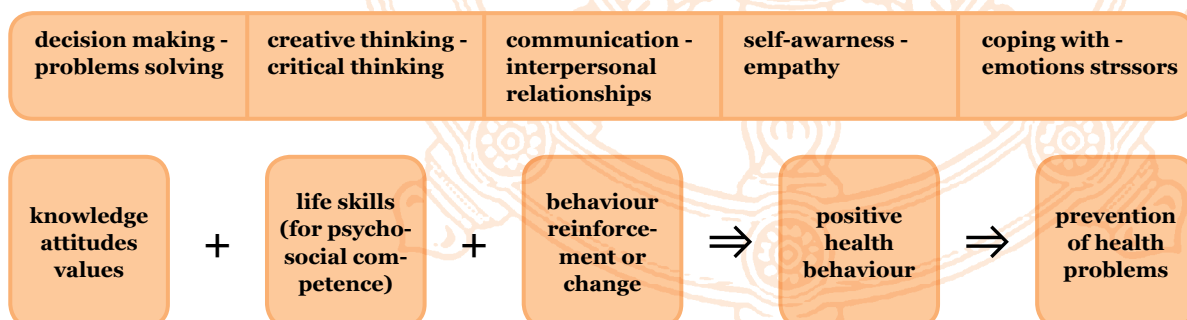
Values education in the Bhutanese framework would primarily focus on the nurturing of *sem* (mind) since it is the source of everything that is good or bad. If it can be nurtured well, then the thought and action which ensues from it will be good. The prominence of *sem* (mind) as an inevitable building block of good thought and action, is accentuated by the Bhutanese aphorism:

“Mind is the Master of all.

Body and Speech are but slaves that perform good and bad deeds.”

The students will be encouraged to participate and contribute to *Gross National Happiness* by conserving the environment, promoting cultural and spiritual heritage, working for sustainable and equitable economic development and adhering to good governance practices.

On a similar vein the life skills are defined as abilities for adaptive and positive behavior, that enables individuals to deal effectively with the demands and challenges of everyday life. There is a core set of skills that are at the heart of any skills based initiatives for the promotion



and well being of adolescents. While the values of Buddhist philosophy nurtures the mind the life skills¹⁵ enables individuals to translate the knowledge, skills and values into actual abilities, ie. "What to do and how to do". WHO document organizes life skills into six main categories as described below. It further gives an example of how curriculum can be organized where the different attributes interact to enable children to prevent health problems.

While students are engaged in their experiences they develop:

- love for learning, curiosity, logical and critical thinking.
- love for and loyalty to the king, people and the country,
- develop an attitude of resourcefulness and self-reliance which can lead to self employment as well as to seek out and find employment in the private sector;
- a sense of self-discipline and duty; this would involve accepting responsibility for one's own actions, being punctual and fulfilling commitments, taking pride in personal cleanliness and grooming, and actively pursuing personal health and fitness;
- understand how people are alike and different, and learn to appreciate the differences
- be honest, open and co-operative in their dealing and relationship with other people; seeking support in times of need
- an attitude of pursuing excellence in their personal and group endeavour;
- generating new ideas and adapting to changing social circumstances
- making decisions about life plans, generating solutions to problems and doing conflict resolutions.
- Recognition of different emotions, understand how emotions affect action and coping with emotional distress.
- to think not only for their material advantage, but also how to serve others, less fortunate than themselves and think of the positive welfare of

others in a warm and caring fashion.

- a pride in being Bhutanese in a world community and sharing its unique cultural heritage;
- a commitment to the Buddhist Philosophy of non-violence, tolerance, compassion, love and peace which has enabled the Bhutanese to live in harmony, respecting individual differences.

1.14 EFFECTIVE PEDAGOGY

Within curriculum framework one of the important aspects is the pedagogical practices that determine the effective transaction of the curriculum. While there are varied views about what is an effective pedagogy, there are certain practices that are universally agreed upon. There are certain knowledge and skills teachers need to create a relevant and worthwhile experiences for individual students and for groups of learners. Students learn best when teachers:

- **Structure flexible and sufficient learning experiences for individual and groups**

Teachers establish learning goals, plan for and support students to learn well, organize learning experiences, deliver and reflect on it. Students get the opportunity to engage in new learning experiences in a variety of contexts. There is space and opportunity for responding to the special learning needs.

- **Create a supportive learning environment**

Learning takes place in social and cultural context. Thus it is important to create a safe environment where students feel accepted unconditionally, an environment that is based on mutual trust and respect that provide social support for student achievement. Effective teachers build a relationship with the students that

are caring, inclusive and trustworthy.

- **Construct relevant learning experiences that connect with the world beyond school**

Create learning experiences that builds on previous knowledge and interests of children and children are able to integrate new learning with what they already understand. Engage students in experiences that integrates ideas and information that cuts across curriculum and is related to real life situations. Encourage reflective thought and action in students by enabling students to assimilate their learning, relate to what they already know, adapt to their own purposes, and translate their thoughts into action.

- **Construct intellectually challenging learning experiences**

Provide learning experiences in which students examine an idea, concept or issue, where students question and share ideas and knowledge. The teacher provides opportunities for students to use higher order critical thinking skills to solve problems and construct meaning and understanding.

- **Facilitates collaborative learning**

Design and implement learning experiences where students engage in shared activities, make dialogue and conversation with peers and people around and in a wider community. Teachers encourage students to create a learning community within the classroom. The classroom culture is such that individual differences are respected, collaborative learning is encouraged, and students and teachers are ready to take and receive constructive feedback.

- **Assess and report on student learning**

It is important to assess students

and give feedback on a continuous basis and also to inform instruction. Teachers establish essential learning goals and relevant assessment criteria, collect information about student performance from various sources, and use different tool to make judgments about student learning. They communicate to the families about student progress and use assessment to guide curriculum planning, implementation and assessment.

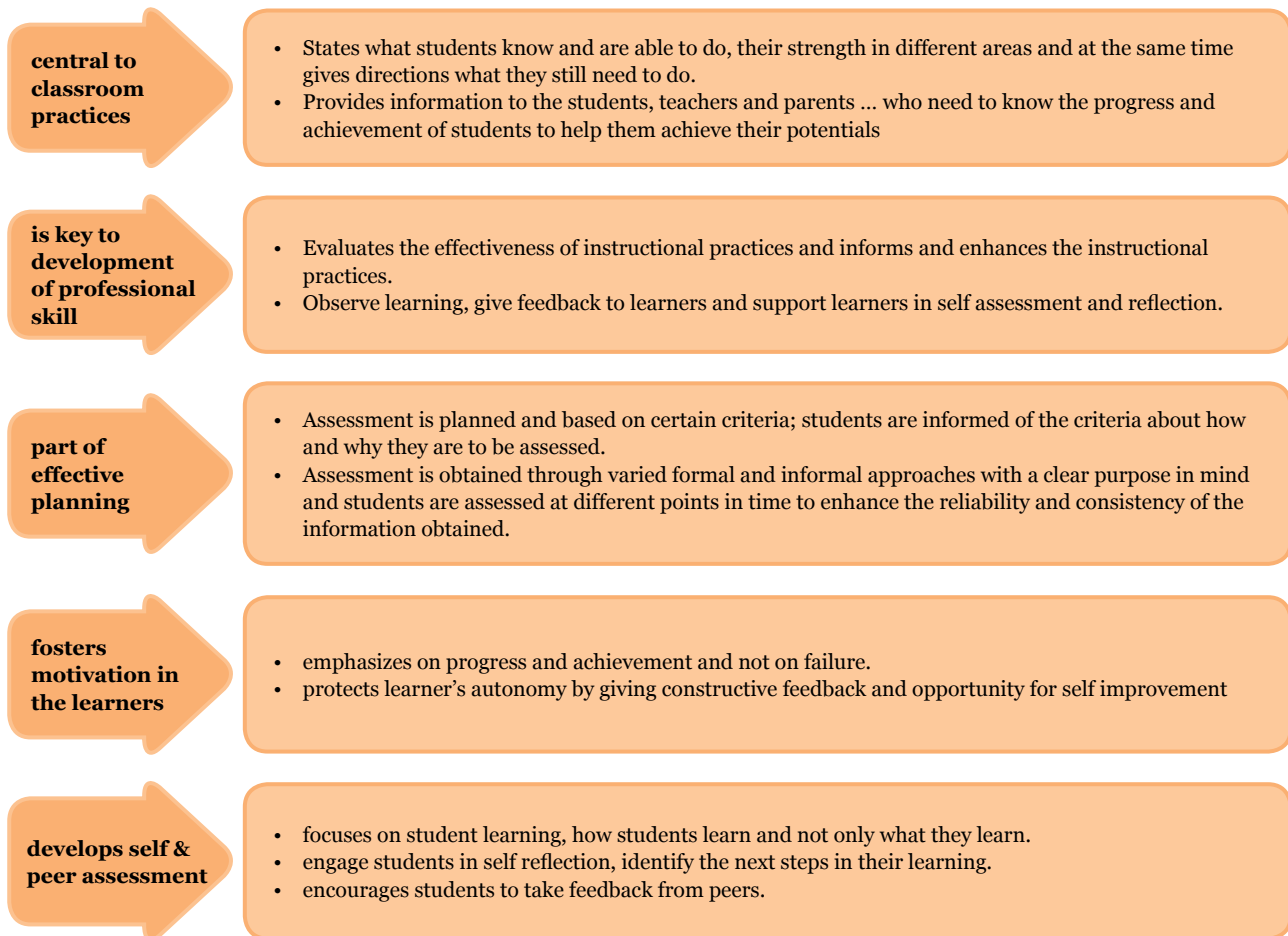
1.15 ASSESSMENT

The primary purpose of assessment is to improve student learning as well as improve teaching practices. Assessment is the purposeful, systematic and ongoing collection of evidence for use in making judgments about students' demonstrations of learning and is an integral part of the learning and teaching process.

Evidence of demonstrations of students' learning will be gathered from different sources across a range of contexts, and be recorded over time using a variety of assessment techniques and recording tools. Assessment techniques should be selected to best suit the context in which the learning is being demonstrated and the type of evidence required. The evidence gathered should be relevant to the learning being assessed and be collected in a focused and systematic way.

Assessments and related resources not only capture data on learning and achievement, but are basically changing the way teachers teach, students learn, and parents engage in classrooms around the world. They provide essential information to guide education reform and improvement, and allow us to fairly hold ourselves accountable for providing students with the quality education they need to compete and thrive in the world economy.

Principles of effective assessment are:



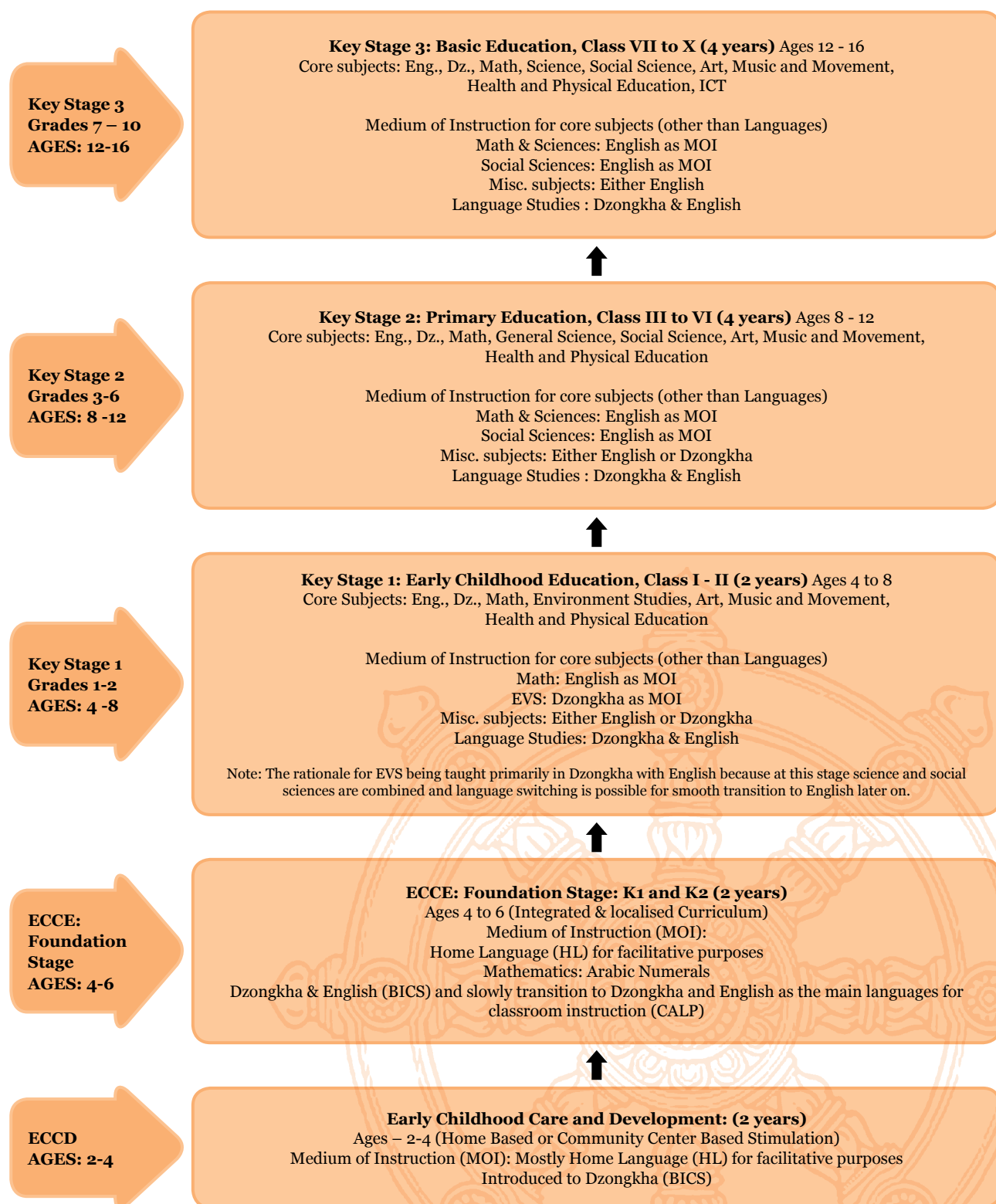
1.16 MEDIUM OF INSTRUCTION

Children enter school with a wide repertoire of vocabulary and good communication skills in their mother tongue. They have a well developed system of social communication (BICS or Basic Interpersonal Communication Skills) in their mother tongue (MT). With BICS as their foundational resources, they can develop Cognitive Academic Language Proficiency (CALP) which involves reading, writing and other classroom skills, proficiency in using language for effective regulation of their thinking and problem solving and for thinking about languages. In the early stage and more specifically in the preschool years it is important to have mother tongue as the medium of instruction.

Once children are fluent with their MT they acquire Dzongkha and English for communication simultaneously. While

English can be the medium of instruction when children enter primary classes there will be frequent language switching by the teacher while teaching in the class. Academic tasks require deeper cognitive engagement and this is achieved through CALP, which is less context dependent, has technical vocabularies, complex grammar, and requires higher order thinking and expression. Since CALP generally takes longer to be acquired than BICS it is important to keep in mind that for English to be the medium of instruction the children should have a well developed CALP. Thus one has to see the readiness of children and decide at which age there is complete switching to English only as a medium of instruction.

The following chart gives the scope and sequence of using Dzongkha and English simultaneously and a later transition to English as medium of instruction.



1.17 INSTRUCTIONAL TIME

The following table shows the organization of the school year, which includes when the school starts, the number of terms and the length of holidays. It is not an exact representation because it may vary in different key stages and the location of places in Bhutan, and accessibility to schools. However it is important to have a minimum amount of student engaged time to improve the teaching learning process. In total there is 180 working days a year. The formal schooling has 900 to 1100 hours of teaching time a year.

Furthermore research on teachers' effectiveness has revealed a concept that teachers and supervisors can use to improve student learning. It is academic learning time, defined as the amount of

time the student spends engaged in an academic task that he or she performs with high success. The basic component of academic learning time are *allocated time, student engagement and student success rate*¹⁶. Decisions about time allocation are usually made by the teacher, but in some cases it can be jointly done by the students and the teachers depending on the needs of the student and the tasks involved. For the amount of student learning is not only influenced by the engaged time, but also by the match between the task and the particular student. This means that academic learning time can be interpreted as an ongoing measure of student learning. Using this system teacher can modify their learning time, the related tasks, their teaching so the students learn more and build their own capacity to change.

Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan
Term 1 begins mid feb					Vacation from 1 st to 15 th	Term 2 begins				Vacation	Vacation

Grades	Days per Week	Period per Week	Hours per Day
KG1 and KG 2	5	30	4 hrs
1 st and 2 nd	5	40	5.20 hrs
3 rd to 10 th	5 ½	44	5.30 hrs
11 and 12 th	18 credits per semesters x 4 semesters 1 credit: 30 hours—18 hrs Contact time and 12 hrs self study		

CHAPTER

2

Organisation of Curriculum at Key Stages of Schooling

2.1 INTRODUCTION

Curriculum represents the totality of planned learning experience provided to learners to enable them to discover their talents, to develop their potentialities to the fullest, to enable them to construct knowledge, and to develop their physical and interpersonal skills, cognitive abilities and subject-matter expertise, attitudinal and emotional predispositions, character formation and work habits, and capabilities and social and human values to function as responsible citizens. Curriculum encompasses the syllabus which outlines what is to be taught, the learning environment, learning resources, teaching-

learning strategies, assessment procedures and programmes, the values of the school and the relationship between the teachers, students, parents, staff and community which together provide the experiences that contribute to student learning.

This chapter describes the scope and sequence of the subject areas at each key stage. The learning standards of each key learning area at the key stages are elaborated. The higher education curriculum and the vocational education and training curriculum are elaborated in Chapter 3. The table below shows a summary of the key stages of schooling.

Key Stages	School Year	Age of the child	Education
1	K1	4-5	Early Childhood Care and Education
	K2	5-6	
	Grade 1	6-7	
	Grade 2	7-8	
2	Grade 3	8-9	Completes Primary Education
	Grade 4	9-10	
	Grade 5	10-11	
	Grade 6	11-12	
3	Grade 7	12-13	Completes Secondary Education
	Grade 8	13-14	
	Grade 9	14-15	
	Grade 10	15-16	
HS	Grade 11	16-17	Completes Higher Secondary Education / Vocational education and Training
	Grade 12	17-18	

2.2 SCOPE AND SEQUENCE OF KEY LEARNING AREAS AT THE KEY STAGES

The following section describes the learning standards or subject specific expectations defined by key stages. The subject specific expectations have been organized into four stages. In this chapter three stages are described and the fourth stage (higher secondary education) is dealt in the next chapter.

2.2.1 Key Stage 1 (K1 to Grade 2)

In the **early childhood stage** (age 4-8 years) children are physically very active, are keen to **explore** the real world out there. Their vision is focused on objects near to them, can get engaged in constructive play and art work. Cognitively children move from preoperational stage that is bounded by the senses to a **more complex thinking patterns** and this creates a sense of disequilibrium with the child. In the process of learning children constantly strive to resolve problems, find solutions and maintain a balance in their thought process.

When children approach eight there is a dramatic change in their physical, social and cognitive development. Children are becoming **industrious**, are more interested in the process than the product, concepts become more organized and they approach the world more logically. The **beginning of reasoning** is marked by identifying differences, begin to understand cause and effect in the natural world, **understand rules** and begin to listen to other's perspectives.

Learning is at its best for this age group if it is exploratory and catering to their interests and structured with adequate teacher support. Children at age 8 are **ready to respond** the demands of formal schooling.

This stage comprises of the entire period of early childhood education (K1 to Grade 2).

It is further divided into two age ranges (4 to 6 and 6 to 8) for better understanding of the needs.

By the end of KG 2

This foundation period is the most significant and critical period of growth for children. The focus is not only to develop the cognitive, social, emotional, physical and linguistic development but most importantly to focus on school readiness for success in future learning. Children will learn to use oral language to communicate and learn about people, places and things around them. Children at this age are eager to read and write, show interest in making sense of the print. They enjoy experimenting with writing and do a lot of pretend writing and scribbling, assign meaning to their writing and gradually make their writing more legible to be understood by others.

They will manipulate objects and materials, compare quantities, differentiate shapes and find patterns in their world. Through exploration children will gain understanding of people and environment around them, be aware of themselves in relation to people and places, aware of events and gain a sense of time. Children develop their observation skills using their senses to gather and record information, identify patterns, and talk about their ideas. They communicate their ideas and observations in different ways and begin to describe it too.

Children also develop an awareness of their self identity, learn to communicate their feelings and emotions, develop a sense of safety and ability to protect themselves. They develop body control and engage in physical activities alone and in groups. Children explore with materials, develop awareness and appreciation of music and explore movement and space using music and other stimuli.

By the end of Grade 2

Children will learn to use oral language to communicate and learn about people,

places and things around them with increasing confidence. They listen to others and respond appropriately. Children read for pleasure and information with support and gradually move towards independence. They discuss the stories heard, and respond to the ideas and feelings expressed. They enjoy experimenting with writing, begin to write for a variety of purposes, use their phonic skills and spelling patterns to construct different words.

They will manipulate objects and materials, compare quantities, differentiate shapes and find patterns in their world. Furthermore they now estimate, measure and use units of measurements. Children develop a number sense and begin to do problem solving with numbers and data.

Through exploration children will gain understanding of themselves, people and environment around them, be aware of their relationship with people and places, and appreciate why people belong to groups. They gain a better sense of time and know how things change over a period of time. Children develop their observation skills using their senses to gather and record information, identify patterns, and talk about their ideas. Children begin to identify parts of a system and develop a sense of understanding the cause and effect of a relationship. They communicate their ideas and observations in different ways and provide adequate explanations too.

Children also develop an awareness of their self identity, their strengths and weaknesses, learn to communicate their feelings and emotions, develop a sense of safety and ability to protect themselves. They begin to demonstrate responsibility to make choices to have a healthy life. They begin to appreciate linguistic, cultural and religious differences.

Children develop body control and skills that they apply in a variety of contexts. Children explore with materials, develop awareness and appreciation of music and explore

movement and space using music and other stimuli. They show increasing ability to concentrate on and complete a piece of work. Children now appreciate each others work and engage in group work.

2.2.2 Key Stage 2 (Grade 3 to 6)

Children at this age (age 8 -12 years) learn better on their own as they gain **mastery over their basic skills**. They can be **persistent** and complete a task on their own. They are capable of **consolidating the concepts** already learnt, focus on the process of learning and yet at the same time love to see the completion of their work. There is a growing sense of peer importance and **group solidarity**. Physically they complain about aches and pains, do not want to take risks and develop some anxiety about schooling and test taking. Children need many **opportunities of practice**, modeling and role playing from the adults to make them confident. Children are confident and **industrious** as well as self critical, have trouble with abstractions. This group is hungry for encouragement.

This is the beginning of adolescent stage, and a challenge for children to cope with their physical and emotional changes, cognitive demands and social life. Physically children become very active, both boys and girls are now in **growth spurts** though puberty come first to girls. They need enormous amount of food, sleep and energy. Their greatest need is to be with **friends**, and parents and teachers take a back seat. Doing **projects, current events, scientific investigations** with their peer group is the main driving force towards purposeful work in schools. Processing of information, need for a conscious problem solving, critical thinking, fluency in language, and on the whole **taking charge of one's own self and learning emerges**. Children are **independent learners** and love to take risks. Children want to take responsibility, involve in making decisions, make rules,

and love to feel that they are beginning to be **a responsible member** of the adult community.

By the end of Grade 6

Students will use oral language extensively to construct meaning and connect with others. Students will use a variety of linguistic structures of spoken language to respond to wide range of purpose and audience. They will read a wide range of texts, appreciate literary styles and differentiate between fiction and non fiction. They will read, discuss and reflect on and talk about their feelings and opinions about the characters, plots or events. Students will write fluently on a wide variety of topics, for different purpose and audience. They will use appropriate writing strategies independently and confidently and more so develop their style of writing. Students use different visual materials (movies, posters, CD ROMS, paintings etc) and respond to it orally and in writing.

Students will collect, interpret data and provide an adequate explanation for it. Students will estimate and measure accurately using tools and units of measurements. They use mathematical vocabulary for shapes and angles, classify and label all types of triangles and quadrilaterals. Students develop, explain and model simple algebraic formulas, explain number patterns, and solve real life problems. They will use multiple strategies to create and solve problems, reasonably estimate the answers and be able to defend their methods used.

Here students investigate aspects of human relationship, society in which they live, focusing on themselves and others in the community. They extend their understanding of how people live in groups, how communities are organized, how people influence and are influenced by the environment. They understand the concept of time, growth, change and continuity in the context of events,

people, places and society as a whole. They also begin to know about the values of a democratic values of a society.

Children develop their observation skills using their senses to gather and record information, identify patterns, make predictions and test their ideas for accuracy. Children begin to identify parts of a system and a sense of understanding the cause and effect of a relationship. They communicate their ideas and observations in different ways and provide adequate explanations too. Students examine changes over time and show the influence of variables. They use learning in science for planning positive action for the welfare of others and the environment.

Children also develop an awareness of their self identity, their strengths and weaknesses, learn to communicate their feelings and emotions, develop a sense of safety and ability to protect themselves. They develop a sense of self confidence and self worth. They begin to demonstrate responsibility to make choices to have a healthy lifestyle. They begin to appreciate linguistic, cultural and religious differences. They recognize and deal appropriately with conflict situations, and increasingly develop a sense of independence in making decisions.

Children develop body control and skills that they apply in a variety of contexts. Children explore with materials, develop awareness and appreciation of music and explore movement and space using music and other stimuli. They show increasing ability to concentrate on and complete a piece of work. Children now appreciate each others work and work of art from different cultures. They learn the principles of art and design and take a critical stance to their own immediate environment. They also develop their understanding of music from different cultures. Through exploration and expression, students will develop conceptual ideas, incorporate

production elements to effectively enhance their work, use their body and voice to portray characters, and at the same time accept suggestions for their creations and expressions. They will reflect on their work and bring about necessary changes as a step to move forward.

2.2.3 Key Stage 3 (Grade 7 to 10)

Adolescence (age 12- 16 years) is the time when children begin to **focus on themselves** and like to have their **personal identity** and the peer group is more easily understood as the reflection of self. There is a **high need for physical energy**, for girls full development is nearly complete, for boys growth spurt continues. More of their own **adult personality** emerges, and like to do as much as possible in a day. Their linguistic ability develops and wishes to go deeper into the nuances of language, use **negotiating skills** and love to be a part of discussion. Cognitively more **abstract reasoning** is evident, aware of problems and issues of the world and the same time get easily bored if the topic does not interest them. They are able to consider **alternate solutions to problems**, make hypothesis, and demonstrate meta cognitive skills. Additionally they demonstrate **specialized skills** in specific areas. Children are able to reflect on themselves and their work.

By the end of grade 10

Students will use a variety of linguistic structures of spoken language to respond to wide range of purpose and audience. They will read a wide range of texts, appreciate literary styles, discuss and reflect on and talk about their feelings and opinions about the characters, plots or events. Students will write fluently on a wide variety of topics, for different purpose and audience. They will use appropriate writing strategies independently and confidently and more so develop their style of writing. Students use different visual materials (movies, posters, CD ROMS, paintings etc) and respond to it orally and in writing. Students use language to think

analytically and creatively about important themes, concepts and ideas and connect knowledge from all curriculum areas to enhance understanding of the world.

Mathematics is a study of patterns and relationships. Students explore, conjecture and reason logically, use a variety of mathematical methods effectively to solve problems. Students develop, explain and model simple algebraic formulas, explain number patterns, and solve real life problems. They will use multiple strategies to create and solve problems, reasonably estimate the answers and be able to defend their methods used. They describe the relationship between variables, make predictions and analyse the sources of variability. They make connections between mathematics and other fields of study.

Here students investigate aspects of human relationship, society in which they live, focusing on themselves and others in the community. They extend their understanding of how people live in groups, how communities are organized, how people influence and are influenced by the environment. They understand the concept of time, growth, change and continuity in the context of events, people, places and society as a whole. They construct and express thoughtful positions on public issues, and act constructively to further the public good. Respect for the underlying values of a democratic society is developed.

Children make sense of the natural world, describe its complexity, seek to explain the systems and events and find patterns to allow for predictions. Children begin to identify parts of a system and a sense of understanding the cause and effect of a relationship. They communicate their ideas and observations in different ways and provide adequate explanations too. Students examine changes over time and show the influence of variables. They use learning in science for planning positive action for the

welfare of others and the environment. They make decisions about social issues that involve science and technology. They think scientifically and make informed judgments on statements and debates to have a scientific basis. They reflect in an informed way on the role of science in human affairs.

Children also develop an awareness of their self identity, their strengths and weaknesses, learn to communicate their feelings and emotions, develop a sense of safety and ability to protect themselves. They develop a sense of self confidence and self worth. They begin to demonstrate responsibility to make choices to have a healthy lifestyle. They begin to appreciate linguistic, cultural and religious differences. They recognize and deal appropriately with conflict situations, and increasingly develop a sense of independence in making decisions.

Children develop body control and skills that they apply in a variety of contexts. Children explore with materials, develop awareness and appreciation of music and explore movement and space using music

and other stimuli. They show increasing ability to concentrate on and complete a piece of work. Children now appreciate each others work and work of art from different cultures. They learn the principles of art and design and take a critical stance to their own immediate environment. They also develop their understanding of music from different cultures. Through exploration and expression, students will develop conceptual ideas, incorporate production elements to effectively enhance their work, use their body and voice to portray characters, and at the same time accept suggestions for their creations and expressions. They will reflect on their work and bring about necessary changes as a step to move forward.

The chart further outlines the learning standards expected of the students by the end of each key stage and as they move to the next stage of learning. The learning standards are not discrete but overlapping across the stages for continuity and progression.

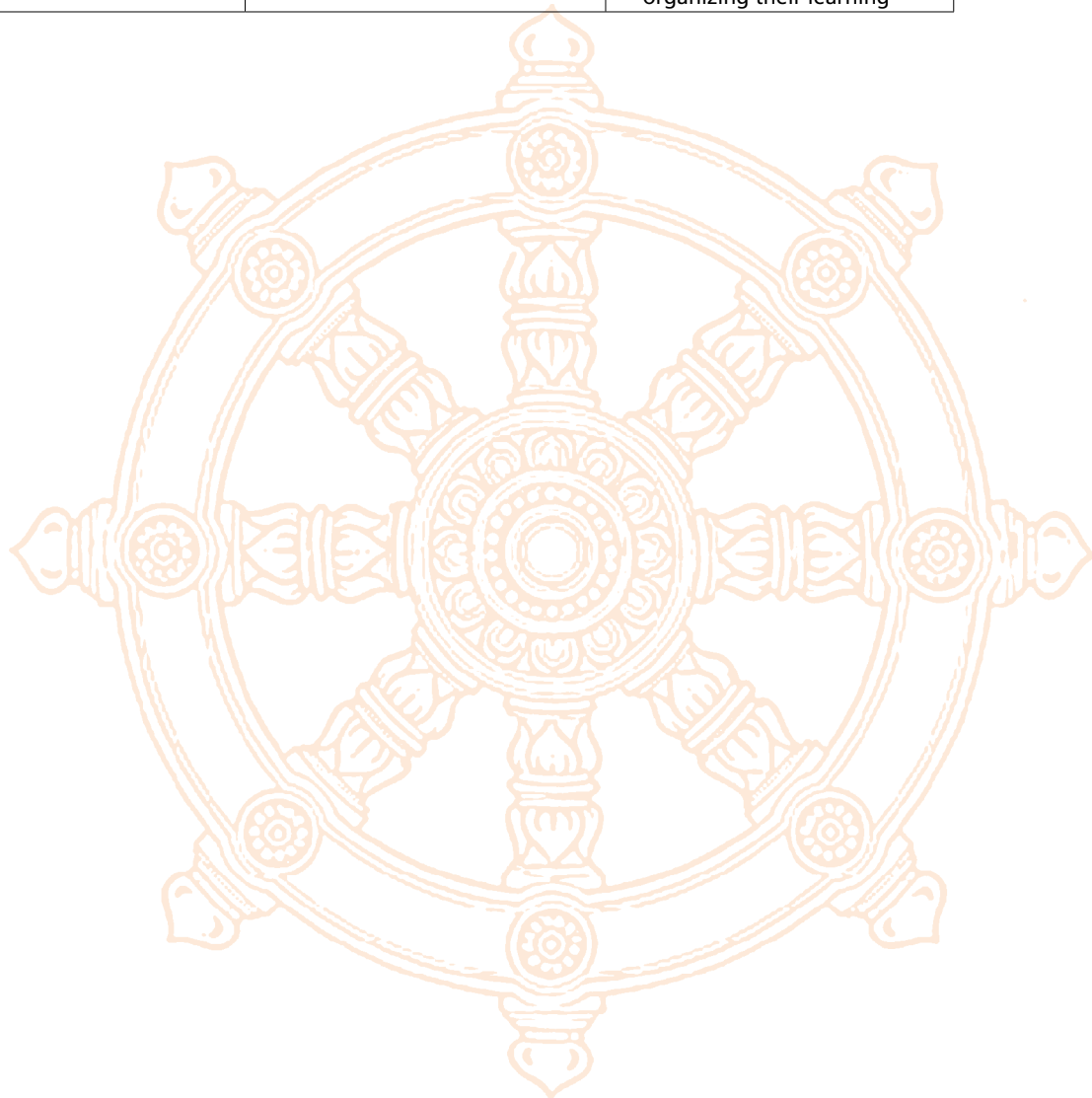
2.3 LEARNING STANDARDS AT KEY STAGES OF SCHOOLING

The learning standards gives broad descriptors of what the children should be expected to achieve by the end of each key stage.

Key Learning Areas	Key Stage 1 (K1 – Grade 2 nd)	Key Stage 2 (Grades 3 rd to 6 th)	Key Stage 3 (Grades 7 th to 10 th)
Language and Communication	Age 4 to 6 Language and Literacy <ul style="list-style-type: none"> Communicate by using their spoken language for various purposes. Explore different conventions of spoken language. Interact with friends and adults with support. Predicting and making sense of visual, written and multimodal texts. Acquire alphabetic and phonic knowledge, recognize common word, use emerging vocabulary for communication Explore to write, draw and use multimodal text to communicate their understanding 	Age 8 to 12 Speaking and Listening <ul style="list-style-type: none"> speak and listen, use oral, aural and gestural modes to interpret, construct meaning and respond in personal and community contexts Speak with confidence for a varied range of audience and purpose, use vocabulary and syntax for communicating complex meanings. Choose topic, organize ideas and sequence for speaking Listen, understand the key points in a discussion and respond accordingly Ask relevant questions, clarify, justify or extend ideas in a discussion Identify features of language for a specific purpose and use it in a meaningful way. Understand the grammatical structures of spoken English language for using in a range of contexts Participate in a wide range of drama activities and evaluate their own and those of others contributions. 	Age 12 to 16 Speaking and Listening <ul style="list-style-type: none"> Speak and listen, use oral, aural and gestural modes to interpret, construct meaning and respond across local and national contexts Speak with confidence for a varied range of audience and purpose, use vocabulary and syntax for communicating complex meanings. Choose topic, organize ideas and sequence for speaking, and adapt for a range of audience and purpose. Listen, understand the key points in a discussion and respond critically to others. Ask relevant questions, clarify, justify and extend ideas in a discussion Identify specific features of spoken English language and use it in a meaningful way. Take different views, modify own views and respond appropriately in a group Understand the grammatical structures of spoken English language for using in a range of contexts Participate in a wide range of drama activities and evaluate their own and others contributions.
	Age 6 to 8 Speaking and Listening <ul style="list-style-type: none"> Speak and listen, use oral, aural and gestural modes to interpret, construct meaning in familiar contexts. Use language and actions to explore and respond to situations, people and emotions Interact as members of a group, have roles within the group Know the main features and conventions of spoken English and use it for different listeners and different situations 		

Key Learning Areas	Key Stage 1 (K1 – Grade 2 nd)	Key Stage 2 (Grades 3 rd to 6 th)	Key Stage 3 (Grades 7 th to 10 th)
	<p>Reading</p> <ul style="list-style-type: none"> • Read and view using different strategies to interpret and make meaning of written, visual and multimodal texts in familiar contexts. • Have phonemic awareness and phonic knowledge, word recognition, grammatical awareness and contextual understanding of the text for different purposes • Develop their understanding for poetry, fiction, drama and informative texts. • Read with accuracy and understanding different types of simple text and understand its structure and variations • Read for enjoyment different kinds of texts <p>Writing</p> <ul style="list-style-type: none"> • Write using language structure to create literary and non literary texts for familiar situations. • Interpret and use different language structure like vocabulary, grammar, punctuation in familiar contexts. • Begin to develop a legible style of writing, represent ideas, information and thinking to communicate to others • Begin to write a range of forms of writing like narratives, poems, notes, captions, messages and instructions. 	<p>Reading</p> <ul style="list-style-type: none"> • Read and view using different strategies to interpret and make meaning of written, visual and multimodal texts for self and community contexts. • Use knowledge of words, sentences, and texts to read with fluency and accuracy • Read with understanding to make meaning, inferences and deductions, and connections between different parts of the text. • Read and understand different texts to make text to text, text to self and text to real life connections. • Use different reading strategies to find information, organize the key points and consider the text critically • Develop an understanding and appreciation for different literary texts, evaluate the ideas and themes to broaden their perspectives and extend their thinking • Develop an understanding and appreciation for non literary and non fiction texts, evaluate the ideas and information, layouts and presentations and engage in the subject matter. • Use reference materials like news papers, dictionaries, thesauruses, handbooks etc for finding and using relevant information. <p>Writing</p> <ul style="list-style-type: none"> • Write and design using language structure to create literary and non literary texts for different purposes • Know the grammatical functions of words, features of different types of sentences, and how to use them, purpose of organizing a text and linking ideas in it. • Interpret and make choices in using different language structure like vocabulary, grammar, punctuation in varied contexts. • Use writing strategies for writing for different purposes and contexts. • Develop spelling strategies, extend knowledge of vocabulary for writing purposes. 	<p>Reading</p> <ul style="list-style-type: none"> • Read and view, using different strategies, to interpret and make meaning of written, visual and multimodal texts across local and national contexts. • Develop an understanding and appreciation for different literary texts, evaluate the ideas and themes to broaden their perspectives and extend their thinking • Use knowledge of words, sentences, and texts to read with fluency and accuracy • Read with understanding to make meaning, both explicit and implicit from the text given. • Use different reading strategies to find information, organize the key points and consider the text critically • Reflect on the author's presentation of ideas, issues, people and the impact it has on the text • Develop an understanding and appreciation for non literary and non fiction texts, evaluate the ideas and information, layouts and presentations and engage in the subject matter. • Read and appreciate text from different cultures and traditions and understand the underlying assumptions in the texts • Use reference materials like news papers, dictionaries, thesauruses, handbooks etc for finding and using relevant information. • Read to help their own thinking, investigating and organizing their learning. <p>Writing</p> <ul style="list-style-type: none"> • Use language structure, linguistic and literary forms to compose their own writing (eg. writing to inform, to persuade and advise, to review and analyse, creative writing) • Know the principles of sentence construction and whole text cohesion and use the knowledge in writing

Key Learning Areas	Key Stage 1 (K1 – Grade 2 nd)	Key Stage 2 (Grades 3 rd to 6 th)	Key Stage 3 (Grades 7 th to 10 th)
		<ul style="list-style-type: none"> • Use different forms of writing for different purposes and write with increasing fluency. • Use writing to help their own thinking, investigating and organizing their learning. 	<ul style="list-style-type: none"> • Interpret and make choices in using different language structures like vocabulary, grammar, punctuation in literary and non literary contexts. • Use wide range of techniques to write for different purposes and write with increasing fluency. • Make judgments and give opinions on texts and appreciate different literary and non literary texts. • Develop and apply spelling strategies, extend knowledge of vocabulary for writing purposes. • Develop and represent ideas, information and thinking using ICT. • Understand the relationship between the text type, content, purpose and audience. • Use writing to help their own thinking, investigating and organizing their learning



Key Learning Areas	Key Stage 1 (K1 – Grade 2 nd)	Key Stage 2 (Grades 3 rd to 6 th)	Key Stage 3 (Grades 7 th to 10 th)
Mathematical Understanding	<p>Age 4 to 6</p> <ul style="list-style-type: none"> Exploring, investigating and communicating about quantity and their representations, attributes of objects and collections. Counting and using numbers up to 10 in familiar contexts Addition and subtraction using concrete materials Demonstrate conservation of number Investigating and communicating about movement, position and direction. Recognizing and describing shapes and size of solid and flat shapes Using vocabulary related to position and direction Use pictures and objects to solve practical problems Direct comparison of length and weight <p>Age 6 to 8</p> <p>Reasoning, Problem Solving and Communicating</p> <ul style="list-style-type: none"> Problem solving (numbers, data, problem situations) in all strands Making decisions as to which operation to use Explain the methods used and give reasons for problem solving Express and communicate using objects, pictures, mathematical language and symbols <p>Numbers and Operations</p> <ul style="list-style-type: none"> Count, read, write, order numbers upto 20 at first and then upto 100 or beyond Represent the place value of a digit (ones, tens, hundreds) Represent number patterns upto 100 and beyond Understand addition and its related vocabulary, addition facts to 20, addition of 3 digit numbers without regrouping 	<p>Age 8 to 12</p> <p>Reasoning, Problem Solving and Communicating</p> <ul style="list-style-type: none"> problem solving (numbers, data, situations) in all strands solving complex problems by breaking down into simpler steps Make mental estimates of the solutions and check the results Use different approaches to problem solving, explain the methods used and give reasons for problem solving Communicate using mathematical language, symbols and notations and diagrams make connections while solving problems of different strands and search for patterns in results <p>Numbers and Operations</p> <ul style="list-style-type: none"> Count on and back in tens or hundreds from two/three digit number, continue number sequences from any integer, extending to negative number when counting backwards. Represent whole numbers, place value, multiply or divide whole numbers with up to 4 digits by a 2 digit whole number Understand and find prime numbers, factors, multiples, prime factors, HCF, LCM. Know and Use divisibility properties by 2,3,4,5,6,10 <p>Algebra</p> <ul style="list-style-type: none"> Generate sequences and find missing term Read and write algebraic expressions, simplify expressions and translate between verbal and algebraic expressions. Solving algebraic equations in one variable 	<p>Age 12 to 16</p> <p>Reasoning, Problem Solving and Communicating</p> <ul style="list-style-type: none"> Use alternate approaches to problem solving, explain the methods used and give reasons for problem solving Make connections in mathematics to develop flexible approaches to problem solving make mental estimates of the solutions and check the results and monitor accuracy communicate using mathematical language, symbols and notations and diagrams Critically examine and justify and reason out the choices of mathematical presentations <p>Numbers and Number system</p> <ul style="list-style-type: none"> Develop an understanding of irrational, real and complex numbers Develop an understanding of the properties of real and complex number systems Use their knowledge and understanding of integers and place value to deal with different aspects of number system Know the use of square root, cube, cube root, index notation for small integer powers, index laws for multiplication and division of positive integer powers Draw on their knowledge of the number operations and the relationships between them to solve different kinds of numerical problems <p>Fractions and Decimals</p> <ul style="list-style-type: none"> Use fraction notations, understand equivalent fractions, simplify fractions, and order fractions Use decimal notations and recognize that each terminating decimal is a fraction

Key Learning Areas	Key Stage 1 (K1 – Grade 2 nd)	Key Stage 2 (Grades 3 rd to 6 th)	Key Stage 3 (Grades 7 th to 10 th)
	<ul style="list-style-type: none"> Understand subtraction and its related vocabulary, subtraction facts upto 20, subtraction of 3 digit numbers without regrouping Know multiplication as equal grouping, multiples of 2,5,10, multiplication as repeated addition Know that division is equal sharing Recognize the inverse relationship of addition and subtraction, halving and doubling (upto 20) <p>Fractions</p> <ul style="list-style-type: none"> Recognize simple fractions, meaning of equal part of whole and part of a collection <p>Geometry, Patterns and Measures</p> <ul style="list-style-type: none"> Use geometric properties to explore, sort , create and describe 2D and 3D shapes Observe and describe position, direction and movements of objects using appropriate vocabulary Create geometric patterns using objects (one or two shapes, size, colour, orientation). Know the relationship of objects or numbers using patterns and simple rules (order, sequence, arrangement and equivalence). Estimate and measure length and weight using non standard and standard units of measurement; capacity using non standard units of measurement. Compare duration of events using standard units of time Recognize units of money (negultrums) Solve problems related to money or measures, explain their methods or reasoning <p>Data Handling</p> <ul style="list-style-type: none"> Collect, organize and interpret data 	<p>Fractions and Decimals</p> <ul style="list-style-type: none"> Understand unit fractions, simple equivalent fractions, compare and order fractions, explain their methods and reasoning Convert fractions to decimals and vice versa Addition and subtraction of proper fractions, multiplication of a fraction by a proper fraction, division of a fraction by a whole number. Understand and use decimal notations for tenth and hundredth in a context. Round a number with one or two decimals places to the nearest integer. Solving operations with decimals (addition and subtraction) <p>Percentages, Proportion and Ratio</p> <ul style="list-style-type: none"> Recognize that percentage is number of parts per hundred, find percentage of whole number quantities Convert percentage to decimals and fractions and vice versa and understand their relationship Solve simple problems of ratio and direct proportions <p>Geometry, Patterns and Measures</p> <ul style="list-style-type: none"> Understand the properties of shapes, visualize and describe 2 D and 3 D shapes using geometrical language Make and draw 2 D and 3D shapes with increasing accuracy, visualize 3 D shapes from 2 D drawings Recognize right angles, perpendicular and parallel lines, vertically opposite angles; find the sum of all angles of triangles Measure and draw 2 D shapes, angles, and lines, squares and rectangles, triangles, circles Find perimeters and areas of simple shapes using a formulae 	<p>Percentages, Proportion and Ratio</p> <ul style="list-style-type: none"> Understand percentage, use to compare proportions. Use ratio notations, recognize where fractions and percentages are needed to compare proportions <p>Equations, Formulae and Identities</p> <ul style="list-style-type: none"> Work with symbols, distinguish expressions, equations, formulae and identities, understand that transformation of algebraic expressions obeys and generalizes the rules of arithmetic Use index notations for integer powers, simple instances of index laws and substitute positive and negative numbers into expressions Set up simple equations and solve simple equations, use equations to solve word and other problems Solve linear equations, with one unknown and a pair of simultaneous linear equations Solve quadratic equations Rearrange formulae connecting at least two variables <p>Sequences, Functions and Graphs</p> <ul style="list-style-type: none"> Generate terms of sequence using term to term and position to term definitions, find the first terms of a sequence, use linear expressions to describe the nth term of an arithmetic sequence Function, domain and range; functional relationships between variables, graphs of simple functional relationships Find gradients of lines given by equations of the form $y=mx + c$, investigate the gradients of parallel lines and lines perpendicular to these lines Generate points and plot graphs of simple quadratic and cubic functions

Key Learning Areas	Key Stage 1 (K1 – Grade 2 nd)	Key Stage 2 (Grades 3 rd to 6 th)	Key Stage 3 (Grades 7 th to 10 th)
		<ul style="list-style-type: none"> Visualize, describe movements using appropriate language, transform objects and images, predict the position of a shape following a rotation or a reflection, recognize symmetry and tessellations Recognize the need for standard units of measurement, use and convert one metric unit to another Read time from analogue and digital clocks, elapsed time, know the relationship between the units of time. Record measurements with increasing accuracy Solve problems related to money or measures, explain their methods or reasoning <p>Data Handling</p> <ul style="list-style-type: none"> Process, represent and interpret given data, solve problems involving data Represent and Interpret different types of graphs and charts 	<p>Geometry</p> <ul style="list-style-type: none"> Create angles at a point, angles on a straight line, alternate and corresponding angles, make formal arguments to establish congruency of two triangles, use congruency of two triangles to generate further knowledge Use their knowledge of essential properties of special types of quadrilateral and classify according to their properties Understand and use Pythagoras theorem Understand regular polygons and their exterior and interior angles, explore the geometry of cuboids, use 2 D representations of 3 D shapes and analyse 3 D shapes through 2 D projections and cross sections Properties and terms related to circle (pie) Know the properties of transformation (rotations, reflection, and symmetry), of shapes and that these transformations preserve the length and angle so that the figure is congruent to its image under transformation Construct enlargement of objects using positive integer scale factors greater than one, then positive scale factors less than one, and make derivations about squares and rectangles. Understand the usage of one, two and three coordinates, find coordinates of line segments and do the calculations Interpret scales on a range of measuring instruments, know that measurements depend on the units chosen, convert measurements, and make sensible estimates of range of measures in everyday settings Constructions using straight edge and compass, measure and draw lines and angles with accuracy

Key Learning Areas	Key Stage 1 (K1 – Grade 2 nd)	Key Stage 2 (Grades 3 rd to 6 th)	Key Stage 3 (Grades 7 th to 10 th)
			<ul style="list-style-type: none"> Perimeters, areas of rectilinear and circular shapes, and volumes of rectilinear solids, cones, cylinders and spheres Find loci both by reasoning and by using ICT to produce shapes and paths <p>Data Handling</p> <ul style="list-style-type: none"> Calculate measures of central tendency, and represent the results in the form of tables, diagrams and graphs. Use statistical data collected from samples to make inferences about the whole population Interpret Scatter diagrams between two random variables, understand elementary qualitative discussion of correlation, drawing a line of best fit by eye through the scatter points where there appears to be some correlation
Science/ Knowledge and Understanding	<p>Age 4 to 6</p> <ul style="list-style-type: none"> Explore, investigate and communicate about the features of the environment (humans, animals, plants and the relationship between them) Investigate about different phenomena or events in the environment use tools and common resources for investigation Experiment with a variety of materials and objects in creative ways (study of origin, features, differences and uses of natural and man made solids, liquids and gases). Generate, and discuss ideas and solving problems <p>Age 6 to 8</p> <p>Life Processes</p> <ul style="list-style-type: none"> Know that the needs, physical features and behaviours of living things (plants, human, animals) are related and it can change with time. Make simple comparisons, group living things according to criteria and explain using their knowledge and understanding know that local environment has specific features(plants and animals) and needs to be sustained by various activities 	<p>Age 8 to 12</p> <p>Scientific Inquiry</p> <ul style="list-style-type: none"> Know that science is a part of human life and that it affects us in our daily life. Make predictions to be tested, pose simple questions and plan for activities and investigations. Select tools, use different techniques and resources for conducting investigations. Make inferences of the investigations done, relate to the concepts, and represent the findings in different ways. use scientific vocabulary and explanation to elaborate on conceptual understanding review their work and other's work and describe its relevance in the context <p>Life Processes</p> <ul style="list-style-type: none"> Understand that the needs, physical features and behaviour of living things are related and can change with time Know and understand about the life processes common to human and other animals Understand the life processes related to plants Make connections and relationships between the life processes common to plants and animals and the habitat in which they are found 	<p>Age 12 to 16</p> <p>Scientific Inquiry</p> <ul style="list-style-type: none"> Know the ways that scientists work, including the role of experimentation, evidence and creative thoughts in the development of scientific ideas. Build on their knowledge and understanding and make connections between different areas of science. Make predictions to be tested, pose simple questions and plan for activities and investigations. select tools, use different techniques and resources for conducting investigations and get accurate results. make inferences of the investigations done, relate to the questions and represent the findings. use scientific vocabulary, ideas and explanation to elaborate on conceptual understanding use scientific terminology, knowledge, reasoning, data and arguments in different situations. accept different perspectives of scientific arguments and explanations and respond appropriately.

Key Learning Areas	Key Stage 1 (K1 – Grade 2 nd)	Key Stage 2 (Grades 3 rd to 6 th)	Key Stage 3 (Grades 7 th to 10 th)
	Materials and their Properties <ul style="list-style-type: none"> • Use senses to explore, observe similarity and differences, make groups, and know the uses of the materials in the local community • know that materials have different properties and may undergo changes over time • Find about movement of things using force; • Know that there are cycles of events (day and night) that happen in the environment. • Recognize the need for safety in the environment • Understand that local communities have shared features, values and common way of living. • Understand that peoples and resources are involved in the production and consumption of goods and services. • Develop skills and processes to acquire information and respond, plan simple activities and investigations, obtain and present evidences. 	<ul style="list-style-type: none"> • Know that micro organisms are living things and that they may be beneficial or harmful to us. Materials and their Properties <ul style="list-style-type: none"> • Know that materials have different properties and they are interrelated in nature. • Sort, group and classify materials according to their properties • Understand that the materials change, and that some changes are reversible and some are non reversible in nature • Know how to separate mixtures of materials using tools and techniques Physical Processes <ul style="list-style-type: none"> • know about forms and uses of energy and changes that are evident in the outside world • understand simple circuits of electricity, represent and construct series circuits • know about the types of forces (magnetic, gravitational, frictional), measure and identify the direction in which they act • understand the properties of light and its effect on daily life • know the origin of different sounds, different properties of sound and how sounds change • know about the sun, moon and earth and their periodic changes 	Life Processes <ul style="list-style-type: none"> • understand about the structure and function of cells, and how it is related to life processes in variety of organisms. • Understand that the needs, physical features and behaviour of living things are related and can change with time • Know and understand about the life processes (nutrition, digestion, movement, breathing, reproduction, respiration) in human beings • Understand the life processes related to green plants • Understand classification of living things, causes of variation within the species and that selective breeding can produce new varieties. • Make connections and relationships to extend their knowledge of plants, animals and humans life processes • Understand how habitat support the diversity of plants and animals, how living things and environment can be protected, feeding patterns and relationships in the living things Materials and their Properties <ul style="list-style-type: none"> • Classify materials according to the states of matter, and use theory to explain the properties of matter • Distinguish between elements, mixtures and compounds, their physical properties and chemical reactions, and how to use techniques and tools for separating mixtures. • Know and understand that materials change and that it has impact on the state of materials (physical changes, geological changes of rocks, chemical reactions in living systems)

Key Learning Areas	Key Stage 1 (K1 – Grade 2 nd)	Key Stage 2 (Grades 3 rd to 6 th)	Key Stage 3 (Grades 7 th to 10 th)
			<ul style="list-style-type: none"> • Know the patterns of behaviour when metal reacts with other metals, acids, oxygen and water; and how reactivity in a series of metals can be determined by considering these reactions, and used to make predictions about other reactions. • Use principles to classify acids and bases, some everyday applications of neutralization, and how acids in the environment lead to corrosion and chemical weathering of rock <p>Physical Processes</p> <ul style="list-style-type: none"> • design and construct series and parallel circuits and understand its functioning • know about magnetic fields, how electromagnets are constructed, and used in devices • Understand the principles and relationship between force and linear motion, force and rotation, force and pressure and the impact it has on the bodies • understand the properties of light and how it behaves on different materials, • know the different properties of sound and the relationship between them • Understand the solar system as a whole, position of earth, sun and planets in the solar system and how the movements of planets relate to gravitational forces • Know about the variety of energy sources, distinguish between renewable and non renewable sources of energy • Know how to transfer and store energy, conserve energy for future usage • Recognize the hazards in living things, materials and physical processes, assess risks and take action to reduce it.

Key Learning Areas	Key Stage 1 (K1 – Grade 2 nd)	Key Stage 2 (Grades 3 rd to 6 th)	Key Stage 3 (Grades 7 th to 10 th)
Social Science	Age 4 to 8	<p>Age 8 to 12</p> <p>Skills</p> <ul style="list-style-type: none"> • make predictions to be tested, pose simple questions and plan for activities and inquiry. • collect information using different tools and techniques, conduct inquiry and organize and interpret data. • know that change and continuity are cyclic events and are a part of everyday life. • make informed decisions based on evidence and communicated decisions and create text to match purpose and audience. <p>Geography</p> <ul style="list-style-type: none"> • Develop an understanding of places, their location; physical features and changes that might occur. • Develop an understanding about the places in a wider geographical context. • Understand the physical and human processes that contribute to changes in places and environment. • Use knowledge and understanding to compare the local environmental features with those outside Bhutan • Recognize and develop an understanding of improving the environment and sustainable practices to protect the environment and how they affect the quality of people's life. • Know how human settlements are a response to the natural environment in which they exist <p>History and Community</p> <ul style="list-style-type: none"> • Develop knowledge and understanding of events, people and changes in the past • Use range of sources of information to understand about the past, have a chronological understanding and make inferences • know how communities develop over time and about their governance and decision making system 	<p>Age 12 to 16</p> <p>Skills</p> <ul style="list-style-type: none"> • make predictions to be tested, pose simple questions and plan for activities and inquiry. • collect information using different tools and techniques, suggest sources of information, conduct inquiry, evaluate, organize and interpret data. • know that change and continuity are a part of everyday life and can be interpreted from different perspectives. • make informed decisions based on evidences (primary and secondary), use extended vocabulary, communicate decisions and create text to match purpose and audience. <p>Geography</p> <ul style="list-style-type: none"> • Understand about location of places and environment, describe about physical and human features of a location, why changes happen, and how places are interdependent from the national and international perspective • know about the human and physical interaction and its impact on developing sustainable practices • Understand the tectonic processes, geomorphic processes, variation in climate and weather systems, ecosystems and their effects on landscapes and people • Understand how population distribution and settlements, economic activity, development and use of resources effect on landscapes and people • Explain environmental issues and change, explore the idea of sustainability and its implication for people, places, environment and their own lives • Study different parts of the world and different types of environment and make comparisons

Key Learning Areas	Key Stage 1 (K1 – Grade 2 nd)	Key Stage 2 (Grades 3 rd to 6 th)	Key Stage 3 (Grades 7 th to 10 th)
		<ul style="list-style-type: none"> communicate their knowledge of Bhutan history in a variety of ways understand about local community, culture, values and diversity and the interrelationships between them understand about neighbouring countries, their history and its impact on Bhutan community and culture <p>Citizenship</p> <ul style="list-style-type: none"> Understand different kinds of responsibilities, rights and duties at home, at school and in the community Know what democracy is, and about the basic institutions that support it locally and nationally To research, discuss and debate on topical issues, problems and events in Bhutan Know that differences and similarities between people arise from a number of factors, including cultural, ethnic, racial and religious diversity, gender and disability 	<p>History</p> <ul style="list-style-type: none"> Develop knowledge and understanding of events, people and changes in the past, use range of sources of information to understand about the past, have a chronological understanding and make inferences Analyse the relationship between the features of a period and the societies studied, elaborate on the diversities of the societies, give reasons and consider the changes that have taken place Use appropriate sources of information to do historical inquiry, interpret and evaluate how and why the changes have taken place, and derive conclusions know how communities develop over time and about their governance and decision making system communicate their knowledge of history in a variety of ways understand about neighbouring countries, their history and its impact on Bhutan's community and culture <p>Citizenship</p> <ul style="list-style-type: none"> Understand different kinds of responsibilities, rights and duties at home, at school and in the community Know what democracy is, and about the basic institutions that support it locally and nationally To research, discuss and debate on topical issues, problems and events (national and global) Know that differences and similarities between people arise from a number of factors, including cultural, ethnic, racial and religious diversity, gender and disability understand how the political and economic system is based on certain principles and values. understand about community, culture and values that bring the community together and yet accept diversity.

Key Learning Areas	Key Stage 1 (K1 – Grade 2 nd)	Key Stage 2 (Grades 3 rd to 6 th)	Key Stage 3 (Grades 7 th to 10 th)
Health and Physical Education Mental Health and Psychosocial well being	Age 4 to 6 <ul style="list-style-type: none"> • Making choices about their health and safety as they become independent. • Using gross motor skills for making movements, physical activity and using tools • Employing fine motor skills for making movements, using objects and manipulative • Recognize the importance of play, cooperative behaviour, interaction and positive attitude and the ability to function as a part of a group • Develop personal identity as learners. • Relationship with family, peers and environment 6 to 8 Physical <ul style="list-style-type: none"> • Recognize how they physically grow and develop. • Participate in creative and regular physical activities and games • develop control and coordination in using equipment and in physical activity 	Age 8 to 12 Physical <ul style="list-style-type: none"> • are aware of the factors that affect their physical, emotional and social growth and development • are regularly involved in physical activities and games • participate in competitive activities • organize, plan and initiate team, pair and small-group activities • develop control and coordination in using equipment and in physical activity • apply basic, and specialized skilled movements while participating in physical activities. Personal <ul style="list-style-type: none"> • know their role in maintaining their personal sense of well being and self worth • develop a range of more complex skills in play • are aware of the importance of a healthy lifestyle, hygienic habits • develop a sense of personal identity, sense of well being and relationship through interaction with family, peers and environment. • use personal and social skills in groups, family and new contexts. • setting goals for self and achieve them • follow guidelines to apply safe practices in their daily life • understand the importance of health and well being and make informed decisions 	Age 12 to 16 Physical <ul style="list-style-type: none"> • understand health from the perspective of physical, social, intellectual, emotional and spiritual dimensions and make informed decisions • apply basic, and specialized skilled movements while participating in physical activities • are aware of the factors that affect their growth and development during adolescence • regularly practice and enjoy physical activities and sports • participate in competitive activities at a wider participatory level • organize, plan and initiate team, pair and group activities • develop skilled expertise in using equipment and in physical activity Personal <ul style="list-style-type: none"> • develop a sense of personal identity, well being and relationship through interaction with family, peers and environment • know their identity and self worth and how it relates to others around them • acquire and apply complex fine motor skills • are aware of and practice a healthy lifestyle • setting high goals for self and achieving them • understand and use safety practices in different contexts at different times

Key Learning Areas	Key Stage 1 (K1 – Grade 2 nd)	Key Stage 2 (Grades 3 rd to 6 th)	Key Stage 3 (Grades 7 th to 10 th)
	Personal <ul style="list-style-type: none"> Follow guidelines to apply safe practices Become aware of the obvious hazards around the home, school and immediate environment develop a range of simple skills in play develop a sense of personal identity, sense of well being and relationship through interaction with family, peers and environment. Social <ul style="list-style-type: none"> explore relationships with peers take collective responsibility of the environment Emotional <ul style="list-style-type: none"> express their ideas, feelings and emotions in various ways 	Social <ul style="list-style-type: none"> explore and manage relationships with peers and elders are aware of rights and responsibilities in the environment in which they interact participate actively in community projects in the immediate environment Emotional <ul style="list-style-type: none"> express their own ideas, feelings and emotions and are conscious of those of others 	Social <ul style="list-style-type: none"> use personal and social skills in groups, family and new contexts explore and manage relationships with peers and elders are aware of rights and responsibilities and rules as they refer to self and to Bhutanese citizens participate actively and initiate projects for the improvement of the community at large actively promote healthy living and eating among friends, family and in new contexts Emotional <ul style="list-style-type: none"> reflect on learning and actions to apply in future endeavors manage a variety of relationships in a positive atmosphere express their ideas, feelings and emotions and accept those of others
Visual Art	Age 4 to 6 <ul style="list-style-type: none"> Express themselves freely in a variety of ways through visual art, music and movement Use two and three dimensional art to express ideas. Develop the understanding of varied functions and use of materials and tools of visual art Age 6 to 8 Visual Art <ul style="list-style-type: none"> present visual art using different art techniques, and materials understand the basic skills and processes related interpret, evaluate and respond to art work produced by themselves and others using art elements and languages share the ideas, feelings and personal stories represented through art use two and three dimensional art to express ideas and present them to audiences transfer ideas, emotions and thoughts into visual forms 	Age 8 to 12 Visual Art <ul style="list-style-type: none"> create and present art, craft and design work for informal and formal audiences, using different techniques and materials interpret, evaluate and respond to different kinds of visual art of Bhutan by identifying and interpreting in the context of social, historical and cultural perspectives use media techniques and practices to create representations for different purposes. apply the knowledge of selected materials and processes to create visual art in different forms respond to visual art produced by themselves and others using art elements and languages use observation, imagination and study of work of past masters to develop new ideas use art as a means to transfer ideas, emotions and thoughts into visual forms 	Age 12 to 16 Visual Art <ul style="list-style-type: none"> create and present art, craft and design for informal and formal audiences, using different techniques and materials interpret, evaluate and respond to different kinds of visual art of Bhutan and the world by identifying and interpreting in the context of social, historical and cultural perspectives past and present use a variety of media techniques and practices to create representations for different purposes. apply the knowledge of selected materials and processes to create visual art in different forms respond to visual art produced by themselves and others using art elements and languages use a variety of sources, stimuli and inspirations to develop new ideas

Key Learning Areas	Key Stage 1 (K1 – Grade 2 nd)	Key Stage 2 (Grades 3 rd to 6 th)	Key Stage 3 (Grades 7 th to 10 th)
Music, Dance and Drama	<p>Age 4 to 6</p> <p>Music and Movement</p> <ul style="list-style-type: none"> • Enjoy and experience music through singing and playing instruments • Develop a sense of rhythm and rhyme through music, dance and drama (movement) <p>Age 6 to 8</p> <p>Music</p> <ul style="list-style-type: none"> • Perform individually and in groups: <ul style="list-style-type: none"> ◦ sing a variety of songs and rhymes ◦ play and hold a variety of instruments properly • Compose to express and improvise <ul style="list-style-type: none"> ◦ use music as a medium to express ideas and feelings ◦ create sounds using different instruments • Listen to assess <ul style="list-style-type: none"> ◦ differentiate the sounds ◦ identify the instruments and the type ◦ understand basic patterns and elements in music • Apply the concepts <ul style="list-style-type: none"> ◦ make sounds in different ways ◦ integrate music with the other performing arts • Appreciate the diversity <ul style="list-style-type: none"> ◦ are aware of a variety of music from different cultures ◦ identify the place of music in our daily lives like radio, television, festivals, special occasions 	<p>Age 8 to 12</p> <p>Music</p> <ul style="list-style-type: none"> • Perform individually and in groups: <ul style="list-style-type: none"> ◦ sing a variety of songs with rhythm and control ◦ play a variety of instruments with rhythm and control ◦ perform in a group that contains a variety of singers and players • Compose to express and improvise <ul style="list-style-type: none"> ◦ use music as a medium to express ideas and feelings in a melodious and rhythmic way ◦ create, combine and organise musical sounds using different instruments • Listen to assess <ul style="list-style-type: none"> ◦ differentiate the sounds and their mood and tone ◦ identify the audio sounds of different instruments and singers in an ensemble ◦ interpret musical patterns and elements • Apply the concepts <ul style="list-style-type: none"> ◦ demonstrate different ways to produce music harmoniously ◦ use music with other disciplines to enhance understanding • Appreciate the diversity <ul style="list-style-type: none"> ◦ comprehend and interpret music from different cultures ◦ identify the place of music in our daily lives through modern media like internet 	<p>Age 12 to 16</p> <p>Music</p> <ul style="list-style-type: none"> • Perform individually and in groups of different sizes: <ul style="list-style-type: none"> ◦ use a variety of vocal techniques and expressions ◦ play a variety of instruments using specific techniques ◦ develop expertise in a particular type of vocal or instrumental music ◦ perform for a formal audience in a group that contains a variety of singers and players • Compose to express and improvise <ul style="list-style-type: none"> ◦ develop and produce music as a medium to express ideas and feelings in a melodious and rhythmic way ◦ create, combine and organise musical sounds using different instruments and varied rhythms and melodies ◦ manipulate electronic sounds and instruments • Listen to assess <ul style="list-style-type: none"> ◦ Differentiate, memorise and recall the sounds of music ◦ identify the audio sounds of different instruments and singers in a large ensemble ◦ compare musical patterns and styles and describe the differences

Key Learning Areas	Key Stage 1 (K1 – Grade 2 nd)	Key Stage 2 (Grades 3 rd to 6 th)	Key Stage 3 (Grades 7 th to 10 th)
	Movement: Dance and Drama <ul style="list-style-type: none"> • use the human body movements to express ideas and feelings and to improvise • tell personal stories through drama • explore movement using key elements of drama and dance • consider particular audiences in informal presentations that give opportunities to interact • understand that movement through dance and drama serves a variety of purposes in their lives and the wider community • are aware that dance and drama are art forms prevailing in their own communities 	Movement: Dance and Drama <ul style="list-style-type: none"> • combine, improvise and develop new ideas for expression through dance and drama • explore movement using key elements of drama and dance to develop specific techniques • consider particular audiences in informal presentations that give opportunities for interaction to the presenters • understand that movement through dance and drama serves a variety of purposes in their lives and the wider community • are aware that dance and drama are art forms prevailing in a variety of cultures, new and old 	<ul style="list-style-type: none"> • Apply the concepts <ul style="list-style-type: none"> ◦ demonstrate different ways to produce music harmoniously ◦ identify the different ways that music is produced in a variety of contexts ◦ use music with other disciplines to enhance understanding • Appreciate the diversity <ul style="list-style-type: none"> ◦ comprehend and interpret music from different cultures and styles ◦ identify the place of music in our daily lives through historic times ◦ describe the significance of modern methods of making music, synthesising and mixing, and of marketing it including copyright and piracy Movement: Dance and Drama <ul style="list-style-type: none"> • combine, improvise and develop new ideas for expression through dance and drama • develop specific techniques, strategies, and skills to enhance performance • make presentations that utilise production and choreographic skills and give opportunities for interaction to the presenters • understand that movement through dance and drama is a powerful social, political and cultural medium to transmit ideas and thoughts • perform at a group and an individual level in different facets of the art form, for instance, direction, production, lighting, script writing, audio-visual, props, costumes, music etc • differentiate between the various forms of dance and of drama prevailing in traditional and modern societies
Information and Communication Technology		<ul style="list-style-type: none"> • use appropriate tools and techniques to design 2d and 3 d visual representations • generate design ideas and create for different purposes and audiences. • use ICT to develop and represent ideas, information and thinking in different disciplines 	<ul style="list-style-type: none"> • use appropriate tools and techniques to design with specific guidelines. • generate design ideas and create for different purposes and audiences. • understand how technology impacts on the human life in the local as well as in the global context.

CHAPTER

3

Organization of the Curriculum at Higher Secondary Stage

3.1 INTRODUCTION

The National Education Framework envisages a 6+4+2 pattern of school education. The higher secondary stage is viewed as a critical stage in the academic path of a pupil since it is at this stage that students will move towards diversification after ten years of general education and taking up specialized academic courses (of academic stream) on the one hand and job-oriented or productivity oriented courses (of vocational stream) on the other. It is at this stage a student is in a position to exercise a choice of stream/course in keeping with his/her own needs, interest, capability and aptitude while preparing to cope with the future. For a significant proportion of students the higher secondary stage may prove terminal. For them it would serve as a doorway to life and more importantly, to the world of work. For others it would be bridge to the tertiary stage of education, professional courses (engineering, technology and medical etc.) or academic courses, as the case may be.

3.2 OVERALL OBJECTIVES OF HIGHER SECONDARY EDUCATION

The higher secondary stage is central to the education system in Bhutan. The overall

objectives of higher secondary education, among others, include the following:

- help students realise their potential to the fullest, build character and personality, promote personal enhancement, prepare for life in a rapidly changing world, and attain personal and intellectual maturity;
- acquaint the students with a variety of fields of inquiry and approaches to knowledge and enable them to think critically and creatively, to conceptualise and solve problems, to reason and make evidence-based conclusions/decisions, and to express themselves clearly and convincingly both in speech and in writing;
- prepare students for tertiary education, including professional education, or for the workplace;
- develop knowledge, skills, attitudes and values that enable students to be productively employable, meet needs of employers and industry, inculcate virtues of efficiency, productivity, cooperation, competitiveness and enterprise and to participate in nation building and economic development;
- develop qualities of social and environmental justice, responsible citizenship, equity and equality and

respect for cultural, religious and linguistic diversity for the smooth functioning of members of society;

- raise standards of generic and specialized competencies among students and set the foundations for a knowledge based society;
- develop lifelong learners who continually strive to upgrade their standards and stay up-to-date with growth of ideas and progress in their areas of study and expertise;
- provide the youth with meaningful avenues for development and reduce the social cost of issues like juvenile delinquency and drug abuse among others, to the nation.

3.3 DIVERSIFICATION AND FLEXIBILITY: ACADEMIC AND VOCATIONAL STREAMS

For pupils, the higher secondary stage represents a stage of transition from adolescence to youth. During this stage, learners' interests and aptitudes begin to crystallise which have implications for their future academic path and occupational choices. One of the major thrusts of the higher secondary education programme, therefore, will be to meet the varied needs and potentialities of pupils. Diversification and flexibility, therefore, will constitute the major characteristic of higher secondary education programme. Since interests and aptitudes of the pupils stabilise by the time they reach the higher secondary stage, a key approach will be to provide opportunities to pupils to pursue courses of their choice keeping in view their interests, aptitudes and preferences. This will help provide for choices which cater to individual differences and interests and the opportunity to move at one's own pace. The content of courses will be made flexible to the extent possible.

Courses at the higher secondary stage will fall into two broad *streams* - namely, *academic and vocational* - with adequate

provision for mobility of students from one stream to the other, particularly, during the first few months on the basis of his/her academic attainments and interests. A student wishing to change his/her stream/subjects, will have the facility to undergo required *bridge courses*. In both the academic and vocational streams there will be a judicious mix of some common or un-differentiated courses and some specialised courses.

The existing groupings like arts, science, commerce, and agriculture will also allow for flexibility. Students will have the freedom, wherever possible, to opt for courses simultaneously from more than one group according to their needs, interests and aptitude.

3.4 SEMESTERISATION OF HIGHER SECONDARY STAGE AND CREDIT SYSTEM

The National Education Framework envisages adoption of semester system at the higher secondary stage. The higher secondary education programme will be of two years' duration with the academic session beginning in February each year. These two years will be further divided into four semesters. A semester will correspond to 16-18 calendar weeks, excluding examination period. Each week will have six working/teaching days. Therefore, a semester will have about 96 to 108 teaching days, excluding examination period.

The introduction of semester pattern of education will be accompanied by the adoption of the *credit system*. Credit will be used as a means of indicating the relative weight of each course in terms of the curricular time assigned to it. Some of the main features of the credit system will include the following:

- One credit will be worth one hour of instructional engagement for 18 weeks and about 12 hours of self-study and

group work. In other words, one credit will involve 30 hours of learner/student engagement in course work out of which 18 hours would be through face-to-face teaching and the remaining would involve self-study, group work etc. However, in the case of lab work and practical activities/assignments, one credit course would involve at least two hours of face-to-face contact instruction per week throughout semester.

- Each course in a semester will be assigned credits depending upon the curricular or learner engaged time required to enable learners to attain the essential learnings specified for the course. Usually semester courses will carry 2-4 credits each. A 4- credit course will require 72 hours of face-to-face instruction or contact time and 48 hours of self study. This gives a total of 120 hours of learner engaged time per course of 4 credits.
- A student would earn credits in a course after he/she has (i) attended the minimum number of prescribed lectures or practical activities/ assignments including laboratory work or field study; (ii) obtained not less than minimum percentage of marks or qualifying grades prescribed for internal assessment; (iii) obtained not less than the minimum percentage of marks/grades prescribed for semester examination in that course. Students will need to obtain a minimum of 72 credits for graduating higher secondary education.
- A full semester will be of about 18 credits. 18 credits per semester will involve 324 hours of face-to-face instructional time per semester. The length of the school day and week and academic calendar for the higher secondary Grades 11 and 12 will be planned based on this.

The introduction of semester and credit system is expected to ensure greater

flexibility and functionality among the courses to be offered at the higher secondary stage. The credit and semester system represents an outcome-based approach as the number of credits assigned to a course will be dependent on the essential learnings to be achieved by students. The semester system will also facilitate the introduction of comprehensive and continuous evaluation of pupil performance. A standards-based approach translated into course credits represents a step in the direction of creating a national system of education that is internationally acceptable and competitive. Additionally, it will allow students a wider choice of subjects and also the possibility of studying a subject at a standard or advanced level, taking into consideration a student's actual workload. A student moving with slow pace or studying part-time may be able to spread out his/ her study over more than two years whereas some students may take more courses and earn additional credits than normally prescribed for a semester. Students will be able to accumulate credits and hence move in and out of the education system. Some students can accumulate partial credits, move into the working world and return to schooling to acquire more credits at another opportunity. For Bhutan, this feature gains further relevance in the case of students in rural and remote areas.

3.5 CURRICULUM ORGANISATION: ACADEMIC STREAM

An important feature of higher secondary stage lies in the fact that it is a transition from general education and undifferentiated curriculum to courses of specialised nature. Therefore, curriculum at this stage needs to be so designed as to facilitate a smooth transition from general education to disciplinary studies and to meet the challenge of specialisation characteristic of the tertiary education.

To meet the varied needs of students at the higher secondary stage and to promote the development of their potentialities to the

fullest, diversification and flexibility will constitute the major characteristic of higher secondary curriculum. Since interests and aptitudes of the pupils stabilise by the time they reach higher secondary stage, students will be provided with opportunities to pursue courses of their choice keeping in view their aptitudes and preferences. In order to cater to individual differences and interests and to provide opportunity to move at one's own pace, the courses will be made modular and flexible to the extent possible. However, a common programme of studies (foundation courses) will constitute an important component of the higher secondary education curriculum.

The higher secondary stage is considered appropriate for exposing the students to differentiated and specialised in-depth courses in sciences, humanities, social sciences, commerce and the like on the one hand, and a variety of vocational courses on the other. Thus, the curriculum at this stage will be organised under two streams, namely, *academic stream* and *vocational stream*. Attempts will be made to ensure that appropriate linkages between the two streams are not only maintained but systematically strengthened.

3.5.1 Objectives of Academic stream

The main objectives of academic stream include the following:

- to introduce students to higher levels of knowledge in different disciplines;
- to promote problem solving and creative thinking abilities in the pupils to cope with changing demands of a society;
- to assist students to explore their interests and aptitudes in order to choose appropriate careers;
- to prepare students for a life of ongoing learning as well as world of work.

3.5.2 Key Learning Areas

To achieve a balance of breadth of scope and depth of study, the higher secondary education programme will be characterized

by the study of courses relating to different areas of sciences, humanities, social sciences to promote a general understanding of these disciplinary areas and to instill an appreciation of some of the major areas of learning, and by an in-depth study of courses relating to three academic disciplines. In addition, the programme of study will encompass a combination of courses designed to promote the acquisition of certain foundational skills that students can bring to bear in a variety of learning and career/professional situations.

Students working toward a higher secondary education certificate will require to complete courses that will enable them to earn a stipulated number of course credits that are to be earned for the award of a certificate. Instruction will be offered during two semesters in each year of study. Each semester would be of 18 weeks – 16 weeks of scheduled classes, a 6-day reading period for preparing for examinations, and an 8-day final examination period.

The programme of study for students opting for the academic stream will include the following:

- **Foundational courses** common to all students designed to facilitate the acquisition by them of certain foundational skills such as quantitative reasoning, computer applications, language proficiency including expository and academic writing skills, and analytical and communication skills that will serve students in a wide array of academic and non-academic endeavours. The foundational courses will also include a course in general studies designed to equip students to address problems of social change and transformation and to make them aware of national and global concerns.
- **Elective courses** which would provide students the opportunity to acquire an in-depth knowledge in at least

three academic disciplines within the sciences, humanities, social sciences, commerce etc. as well as to attain the prerequisites required for pursuing studies relating to a subject area or an academic discipline at the tertiary stage. The elective courses may also include ***applied or job-oriented courses*** which would have greater employment potential or immediate and direct utility in life.

- **Health and Physical Education:** This course will include not only regular physical training, but also athletics, games, sports and physical fitness as a part of physical education and physical culture. Improvement of local sanitation, and public health services will form part of field work to be taken up as part of the course work, personal guidance and counselling will be provided to students passing through the critical stage of physiological transition in their life.

3.5.3 Course requirements for certification

The foundational courses, electives relating to different disciplinary areas, and other courses in fulfillment of the requirements for the award of the higher secondary certificate will include the following:

3.5.3.1 Foundational skills-based courses

To qualify for a higher secondary certificate, a student must complete a stipulated number of course credits in each of the following foundational skills requirements:

- **Quantitative reasoning:** The Quantitative reasoning courses are intended to ensure that every student at the higher secondary stage achieves a certain level of proficiency in using and analysing quantitative information. Quantitative reasoning is a process used to analyse quantitative information or data to describe complex

problems, to formulate strategies and measures for solving these problems, to make appropriate decisions, and predict consequences and outcomes of emerging situations and phenomena. All students are expected to take two courses designed to develop skills in quantitative reasoning. These courses will aim at developing an understanding among students of basic quantitative methods and their applications, and acquainting them with the methodology used for defining problems by means of numerical or geometrical representations of data and determining ways of solving them by making use of quantitative information. The contents of Quantitative Reasoning courses will be drawn from courses relating to several disciplines, including mathematics, statistics, computer science and economics.

- **Computer applications/use:** This course is intended to ensure that every student at the higher secondary stage achieves a certain level of proficiency in using and applying computers. The course will provide an introduction to relevant ideas in computer science: what the computer is; how it works; what it can do and what it cannot do, now and in the future. Topics may include algorithms, elementary programming, hardware, language interpretation, software engineering, complexity, models of computation, and artificial intelligence. The course may also include topics dealing with visualization of data and ideas, introduction to the use of computer graphics as a medium for communication and discovery.
- **General Studies:** The main purpose of the general studies will be to sensitise the youth to the social, economic, political and moral or ethical issues of contemporary Bhutan and the world. The course in general studies will be built

on the foundations already laid during the primary and secondary stages of education. It will deal with some of the key national and global concerns. The emphasis will be on the development of insights in combating some of the socio economic problems confronting Bhutan and to promote the spirit of tolerance, co-operation, productivity consciousness, entrepreneurship and futuristic outlook. The General Studies will also deal with global problems like international peace, co-operation, human rights, global warming and climate change etc. The study will be problem oriented and will involve projects requiring collection of data from different sources and data analysis for arriving at meaningful conclusions. Value clarification and inculcation will be an important component of general studies.

- **Language study:** The study of languages (Dzongkha and English) will constitute one of the main features of higher secondary education. The main objective of language study at the higher secondary stage will be to equip the learners with effective communication and negotiation skills, higher order reading, writing and study skills and a humane, appreciative and futuristic approach to life. Whether a student is preparing to enter the world of work or moving upward to higher academic or professional courses or vocational stream, the study of language will prepare a learner to use language effectively in the classroom, the community and the workplace. The different components in the language course materials will be so designed as to broaden one's mental horizon, foster in him/her the desired personal and social values, an awareness of and pride in the artistic, literary and cultural tradition of Bhutan. The study of Dzongkha and English languages will be given adequate

emphasis. In the context of the challenges posed by the phenomenon of globalisation, the knowledge of a language such as English has become more important than ever before. The study of the English language aimed at achieving high-level competency in its use contributes not only to a liberal education but also to accessing the rich pool of information and texts available in English language. All students will be expected to take four-semester courses to further their Dzongkha and English language proficiency. Depending on their level of accomplishment in English language at the completion of higher secondary school, students may opt for intermediate or advanced courses.

An important aspect of the language study will be the special emphasis on the **writing courses** which are intended to enhance students' critical thinking and writing skills required for their educational and professional work. The writing courses will include **introductory-level and higher-level writing course**. The objectives of the introductory course are to prepare students for expository writing assignments and to enable them to present ideas and thoughts concisely and clearly in writing. These courses are expected to be completed during the first two semesters of the higher secondary programme. The higher-level writing course will involve intensive instruction in academic writing aimed at enabling the students to communicate effectively in writing the concepts and ideas relating to their chosen discipline. These courses are to be completed during the period spanning the third and fourth semesters. The contents of the writing requirement courses will be derived from several courses or content areas spanning different disciplines. Under both the categories of courses/seminars, students will be required to take up several writing projects such as essays, course papers or

write-ups intended for publication. The writing course/seminar will include involve face-to-face meetings with the instructor/guide to discuss rough drafts of write-ups. Students will be required to prepare write-ups frequently on themes based on their interests and complete writing assignments of increasing complexity to enable them to recognise and master the writing conventions of different disciplines. The writing course will also include occasional workshops and meetings on special topics such as editing and conventions of writing in particular disciplines. Several courses spanning different disciplines may be used to fulfill the writing requirements.

3.5.3.2 Elective courses

Elective courses at the higher secondary stage will attempt to cater to the needs of varied and heterogeneous student groups. While quite a few may be preparing for entry into tertiary education, others would be preparing to enter the world of work. Therefore, elective courses at the higher secondary stage would be essentially of two types, namely intermediate and advanced.

A student would be required to offer three elective courses out of the subjects prescribed by the Board of School Education. The courses may also include Generic Vocational Courses aimed at developing employment related generic skills needed by an educated work force regardless of the persons' occupations. These courses would develop key competencies and transferable skills required to adapt to changing job profiles. Though it is a common practice to put elective courses under groups like science, commerce, humanities, social sciences etc., all the academic and applied courses will be listed without dividing them into watertight or exclusive groups which may at times run contrary to the spirit of real diversification and functional utility. The programme of study will be extensive in the sense that it will include course offerings from a range of academic

disciplines.

Suggested disciplinary areas may include the following:

- Dzongkha language and literature
- English language and literature
- Physics
- Chemistry
- Biology
- Geology
- Mathematics
- Economics
- Psychology
- Sociology
- Geography
- History
- Philosophy
- Political science
- Fine art
- Instrumental music
- Vocal music
- Home science
- Public administration
- Computer science
- Commerce
- Business studies
- Engineering drawing

These courses relate to important fields of inquiry and methodological approaches that would satisfy the intellectual curiosity and facilitate the achievement of their academic goals. They are intended to meet the varying academic interests of the students and the preparation needed to take up an in-depth study of a subject area/discipline during the tertiary stage. It would be essential to review the list of courses will be periodically reviewed in collaboration with various stakeholders, such as industry, business, universities, employment and human resources specialists and parents, social workers and political representatives.

3.5.4 Weightage for different curricular areas

The weightage in terms of allocation of credits for different curricular areas for the academic stream will be as follows:

- 30 credits for the foundation courses
- 42 credits for the three elective courses

3.6. VOCATIONAL EDUCATION AND TRAINING (VET)

The term vocational education and training (VET) has a comprehensive connotation. Delors Jacques in his report 'Learning - The Treasure within' (a report of International Commission on Education for twenty first century, 1996) describes 'The Four pillars of Education' - 'Learning to know', 'Learning to do', 'Learning to live together' and 'Learning to be'. 'Learning to do' addresses essentially to vocational education and training. In the context of human development programmes in Bhutan, 'vocational education and training' is used as an umbrella term covering vocational education and vocational training. Vocational education refers to an educational process, including practical work and supplementary work attachments, designed to equip a learner with the knowledge, attitudes and skills related to occupations in various sectors of economy and social life. Vocational training refers to training for employment in clearly specified trades. VET envisages an effective interface between academics and practical training required to enable the learners to acquire all competencies required to pursue a vocation.

Bhutan's economy is steadily transitioning from being only agro based to one that is also service and industry based. Due to unbalanced economic growth and lack of opportunities in the rural areas there is a visible rural to urban migration, with a declining share of agriculture in the GDP. The Bhutanese youth aspires for higher reward and better working conditions. In order to sustain this growth and prosper economically Bhutan needs an efficient labour pool with the appropriate skill set to meet the demands of industrial and service sectors.

Taking cognizance of the initiatives already put in place by Bhutan such as the setting up of the National Technical Training Authority (NTTA) to bring skills training and technical education under a national framework and create new training institutes, the key issues to consider include the following:

- With the provision and enhancement of basic education till Grade X, a larger and qualified pool of secondary graduates will be available for further education. The schools with vocational options will need to be equitably distributed across Bhutan to cater to these graduates.
- The vocational education and training programme available to students will need to be in alignment with Bhutan's human resources requirements. Care should be taken to ensure that the VET programmes focus on the requirements of the urban wage sector as well as on the larger rural sector.
- Facilitating transfers across programmes and inter institutional exchanges.
- Improving access of women to the vocational training institutes.
- The appropriate course content and options available in vocational streams at the higher secondary stage need to provide a viable path for students who wish to go directly into the workplace.
- Vertical and lateral mobility and flexibility in the VET programme will be the key to its success as students use its multiple entry and exit points to add and refresh their knowledge and skills.
- In view of the vast amount and type of resources required for the success of the VET programme, from the initial stages itself the planning and funding should be sought from private and NGO sources along with the government allocations through an appropriate Public-Private Partnership mechanism.
- A skilled labour force is the key factor that impacts the growth and global competitiveness of Bhutan. This makes it imperative that the education system

in Bhutan is capable of developing the national human resources as per the requirements of the economic and social sectors, including the agricultural, industrial and service sectors.

A study by Psacharopoulos G. and Loxley W. in 1985 titled "Diversified secondary education and development: evidence from Colombia and Tanzania" Baltimore (MD): The Johns Hopkins University Press found that the additional money spent for diversified schools in the two countries was the most effective way to boost learning among secondary students. This is an important finding for national educational planners trying to raise school quality as measured by student learning. Also what is learnt from the experience of the two countries is that the addition of vocationally relevant subjects into the purely academic stream may cost less (Colombia) or very little more (Tanzania), but will probably boost learning both in the vocational subject explicitly targeted and, surprisingly, in general academic subjects as well!

3.6.1 Objectives of Vocational Education and Training

At the higher secondary stage, the Vocational Education and Training (VET) aims to develop higher skills and related knowledge required by a specific occupation or a group of occupations, and to prepare pupil for the world of work, including for self-employment. It will provide production and service oriented courses to reduce the mismatch between the skills acquired by pupil with those required by the employee/market. The programme will also help in developing entrepreneurial spirit, motivation and competencies needed to organise and run an entrepreneurial venture. Specifically the VET programmes at the higher secondary stage will seek to:

- integrate general education with vocational education and training in a chosen relevant area;
- provide alternative and stimulating array of vocational courses suited to

students' abilities, aspirations and aptitudes to cater to their varying needs and interests;

- facilitate transition to adult working life;
- meet the need for middle level-skilled personnel for the growing and emerging public and private sectors of the economy (both in the organised and unorganised sector);
- reduce the mismatch between the demand and supply of skilled personnel by ensuring an interface between the schools, colleges and the industry;
- develop dignity of labour, respect for jobs involving physical labour and a healthy attitude amongst students towards work and life;
- develop the knowledge, skills, attitude and values required for entrepreneurship and self-employment for instance, business skills like problem solving, decision making, leadership, communication, critical thinking and negotiation;
- develop a set of job related knowledge and skills for a flexibly trained and rapidly redeployable labor force;
- develop and preserve "skill culture" and a positive attitude towards manual work in contrast to the pure academic culture and the preference for "white collar" jobs only.

3.6.2 Key Learning Areas

The VET programme at the higher secondary stage will be characterized by foundation courses (as in the case with the academic stream) designed to promote the acquisition of certain foundational skills that students can bring to bear in a variety of career/professional situations and by an in-depth study of one or two vocational elective courses.

Students enrolled in VET programmes will require to complete courses that will enable them to earn a stipulated number of course credits that are to be earned for the award of a certificate. Apprenticeship

of 6 months to 1 year in the chosen vocation during or post Class XII will also constitute an integral part of the VET programme.

The programme of study for students opting for the VET programme (Vocational stream) will include the following:

- **Foundational courses** designed to facilitate the acquisition by the students of certain foundational skills such as quantitative reasoning, computer applications, language proficiency including expository and academic writing skills, and analytical and communication skills that will serve students in a wide array of career/job situations. The foundational courses will also include a course in general studies.
- **Vocational elective courses** which would provide students the opportunity to acquire skills and related knowledge required by a specific occupation or a group of occupations.
- **Health and Physical Education:** This course, as in the case of academic stream will include not only regular physical training, but also athletics, games, sports and physical fitness as a part of physical education and physical culture.

3.6.3 Course requirements for certification

The foundational courses, electives relating to different vocational areas, and other courses in fulfillment of the requirements for the award of certificate will include the following:

3.6.3.1 Foundational skills-based courses

To qualify for a higher secondary certificate (vocational education and training), a student must complete a stipulated number of course credits in each of the following foundational skills requirements:

- **Quantitative reasoning:** All students

are expected to take a course designed to develop skills in quantitative reasoning. The quantitative reasoning courses are intended to ensure that all students who complete the VET programme achieve a certain level of proficiency in using and analysing quantitative information or data to describe complex problems, to formulate strategies and measures for solving these problems, to make appropriate decisions, and predict consequences and outcomes of emerging situations and phenomena. As in the case of the academic stream, the contents of Quantitative Reasoning course will be drawn from courses relating to several disciplines, including mathematics, statistics, computer science and economics.

- **Computer applications/use:** This course is intended to ensure that every student enrolled in VET programmes at the higher secondary stage achieves a certain level of proficiency in using and applying computers.
- **General Studies:** In the case of the vocational stream, the foundation courses will include two alternative groups of courses. One group would consist of the same courses as in the academic stream. Alternately, instead of the general studies which are a part of foundation courses, a student will have the freedom to opt for another course comprising units from rural development, entrepreneurship, environmental education, career development, economics, finance etc.
- **Language study:** The study of languages (Dzongkha and English) will constitute one of the main features of the VET programme at the higher secondary stage. All students will be expected to take four-semester courses to further their Dzongkha and English language proficiency. One of the main

objectives of language study in the VET programmes will be to equip the learners with effective communication skills which are considered important for students pursuing vocational courses. As compared to the language courses for academic stream students, the language courses will be organized in such a way that they would take care of additional vocabulary peculiar to a trade or vocation opted by VET students. In addition there would be units on culture and literature to cater to the emotional and intellectual growth of the learners and harmonious growth of their personality. The study of Dzongkha and English languages will be given adequate emphasis.

Writing courses will constitute an important component of the language study. The writing courses will include **introductory-level and higher-level writing course**. The introductory-level course will prepare students for expository writing and to enable them to present ideas and thoughts concisely and clearly in writing. The higher-level writing course will enable the VET students to communicate effectively in writing the ideas relating to their chosen trade or vocation. The contents of the writing courses will be derived from content areas spanning different trades and vocations.

3.6.3.2 Elective Courses

Several vocational elective courses will be offered in order to cater to the needs of varied student groups. Before identifying a vocational course and outlining its details, its need, relevance and potential will be assessed through periodic vocational surveys. Vocational survey will be undertaken in the catchment area of the school as well as at the district and national levels before formulating vocational elective courses.

An E & Y Study (2009) reveals that human

resources requirements that will contribute to Bhutan's economy are centered on the following areas. (Note that while agriculture has till now been the strong base for Bhutan's economy, the survey did not include agriculture).

- **Infrastructure:** Hydropower generation, Power transmission and distribution and Construction;
- **Services:** Tourism, Health Care, Education, Telecom, IT/ITeS, Financial services, Media;
- **Manufacturing:** Cement, Herbal products;
- **Government:** Royal civil service commission.

Once a broad vocational area is identified on the basis of a vocational survey, a systematic job analysis would be undertaken to identify the functions and tasks expected to be performed by a worker. Therefore, every vocational elective course will consist of theoretical aspects or basic principles and the practical operational details based on the same. It would also indicate related values to be inculcated and attitudes to be developed. A course would be developed in terms of a self-contained module specifying expected entry level learning outcomes and the competencies expected to be attained by every product of the VET programmes. A component of on-the-job training or apprenticeship will be incorporated as an integral part of the VET programme.

A broad common format will be adopted for outlining vocational courses in various areas. Suggested vocational areas may include the following:

- Agriculture
- Business, Commerce and financial services
- Health and Para-medical services
- Technology
- Civil engineering/construction
- Hydro electric power and Applied Services
- Information and Communication Technology

- Tourism
- Education services

Courses of varying credit values would be developed in each of the groups. Adequate care will be taken to ensure that the courses are comparable in terms of curricular load or weightage for ensuring uniformity of national standards and a more practical consideration of equivalence of courses throughout the country.

The list of vocational courses offered will be constantly be reviewed and renewed from time to time bringing them up-to-date in accordance with changing needs, trades and expectations of standards. A course may be discontinued whenever it outlives its utility and slumps in its demand. The periodic review of the courses will be taken up in consultation with employers, educators, administrators, students and teachers. The major thrusts of the review will be as follows:

- Developing broad-based VET programmes which will enrich the learning experiences of the students and enhance their technical and professional knowledge base.
- Aligning the Key Learning Areas (KLAs) with the expectations of the employers, including industries, agriculture and service sectors;
- Redefining courses which are vocationally relevant namely, Science, Mathematics and English which have a distinct role in creating competent

personnel for the employment sectors.

3.6.4 Weightage for different curricular areas

The weightage in terms of allocation of credits for different curricular areas for the academic stream will be as follows:

- 24 credits for the foundation courses
- 48 credits for the three elective courses

3.6.5 Linking VET programmes with industry

It is important to ensure tighter alignment between the education system and industry requirements by:

- enhancing participation of the industry in the development and delivery of the VET coursework and in exposing students to the practical application of the knowledge and skills gained.
- linking the schools or vocational training institutes with the industry to judge the efficacy of the vocational programmes and to assess how the students are coping with the industry environment.
- Building school & business partnerships that coordinate with the industry to develop meaningful internship or apprenticeship programs so that students are aware of actual working conditions and the companies have the opportunity to assess student competencies and offer employment.

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