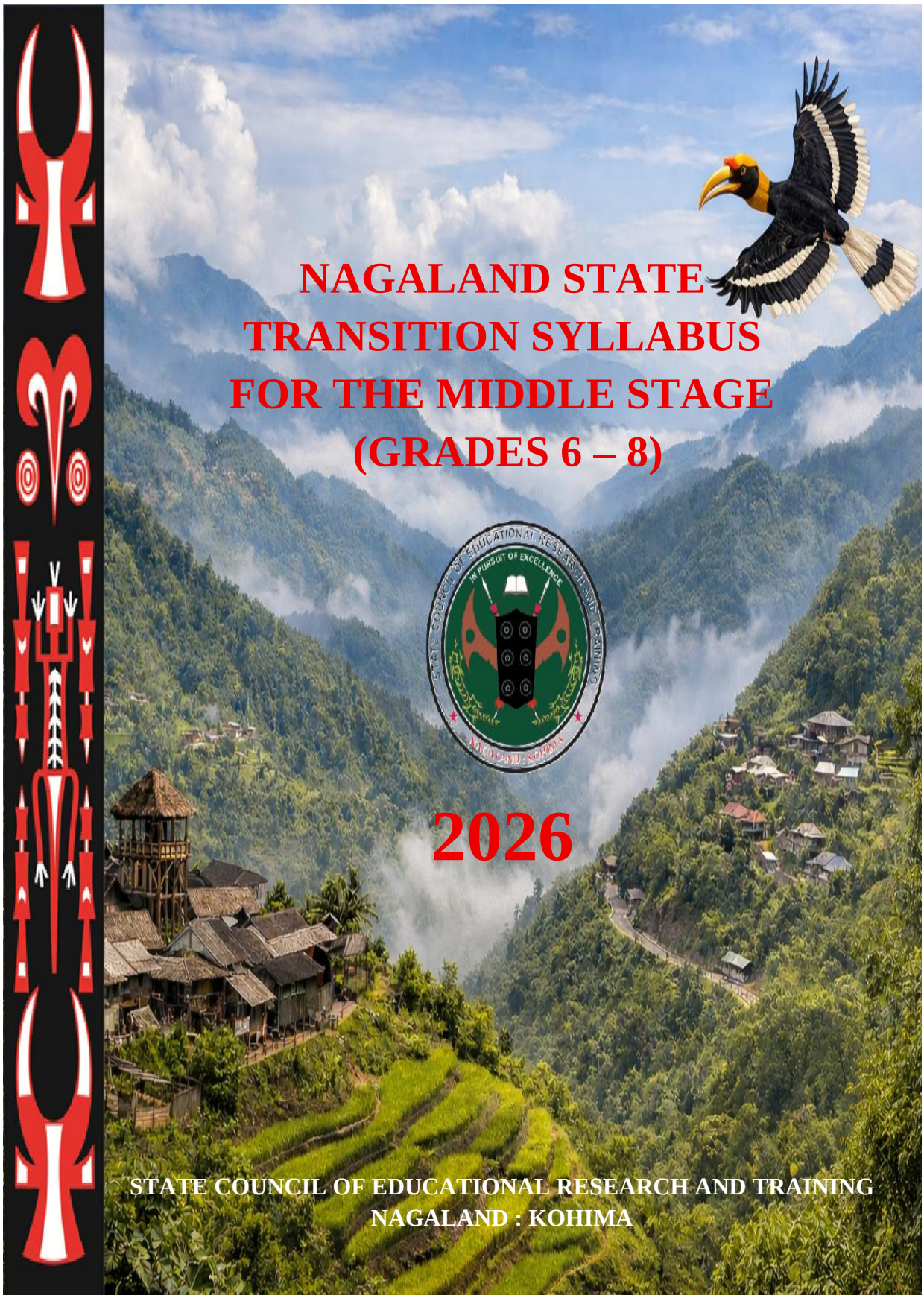

NAGALAND STATE TRANSITION SYLLABUS FOR THE MIDDLE STAGE (GRADES 6 – 8)

2026

STATE COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING
NAGALAND : KOHIMA

NAGALAND STATE

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Note to the Reader

The introduction of the National Education Policy (NEP 2020) and the subsequent release of the National Curriculum Framework for School Education (NCF-SE 2023) marks a significant shift in the vision and direction of school education in India. These developments call for a systematic alignment of existing State curricula and syllabi with national priorities, including competency-based learning, conceptual understanding, and holistic development.

At present, the Nagaland State Curriculum Framework for School Education (SCF-SE) and the corresponding revised curriculum across the different Stages of school education are under development and have not yet been formally notified. At the same time, there is an immediate need to ensure that teaching–learning processes, particularly at the Middle Stage (Grades 6 – 8), begin to reflect the spirit and expectations of these national reforms.

In this context, the State Council of Educational Research and Training (SCERT) has developed this Transition Syllabus for the Middle Stage. This document is intended as an interim measure to support schools and teachers in gradually aligning classroom practices with the principles of NEP 2020 and NCF-SE 2023. It seeks to bridge the gap between the existing syllabus and the forthcoming State Curriculum Framework and curriculum documents.

Teachers and schools are encouraged to use this Transition Syllabus as a guiding framework for the current phase, while remaining responsive to future revisions once the full State Curriculum Framework and detailed curricula are released.

Director

SCERT Nagaland

ENGLISH

A. Introduction and Rationale

The English textbooks for Grades 6, 7, and 8 have been developed in alignment with the vision of the National Education Policy (NEP 2020) and the State Curriculum Framework for School Education (SCF-SE). The English Reader textbooks are designed to foster competencies in Listening, Speaking, Reading, and Writing, while simultaneously strengthening Vocabulary and Grammar through contextualized learning. This academic year 2026, there is a change in the overall contents in the English Reader textbooks for Grades 6, 7 and 8. However, the teaching and learning principles remains the same. Accordingly, the contents for Grades 6, 7, and 8 have been systematically organized into three academic terms.

B. Language learning in the Middle Stage

Language education at the Middle Stage focuses on listening, speaking, reading and writing proficiency through literature, debates, complex texts, sentence structure analysis presentations and critical thinking. Different active learning methods such as storytelling, role-play, theater, and debates are used for engaging students to enhance their communicative skills. The objective of language learning at the middle stage is to transition students from Preparatory Stage literacy skills to a more complex use of language involving critical thinking and creative expression.

C. Learning Standards

Table: Curricular Goals and associated Competencies for Middle Stage English

Curricular Goal (CG)	Competency (C)
CG-1 Develops the capacity for effective communication using language skills for description, analysis, and response	**C-1.1** Identifies main points and summarises from a careful listening or reading of the text (news articles, reports, editorials) **C-1.2** Listens to, plans, and conducts different kinds of interviews (structured and unstructured) **C-1.3** Raises probing questions about social experiences using appropriate language (open-ended/closed-ended, formal/ informal, relevant to context, with sensitivity) **C-1.4** Writes different kinds of letters, essays, and reports using appropriate style and registers for different audiences and purposes **C-1.5** Creates content for audio, visual, or both, for different audiences and purposes
CG-2 Appreciates the language and literary and cultural heritage in and related to language by exploring the various forms of literary devices	**C-2.1** Identifies and appreciates different forms of literature (prose, poetry, drama) and styles of writing (narrative, descriptive, expository, persuasive) from various cultures and time periods **C-2.2** Identifies literary devices [simile, metaphor, personification, hyperbole, alliteration, idioms, proverbs, and riddles] by reading a variety of literature and uses them in writing **C-2.3** Expresses through speech and writing their ideas and critiques

	on the various aspects of their social and cultural surroundings
CG-3 Develops the ability to recognise basic linguistic aspects (word and sentence structure) and use them in oral and written expression	**C-3.1** Interprets and understands basic linguistic aspects (rules), such as sentence structure, punctuation, tense, gender, and parts of speech, while reading different forms of literature, and applies them while writing **C-3.2** Writes prose, poetry, and drama using appropriate style and language
CG-4 Develops the ability to write reviews and uses the Library to find references	**C-4.1** Reads, responds to, and critically reviews books of varied genres (fiction and non-fiction) **C-4.2** Uses books and other media resources effectively to find references to use in projects and other activities
CG-5 Develops an appreciation of the distinctive features of the particular language, including its alphabet and script, sounds, rhymes, puns, and other wordplays and games unique to the language	**C-5.1** Understands the phonetics and script of the language, the number of vowels and consonants, and how they interact and are used **C-5.2** Engages in the use of puns, rhymes, alliteration, and other wordplays in the language, to make speech and writing more interesting and enjoyable **C-5.3** Becomes familiar with some of the major word games in the language (e.g., palindromes, spoonerisms, sentences without given letters or sounds, riddles, jokes, *antakshari* (singing songs starting with the last letter of the previous song), anagrams, crosswords)

D. Pedagogy

Students in the Middle stage learn to use language more formally than in the Preparatory stage. They progress to learning critical listening skills, listening to a variety of texts, contexts and varied kind of literature that would enhance their vocabulary, leading to proficiency in listening, speaking, reading and writing. Panel discussions, debates, interviews, anchoring, public speaking and reviews of movies, plays, or short films are some activities for listening and speaking skills at the Middle stage. To develop functional reading skills applications, letters, reports, invitations, emails, essays, posters and circulars can be taught using examples. Teachers can conduct a variety of literature related activities and discuss on the overall experience of reading the text and also encourage independent interpretation of the text. Teachers can build interest in reading among students by making a trip to library, organising literature festival and book exhibition. Teachers should provide students with opportunities to write a variety of forms including essays, reports, emails, blogs and social media comments and posts. Students writing critical appreciation on literary work should be encouraged.

E. Assessment

Assessment for language learning at the Middle emphasises on assessing proficiency through competencies and learning outcomes. Students must be assessed for their language acquisition in listening, speaking, reading, writing and critical thinking. The skill of reading and writing in various forms such as picture descriptions, simple stories, complex essays,

literary descriptions and research must be assessed. Students must also be assessed in answering questions based on familiar/seen as well as unseen passages/ unfamiliar text, producing a variety of written materials such as essays, letters, posters and other creative writing pieces, oral communication in class discussions, debates, role plays and other forms of presentations.

SUGGESTED DISTRIBUTION OF PERIODS AND MARKS FOR ENGLISH READER GRADE 6

Sl.No	Name of the Lesson	Approximate Teaching Period	Marks	
			Internal	External
	First Term			
1.	A Bottle of Dew	12	8	12
2.	The Chair	15	10	16
3.	What a Bird Thought	10	6	10
4.	Neem Baba	10	6	10
5.	The Kites	13	10	12
	Total	**60**	**40**	**60**
	Second Term			
1.	The Unlikely Best Friends	13	10	14
2.	The Raven and the Fox	10	7	10
3.	Yoga-A Way of Life	11	7	12
4.	National War Memorial	8	4	8
5.	Ila Sachani: Embroidering Dreams with her Feet	14	12	16
	Total	**60**	**40**	**60**
	Third Term			
1.	Rama to the Rescue	10	10	12
2.	A Friend's Prayer	9	4	8
3.	Spices that Heal Us	9	5	8
4.	Change of Heart	12	10	12
5.	Hamara Bharat-Incredible India!	12	7	12
6.	The Winner	8	4	8
	Total	**60**	**40**	**60**

Total number of Working Days = 220

Total number of instructional Days = 180

SUGGESTED DISTRIBUTION OF PERIODS AND MARKS FOR ENGLISH READER GRADE 7

Sl. No.	Name of the Lesson	Approximate Teaching Period	Marks	
			Internal	External
First Term				
1.	The Day the River Spoke	12	8	10
2.	A Funny Man	10	6	10
3.	North, South, East, West	14	10	14
4.	The Tunnel	14	10	14
5.	My Dear Soldiers	10	6	12
	Total	**60**	**40**	**60**
Second Term				
1.	Try Again	10	6	10
2.	Animals, Birds and Dr. Dolittle	12	8	12
3.	Paper Boats	10	6	10
4.	Conquering the Summit	12	8	12
5.	A Homage to our Brave Soldiers	16	12	16
	Total	**60**	**40**	**60**
Third Term				
1.	Three Days to See	12	7	12
2.	Say the Right Things	14	10	14
3.	My Brother's Great Invention	14	10	14
4.	Travel	12	7	12
5.	Rani Abbakka	8	6	8
	Total	**60**	**40**	**60**

Total number of Working Days = 220
Total number of Instructional Days = 180

ENGLISH READER CLASS 8

Sl. No.	Name of the Lesson	Approximate Teaching Period
	Phase I	
1	The Wit that Won Hearts	10
2	Somebody's Mother	6
3	The Cherry Tree	10
4	The Magic Brush of Dreams	6
5	Feathered Friends	9
6	A Concrete Example	9
7	Spectacular Wonders	10
	Total	**60**
	Phase II	
1	Waiting for the Rain	10
2	Magnifying Glass	8
3	A Tale of Valour: Major Somnath Sharma and the Battle of Badgam	12
4	Bibha Chowdhuri: The Beam of Light that Lit the Path for Women in Indian Science	12
5	The Case of the Fifth Word	10
6	Harvest Hymn	8
	Total	**60**

Internal: 10 marks for Phases I & II
External: a) Prose = 25 marks for Phases I & II
b) Poetry= 15 marks for Phases I & II

Total number of Working Days = 220
Total number of Instructional Days = 180

Note: Schools may follow the mark allocation prescribed by the NBSE for Grade 8 English.

MATHEMATICS

A. Introduction and Rationale

This Transitional Mathematics Syllabus for the Middle Stage (Grades 6 – 8) is grounded in the vision and Learning Standards architecture of the Nagaland State Curriculum Framework for School Education (SCF-SE). It is aligned with the structure and pedagogical philosophy at the national level, especially outlined in the National Curriculum Framework for School Education (NCF-SE 2023) . The syllabus is designed to operate within the instructional time available in the Middle Stage timetable, which provides for approximately 180 instructional days.

The Middle Stage marks a critical developmental transition in mathematical learning. Students move from primarily concrete and arithmetic reasoning toward structured thinking, generalisation, abstraction, and early formal reasoning. At this stage, Mathematics must simultaneously remain connected to learners' experiences while introducing them to symbolic representation, algebraic structure, and logical argumentation.

In alignment with the five Aims of School Education articulated in the SCF-SE, Mathematics education at the Middle Stage contributes significantly to the development of rational and critical thinking, creativity and aesthetic appreciation, ethical and responsible citizenship through quantitative literacy, and preparation for advanced learning in the Secondary Stage. Mathematics cultivates habits of disciplined reasoning, clarity of expression, and respect for evidence. These are foundational to both individual development and societal participation.

The syllabus is intentionally lean and competency-focused. It prioritises conceptual depth over content breadth, in keeping with the reduction of content load recommended in the NEP 2020 and the emphasis on core Competencies rather than extensive coverage.

B. Learning Standards

The Learning Standards framework for the entire nation flows from the five 'Aims of School Education', down to the 'Curricular Aims' (here, the Curricular Aims of Mathematics Education will be applicable). These are further concretised in the form of 'Curricular Goals' and 'Competencies' for the Middle Stage. The Standards are articulated as Stage-end expectations rather than grade-wise outcomes. Accordingly, this syllabus provides a grade-wise progression that cumulatively supports the attainment of these stage-end Competencies by the end of Grade 8.

The table below shows the Curricular Goals and associated Competencies that learners must attain by the time they complete the Middle Stage for Mathematics.

Table: Curricular Goals and associated Competencies for Middle Stage Mathematics

Curricular Goal (CG)	Competency (C)
CG-1 Understands numbers and sets of numbers (whole numbers, fractions, integers, rational numbers, and real numbers), looks for patterns, and appreciates relationships between numbers.	**C-1.1** Develops a sense for and an ability to manipulate (e.g., read, write, form, compare, estimate, and apply operations) and name (in words) large whole numbers of up to 20 digits, and expresses them in scientific notation using exponents and powers. **C-1.2** Discovers, identifies, and explores patterns in numbers and describes rules for their formation (e.g., multiples of 7, powers of 3, prime numbers), and explains relations between different Patterns. **C-1.3** Learns about the inclusion of zero and negative quantities as numbers, and the arithmetic operations on them, as given by Brahmagupta. **C-1.4** Explores and understands sets of numbers, such as whole numbers, fractions, integers, rational numbers, and real numbers, and their properties, and visualises them on the number line. **C-1.5** Explores the idea of percentage and applies it to solve problems. **C-1.6** Explores and applies fractions.
CG-2 Understands the concepts of variable, constant, coefficient, expression, and (one-variable) equation, and uses these concepts to solve meaningful daily-life problems with procedural fluency.	**C-2.1** Understands equality between numerical expressions and learns to check arithmetical equations. **C-2.2** Extends the representation of a number in the form of a variable or an algebraic expression using a variable. **C-2.3** Forms algebraic expressions using variables, coefficients, and constants and manipulates them through basic operations. **C-2.4** Poses and solves linear equations to find the value of an unknown, including to solve puzzles and word problems. **C-2.5** Develops own methods to solve puzzles and problems using algebraic thinking.

CG-3 Understands, formulates, and applies properties and theorems regarding simple geometric shapes (2D and 3D)	**C-3.1** Describes, classifies, and understands relationships among different types of two- and three-dimensional shapes usingtheir defining properties/attributes. **C-3.2** Outlines the properties of lines, angles, triangles, quadrilaterals, and polygons and applies them to solve related problems. **C-3.3** Identifies attributes of three-dimensional shapes (cubes, parallelepipeds, cylinders, cones), works hands-on with material to construct these shapes, and also uses two-dimensional representations of three-dimensional objects to visualise and solve problems. **C-3.4** Draws and constructs geometric shapes, such as lines, parallel lines, perpendicular lines, angles, and simple triangles, with specified properties using a compass and straightedge. **C-3.5** Understands congruence and similarity as it applies to geometric shapes and identifies similar and congruent triangles
Curricular Goal (CG)	**Competency (C)**
CG-4 Develops understanding of perimeter and area for 2D shapes and uses them to solve day-to-day life problems.	**C-4.1** Discovers, understands, and uses formulae to determine the area of a square, triangle, parallelogram, and trapezium and develops strategies to find the areas of composite 2D shapes. **C-4.2** Learns the Baudhayana-Pythagoras theorem on the lengths of the sides of a right-angled triangle, and discovers a geometric proof using areas of squares erected on the sides of the triangle, and other related geometric constructions from the Sulba-Sutras. **C-4.3** Constructs various designs (using tiling) on a plane surface using different 2D shapes and appreciates their appearances in art in India and around the world. **C-4.4** Develops familiarity with the notion of fractal and identifies and appreciates the appearances of fractals in nature and art in India and around the world.
CG-5 Collects, organises, represents (graphically and in tables), and interprets data/information from daily-life experiences.	**C-5.1** Collects, organises, and interprets the data using measures of central tendencies such as average/mean, mode, and median. **C-5.2** Selects, creates, and uses appropriate graphical representations (e.g., pictographs, bar graphs, histograms, line graphs, and pie charts) of data to make interpretations.
CG-6 Develops mathematical thinking and the ability to communicate mathematical ideas logically and precisely.	**C-6.1** Applies both inductive and deductive logic to formulate definitions and conjectures, evaluate and produce convincing arguments/ proofs to turn these definitions and conjectures into theorems or correct statements, particularly in the areas of algebra, elementary number theory, and geometry.

CG-7 Engages with puzzles and mathematical problems and develops own creative methods and strategies to solve them.	**C-7.1** Demonstrates creativity in discovering one's own solutions to puzzles and other problems, and appreciates the work of others in finding their own, possibly different, solutions. **C-7.2** Engages in and appreciates the artistry and aesthetics of puzzle-making and puzzle-solving.
CG-8 Develops basic skills and capacities of computational thinking, namely, decomposition, pattern recognition, data representation, generalisation, abstraction, and algorithms in order to solve problems where such techniques of computational thinking are effective.	**C-8.1** Approaches problems using programmatic thinking techniques such as iteration, symbolic representation, and logical operations and reformulates problems into series of ordered steps (i.e., algorithmic thinking). **C-8.2** Learns systematic counting and listing, systematic reasoning about counts and iterative patterns, and multiple data representations; learns to devise and follow algorithms, with an eye towards understanding correctness, effectiveness, and efficiency of algorithms.
CG-9 Knows and appreciates the development of mathematical ideas over a period of time and the contributions of past and modern mathematicians from India and across the world	**C-9.1** Recognises how concepts (like counting numbers, whole numbers, negative numbers, rational numbers, zero, concepts of algebra, geometry) evolved over a period of time in different civilisations. **C-9.2** Knows and appreciates the contributions of specific Indian mathematicians (such as Baudhayana, Pingala, Aryabhata, Brahmagupta, Virahanka, Bhaskara, and Ramanujan).
CG-10 Knows about and appreciates the interaction of Mathematics with each of their other school subjects.	**C-10.1** Recognises interaction of Mathematics with multiple subjects across Science, Social Science, Visual Arts, Music, Vocational Education, and Sports.

At the end of the Middle Stage, students are expected to demonstrate a deep understanding of number systems and operations, the ability to represent and manipulate algebraic expressions, the capacity to analyse geometric relationships using logical reasoning, competence in proportional reasoning, and the habit of constructing and evaluating mathematical arguments. They should be able to move fluently between verbal, symbolic, numerical, and visual representations and communicate mathematical ideas clearly and coherently.

Mathematics has an extremely rich history in India spanning thousands of years. By learning about the development of Mathematics in India as well as throughout the world, the rootedness in India can be enhanced, along with a more general appreciation of the history of Mathematics, and of the remarkable evolution and development of mathematical concepts through time (and India's critical roles in these developments).

These expectations are operationalised in this syllabus through five interrelated clusters: conceptual understanding, procedural fluency, mathematical reasoning, representation and modelling, and mathematical communication. All content and pedagogical decisions are guided by the objective of strengthening these clusters in an integrated manner.

C. Design Principles of the Syllabus

This Mathematics Syllabus for the Middle Stage is designed to be coherent, rigorous, and realistic within available instructional time. It seeks to cultivate deep conceptual understanding, structured reasoning, and mathematical communication, ensuring that by the end of Grade 8, students are prepared intellectually and dispositionally for the demands of the Secondary Stage. With approximately 180 instructional days per year, the focus must remain on core mathematical structures and essential competencies.

Three guiding principles inform the design:

First, conceptual coherence is prioritised over topic accumulation. Each concept is introduced in a manner that connects with prior learning and prepares for subsequent formalisation in the Secondary Stage.

Second, progression is structured across Grades 6, 7, and 8 in increasing levels of abstraction. Students move from concrete reasoning and pattern recognition in Grade 6 to structural understanding and generalisation in Grade 7, and to more formal algebraic and proportional reasoning in Grade 8.

Third, pedagogy and assessment are inseparable from content. The syllabus assumes a classroom culture of inquiry, explanation, and justification rather than mechanical algorithmic practice alone.

D. Scope and Sequencing Across Grades

Grade 6

In Grade 6, students consolidate and deepen their understanding of whole numbers, large numbers, integers, and fractions. The foundations of Algebraic thinking is laid while exploring shape and number patterns and relationships. Geometry focuses on lines, angles, and basic properties of shapes, along with their constructions, encouraging visual reasoning and informal justification. Data Handling and its presentation are formally introduced.

Grade 7

Grade 7 builds on numbers and their operations taught in Grade 6, with operations on fractions and decimals focussing more on conceptual understanding instead of just procedures. Algebra develops through the study of algebraic expressions, simplification, substitution, and early equation concepts. Geometry advances through the study of parallel lines, angle relationships, and properties of triangles, and constructions with increasing emphasis on logical sequencing and justification. For Data Handling, Dot Plots are introduced and used to build the concepts of measures of central tendencies.

By the end of Grade 7, students should be comfortable identifying patterns, generalising relationships, and expressing them symbolically. The groundwork is laid for the distributive law, proportional reasoning, and formal equation solving in Grade 8.

Grade 8

Grade 8 consolidates number systems through the study of squares, cubes, exponents, and rational numbers. Algebra becomes more structured with the explicit development of the distributive law, manipulation of linear expressions, and equation solving. Proportional reasoning emerges as a distinct strand, enabling students to compare quantities multiplicatively and model real-life quantitative situations. Geometry advances to quadrilaterals and more structured deductive reasoning.

By the end of Grade 8, students are expected to demonstrate an appreciation of the contributions of different cultures around the world to the number system, and readiness for the formal algebraic and geometric reasoning required in the Secondary Stage.

E. Pedagogical Orientation

The pedagogical orientation of this syllabus reflects the principles articulated in the SCF-SE. Mathematics teaching at the Middle Stage must balance intuition and rigour. Concepts should often emerge from patterns, stories, puzzles, and exploration before being formalised.

The Concrete–Pictorial–Abstract progression remains important, especially in the development of fraction concepts, algebraic expressions, and exponents. Classroom discourse must encourage explanation, comparison of methods, and critique of reasoning. Students should be asked not only "*What is the answer?*" but also "*Why does this work?*" and "*How do you know?*"

Proof is introduced informally through reasoning chains, visual arguments, and structured explanation. The aim is not formal theorem-proof style but the development of logical coherence and respect for justification.

Spiral reinforcement is encouraged, with concepts revisited at increasing levels of sophistication. Computational thinking is embedded through structured problem-solving tasks and logical puzzles.

F. Assessment Framework

Assessment in the Middle Stage must align with Competencies rather than mere content coverage. Cognitive demand should be distributed so that tasks assess recall and procedural fluency, application, and reasoning and justification. Students must be given opportunities to explain their thinking in writing and orally. Project tasks, structured investigations, and reasoning-based questions should form an integral part of assessment practice. Assessment

must serve learning. Feedback should focus on conceptual clarity, logical coherence, and representation, and not only on accuracy or the 'correct answer'.

At its core, the primary purpose of assessment is to support learning. It serves as a link between teaching and learning by providing information or evidence of learning that informs teaching practices, helping ensure that students achieve the learning goals.

Assessment, therefore, serves two main purposes: (a) measuring achievement of student learning, and (b) gauging the effectiveness of classroom processes and teaching materials used for teaching and learning.

The following key principles must inform any assessment in Mathematics:

(i) Assessment should measure achievement of Competencies and Learning Outcomes leading to attainment of Curricular Goals.
(ii) Assessments should be constructive, developmental, and learning focussed.
(iii) Assessments should be Stage appropriate.
(iv) Assessments should accommodate student diversity.
(iv) Assessments should be supported by timely, credible, and constructive feedback to students.
(iv) Assessments should support in meaningful aggregation/summation of student learning.

How teachers can apply these principles in their classroom:

(a) *Know the key areas to assess:* Assessment in Mathematics should focus on conceptual understanding and mathematical skills and capacities, such as problem solving, procedural fluency, computational thinking, visualization, representation, generalisation and optimisation, mathematical communication.

(b) *Focus on assessment as part of the instructional/learning process:* Classroom assessment has evolved to a more holistic approach which supports student learning and informs teaching.
In order to get a comprehensive understanding of student learning in Mathematics, we must
(i) use diverse assessment strategies. We can pose problems that have multiple solutions, or problems with different pathways leading to a single solution, use problems that are interlinked, i.e., the solution of one problem leads to solving another problem, use problems where the focus is on finding the optimal path instead of focusing on the solution, design 'project' tasks so that they assess a variety of interconnected mathematical competencies, use formats other than written tests, such as pair or group work, or oral presentations, open-ended questioning, through learner's portfolios, ask learners to construct their own problems based on some conditions, employ structured interviews, open book assessments, etc., and
(ii) ensure student involvement in the process of assessment. This can be done by sharing expected learning outcomes and developing rubrics which can be used for self-assessment as well as peer-assessment.

G. Content List and Period Allocation

CONTENT LIST FOR GRADE 6

THEME: NUMBERS

Sub-theme: Number sequences and relations among them-

- Counting numbers, Odd numbers, Even numbers, Triangular numbers, Cube numbers
- Visualising number sequences (pictorial representation)

Sub-theme: Patterns and relationships in numbers-

- Patterns of numbers on the number line
- Cells with numbers that are larger than their adjacent cells (Supercells)
- Playing with digits (Digit sums of numbers)
- Palindromic patterns (numbers that read the same from both sides)
- The magic number of Kaprekar ('6174')
- Mental Math (use operations to explore numbers)
- The Collatz Conjecture (rules in a sequence of numbers)

Sub-theme: Multiples, Factors, Primes, and Divisibility

- Multiples and Factors, Prime numbers, Co-prime numbers, Prime factorisation (check if two numbers are co-prime, if one number is divisible by another), Divisibility Rule of 2, 4, 5, 8, 10 (by identifying patterns)

Sub-theme: Mental Math

- Estimation of quantities/magnitudes

Sub-theme: Fractions

- Fractional units and equal shares, Fractional units as parts of a whole
- Fractions as measures, Reading $\frac{a}{b}$ as 'a times $\frac{1}{b}$', Fractions on number line
- Mixed fractions (fractions greater than one)
- Equivalent fractions (using a fraction wall to find equal fractional lengths and using equal shares)
- Expression of fractions in its lowest terms/simplest form
- Comparison of fractions (by finding common denominator)
- Addition and Subtraction of Fractions (with same and different fractional unit/denominator)
- Brahmagupta's method for adding and subtracting fractions
- Fraction in ancient India, and ancient cultures like Egyptian and Babylonian civilisations

Sub-theme: Integers

- Positive and Negative Integers, zero as an integer that is neither positive nor negative
- Addition and Subtraction of Integers, Additive Inverse
- Number line to visualise integers, Addition and Subtraction of integers on the number line
- Converting subtraction to addition and addition to subtraction
- Use of integers in credits and debits, geographical cross sections (above and below sea level), temperature
- Brahmagupta's rules of addition and subtraction of integers

THEME: SHAPES, SPACE, AND MEASURES

Sub-theme: Shapes

- Point, Line Segment, Lines, Ray, Angles (arms and vertex of the angle), Comparison of angles with and without superimposition, Types of angles (Straight angle, Right angle, Acute angle, Obtuse angle, Reflex angle), Measurement of angles (history of how 360 degrees came, measurement using protractor)
- Constructions of straight lines, circles, squares and rectangles, construction of rectangles and squares by exploring their diagonals
- Patterns in shapes (regular polygons, complete graphs, stacked squares, stacked triangles, Koch snowflake)

Sub-theme: Symmetry (shapes and space)

- Symmetrical figures in the surroundings, Line of Symmetry, Figures with multiple lines of symmetry, Reflection Symmetry, Generating shapes having lines of symmetry (Ink Blot Devils, Paper folding and cutting, Squared paper, Dot grid), Rotational Symmetry (Centre of rotation, Angle of symmetry, Symmetries in a circle), Tiling

Sub-theme: Measures

- Perimeter and Area formulae of Rectangle, Square, Triangle
- Perimeter and Area of Regular Polygons
- Estimation of area using unit squares
- Two closed figures with same perimeter and different areas, or same area and different perimeters

THEME: STATISTICS

- Meaning of Data, Collection and Organisation of data (using tally marks and tabular form, frequencies of data), Pictographs, Bar Graphs, Artistic and Aesthetic considerations in presentation of data, Infographics

SUGGESTED DISTRIBUTION OF PERIODS AND MARKS FOR MATHEMATICS GRADE 6

Term-wise Assessment	Name of the Chapter	Approximate number of Teaching Periods	Mark Distribution for External Assessment
1st Term	1. Patterns in Mathematics	12	15
	2. Lines and Angles	14	15
	3. Number Play	14	15
	4. Data Handling and Presentation	14	15
	Revision and Remedial Teaching	06	-
		Total = 60	Total = 60
2nd Term	5. Prime Time	18	20
	6. Perimeter and Area	18	20
	7. Fractions	18	20
	Revision and Remedial Teaching	06	-
		Total = 60	Total = 60
3rd Term	8. Playing with Constructions	18	20
	9. Symmetry	18	20
	10. The Other Side of Zero	18	20
	Revision and Remedial Teaching	06	-
		Total = 60	Total = 60

Total number of instructional days = 180 days
Total number of working days = 220 days

CONTENT LIST FOR GRADE 7

THEME: NUMBERS

Sub-Theme: Large numbers and Number system

- Place value and number representations
- Indian and American/International number system
- Rounding up and down large numbers

Sub-Theme: Operations with whole numbers

- Reading, writing and evaluating Arithmetic Expressions, Comparing expressions using symbols ($<, >, and\ =$), Role of brackets and order of operations, Terms and operations in expressions
- Commutative and associative properties, Distributive law, Simplification and regrouping
- Algebraic thinking and reasoning in arithmetic

Sub-Theme: Integers

- Addition and subtraction (using number line and token models), Multiplication and division, Patterns in integer multiplication, Commutative and associative property of multiplication, and distributivity over addition{ a ×(b+c) = (a×b) + (a× c)}, Brahmagupta's rule for multiplication and division of positive and negative numbers
- Expressions involving integers, Pattern-based reasoning involving integers and operations

Sub-Theme: Decimals

- Concept of tenths and hundredths, Decimal place value, Notation, reading and writing of numbers with tenths and hundredths, Zeroes in the decimal system, Locating, comparing and identifying decimals, History of decimals and decimal notations over time.
- Length conversion (mm to cm to m and vice-versa), weight conversion (g to kg and vice versa), Rupee-Paise conversion
- Addition and subtraction of decimals, Estimation of sums and differences, multiplication, division, Terminating and recurring decimals, Cyclic numbers
- Calendar mathematics and leap years, Approximation over long time scales

Sub-Theme: Number Patterns

- Numbers as carriers of information, Identifying rules in sequences, Parity (even–odd reasoning, grids and expressions), Magic squares and their history, fixed-sum structures, Generalisation of grid patterns
- Virahanka and Fibonacci Numbers, Pattern prediction of numbers, Symbolic reasoning (Cryptarithms or alphametics)

Sub-Theme: Fractions

- Meaning of fraction multiplication, Area interpretation of multiplication of fractions, Multiplication of Numerators and denominators (Brahmagupta's rule for multiplying fractions $\frac{a}{b}x\frac{c}{d} = \frac{axc}{bxd}$), Simplification to lowest form,
- Division of fractions using reciprocals, Brahmagupta's rule for dividing fractions $\frac{a}{b} \div \frac{c}{d} = \frac{a}{b}x\frac{d}{c} = \frac{axd}{bxc}$
- Fractional relations
- History of fractions

Sub-Theme: Factorisation

- Prime and composite numbers, Prime factorization
- Factors and multiples
- Concept of HCF and LCM, Methods to find HCF and LCM, Patterns and Properties of HCF and LCM (For any two numbers, HCF × LCM = product; if one number is a factor of the other, HCF = smaller number and LCM = larger number, while for co-prime numbers, HCF = 1 and LCM = product.), Ladder method

THEME: ALGEBRA

Sub-Theme: Algebraic expressions

- Concept of a letter number (variable), Making simple algebraic expressions (one variable)
- Addition, subtraction and multiplication of algebraic expressions, Substitution and verification in algebraic expressions, Generating algebraic expressions from patterns (numbers and figures)

Sub Theme: Algebraic equations

- Finding unknown quantities, Formation of equations, Trial-and-error method, Systematic method (Using inverse operations)
- Solving linear equations, Verification of solutions, Error analysis of equations
- Algebra in historical context

THEME: SHAPES, SPACE, AND MEASURES

Sub-Theme: Lines and Angles

- Intersecting lines, linear pairs, vertically opposite angles, parallel and perpendicular lines, transversal and corresponding angles, Constructing parallel lines (paper folding, and rulers and set squares)
- Alternate angles, interior angles (Sum of two interior adjacent angles = 180°)

Sub-Theme: Triangles

- Construction of equilateral triangles, Triangle inequality, Triangle construction from given sides or angles, Angle sum and exterior angle properties of triangles,
- Constructing altitude of a triangle (paper folding and using ruler and set squares)
- Classification of triangles (Equilateral, isosceles, and scalene)
- Congruence of figures, Correspondence between parts of a triangle
- Triangle congruence criteria (SSS, SAS, ASA, AAS, RHS)
- Angle properties of isosceles and equilateral triangles

Sub-Theme: Construction and Tiling

- Construction of Perpendicular bisector and applications (including methods in the Śulba Sūtras) , constructing angles of 60^{o} and 90^{0}, angle bisectors (using compass and ruler), Copying angles
- Parallel line construction and applications
- Regular hexagon and its relation to equilateral triangles, Construction of a regular hexagon
- Symmetry and repeating units, Concept of tiling and tangrams

THEME: STATISTICS

- Concept of Statistical questions and Statistical statements
- Arithmetic mean, Median and outliers, applications to real life
- Dot plots, Column and clustered column graphs, Data comparison and interpretation

SUGGESTED DISTRIBUTION OF PERIODS AND MARKS FOR MATHEMATICS GRADE 7

Term-wise Assessment	Name of the Chapter	Approximate number of Teaching Periods	Mark Distribution for External Assessment
1st Term	Part I: Chapter 1. Large Numbers Around Us	10	10
	Part I: Chapter 2. Arithmetic Expressions	13	12
	Part I: Chapter 3. A Peek Beyond the point	12	12
	Part I: Chapter 4. Expressions using Letter-Numbers	13	14
	Part I: Chapter 5. Parallel and Intersecting Lines	12	12
		Total = 60	Total = 60
2nd Term	Part I: Chapter 6. Number Play	10	10
	Part I: Chapter 7. A Tale of Three Intersecting Lines	12	12
	Part I: Chapter 8. Working with Fractions	13	14
	Part II: Chapter 1. Geometric Twins	13	12
	Part II: Chapter 2. Operations with Integers	12	12
		Total = 60	Total = 60
3rd Term	Part II: Chapter 3. Finding Common Ground	11	11
	Part II: Chapter 4. Another peek beyond the point	11	11
	Part II: Chapter 5. Connecting the Dots	13	12
	Part II: Chapter 6. Constructions & Tilings	11	10
	Part II: Chapter 7. Finding the Unknown	14	16
		Total = 60	Total = 60
Total number of instructional days = 180 days **Total number of working days = 220 days**			

CONTENT LIST FOR GRADE 8

THEME: NUMBERS

Sub-theme: Squares and Cubes

- Square Numbers: Perfect Squares, Patterns and Properties of perfect squares, Perfect Squares and Odd numbers (difference between consecutive squares, sum of first n odd numbers is n^2, the nth odd number is 2n - 1), Perfect Squares and Triangular numbers, Square Roots
- Cubic Numbers: Perfect Cubes; Taxicab Numbers (Hardy-Ramanujan numbers), Perfect Cubes and consecutive odd numbers, Cube Roots
- Babylonians' use of square and cube roots, origin of the term 'root' from Sanskrit word 'mula', reiterated by Aryabhata and Brahmagupta

Sub-Theme: Exponents

- Exponential Notation and Operations: Exponent/Power and Base in n^2, n^3, etc., Laws of Exponents ($n^a \times n^b = n^{a+b}$, $(n^a)^b = (n^b)^a = n^{ab}$), ($m^a \times n^a = (mn)^a$, $\frac{m^a}{n^a} = \left(\frac{m}{n}\right)^a$ *where* $n \neq 0$), $n^a \div n^b = n^{a-b}$ *where* $n \neq 0$; $n^0 = 1$, Power Lines, using exponents to find the total number of possible combinations
- Powers of 10: Scientific Notation/Standard Form ($x \times 10^y$ *, where* $x \geq 1$ *and* $x < 10$*, and y is an integer*); Making estimation and approximation for calculations, Linear Growth (additive growth) vs Exponential Growth (multiplicative growth), *Lalitavistara,* Powers of ten in Jaina and Buddhist texts, Powers of ten in American/International system

Sub-Theme: Evolution of Numbers

- Evolution of number and number representation (origin in ancient Indian texts, Indian number system of 10 symbols including Aryabhata's use of 0, transmission of Indian Number System to other parts of the world, the Hindu-Arabic numerals), The Mechanism of Counting (from one-to-one mapping with physical objects to representations of counts using symbols/numerals);
- Some Early Number Systems: Use of body parts, Tally marks on bones and other surfaces, Number names obtained by counting in twos, The Roman Numerals;
- The Idea of a Base: The Egyptian Number System, Variation on the Egyptian System and The Notion of Base (base-10 number system is called a decimal number system, base-n system whose landmark numbers are the powers of a number n);
- Place Value Representation/Positional Number System: The Mesopotamian (Babylonian) number system, The Mayan number system, The Chinese number system; The Hindu number system

Sub-Theme: Ratio and Proportion

- Proportional changes;
- Ratios: (a : b, for every '*a*' unit of the first, there are '*b*' units of the second); Ratios in their Simplest Form;
- Problem Solving with Proportional Reasoning: Trairasika – The Rule of Three (use algebraic notation to model two proportional ratios, that is a : b :: c : d); Sharing x in the ratio m:n; Unit Conversions
- Ratios in Maps; Ratios with More than 2 Terms: a : b : c : d : …; Dividing a Whole in a Given Ratio: Dividing x into parts in the ratio p : q : r : s : … and its application (Pie Chart);
- Inverse Proportions: $x = \frac{k}{y}$, where *k* is a non-zero constant

Sub-Theme: Percentages

- Introduction to 'percentage', and percent symbol '%', Expressing Fractions as Percentages (conversion of fraction to percentage and vice versa), Percentages Around Us;
- Free-hand Computations (mental calculations), conversion of fractions to percentages and vice versa, conversion of decimals to percentages and vice versa,
- Percentages Greater than 100%;

- Using Percentages: To Compare Proportions, Percentage Increase or Decrease (calculate profits and losses), Taxes (expressed in percentages), Growth and Compounding (Simple interest and Compound interest)

THEME: ALGEBRA

Sub-Theme: Algebraic Thinking

- Sum of consecutive numbers, identifying algebraic expressions which are always even, using algebra and visualisation to check divisibility by 4, conclude that if *a* divides *m* and *a* divides *n*, then *a* divides *m* + *n* and *m* - *n*; if *a* is divisible by *b*, then all multiples of *a* are divisible by *b*; if *a* is divisible by *b*, then *a* is divisible by all the factors of *b*); Divisibility by 2, 3, 5, 9, 10, and 11 (and why they work);
- Puzzles (Digital Roots; Cryptarithms)

Sub-Theme: Algebraic Properties

- Properties of Multiplication: Distributive property of multiplication (a(b + c) = ab + ac), Commutativity of multiplication (a(b + c) = (b + c)a), use of distributive property of multiplication in ancient civilisations such as in Egypt, Mesopotamia, Greece, China, and India; Its use by Brahmagupta, Euclid, Aryabhata, Fast Multiplication using Distributive Property (when one of the numbers is 11, 101, 1001,…); Algebraic Identities: $(a + b)^2 = a^2 + 2ab + b^2$, $(a - b)^2 = a^2 + b^2 - 2ab$, $(a + b) \times (a - b) = a^2 - b^2$; application of Algebra to explore different patterns and solve problems.

Sub-Theme: Patterns, Proofs, and Generalisations

- Forming equations and finding the unknown;
- Number Pyramids; Use algebra to find the largest product possible; Decoding Divisibility Tricks

THEME: SHAPES, SPACE, AND MEASURES

Sub-Theme: Quadrilaterals

- Properties of Rectangle (opposite sides are equal and parallel to each other, diagonals of a rectangle are of equal length and they bisect each other- proof using congruency of triangles),
- Properties of Square (opposite sides are parallel, diagonals are of equal length and they bisect each other at 90 degree, diagonals bisect the angles of the square);
- Angles in a Quadrilateral: Sum of angles is 360 degree;
- Parallelogram and its properties (opposite sides are equal, adjacent angles add up to 180 degree, and opposite angles are equal, diagonals bisect each other);
- Rhombus and its properties (opposite sides are parallel, adjacent angles add up to 180 degree, and opposite angles are equal, diagonals bisect at right angles, diagonals bisect the angles of the rhombus);
- Explore quadrilaterals by changing the diagonal length using geoboard, using different triangles;
- Kite and Trapezium: basic properties

Sub-Theme: The Baudhayana-Pythagoras Theorem

- Doubling a Square: The diagonal of a square produces a square of double the area of the original square; Halving a Square;
- Hypotenuse of an Isosceles Right Triangle: Hypotenuse length is '$a\sqrt{2}$' when sides are *a*, the number $\sqrt{2}$ is a non-terminating decimal and cannot be expressed as $\frac{m}{n}$ where $n \neq 0$;
- Baudhayana's Theorem on Right-angled triangles (in a right-angled triangle with sides *a*, *b* and *c*, $a^2 + b^2 = c^2$);
- Right-Triangles Having Integer Side lengths: Baudhayana-Pythagoras triples (a triple (*a*, *b*, *c*) satisfying $a^2 + b^2 = c^2$); Fermat's Last Theorem; Further applications of the Baudhayana-Pythagoras Theorem: Problem from *Bhaskaracharya's (Bhaskara II) Lilavati*

Sub-Theme: Infinite Patterns and 3D Structures

- Fractals: Meaning of fractals, Sierpinski Carpet, Sierpinski Gasket, Koch Snowflake, Fractals in Art;
- Visualising Solids: profiles from different viewpoints, folding nets to obtain cuboids, tetrahedrons, cylinders, cones, prisms, pyramids, and octahedrons, Shortest Path on a Cuboid (using net of cuboid), Representation of Solids on a Plane Surface (projection of objects on a plane surface considering the different views- front view, top view, and side view), Isometric Projections

Sub-Theme: Area

- Area of a Rectangle, Triangle, Polygons (using area of triangle), Parallelogram (relation between parallelogram and rectangle), Rhombus, and Trapezium: Area formula derivation and its application

THEME: STATISTICS

- Mean, Median, Finding the Unknown, Mean and Median with Frequencies
- Visualising and Interpreting Data: Line Graphs, Infographics

SUGGESTED DISTRIBUTION OF PERIODS FOR MATHEMATICS GRADE 8

Note: Schools may follow the mark allocation prescribed by the NBSE for Grade 8 Mathematics.

Term-wise Assessment	Name of the Chapter	Approximate number of Teaching Periods
Phase 1	Part-I, 1. A Square and A Cube	12
	Part-I, 2. Power Play	13
	Part-I, 3. A Story of Numbers	12
	Part-I, 4. Quadrilaterals	11
	Part-I, 5. Number Play	12
	Part-I, 6. We Distribute, yet Things Multiply	13
	Part-I, 7. Proportional Reasoning-1	11
	Revision and Remedial Teaching	06
		Total = 90
Phase 2	Part-II, 1. Fractions in Disguise	13
	Part-II, 2. The Baudhayana-Pythagoras Theorem	10
	Part-II, 3. Proportional Reasoning-2	12
	Part-II, 4. Exploring Some Geometric Themes	12
	Part-II, 5. Tales by Dots and Lines	13
	Part-II, 6. Algebra Play	11
	Part-II, 7. Area	13
	Revision and Remedial Teaching	06
		Total = 90

Total number of instructional days = 180 days
Total number of working days = 220 days

SOCIAL SCIENCE

A. Introduction and Rationale

The Middle Stage (Grades VI–VIII) marks a significant transition in learners' intellectual and social development. At this stage, students move from primarily experiential and descriptive learning to more structured, analytical, and abstract thinking. The teaching of Social Science during this period is therefore essential for developing informed understanding, critical awareness, and responsible participation in society.

Social Science at the Middle Stage provides a systematic introduction to the study of History, Geography, Political Science, and Economics. These disciplines collectively enable learners to understand how societies evolve over time, how physical and human environments interact, how governance systems function, and how economic activities shape everyday life. By exploring these interrelated domains, learners develop a holistic understanding of the world around them.

The study of History helps students understand continuity and change, appreciate diverse cultures and traditions, and develop historical perspective. It encourages critical engagement with sources and narratives, fostering analytical thinking rather than rote memorization. Geography develops spatial awareness and environmental understanding, helping learners examine natural processes, resource distribution, human settlements, and issues related to sustainability. Political Science introduces learners to the principles and functioning of democratic institutions, rights and responsibilities, rule of law, and civic participation. Economics provides foundational knowledge about livelihoods, production, markets, and the equitable use of resources, linking classroom concepts to real-life contexts.

At this Stage, Social Science also plays a crucial role in nurturing constitutional values, ethical reasoning, and social responsibility. It encourages learners to respect diversity, practice empathy, uphold equality, and engage constructively with social issues. Through the exploration of themes such as justice, governance, environmental stewardship, and community life, students are guided to become thoughtful and responsible citizens.

In essence, the rationale for teaching Social Science at the Middle Stage lies in its role in building historical consciousness, geographic literacy, civic competence, and economic awareness. It prepares learners not only for higher stages of education but also for meaningful participation in society. By fostering knowledge, skills, values, and attitudes essential for democratic living, Social Science contributes significantly to the holistic development of learners.

B. Learning Standards

Table: Curricular Goals and associated Competencies for Middle Stage Social Science

Curricular Goals (CG)	Competency (C)
CG-1: Comprehends and interprets sources related to different aspects of human life and makes meaningful interpretations	**C-1.1:** Collects and interprets multiple sources of information (primary and secondary) to understand the historical, cultural, geographical, and socio-political aspects of human life **C-1.2:** Represents and analyses data related to various aspects of human life given in the form of text, tables, charts, diagrams, and maps
CG-2: Explores the process of continuity and change in human civilisations through specific examples from their context and a few historical episodes	**C-2.1:** Explains and analyzes major changes in the past and their impact on society **C-2.2:** Recognises elements of the continued prevalence of certain beliefs, relationships, practices, and activities in human society, notwithstanding major changes in society
CG-3: Draws connections between the causes and effects of different social and historical events or episodes and connects them with the overall impact on human life	**C-3.1:** Analyzes the effect of various changes in early human society from nomadic to settled life and early civilisation (such as the Naga origin and migration, traditional farming, changes in patterns of farming, construction, transport, pottery, metallurgy, wood carving, bamboo crafts, weaving etc.), and changes in human habitation, family structures and relationships, the nature of work, people's socio cultural beliefs and concepts over time (e.g., the emergence of Christianity in Nagaland and its impact on the social, cultural, political, economic and religious life of the Nagas) that significantly impacted human societies **C-3.2:** Identifies reasons behind harmony and conflict among social groups and communities, in their region and in other parts of the world, and their impact on human societies
CG-4: Understands the functioning of social, cultural, and political institutions and their impact on society, and the way individuals and collectives shape these institutions	**C-4.1:** Collects, organizes, and interprets information about various social, cultural, economic, and political institutions in their vicinity and region, and realizes its significance for human society **C-4.2:** Assesses the influence of social, cultural, and political institutions on an individual/ group/ community/ society in general
CG-5: Understands various forms of inequality and prejudice in society — from those prevalent in a family to those at a community/ regional/ national level — and also the initiatives and efforts at various levels to address these issues	**C-5.1:** Identifies, explains, and raises questions about different forms of inequality, prejudice, and discrimination prevailing in one's own family, locality, region, and national and global levels **C-5.2:** Identifies, explains, and appreciates efforts (being) made at different levels through various (including social, cultural, economic, and political) mechanisms and institutions, and what individuals can do, to address these to ensure equity, inclusion, and justice
CG-6: Understands the spatial distribution of resources (from local to	**C-6.1:** Explains key natural phenomena such as climate, weather, ocean cycles, soil formation, the flow of rivers, and how they are

global), their conservation, the interdependence between natural phenomena and human life, and their environmental and other implications	spatially distributed **C-6.2:** Identifies the distribution of resources such as water, agriculture, raw materials, and services across geographies **C-6.3:** Analyzes Indian perspectives on and efforts towards conservation and sustainability in society, and advocates the importance of the same, and what more needs to be done in these directions including in the context of global climate change **C-6.4:** Correlates the existence of different patterns of livelihoods with different types of landforms, availability of resources, and climatic conditions and changes (in local, regional, national, and global contexts)
CG-7: Appreciates the importance and meaning of being Indian (Bharatiya) by understanding (a) India's rich past and present including its glorious cultural unity in diversity, pluralism, heritage, traditions, literature, art, architecture, philosophy, medicine, science, and other contributions to humanity, and (b) other integrating factors despite the geographical diversity of India	**C-7.1:** Explains India's unity in diversity by recognising commonalities in its rich and diverse cultural elements, languages, art, philosophical ideas, values, clothing, cuisines, traditions, festivals, trade, commerce, and health practices including the practices of Ethno medicinal plants and herbs in Nagaland. **C-7.2:** Discovers the topographical diversity of the Indian landmass – from the semi-arid zone in the west and the areas of heavy rains in the north-east to the long coastal areas in the south and the snow-clad mountains in the north, as well as the rich biodiversity of the country **C-7.3:** Appreciates India's tradition of inclusion across communities and social groups, and its influence in vast parts of the world through its cultural elements
CG-8: Understands and appreciates the process of development of the Constitution of India and upholds its importance to promote democratic values in Indian society	**C-8.1:** Understands the need for a constitution for any country during the last few centuries – especially in a country such as India – and its deeper objectives **C-8.2:** Explains the process of formation of the Indian Constitution and understands the ideas and ideals of the Indian national movement enshrined in it as well as those drawn from India's civilisational heritage **C-8.3:** Explains the working of the three tiers of local self-government and appreciates its significance in upholding democracy at the grassroot level
CG-9: Understands the processes of economic activities (production and consumption, trade, and commerce)	**C-9.1:** Explains the key elements of trade and commerce (commodity, production, consumption, and capital) and its impact on individual life and society
CG-10: Understands and appreciates the contributions of India through history and in the present times, to the overall field of Social Science, including the different disciplines that constitute it	**C-10.1:** Knows and explains the significant contributions of India to all matters (concepts, explanations, methods) studied within the curriculum, in an integrated manner along with the particular matter – illustratively, understands the strengths of India's democratic traditions through its history
CG-11: In the curricular goals CG-1 to CG-10, there is a basic and adequate understanding of the history, geography, and culture of the locality, region, and country	*Note: Competencies for this Curricular Goal have already been incorporated under CG-1 to CG-10*

C. Scope and Sequencing of the Syllabus

The syllabus outlines a clearly defined scope that encompasses key themes, concepts, skills, and values appropriate to the developmental stage of learners. The content is designed to provide comprehensive yet focused coverage of essential disciplinary knowledge while fostering critical thinking and civic understanding.

The sequencing of content follows a logical and pedagogically sound progression. Topics are organized from simple to complex, concrete to abstract, and local to broader contexts, ensuring continuity and conceptual clarity. It progresses from the immediate to local- regional- national- global. In History, themes are arranged chronologically to enable understanding of change and continuity. It progresses from prehistory to ancient- medieval- modern. In Geography, the concepts reflect a structured and pedagogically progressive approach. The arrangement of the chapters shows a clear movement from foundational physical concepts to human-environment interactions, and from global understanding to regional/local contexts. In Economics, learners move from familiar community-based experiences to broader institutional and economic structures. This structured progression ensures coherence, depth, and meaningful learning across the middle stage.

D. Pedagogy for Social Science

Social Science is commonly taught as a definitive set of facts, failing to acknowledge the importance of interpretation in its formation. This has resulted in students resorting to memorizing information from textbooks, which does not equate to authentic learning in Social Science. It is essential for Social Science classrooms to be engaging and interactive. Students achieve a more profound understanding of the subject when they are encouraged to actively participate in the process of Social Science thinking. To make the process of learning participative, there is a need to shift from mere imparting of information to debate and discussion.

Social science teaching therefore needs to be revitalized towards helping the learner acquire knowledge and skills in an interactive environment. The teaching of Social Science must adopt methods that promote creativity, aesthetics, and critical perspectives, and enable children to draw relationships between past and present, to understand changes taking place in society. Problem solving, dramatization and role play are some hitherto underexplored strategies that could be employed. Teaching should utilize greater resources of audio-visual materials, including photographs, charts and maps, and replicas of archaeological and material cultures. (*Position Paper on Teaching of Social Science 1.5 2006*)

E. Pedagogical considerations:

In order to draw the interest of the students to the subject and to make the learning of the subject more meaningful, the classroom transaction should be interactive and participatory in nature. Some of the pedagogical considerations that should be kept in mind while planning for Social Science classes are as below:

a. Classroom transactions should help students engage with the method of doing Social Science to enable them to appreciate the processes involved in knowledge creation in Social Science. For example, students should be motivated to examine the prevalence of

different governmental systems, such as democracies, monarchies, and dictatorships, around the world and to articulate potential reasons for these patterns by drawing on the historical, geographical, socio-political, and economic contexts. For example, practice of Angh system/Chieftaincy in parts of Nagaland, Customary Laws, etc.

b. Classroom teaching should inculcate an awareness and appreciation of normative concerns. Teachers should provide opportunities for students to reflect on various social and environmental issues in their own environment. This process would stimulate thoughtful discussions and promote the development of constructive responses to these issues. For instance, natural calamities such as landslides, rockslides, floods etc., which are common in Nagaland, and which affect the daily activities of the people may be taken up.

c. Encouraging and supporting multidisciplinary thinking is vital for students to achieve a well-rounded and integrated comprehension of concepts as they relate to society. Historical events should be viewed through the socio-political and economic lenses of their time; geographical phenomena need to be evaluated for their influence on space, human lives, and their broader economic and societal implications. Similarly, economic concepts must be contextualized within their historical and socio-political frameworks. Examples can be – Early history of Nagas and trade with the outside world can be explored through their lifestyles, socio-economic relations with the neighbouring villages and kingdoms etc.

d. Social Science is envisioned as an interdisciplinary area of study that integrates History, Geography, Political Science, and Economics to provide learners with a holistic understanding of society. Instead of studying these disciplines in isolation, students explore themes such as environment, governance, resources, culture, and social justice through interconnected perspectives. This approach enables learners to understand the relationships between people, places, institutions, and historical processes, while also developing critical thinking, inquiry skills, and civic responsibility. By linking concepts across disciplines, Social Science in the middle stage fosters analytical abilities and prepares students to engage thoughtfully with contemporary social realities.

e. A Social Science classroom should be a place for contesting ideas, debating, and arguing with empathy and care. This approach to learning will keep both the learner and teacher alive to social realities. It has often been observed that cultural, social and class differences generate their own biases, prejudices and attitudes in classroom contexts. Therefore, students should be motivated to share their unique experiences and viewpoints without the fear of criticism or ridicule. Teachers should consciously avoid imposing their own beliefs and biases on the students, but rather facilitate an environment where issues can be analysed from various perspectives. The pedagogical framework in a Social Science classroom should strive to unveil new facets of social reality and cultivate self-awareness and reflection among both teachers and students. For example, substance abuse among the youths in Nagaland, its influence on the Naga culture, tradition, socio-political and economic aspects.

The approach to teaching therefore needs to be open-ended. Teachers should discuss different dimensions of social reality in the class, and work towards creating increasing self-awareness amongst themselves and in the learners. (Position Paper 1.5 2006).

f. Facts and concepts in Social Science should be made relevant to the students' contexts and experiences. This process should promote respectful dialogue and interactions that honour the cultural and socio-economic diversity, along with the multiple viewpoints that students bring to the classroom. Example - the diversity of different Naga tribes – their culture, food habits, customary practices, attires, etc. reflecting their own identity and an awareness & introspection.

g. Concepts in Social Science need to be clarified with adequate depth and rigor: In a Social Science classroom, it is essential to allocate sufficient time and attention to the development and understanding of key concepts. For instance, students need to comprehend the migration history of different Naga tribes and their settlement creating diversity of present Nagaland. They also need to engage with various types of evidence sources to construct meaningful interpretations of historical events. Moreover, a deep understanding of plurality and democracy is crucial for appreciating the values embedded in the Constitution and emphasized in NEP 2020. The classroom atmosphere should promote a commitment to academic excellence in the pursuit of knowledge.

h. The opportunity to engage with various social-political and environmental matters by examining and analysing diverse sources of evidence, including documentaries, literature (such as books, local narratives, and travelogs), newspaper articles, and pertinent films. It is vital to choose materials that are engaging for students and encourage their curiosity about the subject matter. Additionally, it is crucial to ensure that the chosen resources originate from credible sources and maintain an impartial stance, avoiding any biases toward or against specific ideologies, philosophies, groups, or communities. For instance, the oral tradition of Naga reflected through the folktales, folklore, folk songs, stone monolith, traditional attire, tattoos, monuments, morungs, etc. that helps to create the identity of each tribe and understand their geographical origin.

i. Authentic tasks/performance-based tasks, such as project-based learning activities and assignments, should be incorporated for providing learners with the opportunity to cultivate various skills. These include surveying, data analysis, problem-solving, and collaboration, which enable them to validate and explore their assumptions and beliefs. For example, identification & documentation of usage of indigenous medicinal herbs and spices, their usage, and benefits, etc.

F. Pedagogical Strategies

There are numerous strategies that teachers can utilize to structure lessons based on these considerations. For instance:

1. Inquiry: Inquiry-driven strategies facilitate students' understanding of the ways in which social scientists produce knowledge. For example, students can propose, and test hypotheses related to the existence of morungs among the Naga communities, its purpose based on the culture and traditions, beliefs and practices of each tribe. The significance of morungs according to different tribes and their uniqueness.

2. Issues-based learning: Issues-based learning is a powerful method for helping students understand different aspects of social realities, as it integrates insights from various disciplines to examine the causes of societal issues and to reflect on potential social actions. Since it deals with normative questions, it is important for students to learn much of the Social Science curriculum through direct engagement with pressing issues in their immediate or related environments. For example, in a state like Nagaland where deforestation is rampant, students might analyse the issue of deforestation in their area, which could lead to questions such as: What drives deforestation? Can we reduce deforestation? How does agriculture vary across different regions? What are the effects of deforestation? How can we prevent deforestation and make a difference? Is there an equitable distribution of forest area? What actions are being taken to stop deforestation? Enumerate impactful ways to stop deforestation and safeguard forests.

This approach can be a conducive tool for acquainting students with various aspects of social realities, integrating perspectives from different disciplines in investigating the causes of problems, and thinking about relevant social actions. As a subject addressing normative concerns, it is also vital that students learn much of the social science content by engaging with real issues in their immediate/related context. (SCF-SE 2023 pg. 348). This will enable the students to engage in using a multi-disciplinary approach with the interplay of social, geographical and economic factors.

3. Conversations, discussions, and debates: Engaging in conversations is crucial within a Social Science classroom. These dialogues should facilitate focused discussions surrounding concepts, ideologies, belief systems, and value assertions. Discussion is critical in stimulating mental activity, developing fluency and ease of expression, clarity of ideas in thinking and training in presenting thoughts and facts. An exchange of views and opinions offers valuable training to students in reflective thinking. Occasionally, these discussions may evolve into debates. Encouraging such debates is essential, as they allow students to express their viewpoints, address conflicts, clarify opposing ideas, and learn collaboratively. Using debates provides students the opportunity to work in a collaborative and cooperative group setting. They help students learn through friendly competition and deepen their understanding of complex and controversial topics. It also helps students develop critical thinking and communication skills. Classroom discussions and debates provide opportunities for students to practice active listening, respectful communication and constructive criticism. However, it is vital to ensure that these conversations, discussions and debates remain respectful and do not offend any social group. Potential discussion topics may include climate change, the diversity of clothing and food influenced by historical and geographical contexts, and the practice of democratic processes within educational settings.

4. Role plays and simulations: Utilizing role plays and simulations can enhance students' understanding of decision-making and conflict resolution. These techniques assist the teacher in providing excellent opportunities for each pupil to develop the intellectual skills of comprehension, application, analysis, synthesis and in some instances evaluation. For example, conducting role plays that reflect the role of communities in social issues or settlement of land issues through the Naga customary law, can effectively convey the principles behind the operation of a democratic institution.

5. Community service and field excursions: Engaging in community service is a powerful method for enhancing learning in a Social Science classroom. This approach not only offers practical experiences that reinforce curriculum concepts but also helps students cultivate important values. By participating in diverse projects with local government agencies, students gain firsthand real-world experiences and exposure to societal challenges and have the chance to support individuals in need. Furthermore, they provide ample opportunities for seeing, hearing, examining, gathering data and asking questions making learning more meaningful and memorable. It also provides meaningful engagement with the material, encompassing activities such as nature walks, heritage explorations, food tours, and visits to various establishments, including police stations, post offices, planetariums, and both government and digital archives. For example, visits to museums at local, state and national level will enhance students' learning. A trip to agricultural sites can be done to understand the different types of agriculture in Nagaland. Students may be asked to explore the local surroundings (e.g., weaving units, basket making, cane/woodwork etc.) and observe the activities of the artisans engaged in different crafts using local skills and materials. A trip to the Kisama Heritage village during the Hornbill festival will also give students opportunities to experience local cuisines, arts and crafts, folk songs and dances and architectural designs of the different tribes of Nagaland.

NEP 2020 recommends that '10 bagless days will be encouraged throughout the year for various types of enrichment activities involving arts, quizzes, sports, and vocational crafts. Children will be given periodic exposure to activities outside school through visits to places/monuments of historical, cultural and tourist importance….'' (NEP 2020, p.50, 4.26). Schools should plan out the 10 bagless days for meaningful and enriching activities for the learners.

6. Reflective essays: Reflective essays on various curriculum-related topics can be written by students. These essays can also assist teachers in gauging how well students have understood the key concepts and skills. For instance, students might explore topics such as, 'Agriculture in Nagaland', 'How and why terrace cultivation is practiced?', 'How can we increase the yield of terrace cultivation?', 'What are the other agricultural methods practiced in Nagaland?', 'What are the impacts and challenges of agriculture in Nagaland?', 'How does different methods of agricultural practices affect our environment?', 'What sustainable agricultural approaches could be considered in different geographical regions?'.

7. Project work: Project based learning allows students to acquire ideas, concepts related to social issues, democratic skills and values by conducting projects with their peers. They help students to improve their real-world skills such as research, scientific thinking, creative and critical thinking, hands on skills, communication and presentation abilities by working in groups in accordance with their own managerial skills. Project based learning environments in social sciences help students to acquire knowledge as well as develop skills, values and attitudes. For instance: i) Students use their scientific process skills by observing weather, reading and interpreting maps in more detail. ii) A Project on making a model depicting different mountains and rivers of Nagaland can be given where students use hands-on skills. iii) A Project on collection of various pictures of products advertised in newspapers and classification of products according to the industry to which

they belong is taken up where students use research skills. Successful teaching in the field of Social Science occurs when students work together on projects or specific assignments. Examples of such activities include conducting surveys and interviews, such as household surveys or discussions with community leaders like area/village chairman, creating a map of their classroom, exploring historical resources in their area, and categorizing different types of bazaars or markets. It is essential that these projects are developed in collaboration with students, allowing ample time for data collection, analysis, and presentation in the classroom.

8. Some specific opportunities for projects to create models and artifacts: It is essential for students to have chances to apply their knowledge through the development of models and artifacts. These activities may encompass creating posters, curating collections (including items like old coins, newspapers, stamps, different rock types, leaves, flowers, photographs, and pamphlets), building models (either two-dimensional or three-dimensional, such as monuments, Morungs, village gates, church, schools, Dzukou valley, Mt. Saramati, terrace cultivation, rain water harvesting, etc.), and recording videos of local events, including rallies, weekly bazaars, sales day, Agri-expo, book fairs, or any other community activities.

G. Principles of Assessment

Assessment that promotes learning is considered as effective assessment. Key principles that could guide our thinking on effective use of assessments to aid better teaching and learning are listed below:

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

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

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

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

d. Assessments should accommodate student diversity. It is important to move away from the 'one size fits all' approach while designing assessments. A variety of assessment methods, e.g., paper-pencil tests, oral assessments, project work, and group assignments should be used. Assessment tools and processes must accommodate for students performing at different levels in a classroom. Well-designed, graded assessments can be used to understand individual student needs better so that their learning needs can be adequately catered to.

e. Assessments should be supported by timely, credible, and constructive feedback to students. Teachers must provide ongoing feedback that describes where students are in their progress and the specific steps, they need to take to achieve their learning goals. Such feedback needs to be constructive with information on what has worked well and what areas might need improvement and how can this be achieved. Short comments on whether students have correctly answered to questions or not at the end of a test/examination without any further directions to improve learning, do not constitute feedback that promotes learning. Constructive feedback should acknowledge student's achievement, address any misconceptions, motivate and challenge for improvement. For example, instead of saying "Well done", say, "Great job on completing the maths problem on time. You used the correct formula and your calculations are all correct. You could do better if you could pay closer attention to the units used in the problem. Next time, read the questions more carefully and mark the units used in order to avoid missing out on them." Use of Holistic Progress Cards (HPCs) that detail out student performance in multiple aspects, including formative and summative assessments, should be explored.

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

H. Assessment on Social Science

Assessment is a part of the teaching-learning process. It involves the systematic gathering of information from different sources regarding children's learning. While content and pedagogy help to organize learning experiences for children, it is assessments that help provide information to the teacher, parents, and children themselves about their achievements. Teachers can use information from regular ongoing assessments for planning and organizing learning experiences for children.

Assessment on Social Sciences should normally be on evaluating students' understanding and application of concepts, theories, and methods in subjects across History, Geography, Political Science, Economics, Sociology, Anthropology, and Psychology. In the Foundational Stage, focus should be on developing foundational skills in literacy, numeracy, and social skills. Assessment in this stage should be done mostly on qualitative observation by the teacher. In the Preparatory Stage, focus should be on the extension on building foundational skills, introducing new subjects and developing initial critical thinking. Along with

qualitative observation, assessment can be done on periodic tests, project-based, and lots of formative assessments. In the middle stage, the focus is on consolidating knowledge, developing problem solving skills and introducing specialized subjects like History, Geography and Political Science. In this stage, assessment can be done on periodic tests, project-based and of different techniques of formative assessment. In the Secondary Stage, the focus is mainly on in-depth learning, critical thinking, and developing analytical skills. Here assessment is based on both formative assessment and summative assessment along with open book tests.

It is universally accepted that learners will acquire a skill sooner, if given frequent feedback about what they have done, while they are doing it. So, assessment is where real time feedback from students is used to modify instructions in the classroom and can help teachers understand exactly what students are learning so that an adequate response can be given immediately.

Some key principles of assessment having particular relevance to Social Science:

a. Students should be evaluated on their grasp of fundamental ideas, facts, and concepts in Social Science, as well as their ability to demonstrate a comprehensive understanding of how society operates through the interplay of historical, geographical, social, cultural, economic, political, and other factors. Additionally, their capacity to anticipate and devise potential strategies for addressing current or future social, political, and environmental issues should be assessed—not for the effectiveness of those strategies, which is often difficult to measure, but for the thought processes they employ and their incorporation of various materials and factors.

b. Students should be evaluated on their ability to demonstrate essential skills and mindsets that facilitate inquiry in social sciences, including critical thinking, chronological reasoning, spatial awareness, cultural competence and analytical thinking. These skills will enable students to effectively explore, understand and engage with social sciences concepts.

c. Students should be evaluated through diverse methods, such as answering questions with reasoning and evidence, conducting field surveys, map reading and interpretation, creating geographical models, and engaging in debates and discussions.

d. Students should be assessed more on formative assessment which creates a supportive learning environment and is non-threatening. It encourages discussions to take place in the learning process which is very much required in the teaching and learning of Social Science.

The system of assessment should shift from the current practice which is heavily based on rote memorization to that of competency based. It is imperative that assessment should be designed in such a way that rather than testing the facts and figures of the content in a lesson, the core concepts and the learning objectives should be assessed upon. It should align with the curricular goals and the learning outcomes, that ultimately leads to the achievement of the aims of education. This shift of practice will ensure that the learners are equipped with adequate skills, dispositions and values and are competent enough to apply their knowledge in the real-life scenario.

SUGGESTED DISTRIBUTION OF PERIODS AND MARKS FOR SOCIAL SCIENCE GRADE 6

Sl. No.	Name of the Lesson	Approximate Teaching Periods	Marks Distribution	
			External Assessment	Internal Assessment
	FIRST ASSESSMENT			
1.	Harrapan Civilization	12	10	
2.	Different Ways of Life	10	10	
3.	Rise of Janapadas, Mahajanapadas	8	8	
4.	Four Realms of the Earth (Major Domains of the Earth)	10	12	
5.	India-Our Country	10	10	
6.	India-Land of Diversity	10	10	
	Total	**60**	**60**	**40**
	SECOND ASSESSMENT			
1.	New Ideas-Upanishads, Jainism and Buddhism	12	11	
2.	Development of Empires- Ashoka the Great	11	11	
3.	India- Contacts and Conquerors	12	11	
4.	Continents and Oceans (Major Relief features of the Earth)	15	15	
5.	The Goverment	10	12	
	Total	**60**	**60**	**40**
	THIRD ASSESSMENT			
1.	Political Development- The Gupta Empire (320-540 A.D)	10	9	
2.	Harshavardhana and His Times	9	9	
3.	The Early History of Nagas	9	9	
4.	Agriculture in Nagaland	11	10	
5.	Disaster Management and Mitigation	9	8	
6.	Local Government-Rural and Urban	12	15	
	Total	**60**	**60**	**40**

Total Number of working days = 220
Total number of instructional days =180

SUGGESTED DISTRIBUTION OF PERIODS AND MARKS FOR SOCIAL SCIENCE GRADE 7

Sl.No	Name of the Lesson	Approximate teaching periods	Marks Distribution	
			External Assessment	Internal Assessment
	FIRST ASSESSMENT			
	Introduction to History	2		
1.	New Kings and Kingdoms in the North	9	10	
2.	Political Development in the South (A.D. 700-1200)	8	8	
3.	The Delhi Sultanate - I	8	9	
4.	Our Environment: Natural Environment	13	12	
5.	Democracy	10	10	
6.	The State Government	10	11	
	Total	**60**	**60**	**40**
	SECOND ASSESSMENT			
1.	Delhi Sultanate - II	11	11	
2.	The Creation of an Empire – Mughal Empire	13	13	
3.	Towns, People and society in Medieval India	11	10	
4.	Human Environment	14	15	
5.	Understanding Media	11	11	
	Total	**60**	**60**	**40**
	THIRD ASSESSMENT			
1.	The Flowering of regional Cultures	11	12	
2.	New Political formations in the Eighteenth Century	12	13	
3.	Nagas and their Early Contacts with Other People	13	13	
4.	Flora and Fauna of Nagaland	12	11	
5.	Market Around Us	12	11	
	Total	**60**	**60**	**40**

Total number of working days =220 days
Total number of instructional days= 180 periods

SUGGESTED DISTRIBUTION OF PERIODS AND MARKS FOR SOCIAL SCIENCE GRADE 8

	TOPIC		**No. of Periods (approx.)**	**Marks distribution**	
				Other areas of assessment	Written assessment
Phase 1	-An Introduction to History 1. Establishment of Company Power 2. Administrative Structure, Growth of Colonial Army and Civilian Administration 3. Colonialism-Agriculture, Society and Industries 4. The Revolt of 1857-58 5. British Rule and Urban Change -Introduction to Resources 10. Agriculture 11. Industries 15. The Constitution: Its Role and Need of Laws 16. The Judiciary		14 8 9 9 8 12 11 9 10		22 marks 9 marks 9 marks
		Total	90	10	40
Phase II	6. Education and Social Reforms 7. Changes in the Arts: Painting, Literature and Architecture 8. India after Independence 9. Nagas after Indian Independence 12. Human Resources		10 10 13 8 10		18 marks 13 marks

	13. Mountains and Rivers of Nagaland 14. Natural and Man-made Disasters 17. Social Justice and the Marginalised 18. Economic Presence of the Government		10 9 10 10		9 marks
			90	10	40
	Grand Total		**180**	**20**	**80**

SCIENCE

A. Introduction and Rationale

In alignment with NEP 2020, the National Curriculum Framework (NCF) 2023 views the Middle Stage as a transition where the students shift from observing the world around them to understanding the underlying principles that governs it. The Middle Stage marks a critical transition from experiential learning to subject-oriented scientific inquiry. This curriculum aims to strengthen conceptual understanding, develop analytical thinking, and nurture scientific temper among learners.

Science education at the Middle Stage builds foundational competencies required for advanced learning in secondary education. It enables learners to understand natural phenomena through observation, experimentation, reasoning, and evidence-based conclusions.

B. Learning Standards

Learning standards lay out expectations that are concise, written descriptions of the knowledge and skills students are expected to acquire at specific stages of education. It sets measurable expectations for student learning and helps ensure consistency, quality, and progression across grades.

The Curricular Goals and Competencies for the Middle Stage as given in NCF-2023 are dealt with as ‘forms of understanding’ with explicit engagement with pragmatic theories and conceptual structure.

Table: Curricular Goals and associated Competencies for Middle Science

Curricular Goal (CG)	Competency (C)
CG-1 Explores the world of matter and its constituents, properties, and behaviour	**C-1.1** Classifies matter based on observable physical (solid, liquid, gas, shape, volume, density, transparent, opaque, translucent, magnetic, non-magnetic, conducting, non-conducting) and chemical (pure, impure; acid, base; metal, non-metal; element, compound) characteristics **C-1.2** Describes changes in matter (physical and chemical) and uses particulate nature to represent the properties of matter and the changes **C-1.3** Explains the importance of measurement and measures physical properties of matter (such as volume, weight, temperature, density) in indigenous, non-standard and standard units using simple instruments **C-1.4** Observes and explains the phenomena caused due to differences in pressure, temperature, and density (e.g., breathing, sinking-floating, water pumps in homes, cooling of things, formation of winds)
CG-2 Explores the physical world in scientific and mathematical terms	**C-2.1** Describes one-dimensional motion (uniform, nonuniform, horizontal, vertical) using physical measurements (position, speed, and changes in speed) through mathematical and diagrammatic representations **C-2.2** Describes how electricity works through manipulating different elements in simple circuits and demonstrates the heating and magnetic effects of electricity **C-2.3** Describes the properties of a magnet (natural and artificial; Earth as a magnet) **C-2.4** Demonstrates rectilinear propagation of light from different sources (natural, artificial, reflecting surfaces), verifies the laws of reflection through manipulation of light sources and objects and the use of apparatus and artefacts (such as plane and curved mirrors, pinhole camera, kaleidoscope, periscope) **C-2.5** Observes and identifies celestial objects (stars, planets, natural and artificial

	satellites, constellations, comets) in the night sky using a simple telescope and images/ photographs, and explains their role in navigation, calendars, and other phenomena (phases of the moon, eclipse, life on earth)
CG-3 Explores the living world in scientific terms	**C-3.1** Describes the diversity of living things observed in the natural surroundings (insects, earthworms, snails, birds, mammals, reptiles, spiders, diverse plants, and fungi), including at a smaller scale (microscopic organisms) **C-3.2** Distinguishes the characteristics of living organisms (need for nutrition, growth and development, need for respiration, response to stimuli, reproduction, excretion, cellular organisation) from non-living things **C-3.3** Analyses patterns of relationships between living organisms and their environments in terms of dependence on and response to each other **C-3.4** Explains the conditions suitable for sustaining life on Earth and other planets (atmosphere; suitable temperature-pressure, light; properties of water)
CG-4 Understands the components of health, hygiene, and wellbeing	**C-4.1** Undertakes a nutrition-based analysis of food components with special reference to Indian culinary practices and modern understanding of nutrition, and explains the effect of nutrition on health **C-4.2** Examines different dimensions of diversity of food — sources, nutrients, climatic conditions, diets **C-4.3** Describes biological changes (growth, hormonal) during adolescence, and measures to ensure overall well-being **C-4.4** Recognises and discusses substance abuse, viewing school as a safe space to raise these concerns
CG-5 Understands the interface of Science, Technology, and Society	**C-5.1** Illustrates how Science and Technology can help to improve the quality of human life (health care, communication, transportation, food security, mitigation of climate change, judicious consumption of resources, applications of artificial satellites) as well as some of the harmful uses of science in history **C-5.2** Shares views on news and articles related to the impact that Science/Technology and society have on

	each other
CG-6 Explores the nature and processes of Science through engaging with the evolution of scientific knowledge and conducting scientific inquiry	**C-6.1** Illustrates how scientific knowledge and ideas have changed over time (description of motion of objects and planets, spontaneous generation of life, number of planets) and identifies the scientific values that are inherent and common across the evolution of scientific knowledge (scientific temper, Science as a collective endeavour, conserving biodiversity and ecosystems) **C-6.2** Formulates questions using scientific terminology (to identify possible causes for an event, patterns, or behaviour of objects) and collects data as evidence (through observation of the natural environment, design of simple experiments, or use of simple scientific instruments)
CG-7 Communicates questions, observations, and conclusions related to Science	**C-7.1** Uses scientific vocabulary to communicate Science accurately in oral and written form, and through visual representation **C-7.2** Designs and builds simple models to demonstrate scientific concepts **C-7.3** Represents real world events and relationships through diagrams and simple mathematical representations
CG-8 Understands and appreciates the contribution of India through history and the present times to the overall field of Science, including the disciplines that constitute it	**C-8.1** Knows and explains the significant contributions of India to all matters (concepts, explanations, methods) that are studied within the curriculum in an integrated manner
CG-9 Develops awareness of the most current discoveries, ideas, and frontiers in all areas of scientific knowledge in order to appreciate that Science is ever evolving and that there are still many unanswered questions	**C-9.1** States concepts that represent the most current understanding of the matter being studied — ranging from mere familiarity to conceptual understanding of the matter as appropriate to the developmental stage of the students **C-9.2** States questions related to matters in the curriculum for which current scientific understanding is wellrecognised to be inadequate

C. Essential Concepts

There is a general agreement that the processes of Science are equally important to learn as the concepts. But usually, this does not seem to get translated into our classrooms. There is a tendency to treat Science as merely a ‘bunch of facts’. This approach assumes that there are

certain concepts, theories, facts, and information that students must know, and once acquired, they have knowledge of Science. However, the knowledge base of Science known today is vast and continues to grow at an unprecedented rate. This implies that no matter how many 'facts of Science' we learn, it will never be enough.

The question that this throws up is — what are the essential concepts that students must learn in Science at the school level?

Even though it would be clear that this is not complete 'knowledge of Science', this 'essential set' could be decided based on the following criteria:

a. It provides adequate knowledge of the world for that age group.
b. It provides the base and platform for further learning of scientific ideas.
c. It provides adequate 'material' for developing the capacities and values related to Science Education.
d. It provides sufficient scope for inquiry and development of capacities for scientific inquiry.

In addition, whatever concepts are chosen, they should be interesting, challenging, and intelligible for young minds.

At the same time, students must develop capacities for scientific inquiry and the ability to communicate scientific questions and ideas aligned with each Stage. These are addressed in the Curricular Goals and Competencies.

D. Pedagogical Approaches

Science is introduced as a separate curricular area from the middle stage. It is a bridge between the environmental studies (The World Around Us) at the Preparatory Stage and the disciplined abstract subjects (Physics, Chemistry, Biology, Earth Sciences) at the Secondary Stage.

At this stage, considering the shift from simple observation to systematic inquiry and logical reasoning, and as suggested in the Curriculum Framework the following pedagogical approaches has been emphasised on –

a. Hands-on Science: The most important part of learning Science is actually 'doing Science' through hands-on experiential learning. 'Doing Science' can range from trial and error, using materials around them, or using basic scientific instruments (measuring instruments), and laboratory apparatus. In this process, students gain conceptual

understanding and develop capacities through manipulating, designing, and building experiments and demonstrations.

b. **Discovery approach:** Students explore the natural world following their own interests and discover patterns of how the world works during their explorations. Teachers may also create opportunities or draw attention to natural phenomena that students can explore further. Often, this discovery is followed by other, more structured approaches to ensure learning. For example, the Teacher draws the attention of the students to changes in the length of the shadows as the day progresses or to the venation patterns of the leaves of different plants. Students' observations on shadows are then connected to scientific concepts such as the path of light, and the venation pattern is connected to the shapes of the leaves.

c. **Inquiry approach:** The inquiry approach allows students to navigate through unknown questions and explore solutions on their own. It allows students to work in the same way as scientists. The inquiry approach engages students with systematic observation, visualising, experimenting, inferring, communicating, and discovering relations. This approach allows Teachers to choose the appropriate type of inquiry with respect to the concept and to scaffold (support as per need) students' learning.

d. **Project-centred approach:** This approach allows learning within the classroom to continue outside the classroom and extend over a period of time. For example, observing the changes in the moon over a month to understand the phases of the moon. In this process, connections to daily life are also made. The project-centred approach allows students to develop artefacts/products (charts, presentations, speeches) that reflect and communicate their emerging understanding. It also allows the integration of concepts across different curricular areas. Visits to the sites of local professional communities and interactions with the people engaged there, such as potters, weavers, craftsperson, farmers, blacksmiths, carpenters, and electricians would enable integrating concepts from vocational education and art with Science.

e. **Didactic approach:** Often, teaching Science involves communicating certain important information in the form of scientific terms, phenomena, and the historical development of concepts and ideas. In this approach, the Teacher largely regulates the direction and flow of the lesson. For example, after students have discovered changes in the length of the shadows throughout the day, the Teacher can explain the effect of the position of the sun on the length of the shadow and how students can use it to keep track of the time as well.

f. **Demonstration:** The Teacher demonstrates the working of certain instruments or outcomes of experimental set-ups to draw the attention of the students to relevant concepts. These demonstrations enrich students' learning experiences of the concepts and can be implemented in a variety of settings.

E. Pedagogic Principles

Science pedagogy across stages must be informed by the following principles:

a. Learning Science requires an active engagement of students with the world around them to understand it. Science pedagogy achieves this through:
    i. Simulating the processes of Science such as asking questions, hypothesising, observing, testing, finding evidence, collecting data, analysing, modifying conclusions, communicating, and re-questioning.
    ii. Exposing students to a variety of aspects of learning Science in varied settings — the laboratory, classroom, and field — through approaches such as inquiry, discovery, didactic, hands-on Science.
    iii. Encouraging and sustaining curiosity by providing varied experiences that may challenge students' existing notions and ideas.
b. Learning Science requires communication and sharing of ideas and observations. Science pedagogy achieves this through:
    i. Using scientific vocabulary during instruction and creating a variety of contexts and situations for students to communicate their understanding, ideas, and observations.
    ii. Peer and collaborative learning.
c. Learning Science requires a gradual increase in the capacity to engage with complex and abstract ideas, aligned with the cognitive and procedural capacities of students. Science pedagogy achieves this by building on students' existing knowledge and using multiple representations (mathematical, graphical, diagrammatic, and models).
d. Learning Science requires making linkages between knowledge for the holistic and multidisciplinary learning emphasised in NEP 2020. Science pedagogy achieves this through:
    i. Connecting scientific knowledge inside and outside the classroom.
    ii. Horizontal connections with other curricular areas.
b. Learning Science enables the development of certain values, such as collaboration, sensitivity, empathy, equality of opportunities, respect for diversity, and other values mentioned in NEP 2020. Science pedagogy must facilitate this process.

F. Suggestive Pedagogical Processes:

The learner is to be provided with opportunities in pairs/groups/individually in an inclusive setup and encouraged to-

a. Explore surroundings, natural processes, phenomena using senses.

b. Pose questions and find answer through reflection, discussion, designing and performing appropriate activities, role plays, debates, use of ICT etc.
c. Record the observations during the activity, experiments, surveys, field trips etc.
d. Analyse recorded data, interpret results and draw inference/generalisations and sharing findings with peers and adults.
e. Exhibit creativity presenting novel ideas, new designs/patterns, improvisation etc.

Internalise, acquire and appreciate values such as cooperation, collaboration, honest reporting, judicious uses of resources etc.

G. Assessment Framework For The Middle Stage

Assessment in science under NEP 2020 and NCF-SE 2023 emphasizes a shift from rote learning and memorization toward ***conceptual understanding, critical thinking and application based learning*** aligning it with the larger goals of developing scientific temper, creativity and problem-solving skills among students.

Focus should be made on competency-based assessment where students are assessed on their understanding of core science concepts and their ability to apply them in real life situations rather than memorization of theories, laws and facts. Formative and summative assessment with equal importance to both should be the approach where formative assessment should be done to assess the students holistically throughout the academic calendar.

Assessment at the Middle Stage is competency-based and continuous. It measures conceptual understanding, practical skills, and application ability.

Assessment Components:

- Formative Assessment (Class activities, quizzes, projects, observations, etc).
- Summative Assessment (Periodic written tests/examinations).
- Practical Assessment (Laboratory work, hands-on activities and experiments).
- Case Studies and Project Work (Research-based assignments, group work, presentations).

All this should be a part of the assessment and it is to be taken care that the questions are to be framed in such a way so as to evaluate their critical thinking, problem solving and application of scientific knowledge rather than just facts.

The following are few ***key principles*** for assessment in Science across Stages:

a. Students must be assessed for understanding of concepts and for the ability to use the scientific method, i.e., observe, ask questions, hypothesize, experiment, collect data, infer, predict, analyze, decide, and evaluate (4.6.2 of NCF-SE 2023 p-316).
b. Students must be assessed through a variety of ways, e.g., answering good questions, designing, and conducting experiments, developing models, and participating in debates and discussions (4.6.2 of NCF-SE 2023 p-316).

H. Content List and Period Allocation

CONTENT LIST FOR GRADE 6

THEME/ SUB-THEME	KEY CONCEPTS
FOOD Components of Food, Sources of Food	Nutrients (carbohydrates, fats, proteins, vitamins, minerals, fibres); functions of nutrients; malnutrition and lifestyle choices, deficiency diseases, healthy eating habits, importance of hygiene and safe food; balanced diet.
MATTER AND MATERIALS Types of materials, Sorting Materials, Properties of Materials and their uses	Grouping materials according to common physical properties, natural and synthetic materials; Sorting and grouping materials (lustre, hardness, solubility, density - floating and sinking, transparency).
SEPARATION OF SUBSTANCES Need for Separation, Physical Methods of Separation, Filtration and Evaporation	Different methods of separation – handpicking, threshing, winnowing, sieving; sedimentation, decantation and filtration; solutions and mixtures; practical applications in daily life.
LIVING WORLD Plants and Animals – Forms and Functions, Classification of Living Organism, Microorganisms (introductory)	Plants as herbs, shrubs and trees; creepers and climbers; basis of classification (habitat, food habits, structure); biodiversity and its importance.
CHARACTERISTICS OF LIVING ORGANISMS Adaptation and Survival, Growth and Reproduction (introductory)	Meaning of habitat; terrestrial and aquatic habitat; Characteristics of organisms (respiration, movement, response to stimuli, reproduction and movement); adaptation in plants and animals; interdependence in ecosystems.
MOTION AND MEASUREMENT Units of Measurement (Length and Temperature), S.I. unit (Length and Temperature), Types of Motion	Physical quantities (length, mass, time and temperature); S.I. unit of length and its sub-units; correct way to measure length (scale, measuring tape); difference between heat and temperature; clinical and laboratory thermometers; safe handling of thermometers; types of motion (rectilinear, circular and periodic motion).

NATURAL PHENOMENA	Classification of materials as transparent, opaque and translucent; shadow: its formation; pinhole camera; reflection.
MAGNETS Properties and Uses of Magnets	Discovery of magnets; magnetic and non-magnetic materials; poles of a magnet; attraction and repulsion; finding direction using a bar magnet; magnetic compass.
STATES OF WATER States of Matter, Changes of States, Water Cycle	Solid, liquid, gas; evaporation, condensation, melting, freezing; importance of water in the environment.
EARTH AND SPACE Solar System, Planets and Satellites, Space Exploration	Sun as a star; rotation and revolution; constellations; milky way galaxy; artificial satellites and their uses;

SUGGESTED DISTRIBUTION OF PERIODS AND MARKS FOR SCIENCE

GRADE 6

Sl. No.	Name of the Lesson	Approximate teaching period	Marks	
			External Assessment	Internal Assessment
First Evaluation/ Assessment				
1.	The Wonderful World of Science	4	Non-Evaluative Chapter	
2.	Diversity in the Living World	19	21	
3.	Mindful Eating: A Path to a Healthy Body	19	21	
4.	Exploring Magnets	18	18	
TOTAL		**60**	**60**	**40**
Second Evaluation/ Assessment				
5.	Measurement of Length and Motion	10	10	
6.	Materials Around Us	18	18	
7.	Temperature and its Measurement	18	18	
8.	A Journey Through States of Water	14	14	
TOTAL		**60**	**60**	**40**
Third Evaluation/ Assessment				
9.	Methods of Separation in Everyday Life	10	10	
10.	Living Creatures: Exploring their Characteristics	18	18	
11.	Nature's Treasures	18	18	
12.	Beyond Earth	14	14	
TOTAL		**60**	**60**	**40**

Total number of working days = 220
Total number of instructional days = 180

CONTENT LIST FOR GRADE 7

THEME/ SUB-THEME	KEY CONCEPTS
MATTER AND ITS INTERACTIONS Physical Changes, Chemical Changes, Indicators of Chemical Reactions, Physical Properties, Chemical Properties, Uses of Metals and Non-metals, Acids, Bases, and Indicators, Natural and Synthetic Indicators, Everyday Applications	Properties of acids and bases; Litmus, turmeric, and universal indicators; Neutralization reaction; Uses of acids and bases in daily life; Conductivity, malleability, ductility; Reaction with oxygen and water; Corrosion and prevention; Importance in industry and daily life; Reversible and irreversible changes; Formation of new substances; Rusting and combustion; Conservation in chemical processes.
ENERGY AND PHYSICAL PHENOMENA Electric Current and Circuit, Components of a Circuit, Conductors and Insulators, Heat and Temperature, Modes of Heat Transfer, Effects of Heat, Measurement of Time, Types of Motion, Speed and Distance, Sources of Light, Formation of Shadows, Reflection of Light	Conduction, convection, radiation; Expansion and contraction; Sea breeze and land breeze; Insulators and conductors of heat; Simple pendulum; Uniform and non-uniform motion; Speed, Distance and Time relationship; Transparent, translucent, opaque objects; Rectilinear propagation of light; Plane mirror and image formation; Laws of reflection (introductory).
LIVING WORLD Puberty and Hormonal Changes, Reproductive Health, Nutrition and Personal Hygiene, Nutrition in Animals, Respiration, Circulation and Excretion, Photosynthesis, Respiration in Plants, Transport of Water and Nutrients	Secondary sexual characteristics; Role of endocrine glands; Physical and emotional changes; Balanced diet during adolescence; Digestive system; Breathing mechanisms; Blood and circulatory system; Removal of wastes; Role of chlorophyll; Stomata and gas exchange; Xylem and phloem; Transpiration.
EARTH AND SPACE Rotation and Revolution, Phases of the Moon, Eclipses	Day and night; Seasons; Solar and lunar eclipses; Relative positions of celestial bodies.

SUGGESTED DISTRIBUTION OF PERIODS AND MARKS FOR SCIENCE GRADE 7

Sl. No.	Name of the Lesson	Approximate teaching period	Marks	
			External Assessment	Internal Assessment
First Evaluation/ Assessment				
1.	The Ever-Evolving World of Science	3	Non-Evaluative Chapter	
2.	Exploring Substances: Acidic, Basic, and Neutral	19	20	
3.	Electricity: Circuits and their Components	19	20	
4.	The World of Metals and Non-Metals	19	20	
TOTAL		**60**	**60**	**40**
Second Evaluation/ Assessment				
5.	Changes Around Us: Physical and Chemical	15	15	
6.	Adolescence: A Stage of Growth and Change	15	15	
7.	Heat Transfer in Nature	15	15	
8.	Measurement of Time and Motion	15	15	
TOTAL		**60**	**60**	**40**
Third Evaluation/ Assessment				
9.	Life Processes in Animals	15	15	
10.	Life Processes in Plants	15	15	
11.	Light: Shadows and Reflections	15	15	
12.	Earth, Moon, and the Sun	15	15	
TOTAL		**60**	**60**	**40**

Total number of working days = 220
Total number of instructional days = 180

CONTENT LIST FOR GRADE 8

THEME/ SUB-THEME	KEY CONCEPTS
MICROORGANISMS Types of Microorganisms, Disease and Prevention, Uses and Harmful Effects	Types of microorganisms, habitat, importance to humans (curd, bread, commercial and medicinal use, communicable diseases, vaccine); soil fertility; harmful effects of microorganisms; food preservation.
HUMAN HEALTH AND HYGIENE Balanced Diet, Deficiency Diseases, Personal Hygiene	Nutrients and their functions; malnutrition; disease prevention; role of exercise and cleanliness.
ELECTRICITY AND MAGNETISM Electric Current and Circuit, Heating Effect, Magnetic Effect	Electric circuit components; conductors and insulators; electric fuse and safety devices; electromagnets.
FORCE AND MOTION Types of Forces, Effects of Force, Friction	Contact and Non-contact forces; balanced and unbalanced forces; friction and its advantages/ disadvantages.
AIR AND ATMOSPHERIC PHENOMENA Pressure in Solids and Fluids, Air Pressure, Cyclones and Safety Measures	Pressure meaning and formula; atmospheric pressure; formation of winds; disaster preparedness.
STRUCTURE OF MATTER States of Matter, Properties of Particles	Matter is made of particles; intermolecular space and attraction; diffusion; change of state.
CLASSIFICATION OF MATTER Pure Substances, Types of Mixtures, Separation Methods	Elements and compounds; homogeneous and heterogeneous mixtures; physical and chemical changes; filtration, evaporation, distillation.
SOLUTIONS Types of Solutions, Solubility, Concentration	Solute and Solvent; saturated and unsaturated solutions; factors affecting solubility; methods of separating components.
LIGHT AND OPTICS Reflection, Image Formation, Refraction	Laws of reflection; types of mirrors; convex and concave lenses; real and virtual images.
ATRONOMY AND TIME Earth's Movements, Phases of the Moon, Time Measurement	Rotation and Revolution; seasons; lunar phases; sun dials and calendars.
ECOSYSTEM AND ENVIRONMENT	Producers, consumers, decomposers; ecological balance; biodiversity; environmental protection.

Food Chains and Webs, Interdependence, Conservation	
EARTH AND SPACE Earth's Structure, Atmosphere, Water Resources	Layers of Earth (lithosphere, hydrosphere, atmosphere); importance of water; sustainable development.

SUGGESTED DISTRIBUTION OF PERIODS FOR SCIENCE GRADE 8

Sl. No.	Name of the Lesson	Approximate teaching period
Phase-I		
1.	Exploring the Investigative World of Science	3
2.	The Invisible Living World: Beyond Our Naked Eye	15
3.	Health: The Ultimate Treasure	15
4.	Electricity: Magnetic and Heating Effects	12
5.	Exploring Forces	15
6.	Pressure, Winds, Storms, and Cyclones	15
7.	Particulate Nature of Matter	15
Total		**90**
Phase-II		
8.	Nature of Matter: Elements, Compounds, and Mixtures	14
9.	The Amazing World of Solutes, Solvents, and Solutions	15
10.	Light: Mirrors and Lenses	15
11.	Keeping Time with the Skies	16
12.	How Nature Works in Harmony	16
13.	Our Home: Earth, a Unique Life Sustaining Planet	14
Total		**90**

Total number of working days = 220

Total number of instructional days = 180

Note:

- Schools may follow the mark allocation prescribed by the NBSE for Class 8 Science.
- Chapter 1 titled ***Exploring the Investigative World of Science*** is a non-evaluative chapter.