



ENGLISH

ENGLISH
CLASSES I – VIII

Introduction

English in India is no longer a language of the colonial masters. In some important domains of activity, it has become an integral part of the Indian multilingual repertoire. In a variety of ways it has enriched Indian languages, which in turn have made significant contributions to English in India and as it is used abroad. The attitudes of the contemporary Indians towards English are significantly more positive than what we for example find in the Constituent Assembly Debates of 1946-1949.

English plays an important role in the domains of education, administration, business and political relations, judiciary, industry, etc. and is therefore a passport to social mobility, higher education, and better job opportunities. In urban India, it is very common to see young people code-mixing and code-switching between English and Indian languages. It is indeed unfortunate that English has so far remained associated with the rich, elite or upper middle class. It should be the effort of the Indian educational system to reach English to every Indian child and to ensure that she/he gains a sufficiently high level of proficiency in it and not suffer discrimination for lack of it.

The teaching and learning of English today is characterised by the diversity of schools and linguistic environments, and by systemically pervasive classroom procedures of teaching a textbook for success in an examination. The emphasis should be on teaching language use in meaningful and often multilingual contexts. For the majority of our learners, what is needed is a basic or fundamental competence in the target language. We need to develop a focus in which the research on language learning is integrated with language teaching. From the research in language learning, we know that children have an innate faculty to construct grammatical systems on their own. What we need to do in the classrooms, and to the extent possible, outside them is to create socio-cultural contexts that would encourage children to participate actively in understanding and creating appropriate communicative practices. It is extremely important that textbook writers and teachers realize that children learn as much outside as in the classroom, particularly in the case of language since it is there all around them all the time. Playgrounds, street hangouts, recreation centres, picnics, adventure tours etc are all important sites of language learning from a socio-cultural perspective. If these considerations inform the new textbooks, they are bound to look different. It would be largely unnecessary and futile to teach isolated grammatical items to students. Grammars would emerge from an active engagement in communicative practices. Input rich methodologies (such as the whole language, the task-based and the comprehensible input approaches) aim at exposure to the language in meaning-focused situations so as to trigger the formation of a language system by the learner.





Input-rich communicational environments are a prerequisite to language learning since languages are learnt implicitly by comprehending and communicating messages, either through listening or reading for meaning. A comprehensible input rich curriculum lays the foundation for spontaneous language growth, and different language skills develop simultaneously in communicative sociocultural contexts rather than in any linear order as reflected in the traditional LSRW approaches. The learner can receive meaningful language input that is appropriate to his/her age and knowledge of language or readiness for language skills, given the variety and range of English-learning situations in India.

There is substantial evidence available now to show that Indian English as used by fluent educated Indian speakers does not differ in any significant way from standard varieties of English in UK or USA. There is no doubt that there are significant differences at the phonological and lexical levels. But that is also true of British and American English within those countries. Indian English can be considered a distinct variety with an identity and status of its own, and should serve as a model in teaching-learning situations.

What is to be taught and how?

The goals of a language curriculum are twofold: attainment of a basic proficiency, and the development of language as an instrument for basic interpersonal communication and later for abstract thought and knowledge acquisition. One hopes that by the time a student finishes her school, she would become an autonomous learner. This argues for a language-across-the-curriculum approach that breaks down barriers between English and other languages and subject areas. At the initial stages, English may be one of the languages for learning activities designed to enhance children's awareness of their immediate surroundings. It is at this stage that the use of the languages of children may turn out to be most productive for teaching English. It is important to note that children effortlessly learn several languages if adequate comprehensible input is available in anxiety free situations. It is also important to note that simultaneous exposure to several languages does not as many people tend to believe, 'confuse' children. These facts would constitute significant guidelines for teaching strategies in the classroom.

Input-rich communicational environments are essential for language learning. Inputs include textbooks, learner-chosen texts, class libraries, parallel books and materials in more than one language, media support (learner magazines/newspaper columns, radio/audio cassettes), and authentic materials.

Themes/sub-themes should be in conformity with the learners' immediate environment – physical, social and cultural. These should lead to an understanding and practice of the values enshrined in the Constitution of India, including the Fundamental Rights and Duties. The various sub-themes to be included are personal relationships, the neighbourhood, the larger community, the nation, the world, etc. In addition to textual materials, various other inputs can be brought into the language classroom, which include cards, charts, advertisements, texts produced by children, brochures, pamphlets, radio, T.V. news, etc.



In the case of textbooks, it is imperative that layout and illustrations etc. are treated as integral to the text rather than as mere cosmetic add-ons.

Language and knowledge

Language learning is essentially a matter of acquiring the important skills of listening, speaking, reading and writing in an integrated manner, and harnessing these skills to the performance of formal as well as informal communication tasks. We would expect that by the end of Class 12, every child would have acquired the whole range of skills and abilities subsumed under the continuum ranging from the Basic Interpersonal Communicative Skills (BICS) to Cognitively Advanced Language Proficiency (CALP).

Language is not only a means of communication, it is also a medium through which most of our knowledge is acquired. It is a system that, to a great extent, structures the reality around us. Language acquisition involves processes of scientific enquiry such as observation of data, classification and categorization, hypothesis formation and its verification. It should be possible to use the languages available in the classroom not only for the enhancement of above cognitive abilities but also for increasing language proficiency and sensitivity. Such exercises prove particularly useful in the conscious use of language rules in formed situations.

Social harmony in a country as diverse as India is only possible through mutual respect for each other's language and culture. Such respect can only be built on knowledge. At all levels, the materials need to be sensitive to perspectives of equity (gender and societal), dignity of manual work, and peace and harmony (between humans, and between humans and nature). A substantial part of our existing knowledge carries a distinct gender bias. If we wish that our dream of a democratic society should become a reality, we must make every effort to eliminate gendered construction of knowledge.

In spite of all major technological breakthroughs, we know that the textbook will continue to be the major source of knowledge for the ordinary child. It is therefore important to produce textbooks that are contextually rich and provide incentives to the innate curiosity and creativity of learners. The process of material preparation should include close collaboration with teachers and children and with various agencies that have rich experience in producing textbooks and related materials. Every possible effort should be made to reflect the potential of using multilingualism as a teaching strategy in the classroom. It is of course neither possible nor desirable to have examples from all the 22 languages listed in the 8th Schedule of the Constitution. What is required is just a few examples that would illustrate that language data can be elicited from children and that they can actively participate in its classification, categorization and analysis to arrive at linguistically significant generalizations. It should also be necessary to develop feedback mechanisms, which will help us improve the materials on a regular basis. A teacher's handbook spelling out methods and techniques, and notes for the teachers in the textbook itself, could prove to be of great practical value.

Skills to be fostered

The development of linguistic proficiency in the learner is needed for the spontaneous and appropriate use of language in different situations.



- The learner should acquire the ability to listen and understand, and should be able to employ non-verbal clues to make connections and draw inferences.
- The learner should develop the habit of reading for information and pleasure; draw inferences and relate texts to previous knowledge; read critically and develop the confidence to ask and answer questions.
- The learner should be able to employ her communicative skills, with a range of styles, and engage in a discussion in an analytical and creative manner.
- The learner should be able to identify a topic, organise and structure thoughts and write with a sense of purpose and an awareness of audience.
- The learner should be able to understand and use a variety of registers associated with domains such as music, sports, films, gardening, construction work, etc.
- The learner should be able to use a dictionary and other materials available in the library and elsewhere, access and collect information through making and taking down notes, etc.
- The learner should be able to use language creatively and imaginatively in text transaction and performance of activities.
- The learner should be able to develop sensitivity towards their culture and heritage, aspects of contemporary life and languages in and around the classroom.
- The learner should be able to refine their literary sensibility and enrich their aesthetic life through different literary genres.
- The learner should be able to appreciate similarities and differences across languages in a multilingual classroom and society.
- It is important for the learner to notice that different languages and language varieties are associated with different domains and communicative encounters.
- The learner should become sensitive to the inherent variability that characterises language and notice that languages keep changing all the time. It is possible for a student to notice the differences between her own speech and the speech of her, say, grandparents.

Attitudes to be nurtured

Attitudes and motivation of learners and teachers play an important role in all learning, including language learning. When the teacher is positively inclined towards pupils of diverse linguistic, ethnic and socio-cultural backgrounds, pupils will also tend to get positively motivated and involved in the teaching-learning processes. It is extremely important that teachers begin to appreciate the fact that all languages represented in their multilingual classrooms are equally scientific and should receive equal respect from the teacher and the taught. The teacher should also begin to use the multilingual classroom as a resource. Languages flourish in each other's company. They die when they are isolated as 'pure objects'. Languages which have become powerful in the modern world have gone through a process of constant borrowing at all levels from other languages and they have still not closed their doors. The day they do so, they will start their journey on the path of destruction. The teacher's positive attitude will go a long way in lowering the anxiety levels of learners, while raising their awareness levels of self-respect, self-discipline, respect and care for others, interdependence and cooperation.



Content

The ten core components identified in the National Policy of Education must be suitably integrated in school curriculum. These components, which will cut across all subject areas, should be reinforced in the whole range of inputs (print and non-print, formal and informal) for teaching/learning at various stages of school education.

Since all contemporary concerns and issues cannot be included in the curriculum as separate subjects of study, some emerging concerns like environmental issues, conservation of resources, population concerns, disaster management, forestry, animals and plants, human rights, safety norms and sustainable development should be suitably incorporated in the course content. Course materials should also draw upon the following concerns in an integrated manner:

1. Self, Family, Home, Friends and Pets
2. Neighbourhood and Community at large
3. The Nation – diversity (socio-cultural, religious and ethnic, as well as linguistic), heritage (myths/legends/folktales)
4. The World – India's neighbours and other countries (their cultures, literature and customs)
5. Adventure and Imagination
6. Sports
7. Issues relating to Adolescence
8. Science and Technology
9. Peace and Harmony
10. Travel and Tourism
11. Mass Media
12. Art and Culture
13. Health and Reproductive health



The thematic package given above is suggestive and at each stage should be in line with learners' cognitive level, interest and experience. In every textbook, there should be some lessons, which are translations from other languages.

Curricular Package

It is recommended that the package for each class except for the primary stage (Classes I -V) will consist of a textbook, a workbook, and a supplementary reader. The textbook should contain not more than 10 comprehensive units (lessons, exercises and activities) and five/six poems of varying lengths depending on the class. The workbook will have the same number of corresponding worksheets as the number of the comprehensive units of the textbook. The supplementary reader will have about eight pieces meant essentially for self-study promoting reading for information and pleasure.

The recommended weightage in terms of marks is 40% for the textbook, 40% for language work including oral testing and 20% for the supplementary reader.

The curricular package for classes XI-XII (Elective Course) will consist of: Class XI – 1. An Anthology of Poems, 2. A Short Novel, 3. A Book of Essays, and 4. A Book of Grammar and Phonology, (Part-I); Class XII - 1. An Anthology of Short Stories, 2. A Short Novel (Indian Writing in English), 3. A Selection of One-Act Plays, and 4. A Book of Grammar and Phonology, (Part-II).

Time Available

There are about 180 working days available for teaching/learning amounting to one period per day allotted to the teaching of English. The actual number of periods available, however, may be about 150. The size of the curricular package should be such as can be conveniently covered in the given time.

Evaluation

Evaluation in language should be periodic, preferably at regular intervals of 4 to 6 weeks of actual instruction. Evaluation should be both oral and written. Periodic tests should carry a weightage of fifty per cent – twenty-five per cent each to oral and written. The marks should be taken into account in the final grade.

Results of test and examinations should be treated basically as feedback to teachers. They should guide them in programming their teaching and in organizing remedial work. Evaluation should be linked to assessment of general proficiency rather than to specific achievements.

Primary Level (Classes I – V)

Background

The demand for English at the initial stage of schooling is evident in the mushrooming of private 'English medium' schools and in the early introduction of English as a subject across the states/UTs of the country. Though the problems of feasibility and preparedness are still to be solved satisfactorily, there is a general expectation that the educational system must respond to people's aspiration and need for English. Within the eight years of education guaranteed to every child, it should be possible in the span of 5 years to ensure basic English language proficiency including basic literacy skills of reading and writing.

Level – 1 (Classes I – II)

Objectives

The general objectives at Level-1 are:

- to build familiarity with the language primarily through spoken input in meaningful situations (teacher talk, listening to recorded material, etc.).
- to provide and monitor exposure to and comprehension of spoken, and spoken-and-written inputs (through mother tongue, signs, visuals, pictures, sketches, gestures, single word questions/answers).



- to help learners build a working proficiency in the language, especially with regard to listening with understanding and basic oral production (words/phrases, fragments of utterances, formulaic expressions as communicative devices).
- to recite and sing poems, songs and rhymes and enact small plays/skits
- to use drawing and painting as precursors to writing and relate these activities to oral communication.
- to become visually familiar with text [word(s)], what it means, and to notice its components - letter (s) and the sound-values they stand for.
- to associate meaning with written/printed language.

At the end of this stage learners should be able to

- talk about themselves, members of the family and the people in their surroundings.
- follow simple instructions, requests and questions, and use formulaic expressions appropriately
- enjoy doing tasks (including singing a rhyme or identifying a person, object or thing) in English
- recognise whole words or chunks of language
- recognise small and capital forms of English alphabet both in context and in isolation
- read simple words/short sentences with the help of pictures and understand them
- write simple words/phrases/short sentences

Level – II (Classes III, IV and V)

Objectives

The general objectives at Level -II are:

- to provide print-rich environment to relate oracy with literacy.
- to build on learners' readiness for reading and writing.
- to promote learners' conceptualisation of printed texts in terms of headings, paragraphs and horizontal lines.
- to enrich learners' vocabulary mainly through telling, retelling and reading aloud of stories/ folktales in English.
- to use appropriate spoken and written language in meaningful contexts/situations.
- to give them an opportunity to listen to sounds/sound techniques and appreciate the rhythm and music of rhymes/sounds.
- to enable them to relate words (mainly in poems) with appropriate actions and thereby provide understanding of the language.
- to familiarize learners with the basic process of writing.

At the end of this stage learners will be able to do the following:

- narrate his/her experiences and incidents



- exchange his/her ideas with the peers
- carry out a brief conversation involving seeking/giving information
- enjoy reading a story, poem, a short write-up, a notice, poster etc
- take dictation of simple sentences and to practise copy writing from the blackboard and textbook and to use common punctuation marks
- write a short description of a person, thing or place – prepare a notice, or write a message for someone
- write a short composition based on pictures
- take part in group activity, role play and dramatisation

Language Items

At the primary level, knowledge of grammar is to be seen mainly as a process of discovering uses and functions of items through exposure to spoken and written inputs. However, for material writers, teachers and evaluators, the following items may provide a framework of reference.

- nouns, pronouns, adjectives, adverbs
- is, am, are, has, have
- tense forms (simple present and present continuous, simple past and past continuous)
- expressing future (will and be going to)
- articles
- this, that, these, those (as determiners and empty subjects)
- question words
- an, or, but
- punctuation marks (full stop, comma, question mark and inverted commas)
- possessive adjectives
- prepositions

Methods and Techniques

(At level I, there will be a shift of emphasis from learning of limited input (textbook) to providing exposure to a wide range of inputs.)

- an oral-aural approach to be followed (with limited focus on reading and writing depending on the level)
- learner-centred activity-based approach including bilingual approach
- integration of key environmental, social and arithmetical concepts
- pictures, illustrations, cartoons, and toys to be used to arouse the interest of children
- focus on discussions, project works, activities that promote reading with comprehension depending on the level



Background

Activities and materials that promote language growth in the early years have been described in some detail in the preceding section. Work at the upper primary level providing a basis for action and interventions in schools is described below. In general, vocabulary development through reading extensively with comprehension and interest and writing activities of a higher order than hitherto developed are the main goals of teaching/learning at this stage.

Objectives

The general objectives at this stage are:

- to negotiate their own learning goals and evaluate their own progress, edit, revise, review their own work
- to understand, enjoy and appreciate a wide range of texts representing different cultures, ways of living
- to be able to articulate individual/personal responses effectively
- to use language and vocabulary appropriately in different contexts and social encounters
- to be able to organise and structure thoughts in writing/speech
- to develop production skills (fluency and accuracy in speaking and writing)
- to use dictionary suitable to their needs
- to understand and enjoy jokes, skits, children’s films, anecdotes and riddles

At the end of this stage learners will be able to do the following:

- understand the central idea and locate details in the text (prescribed and non-prescribed)
- use his/her critical/thinking faculty to read between the lines and go beyond the text
- narrate simple experiences, describe objects and people, report events to peers
- speak accurately with appropriate pauses and clear word/sentence stress to be intelligible in familiar social contexts
- write simple messages, invitations, short paragraphs, letters (formal and informal) applications, simple narrative and descriptive pieces, etc.
- use his/ her proficiency in English to explore and study other areas of knowledge through print and non-print media
- to undertake small projects on a regular basis

Language Items

At the upper primary level, knowledge of grammar remains a process of discovery combined with a conscious effort to explicitly understand and name grammatical items. However, these should not be taken out of contexts to be treated as discrete teaching items.





In addition to consolidating the items learnt earlier, the following will be introduced and recycled through the upper primary stage.

- determiners
- linking words
- adverbs (place and types)
- tense forms
- clauses
- passivisation
- adjectives (comparative and superlative forms)
- modal auxiliaries
- word order in sentence types
- reported speech



Methods and Techniques

Classroom interaction would be such as to promote optimal learner participation leading to an urge to use language both in speech and writing. The selection of actual classroom procedures is left to the discretion of the teacher. However, the following are recommended:

- Role play
- Dramatisation
- Reading aloud
- Recitation of rhymes, poems and making observations on a given topic/theme
- Telling and retelling stories, anecdotes, and jokes
- Discussion, debate
- Simple projects
- Interpreting pictures, sketches, cartoons
- Activities, tasks, and language games
- Pair work, group work, and short assignments both individual and group
- Exploring the electronic media



MATHEMATICS

MATHEMATICS
CLASSES VI – VIII

The development of the upper primary syllabus has attempted to emphasise the development of mathematical understanding and thinking in the child. It emphasises the need to look at the upper primary stage as the stage of transition towards greater abstraction, where the child will move from using concrete materials and experiences to deal with abstract notions. It has been recognised as the stage wherein the child will learn to use and understand mathematical language including symbols. The syllabus aims to help the learner realise that mathematics as a discipline relates to our experiences and is used in daily life, and also has an abstract basis. All concrete devices that are used in the classroom are scaffolds and props which are an intermediate stage of learning. There is an emphasis in taking the child through the process of learning to generalize, and also checking the generalization. Helping the child to develop a better understanding of logic and appreciating the notion of proof is also stressed.

The syllabus emphasises the need to go from concrete to abstract, consolidating and expanding the experiences of the child, helping her generalise and learn to identify patterns. It would also make an effort to give the child many problems to solve, puzzles and small challenges that would help her engage with underlying concepts and ideas. The emphasis in the syllabus is not on teaching how to use known appropriate algorithms, but on helping the child develop an understanding of mathematics and appreciate the need for and develop different strategies for solving and posing problems. This is in addition to giving the child ample exposure to the standard procedures which are efficient. Children would also be expected to formulate problems and solve them with their own group and would try to make an effort to make mathematics a part of the outside classroom activity of the children. The effort is to take mathematics home as a hobby as well.

The syllabus believes that language is a very important part of developing mathematical understanding. It is expected that there would be an opportunity for the child to understand the language of mathematics and the structure of logic underlying a problem or a description. It is not sufficient for the ideas to be explained to the child, but the effort should be to help her evolve her own understanding through engagement with the concepts. Children are expected to evolve their own definitions and measure them against newer data and information. This does not mean that no definitions or clear ideas will be presented to them, but it is to suggest that sufficient scope for their own thinking would be provided.

Thus, the course would de-emphasise algorithms and remembering of facts, and would emphasise the ability to follow logical steps, develop and understand arguments as well. Also, an overload of concepts and ideas is being avoided. We want to emphasise at this stage fractions, negative numbers, spatial understanding, data handling and variables as important corner stones that would formulate the ability of the child to understand abstract mathematics. There is also an emphasis on developing an understanding of spatial concepts. This portion would include symmetry as well as representations of 3-D in 2-D. The syllabus brings in data handling also, as an important component of mathematical learning. It also includes representations of data and its simple analysis along with the idea of chance and probability.





The underlying philosophy of the course is to develop the child as being confident and competent in doing mathematics, having the foundations to learn more and developing an interest in doing mathematics. The focus is not on giving complicated arithmetic and numerical calculations, but to develop a sense of estimation and an understanding of mathematical ideas.

General Points in Designing Textbook for Upper Primary Stage Mathematics

1. The emphasis in the designing of the material should be on using a language that the child can and would be expected to understand herself and would be required to work upon in a group. The teacher to only provide support and facilitation.
2. The entire material would have to be immersed in and emerge from contexts of children. There would be expectation that the children would verbalise their understanding, their generalizations, their formulations of concepts and propose and improve their definitions.
3. There needs to be space for children to reason and provide logical arguments for different ideas. They are also expected to follow logical arguments and identify incorrect and unacceptable generalisations and logical formulations.
4. Children would be expected to observe patterns and make generalisations. Identify exceptions to generalisations and extend the patterns to new situations and check their validity.
5. Need to be aware of the fact that there are not only many ways to solve a problem and there may be many alternative algorithms but there maybe many alternative strategies that maybe used. Some problems need to be included that have the scope for many different correct solutions.
6. There should be a consciousness about the difference between verification and proof. Should be exposed to some simple proofs so that they can become aware of what proof means.
7. The book should not appear to be dry and should in various ways be attractive to children. The points that may influence this include; the language, the nature of descriptions and examples, inclusion or lack of illustrations, inclusion of comic strips or cartoons to illustrate a point, inclusion of stories and other interesting texts for children.
8. Mathematics should emerge as a subject of exploration and creation rather than finding known old answers to old, complicated and often convoluted problems requiring blind application of un-understood algorithms.
9. The purpose is not that the children would learn known definitions and therefore never should we begin by definitions and explanations. Concepts and ideas generally should be arrived at from observing patterns, exploring them and then trying to define them in their own words. Definitions should evolve at the end of the discussion, as students develop the clear understanding of the concept.
10. Children should be expected to formulate and create problems for their friends and colleagues as well as for themselves.
11. The textbook also must expect that the teachers would formulate many contextual and contextually needed problems matching the experience and needs of the children of her class.
12. There should be continuity of the presentation within a chapter and across the chapters. Opportunities should be taken to give students the feel for need of a topic, which may follow later.

CLASS-WISE COURSE STRUCTURE IN MATHEMATICS AT UPPER PRIMARY LEVEL

Class VI	Class VII	Class VIII
<p>Number System (60 hrs)</p> <p>(i) <i>Knowing our Numbers:</i> Consolidating the <i>sense</i> of numberness up to 5 digits, Size, estimation of numbers, identifying smaller, larger, etc. Place value (recapitulation and extension), connectives: use of symbols =, <, > and use of brackets, word problems on number operations involving large numbers up to a maximum of 5 digits in the answer after all operations. This would include conversions of units of length & mass (from the larger to the smaller units), estimation of outcome of number operations. Introduction to a sense of the largeness of, and initial familiarity with, large numbers up to 8 digits and approximation of large numbers)</p> <p>(ii) <i>Playing with Numbers:</i> Simplification of brackets, Multiples and factors, divisibility rule of 2, 3, 4, 5, 6, 8, 9, 10, 11. (All these through observing patterns. Children would be helped in deducing some and then asked to derive some that are a combination of the basic patterns of divisibility.) Even/odd and prime/composite numbers, Co-prime numbers, prime</p>	<p>Number System (50 hrs)</p> <p>(i) <i>Knowing our Numbers:</i> <i>Integers</i></p> <ul style="list-style-type: none"> • Multiplication and division of integers (through patterns). Division by zero is meaningless • Properties of integers (including identities for addition & multiplication, <i>commutative, associative, distributive</i>) (through patterns). These would include examples from whole numbers as well. Involve expressing commutative and associative properties in a general <i>form</i>. Construction of counter-examples, including some by children. Counter examples like subtraction is not commutative. • Word problems including integers (all operations) <p>(ii) <i>Fractions and rational numbers:</i></p> <ul style="list-style-type: none"> • Multiplication of fractions • Fraction as an operator • Reciprocal of a fraction • Division of fractions • Word problems involving mixed fractions • Introduction to rational numbers (with representation on number line) • Operations on rational numbers (all operations) 	<p>Number System (50 hrs)</p> <p>(i) <i>Rational Numbers:</i></p> <ul style="list-style-type: none"> • Properties of rational numbers. (including identities). Using general form of expression to describe properties • Consolidation of operations on rational numbers. • Representation of rational numbers on the number line • Between any two rational numbers there lies another rational number (Making children see that if we take two rational numbers then unlike for whole numbers, in this case you can keep finding more and more numbers that lie between them.) • Word problem (higher logic, two operations, including ideas like area) <p>(ii) <i>Powers</i></p> <ul style="list-style-type: none"> • Integers as exponents. • Laws of exponents with integral powers <p>(iii) <i>Squares, Square roots, Cubes, Cube roots.</i></p> <ul style="list-style-type: none"> • Square and Square roots • Square roots using factor method and division method for numbers containing (a) no more than total 4 digits and (b) no more than 2 decimal places






Class VI	Class VII	Class VIII
<p>factorisation, every number can be written as products of prime factors. HCF and LCM, prime factorization and division method for HCF and LCM, the property $LCM \times HCF = \text{product of two numbers}$. All this is to be embedded in contexts that bring out the significance and provide motivation to the child for learning these ideas.</p> <p>(iii) Whole numbers Natural numbers, whole numbers, properties of numbers (commutative, associative, distributive, additive identity, multiplicative identity), number line. Seeing patterns, identifying and formulating rules to be done by children. <i>(As familiarity with algebra grows, the child can express the generic pattern.)</i></p> <p>(iv) Negative Numbers and Integers How negative numbers arise, models of negative numbers, connection to daily life, ordering of negative numbers, representation of negative numbers on number line. <i>Children to see patterns, identify and formulate rules. What are integers, identification of integers on the number line, operation of addition and subtraction of integers, showing the operations on the number line (addition of negative integer reduces the value of the number) comparison of integers, ordering of integers.</i></p>	<ul style="list-style-type: none"> Representation of rational number as a decimal. Word problems on rational numbers (all operations) Multiplication and division of decimal fractions Conversion of units (length & mass) Word problems (including all operations) <p>(iii) Powers:</p> <ul style="list-style-type: none"> Exponents only natural numbers. Laws of exponents (through observing patterns to arrive at generalisation.) <p>(i) $a^m \cdot a^n = a^{m+n}$</p> <p>(ii) $(a^m)^n = a^{mn}$</p> <p>(iii) $\frac{a^m}{a^n} = a^{m-n}$, where $m-n \in \mathbb{N}$</p> <p>(iv)</p>	<ul style="list-style-type: none"> Cubes and cubes roots (only factor method for numbers containing at most 3 digits) Estimating square roots and cube roots. Learning the process of moving nearer to the required number. <p>(iv) Playing with numbers</p> <ul style="list-style-type: none"> Writing and understanding a 2 and 3 digit number <i>in generalized form</i> $(100a + 10b + c)$, where a, b, c can be only digit 0-9) and engaging with various puzzles concerning this. (Like finding the missing numerals represented by alphabets in sums involving any of the four operations.) Children to solve and create problems and puzzles. Number puzzles and games Deducing the divisibility test rules of 2, 3, 5, 9, 10 for a two or three-digit number expressed in the general form.

$a^m \cdot b^m = (ab)^m$





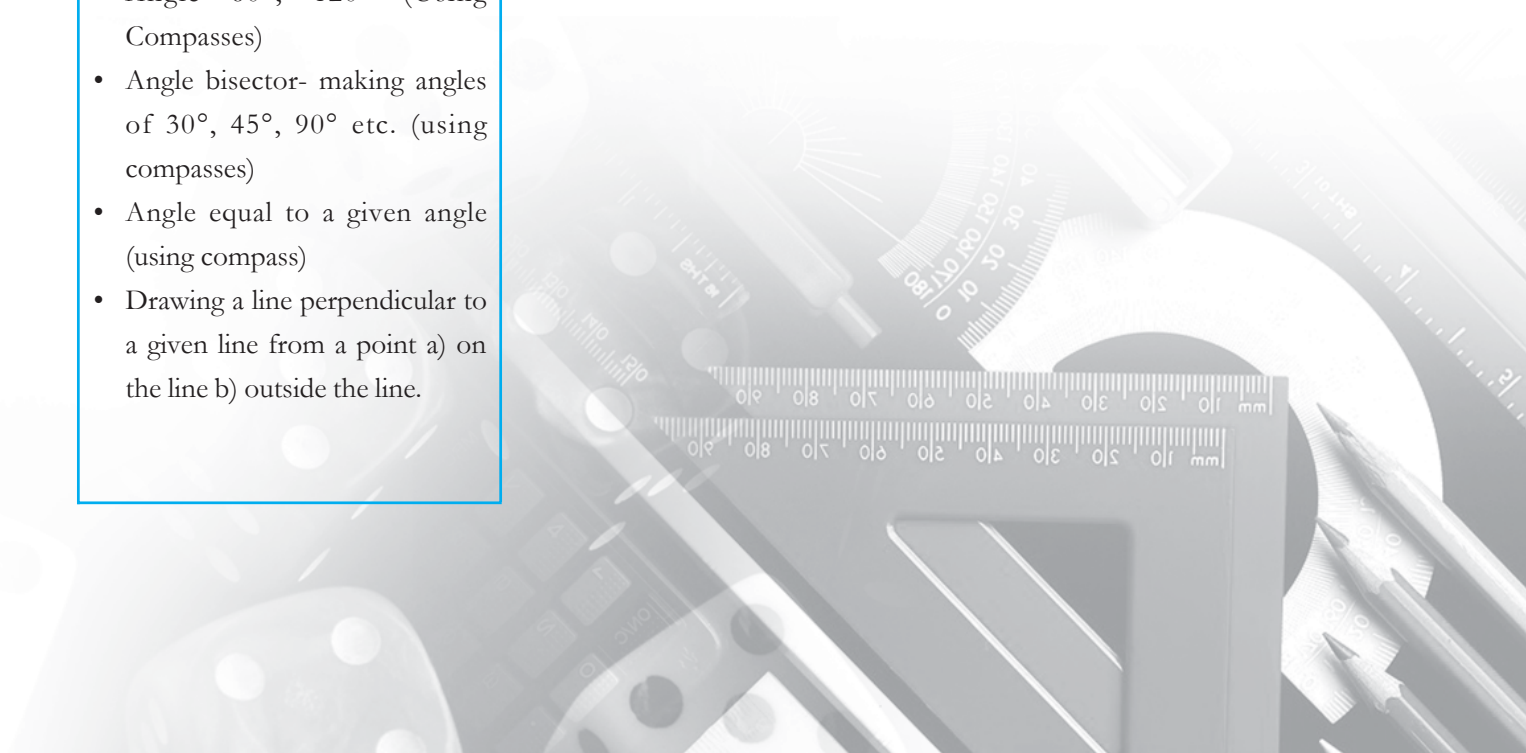
Class VI	Class VII	Class VIII
<p>(v) Fractions: Revision of what a fraction is, Fraction as a part of whole, Representation of fractions (pictorially and on number line), fraction as a division, proper, improper & mixed fractions, equivalent fractions, comparison of fractions, addition and subtraction of fractions (Avoid large and complicated unnecessary tasks). (Moving towards abstraction in fractions)</p> <p>Review of the idea of a decimal fraction, place value in the context of decimal fraction, inter conversion of fractions and decimal fractions (avoid recurring decimals at this stage), word problems involving addition and subtraction of decimals (two operations together on money, mass, length and temperature)</p>		
<p>Algebra (15 hrs) INTRODUCTION TO ALGEBRA</p> <ul style="list-style-type: none"> • Introduction to variable through patterns and through appropriate word problems and generalisations (example $5 \times 1 = 5$ etc.) • Generate such patterns with more examples. • Introduction to unknowns through examples with simple contexts (single operations) 		<p>Algebra (20 hrs) ALGEBRAIC EXPRESSIONS</p> <ul style="list-style-type: none"> • Generate algebraic expressions (simple) involving one or two variables • Identifying constants, coefficient, powers • Like and unlike terms, degree of expressions e.g., x^2y etc. (exponent ≤ 3, number of variables) • Addition, subtraction of algebraic

Class VI	Class VII	Class VIII
<p>Ratio and Proportion (15 hrs)</p> <ul style="list-style-type: none"> • Concept of Ratio • Proportion as equality of two ratios • Unitary method (with only direct variation implied) • Word problems 	<p>expressions (coefficients should be integers).</p> <ul style="list-style-type: none"> • Simple linear equations in one variable (in contextual problems) with two operations (avoid complicated coefficients) <p>Ratio and Proportion (20 hrs)</p> <ul style="list-style-type: none"> • Ratio and proportion (revision) • Unitary method continued, consolidation, general expression. • Percentage- an introduction. • Understanding percentage as a fraction with denominator 100 • Converting fractions and decimals into percentage and vice-versa. • Application to profit and loss (single transaction only) • Application to simple interest (time period in complete years). 	<ul style="list-style-type: none"> • Solving linear equations in one variable in contextual problems involving multiplication and division (word problems) (avoid complex coefficient in the equations) <p>Ratio and Proportion (25 hrs)</p> <ul style="list-style-type: none"> • Slightly advanced problems involving applications on percentages, profit & loss, overhead expenses, Discount, tax. • Difference between simple and compound interest (compounded yearly up to 3 years or half-yearly up to 3 steps only), Arriving at the formula for compound interest through patterns and using it for simple problems. • Direct variation – Simple and direct word problems • Inverse variation – Simple and direct word problems • Time & work problems – Simple and direct word problems
<p>Geometry (65 hrs)</p> <p>(i) Basic geometrical ideas (2 -D):</p> <p>Introduction to geometry. Its linkage with and reflection in everyday experience.</p> <ul style="list-style-type: none"> • Line, line segment, ray. • Open and closed figures. • Interior and exterior of <i>closed</i> figures. 	<p>Geometry (60 hrs)</p> <p>(i) Understanding shapes:</p> <ul style="list-style-type: none"> • Pairs of angles (linear, supplementary, complementary, adjacent, vertically opposite) (verification and simple proof of vertically opposite angles) • Properties of parallel lines with transversal (alternate, 	<p>Geometry (40 hrs)</p> <p>(i) Understanding shapes:</p> <ul style="list-style-type: none"> • Properties of quadrilaterals – Sum of angles of a quadrilateral is equal to 360° (By verification) • Properties of parallelogram (By verification) <p>(i) Opposite sides of a parallelogram are equal,</p>



Class VI	Class VII	Class VIII
<ul style="list-style-type: none"> • Curvilinear and linear <i>boundaries</i> • Angle — Vertex, arm, interior and exterior, • Triangle — vertices, sides, angles, interior and exterior, altitude and median • Quadrilateral — Sides, vertices, angles, diagonals, adjacent sides and opposite sides (only convex quadrilateral are to be discussed), interior and exterior of a quadrilateral. • Circle — Centre, radius, diameter, arc, sector, chord, segment, semicircle, circumference, interior and exterior. <p>(ii) Understanding Elementary Shapes (2-D and 3-D):</p> <ul style="list-style-type: none"> • Measure of Line segment • Measure of angles • Pair of lines <ul style="list-style-type: none"> – Intersecting and perpendicular lines – Parallel lines • Types of angles- acute, obtuse, right, straight, reflex, complete and zero angle • <i>Classification</i> of triangles (<i>on the basis of</i> sides, and of angles) • Types of quadrilaterals – Trapezium, parallelogram, rectangle, square, rhombus. • Simple polygons (<i>introduction</i>) (Upto octagons regulars as well as non regular). • <i>Identification of</i> 3-D shapes: Cubes, Cuboids, cylinder, sphere, cone, 	<p>corresponding, interior, exterior angles)</p> <p>(ii) Properties of triangles:</p> <ul style="list-style-type: none"> • Angle sum property (with notions of proof & verification through paper folding, proofs using property of parallel lines, difference between proof and verification.) • Exterior angle property • Sum of two sides of a triangle is less than its third side • Pythagoras Theorem (Verification only) <p>(iii) Symmetry</p> <ul style="list-style-type: none"> • Recalling reflection symmetry • Idea of rotational symmetry, observations of rotational symmetry of 2-D objects. (90°, 120°, 180°) • Operation of rotation through 90° and 180° of simple figures. • Examples of figures with both rotation and reflection symmetry (both operations) • Examples of figures that have reflection and rotation symmetry and vice-versa <p>(iv) Representing 3-D in 2-D:</p> <ul style="list-style-type: none"> • Drawing 3-D figures in 2-D showing hidden faces. • Identification and counting of vertices, edges, faces, nets (for cubes cuboids, and cylinders, cones). • Matching pictures with objects (Identifying names) 	<ul style="list-style-type: none"> (ii) Opposite angles of a parallelogram are equal, (iii) Diagonals of a parallelogram bisect each other. [Why (iv), (v) and (vi) follow from (ii)] (iv) Diagonals of a rectangle are equal and bisect each other. (v) Diagonals of a rhombus bisect each other at right angles. (vi) Diagonals of a square are equal and bisect each other at right angles. <p>(ii) Representing 3-D in 2-D</p> <ul style="list-style-type: none"> • Identify and Match pictures with objects [more complicated e.g. nested, joint 2-D and 3-D shapes (not more than 2)]. • Drawing 2-D representation of 3-D objects (Continued and extended) • Counting vertices, edges & faces & verifying Euler's relation for 3-D figures with flat faces (cubes, cuboids, tetrahedrons, prisms and pyramids) <p>(iii) Construction:</p> <p><i>Construction of Quadrilaterals:</i></p> <ul style="list-style-type: none"> • Given four sides and one diagonal • Three sides and two diagonals • Three sides and two included angles • Two adjacent sides and three angles




Class VI	Class VII	Class VIII
<p>prism (triangular), pyramid (triangular and square) Identification and locating in the surroundings</p> <ul style="list-style-type: none"> • Elements of 3-D figures. (Faces, Edges and vertices) • Nets for cube, cuboids, cylinders, cones and tetrahedrons. <p>(iii) Symmetry: (reflection)</p> <ul style="list-style-type: none"> • Observation and identification of 2-D symmetrical objects for reflection symmetry • Operation of reflection (taking mirror images) of simple 2-D objects • Recognising reflection symmetry (identifying axes) <p>(iv) Constructions (using Straight edge Scale, protractor, compasses)</p> <ul style="list-style-type: none"> • Drawing of a line segment • Construction of circle • Perpendicular bisector • Construction of angles (using protractor) • Angle 60°, 120° (Using Compasses) • Angle bisector- making angles of 30°, 45°, 90° etc. (using compasses) • Angle equal to a given angle (using compass) • Drawing a line perpendicular to a given line from a point a) on the line b) outside the line. 	<ul style="list-style-type: none"> • Mapping the space around approximately through visual estimation. <p>(v) Congruence</p> <ul style="list-style-type: none"> • Congruence through superposition (examples- blades, stamps, etc.) • Extend congruence to simple geometrical shapes e.g. triangles, circles. • Criteria of congruence (by verification) SSS, SAS, ASA, RHS <p>(vi) Construction (Using scale, protractor, compass)</p> <ul style="list-style-type: none"> • Construction of a line parallel to a given line from a point outside it. (Simple proof as remark with the reasoning of alternate angles) • Construction of simple triangles. Like given three sides, given a side and two angles on it, given two sides and the angle between them. 	





Class VI	Class VII	Class VIII
<p>Mensuration (15 hrs) CONCEPT OF PERIMETER AND INTRODUCTION TO AREA Introduction and general understanding of <i>perimeter</i> using many shapes. Shapes of different kinds with the same perimeter. Concept of area, Area of a rectangle and a square <i>Counter examples to different misconcepts related to perimeter and area.</i></p> <p>Perimeter of a rectangle – and its special case – a square. Deducing the formula of the perimeter for a rectangle and then a square through pattern and generalisation.</p>	<p>Mensuration (15 hrs) • Revision of perimeter, Idea of , Circumference of Circle Area Concept of measurement using a basic unit area of a square, rectangle, triangle, parallelogram and circle, area between two rectangles and two concentric circles.</p>	<p>Mensuration (15 hrs) (i) Area of a trapezium and a polygon. (ii) Concept of volume, measurement of volume using a basic unit, volume of a cube, cuboid and cylinder (iii) Volume and capacity (measurement of capacity) (iv) Surface area of a cube, cuboid, cylinder.</p>
<p>Data handling (10 hrs) (i) What is data - choosing data to examine a hypothesis? (ii) Collection and organisation of data - examples of organising it in tally bars and a table. (iii) Pictograph- Need for scaling in pictographs interpretation & construction. (iv) Making bar graphs for given data interpreting bar graphs+.</p>	<p>Data handling (15 hrs) (i) Collection and organisation of data – choosing the data to collect for a hypothesis testing. (ii) Mean, median and mode of ungrouped data – understanding what they represent. (iii) Constructing bargraphs (iv) Feel of probability using data through experiments. Notion of chance in events like tossing coins, dice etc. Tabulating and counting occurrences of 1 through 6 in a number of throws. Comparing the observation with that for a coin. Observing strings of throws, notion of randomness.</p>	<p>Data handling (15 hrs) (i) Reading bar-graphs, ungrouped data, arranging it into groups, representation of grouped data through bar-graphs, constructing and interpreting bar-graphs. (ii) Simple Pie charts with reasonable data numbers (iii) Consolidating and generalising the notion of chance in events like tossing coins, dice etc. Relating it to chance in life events. Visual representation of frequency outcomes of repeated throws of the same kind of coins or dice. Throwing a large number of identical dice/coins together and aggregating the</p>



Class VI	Class VII	Class VIII
  		<p>result of the throws to get large number of individual events. Observing the aggregating numbers over a large number of repeated events. Comparing with the data for a coin. Observing strings of throws, notion of randomness</p> <p>Introduction to graphs (15 hrs)</p> <p>PRELIMINARIES:</p> <ul style="list-style-type: none">(i) Axes (Same units), Cartesian Plane(ii) Plotting points for different kind of situations (perimeter vs length for squares, area as a function of side of a square, plotting of multiples of different numbers, simple interest vs number of years etc.)(iii) Reading off from the graphs<ul style="list-style-type: none">• Reading of linear graphs• Reading of distance vs time graph





SCIENCE

SCIENCE
CLASSES VI TO VIII

Introduction

The exercise of revising the syllabus for Science – or Science and Technology – has been carried out with “Learning without burden” as a guiding light and the position papers of the National Focus Groups as points of reference. The aim is to make the syllabus an enabling document for the creation of textbooks that are interesting and challenging without being loaded with factual information. Overall, science has to be presented as a live and growing body of knowledge rather than a finished product.

Very often, syllabi – especially those in Science – tend to be at once overspecified and underspecified. They are overspecified in that they attempt to enumerate items of content knowledge which could easily have been left open, e.g., in listing the families of flowering plants that are to be studied. They are underspecified because the listing of ‘topics’ by keywords such as ‘Reflection’ fails to define the intended breadth and depth of coverage. Thus there is a need to change the way in which a syllabus is presented.

The position paper on the Teaching of Science – supported by a large body of research on Science Education – recommends a pedagogy that is hands-on and inquiry-based. While this is widely accepted at the idea level, practice in India has tended to be dominated by chalk and talk methods. To make in any progress in the desired direction, some changes have to be made at the level of the syllabus. In a hands-on way of learning science, we start with things that are directly related to the child’s experience, and are therefore specific. From this we progress to the general. This means that ‘topics’ have to be reordered to reflect this. An example is the notion of electric current. If we think in an abstract way, current consists of charges in motion, so we may feel it should be treated at a late stage, only when the child is comfortable with ‘charge’. But once we adopt a hands-on approach, we see that children can easily make simple electrical circuits, and study several aspects of ‘current’, while postponing making the connection with ‘charge’.

Some indication of the activities that could go into the development of a ‘topic’ would make the syllabus a useful document. Importantly, there has to be adequate time for carrying out activities, followed by discussion. The learner also needs time to reflect on the classroom experience. This is possible only if the content load is reduced substantially, say by 20-25%.

Children are naturally curious. Given the freedom, they often interact and experiment with things around them for extended periods. These are valuable learning experiences, which are essential for imbibing the spirit of scientific inquiry, but may not always conform to adult expectations. It is important that any programme of study give children the needed space, and not tie them down with constraints of a long list of ‘topics’ waiting to be ‘covered’. Denying them this opportunity may amount to killing



their spirit of inquiry. To repeat an oft-quoted saying: “It is better to uncover a little than to cover a lot.” Our ultimate aim is to help children learn to become autonomous learners.

Themes and Format

There is general agreement that Science content up to Class X should not be framed along disciplinary lines, but rather organised around themes that are potentially cross-disciplinary in nature. In the present revision exercise, it was decided that the same set of themes would be used, right from Class VI to Class X. The themes finally chosen are: Food, Materials, The World of the Living, How Things Work, Moving Things, People and Ideas, Natural Phenomena and Natural Resources. While these run all through, in the higher classes there is a consolidation of content which leads to some themes being absent, e.g., Food from Class X.

The themes are largely self-explanatory and close to those adopted in the 2000 syllabus for Classes VI-VIII; nevertheless, some comments may be useful. In the primary classes, the ‘science’ content appears as part of EVS, and the themes are largely based on the children’s immediate surroundings and needs: Food, Water, Shelter etc. In order to maintain some continuity between Classes V and VI, these should naturally continue into the seven themes listed above. For example, the Water theme evolves into Natural Resources (in which water continues to be a sub theme) as the child’s horizon gradually expands. Similarly, Shelter evolves into Habitat, which is subsumed in The World of the Living. Such considerations also suggest how the content under specific themes could be structured. Thus clothing, a basic human need, forms the starting point for the study of Materials. It will be noted that this yields a structure which is different from that based on disciplinary considerations, in which materials are viewed purely from the perspective of chemistry, rather than from the viewpoint of the child. Our attempt to put ourselves in the place of the child leads to ‘motion’, ‘transport’ and ‘communication’ being treated together as parts of a single theme: Moving things, people and ideas. More generally, the choice of themes – and sub themes – reflects the thrust towards weakening disciplinary boundaries that is one of the central concerns of NCF 2005.

The format of the syllabus has been evolved to address the underspecification mentioned above. Instead of merely listing ‘topics’, the syllabus is presented in four columns: Questions, Key concepts, Resources and Activities/Processes.

Perhaps the most unusual feature of the syllabus is that it starts with questions rather than concepts. These are key questions, which are meant to provide points of entry for the child to start the process of thinking. A few are actually children’s queries (“How do clouds form?”), but the majority are questions posed by the adult to support and facilitate learning (provide ‘scaffolding’, in the language of social constructivism). It should be clarified here that these questions are not meant to be used for evaluation or even directly used in textbooks.

Along with the questions, key concepts are listed. As the name suggests, these are those concepts which are of a key nature. Once we accept that concept development is a complex process, we must necessarily abandon the notion that acquisition of a specific concept will be the outcome of any single classroom transaction, whether it is a lecture or an activity. A number of concepts may get touched upon in the course of transaction. It is not necessary to list all of them.





The columns of Resources and Activities/Processes are meant to be of a suggestive nature, for both teachers and textbook writers. The Resources column lists not only concrete materials that may be needed in the classroom, but a variety of other resources, including out-of-class experiences of children as well as other people. Historical accounts and other narratives are also listed, in keeping with the current understanding that narratives can play an important role in teaching science. The Activities column lists experiments, as normally understood in the context of science, as well as other classroom processes in which children may be actively engaged, including discussion. Of course, when we teach science in a hands-on way, activities are not add-ons; they are integral to the development of the subject. Most experiments/activities would have to be carried by children in groups. Suggestions for field trips and surveys are also listed here. Although the items in this column are suggestive, they are meant to give an idea of the unfolding of the content. Read together with the questions and key concepts, they delineate the breadth and depth of coverage expected.

The Upper Primary or Middle Stage

When children enter this stage, they have just completed their primary schooling. It is important to start with things that are within the direct experience of the child. The need for continuity within thematic areas, and the effect this has on the structure, has already been mentioned above.

This is the stage where children can and should be provided plentiful opportunities to engage with the processes of science: observing things closely, recording observations, tabulation, drawing, plotting graphs – and, of course, drawing inferences from what they observe. Sufficient time and opportunities have to be provided for this.

During this stage we can expect the beginnings of quantitative understanding of the world. However, laws such as the universal law of gravitation, expressed in mathematical form, involve multiple levels of abstraction and have to be postponed to the next stage.

One of the major structural problems that plagues science education at this level is the lack of experimental facilities. Children of these classes usually have no access to any equipment, even if the school has functional laboratories for higher classes. While many experiments can be performed with ‘zero-cost’ equipment, it is unfair to deny children the opportunities of handling, e.g., magnets, lenses and low-cost microscopes. This syllabus is based on the assumption that a low-cost science kit for the middle classes can and will be designed. The Syllabus Revision Committee recommends that governments and other agencies make enough copies of such kits available to schools, assuming that children will perform the experiments themselves, in groups. Until a kit is designed and provided, specific items that are needed should be identified and procured. Glassware, common chemicals, lenses, slides etc. are items that will be in any such list. Such items are referred to as ‘kit items’ in the resources column of the syllabus.

At this stage, many children enter puberty. They are curious about their own bodies and sexuality, while being subject to social restrictions and taboos. Thus it is important that the topic of human reproduction not be treated merely as a biological process. Thus the syllabus provides space for addressing social taboos, and for making counselling on these matters part of the classroom process.



Questions	Key Concepts	Resources	Activities/ Processes
<p>1. Food</p> <p><i>Sources of food</i></p> <p>What are the various sources of our food? What do other animals eat?</p> <p><i>Components of food</i></p> <p>What is our food made up of? Why do we eat a variety of food?</p> <p><i>Cleaning food</i></p> <p>How do we separate the grains after harvesting the wheat /rice crop?</p>	<p>Plant parts and animal products as sources of food; herbivores, carnivores, omnivores.</p> <p>Carbohydrates, fats, proteins, vitamins, minerals, fibres, their sources and significance for human health; balanced diet; diseases and disabilities due to food deficiencies.</p> <p>Threshing, winnowing, hand picking, sedimentation, filtration.</p>	<p>Examples of food from different parts of plants and of food from animals sources.</p> <p>Mid Day Meal; Charts, pictures/films of children suffering from food deficiencies and disabilities.</p> <p>Talking to some elders about practices after harvesting the crop; kit materials.</p>	<p style="text-align: right;">(Periods - 20)</p> <p>Germination of seeds such as mung, chick pea etc.; preparing a chart on food habits of animals and food culture of different regions of India.</p> <p>Studying the variety of food in different regions in India; preparing a menu of balanced diet in the context of the diversity of foods eaten in different parts of the country. Classifying foods according to food components; test for starch, sugars, proteins and fats.</p> <p>Discussion on threshing, winnowing, handpicking; experiments on sedimentation, filtration. Separating mixture of salt and sand.</p>
<p>2. Materials</p> <p><i>Materials of daily use</i></p> <p>What are our clothes</p>	<p>Different types of cloth</p>	<p>Sharing of prior</p>	<p style="text-align: right;">(Periods - 26)</p> <p>Whole class discussion.</p>

Questions	Key Concepts	Resources	Activities/ Processes
made of? How did people manage when there were no clothes?	materials – cotton, wool, silk and synthetics. Development of clothing materials.	knowledge with parents and community. Archaeological and historical accounts.	Simple activities to distinguish among different types of cloth.
Are some of our clothes made of materials obtained from plants? In what kinds of places do these plants grow? Which parts of the plants are used for making clothes?	Plant fibre, especially cotton and jute; production of cotton, jute and other locally available plant fibres; types of soil required for the growth of different fibrous plants.	Sharing of prior knowledge with parents and community.	Whole class discussion. Field survey/ collecting information on locally available plant fibres (coconut, silk cotton, etc.)
<i>Different kinds of materials</i> What kinds of things do we see around us?	Grouping things on the basis of common properties.	Materials, kit items.	Collecting and grouping things on the basis of gross properties e.g. roughness, lustre, transparency, solubility, sinking/floating using prior knowledge, through experiments.
<i>How things change/ react with one another</i> In what ways do things change on being heated? Do they change back on being cooled? Why does a burning candle get shorter?	Some changes can be reversed and others cannot be reversed.	Prior knowledge, kit items.	Experiments involving heating of air, wax, paper, metal, water to highlight effects like burning, expansion/compression, change of state. Discussion on other changes which cannot be reversed – growing up, opening of a bud,



Questions	Key Concepts	Resources	Activities/ Processes
How much salt can be dissolved in a cup of water?	Solubility, saturated solutions. Amount of substance dissolving varies with temperature. At the same temperature amounts of different substances that dissolve varies.	Salt, sugar and other common substances, kit items.	ripening of fruit, curdling of milk. Experiments for testing the solubility of commonly available substances. Experiments on the effect of heating and cooling on solubility. Comparison of solubilities of different substances using non-standard units (eg. spoon, paper cone).
(Periods - 36)			
<p>3. The World of the Living</p> <p><i>Things around us</i></p> <p>Are all things around us living? What is the difference between living and non-living? Are all living things similar? Do all living things move? Where do plants and animals live? Can we grow plants in the dark?</p> <p><i>The habitat of the living</i></p> <p>How does habitat affect plants and animals? How</p>	<p>Living / non-living characteristics; habitat; biotic, abiotic (light, temperature, water, air, soil, fire)</p> <p>Habitat varies – aquatic, deserts, mountains etc. –</p>	<p>Recollection of diversity of living organisms and the habitat where they live.</p> <p>Potted plants or seeds, pots, etc; thermometer,</p>	<p>Listing of things around us, listing of characteristics after making observations say on size, colour, shape etc., categorisation; observations on habitat; observing germination of seeds, also observing under dark conditions; growth and development of domestic animals, hatching of birds' eggs etc., developing drawing skills.</p> <p>Listing the diverse set of living organisms around</p>

Questions	Key Concepts	Resources	Activities/ Processes
<p>do fish live in water?</p> <p><i>Plants - form and function</i></p> <p>What is the structure and function of various parts of the plants - stem, leaf and roots? How do different flowers differ from one another? How does one study flowers?</p> <p><i>Animals - form and function</i></p> <p>What is inside our bodies? How do animals move? Do all animals have bones in their bodies? How do fishes move? And birds fly? What about snakes, snails, earthworms?</p>	<p>plants and animals show adaptation; other plant part modifications like tendrils, thorns etc. Animals in deserts and water.</p> <p>Morphological structure and function of root, stem and leaves. Structure of the flower, differences.</p> <p>Structure and functions of the animal body; Human skeletal system, some other animals e.g. fish, bird, cockroach, snail.</p>	<p>any water plants, any xerophytic plants, Information on desert and aquatic plants and animals.</p> <p>Plants, flowers, blade, hand lens.</p> <p>Observation of nature; model of skeleton, X-rays of arms or legs, chest, hips, jaws, vertebral column (could be given in the textbook).</p>	<p>us; prepare herbarium specimens of different leaves, plants; studying modifications in plants and animals; observing how different environmental factors (water availability, temperature) affect living organisms;</p> <p>Studying plant parts – types of stems, roots, leaves, seeds; experiment to show conduction by stem, activity to show anchorage by roots, absorption by roots. Study of any flower, counting number of parts, names of parts, cutting sections of ovary to observe ovules.</p> <p>Activities to study X-rays, find out the direction in which joints bend, feel the ribs, backbone etc. Observation/ discussion on movement and skeletal system in other animals.</p>



Questions	Key Concepts	Resources	Activities/ Processes
<p>4. Moving Things, People and Ideas</p> <p><i>Moving</i></p> <p>How did people travel from one place to another in earlier times? How did they know how far they had travelled?</p> <p>How do we know that something is moving?</p> <p>How do we know how far it has moved?</p>	<p>Need to measure distance (length). Measurement of length. Motion as change in position with time.</p>	<p>Everyday experience; equipment (scale etc.) to measure length.</p> <p>Stories for developing contexts for measuring distances.</p>	<p>(Periods - 12)</p> <p>Measuring lengths and distances.</p> <p>Observation of different types of moving objects on land, in air, water and space.</p> <p>Identification and discrimination of various types of motion. Demonstrating objects having more than one type of movement (screw motion, bicycle wheel, fan, top etc.)</p> <p>Observing the periodic motion in hands of a clock / watch, sun, moon, earth.</p>
<p>5. How things work</p> <p><i>Electric current and circuits</i></p> <p>How does a torch work?</p> <p>Do all materials allow current to flow through them?</p>	<p>Electric current: Electric circuit (current flows only when a cell and other components are connected in an unbroken loop)</p> <p>Conductor, Insulator.</p>	<p>Torch: cell, bulb or led, wires, key.</p> <p>Mica, paper, rubber, plastic, wood, glass metal clip, water, pencil (graphite), etc.</p>	<p>(Periods - 28)</p> <p>Activity using a bulb, cell and key and connecting wire to show flow of current and identify closed and open circuits. Making a switch. Opening up a dry cell.</p> <p>Experiment to show that some objects (conductors) allow current to flow and others (insulators) do not.</p>





Questions	Key Concepts	Resources	Activities/ Processes
<p>Magnets</p> <p>What is a magnet?</p>	Magnet.	Magnet, iron pieces.	Demonstrating how things are attracted by a magnet. Classification of objects into magnetic/non-magnetic classes.
Where on a magnet do things stick?	Poles of a magnet.	Magnet, iron pieces, iron filings, paper.	Activity to locate poles of a magnet; activity with iron filings and paper.
How is a magnet used to find direction?	A freely suspended magnet always aligns in a particular direction. North and South poles.	Bar magnet, stand, thread, compass.	Activities with suspended bar magnet and with compass needle.
How do two magnets behave when brought close to each other?	Like poles repel and unlike poles attract each other.	Two bar magnets, thread, stand.	Activities to show that like poles repel and unlike poles attract.
<p>6. Natural Phenomena</p> <p>Rain, thunder and lightning</p>			
Where does rain come from? How do clouds form?	Evaporation and condensation, water in different states. Water cycle.	Everyday experience; kit items.	Condensation on outside of a glass containing cold water; activity of boiling water and condensation of steam on a spoon. Simple model of water cycle. Discussion on three states of water.
(Periods - 26)			
<p>Light</p> <p>Which are the things we can see through?</p>	Classification of various materials in terms of transparent, translucent and opaque.	Previous experience, candle/torch/lamp, white paper, cardboard box, black paper.	Discussion, observation; looking across different materials at a source of light.

Questions	Key Concepts	Resources	Activities/ Processes
When are shadows formed? Do you get a shadow at night – when there is no light in the room, no moonlight or other source of light? What colour is a shadow?	A shadow is formed only when there is a source of light and an opaque material obstructs a source of light. A shadow is black irrespective of the colour of the object.	Child's own experience, candle/torch/lamp, white paper, black paper, coloured objects.	Discussion; observing shadow formation of various objects of different shapes, and of same shape and different colours; playing and forming shadows with the hands in sunlight, in candle light, and in a well lit region during daytime; making a pinhole camera and observing static and moving objects.
On what kinds of surfaces can we see images?	Reflecting surfaces; images are different from shadows.	Experience, objects with polished surfaces, mirror etc.	Observing differences between the image and the shadow of the same object.
7. Natural Resources			
Importance of water			
What will happen to soil, people, domestic animals, rivers, ponds and plants and animals if it does not rain this year?	Importance of water, dependence of the living on water. Droughts and floods.	Experience, newspaper reports.	Estimation of water used by a family in one day, one month, one year. Difference between need and availability. Discussion.
What will happen to soil, people, domestic animals, plants and animals living in rivers and ponds, if it rains heavily?			Activity: plant growth in normal, deficient and excess water conditions.
Importance of air			
Why do earthworms come out of the soil when it rains?	Some animals and plants live in water; some live on land and some live in	Experience.	Discussion.





Questions	Key Concepts	Resources	Activities/ Processes
	upper layers of soil; but all need air to breath/to respire.		



<p>Waste</p> <p>Do you throw away fruit and vegetable peels and cuttings? Can these be re-used? If we dump them anywhere, will it harm the surroundings? What if we throw them in plastic bags?</p>	<p>Waste; recycling of waste products; things that rot and things that don't.</p> <p>Rotting is supported by animals/animal and plant products.</p>	<p>Observation and experience.</p>	<p>Survey of solid waste generation by households; estimation of waste accumulated (by a house/village/colony etc.) in a day, in a year; discussion on 'what is waste'; Activity to show that materials rot in soil, this is affected by wrapping in plastics.</p>
--	---	------------------------------------	--



Questions	Key Concepts	Resources	Activities/ Processes
(Periods - 22)			
<p>1. Food</p> <p><i>Food from where</i></p> <p>How do plants get their food?</p> <p><i>Utilisation of food</i></p> <p>How do plants and animals utilise their food?</p>	<p>Autotrophic and heterotrophic nutrition; parasites, saprophytes; photosynthesis.</p> <p>Types of nutrition, nutrition in amoeba and human beings, Digestive system – human, ruminants; types of teeth; link with transport and respiration.</p>	<p>Coleus or any other plant with variegated leaves, alcohol, iodine solution, kit materials.</p> <p>Model of human teeth, charts of alimentary canal, types of nutrition etc., chart and model of amoeba. The story of the stomach with a hole.</p>	<p>Need for light, green leaf for photosynthesis, looking at any saprophyte/parasite and noting differences from a green plant.</p> <p>Effect of saliva on starch, permanent slide of <i>Amoeba</i>.</p> <p>Role play with children.</p>
(Periods - 38)			
<p>2. Materials</p> <p><i>Materials of daily use</i></p> <p>Do some of our clothes come from animal sources?</p> <p>Which are these animals?</p> <p>Who rears them?</p> <p>Which parts of the animals yield the yarn? How is the yarn extracted?</p> <p>What kinds of clothes help us to keep warm?</p> <p>What is heat?</p> <p>What is the meaning of 'cool'/'cold' and 'warm' 'hot'?</p>	<p>Wool, silk – animal fibres. Process of extraction of silk; associated health problems.</p> <p>Heat flow; temperature.</p>	<p>Samples of wool and silk; brief account of silkworm rearing and sheep breeding.</p> <p>Potassium permanganate, metal strip or rod, wax, common pins, spirit lamp, matches, tumblers, Thermometer etc.</p>	<p>Collection of different samples of woollen and silk cloth. Activities to differentiate natural silk and wool from artificial fibres.</p> <p>Discussion.</p> <p>Experiment to show that 'hot' and 'cold' are relative.</p> <p>Experiments to show conduction, convection and radiation.</p>



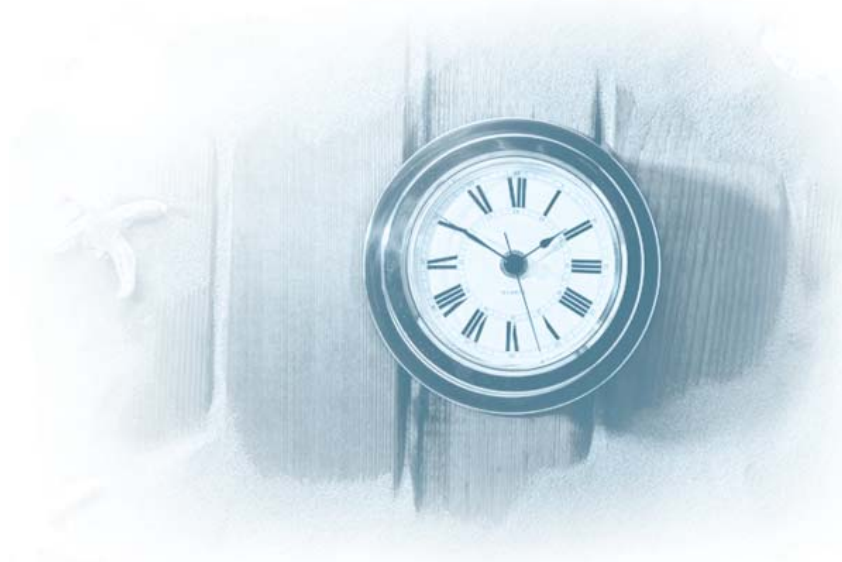
Questions	Key Concepts	Resources	Activities/ Processes
<p>How does heat flow from/to our body to/ from the surroundings?</p> <p><i>Different kinds of materials</i></p> <p>Why does turmeric stain become red on applying soap?</p> <p><i>How things change/ react with one another</i></p> <p>What gets deposited on a <i>tawa/ kburpi / kudal</i> if left in a moist state?</p> <p>Why does the exposed surface of a cut brinjal become black?</p> <p>Why is seawater salty? Is it possible to separate salt from seawater?</p>	<p>Classification of substances into acidic, basic and neutral; indicators.</p> <p>Chemical substances; in a chemical reaction a new substance is formed.</p> <p>Substances can be separated by crystallisation.</p>	<p>Common substances like sugar, salt, vinegar etc, test tubes, plastic vials, droppers, etc.</p> <p>Test tubes, droppers, common pins, vinegar, baking powder, CuSO_4, etc.</p> <p>Urea, copper sulphate, alum etc, beaker, spirit lamp, watch glass, plate, petridish etc.</p>	<p>Reading a thermometer.</p> <p>Testing solutions of common substances like sugar, salt, vinegar, lime juice etc. with turmeric, litmus, china rose.</p> <p>Activity to show neutralisation.</p> <p>Experiments involving chemical reactions like rusting of iron, neutralisation (vinegar and baking soda), displacement of Cu from CuSO_4 etc.</p> <p><i>Introduce chemical formulae without explaining them.</i></p> <p>Making crystals of easily available substances like urea, alum, copper sulphate etc. using supersaturated solutions and evaporation.</p>



Questions	Key Concepts	Resources	Activities/ Processes
<p>3. The World of the Living <i>Surroundings affect the living</i></p> <p>Why are nights cooler? How does having winters and summers affect soil? Are all soils similar? Can we make a pot with sand? Is soil similar when you dig into the ground? What happens to water when it falls on the cemented/ bare ground?</p>	<p>Climate, soil types, soil profile, absorption of water in soil, suitability for crops, adaptation of animals to different climates.</p>	<p>Data on earth, sun – size, distance etc, daily changes in temperature, humidity from the newspaper, sunrise, sunset etc.</p>	<p>(Periods - 42)</p> <p>Graph for daily changes in temperature, day length, humidity etc.; texture of various soils by wetting and rolling; absorption / percolation of water in different soils, which soil can hold more water.</p>
<p>The breath of life</p> <p>Why do we/animals breathe? Do plants also breathe? Do they also respire? How do plants/ animals live in water?</p>	<p>Respiration in plants and animals.</p>	<p>Lime water, germinating seeds, kit materials.</p>	<p>Experiment to show plants and animals respire; rate of breathing; what do we breathe out? What do plants 'breathe' out? Respiration in seeds; heat release due to respiration. Anaerobic respiration, root respiration.</p>
<p>Movement of substances</p> <p>How does water move in plants? How is food transported in plants? Why do animals drink water? Why do we sweat? Why and how is there blood in all parts of the</p>	<p>Herbs, shrubs, trees; Transport of food and water in plants; circulatory and excretion system in animals; sweating.</p>	<p>Twig, stain; improvised stethoscope; plastic bags, plants, egg, sugar, salt, starch, Benedicts solution, AgNO₃ solution.</p>	<p>Translocation of water in stems, demonstration of transpiration, measurement of pulse rate, heartbeat; after exercise etc. Discussion on dialysis, importance; experiment</p>



Questions	Key Concepts	Resources	Activities/ Processes
<p>body? Why is blood red? Do all animals have blood? What is there in urine?</p> <p><i>Multiplication in plants</i> Why are some plant parts like potato, onion swollen – are they of any use to the plants? What is the function of flowers? How are fruits and seeds formed? How are they dispersed?</p>	<p>Vegetative, asexual and sexual reproduction in plants, pollination - cross, self pollination; pollinators, fertilisation, fruit, seed.</p>	<p><i>Bryophyllum</i> leaves, potato, onion etc.; yeast powder, sugar.</p>	<p>on dialysis using egg membrane.</p> <p>Study of tuber, corm, bulb etc; budding in yeast; T.S./ L.S. ovaries, w.m.pollen grains; comparison of wind pollinated and insect pollinated flowers; observing fruit and seed development in some plants; collection and discussion of fruits/seeds dispersed by different means.</p> <p style="text-align: right;">(Periods - 16)</p>
<p>4. Moving Things, People and Ideas <i>Moving objects</i> Why do people feel the need to measure time? How do we know how fast something is moving?</p>	<p>Appreciation of idea of time and need to measure it. Measurement of time using periodic events. Idea of speed of moving objects – slow and fast motion along a straight line.</p>	<p>Daily-life experience; metre scale, wrist watch/ stop watch, string etc.</p>	<p>Observing and analysing motion (slow or fast) of common objects on land, in air, water and space. Measuring the distance covered by objects moving on a road in a given time and calculating their speeds. Plotting distance vs. time graphs for uniform motion. Measuring the time taken by moving objects to cover a given distance and calculating their speeds. Constancy of time period of a pendulum.</p>





Questions	Key Concepts	Resources	Activities/ Processes
<p>5. How Things Work <i>Electric current and circuits</i></p>			
How can we conveniently represent an electric circuit?	Electric circuit symbols for different elements of circuit.	Recollection of earlier activities. Pencil and paper.	Drawing circuit diagrams.
Why does a bulb get hot?	Heating effect of current.	Cells, wire, bulb.	Activities to show the heating effect of electric current.
How does a fuse work?	Principle of fuse.	Cells, wire, bulb or LED, aluminium foil.	Making a fuse.
How does the current in a wire affect the direction of a compass needle?	A current-carrying wire has an effect on a magnet.	Wire, compass, battery.	Activity to show that a current-carrying wire has an effect on a magnet.
What is an electromagnet?	A current-carrying coil behaves like a magnet.	Coil, battery, iron nail.	Making a simple electromagnet. Identifying situations in daily life where electromagnets are used.
How does an electric bell work?	Working of an electric bell.	Electric bell.	Demonstration of working of an electric bell.
(Periods - 24)			
<p>6. Natural Phenomena <i>Rain, thunder and lightning</i></p>			
What causes storms? What are the effects of storms?	High-speed winds and heavy rainfall have disastrous consequences for human and other life.	Experience; newspaper reports.	Making wind speed and wind direction indicators.
Why are roofs blown off?		Narratives/stories.	Activity to show “lift” due to moving air. Discussion on effects of storms and possible safety measures.
<p>Light</p>			
Can we see a source of light through a bent tube?	Rectilinear propagation of light.	Rubber/plastic tube/straw, any source of light.	Observation of the source of light through a straight tube, a bent tube.



Questions	Key Concepts	Resources	Activities/ Processes
How can we throw sunlight on a wall?	Reflection, certain surfaces reflect light.	Glass/metal sheet/metal foil, white paper.	Observing reflection of light on wall or white paper screen.
What things give images that are magnified or diminished in size?	Real and virtual images.	Convex/concave lenses and mirrors.	Open ended activities allowing children to explore images made by different objects, and recording observations. Focussed discussions on real and virtual images.
How can we make a coloured disc appear white?	White light is composed of many colours.	Newton's disc.	Making the disc and rotating it.
<p>7. Natural Resources</p> <p>Scarcity of water</p> <p>Where and how do you get water for your domestic needs? Is it enough? Is there enough water for agricultural needs? What happens to plants when there is not enough water for plants? Where does a plant go when it dies?</p>	Water exists in various forms in nature. Scarcity of water and its effect on life.	Experience; media reports; case material.	Discussions. Case study of people living in conditions of extreme scarcity of water, how they use water in a judicious way. Projects exploring various kinds of water resources that exist in nature in different regions in India; variations of water availability in different regions.





Questions	Key Concepts	Resources	Activities/ Processes
<p>Forest products</p> <p>What are the products we get from forests? Do other animals also benefit from forests? What will happen if forests disappear?</p>	<p>Interdependence of plants and animals in forests. Forests contribute to purification of air and water.</p>	<p>Case material on forests.</p>	<p>Case study of forests.</p>
<p>Waste Management</p> <p>Where does dirty water from your house go? Have you seen a drain? Does the water stand in it sometimes? Does this have any harmful effect?</p>	<p>Sewage; need for drainage/sewer systems that are closed.</p>	<p>Observation and experience; photographs.</p>	<p>Survey of the neighbourhood, identifying locations with open drains, stagnant water, and possible contamination of ground water by sewage. Tracing the route of sewage in your building, and trying to understand whether there are any problems in sewage disposal.</p>

VIII

CLASS VIII SCIENCE



Questions	Key Concepts	Resources	Activities/ Processes
<p>1. Food</p> <p><i>Crop production</i></p> <p>Crop production: How are different food crops produced? What are the various foods we get from animal sources?</p> <p><i>Micro-organisms</i></p> <p>What living organisms do we see under a microscope in a drop of water? What helps make curd? How does food go bad? How do we preserve food?</p>	<p>Crop production: Soil preparation, selection of seeds, sowing, applying fertilizers, irrigation, weeding, harvesting and storage; nitrogen fixation, nitrogen cycle.</p> <p>Micro organisms – useful and harmful.</p>	<p>Interaction and discussion with local men and women farmers about farming and farm practices; visit to cold storage, go- downs; visit to any farm/ nursery/ garden.</p> <p>Microscope, kit materials; information about techniques of food preservation.</p>	<p>(Periods - 22)</p> <p>Preparing herbarium specimens of some crop plants; collection of some seeds etc; preparing a table/chart on different irrigation practices and sources of water in different parts of India; looking at roots of any legume crop for nodules, hand section of nodules.</p> <p>Making a lens with a bulb; Observation of drop of water, curd, other sources, bread mould, orange mould under the microscope; experiment showing fermentation of dough – increase in volume (using yeast) – collect gas in balloon, test in lime water.</p>
<p>2. Materials</p> <p><i>Materials in daily life</i></p> <p>Are some of our clothes synthetic? How are they made? Where do the raw materials come from?</p>	<p>Synthetic clothing materials.</p> <p>Other synthetic materials, especially plastics;</p>	<p>Sharing of prior knowledge, source materials on petroleum products.</p>	<p>(Periods - 26)</p> <p>Survey on use of synthetic materials.</p> <p>Discussion.</p>



Questions	Key Concepts	Resources	Activities/ Processes
<p>Do we use other materials that are synthetic?</p> <p>Do we use cloth (fabric) for purposes other than making clothes to wear?</p> <p>What kind of fabric do we see around us?</p> <p>What are they used for?</p> <p><i>Different kinds of materials and their reactions.</i></p> <p>Can a wire be drawn out of wood?</p> <p>Do copper or aluminium also rust like iron?</p> <p>What is the black material inside a pencil?</p> <p>Why are electrical wires made of aluminium or copper?</p> <p><i>How things change/ react with one another</i></p> <p>What happens to the wax when a candle is burnt? Is it possible to get this wax back?</p> <p>What happens to kerosene/natural gas when it is burnt?</p> <p>Which fuel is the best? Why?</p>	<p>usefulness of plastics and problems associated with their excessive use.</p> <p>There are a variety of fibrous materials in use. A material is chosen based on desired property.</p> <p>Metals and non-metals.</p> <p>Combustion, flame</p> <p>All fuels release heat on burning. Fuels differ in efficiency, cost etc. Natural resources are limited. Burning of fuels leads to harmful by products.</p>	<p>Collection of material from neighbourhood or should be part of the kit.</p> <p>Kit items.</p> <p>“The Chemical History of a Candle”, by M. Faraday, 1860.</p> <p>Collecting information from home and other sources.</p>	<p>Testing various materials – for action of water, reaction on heating, effect of flame, electrical conductivity, thermal conductivity, tensile strength.</p> <p>Simple observations relating to physical properties of metals and non-metals, displacement reactions, experiments involving reactions with acids and bases.</p> <p>Introduction of word equations.</p> <p>Experiments with candles.</p> <p>Collecting information. Discussions involving whole class.</p>



Questions	Key Concepts	Resources	Activities/ Processes
<p>3. The World of the Living</p> <p><i>Why conserve</i></p> <p>What are reserve forests/sanctuaries etc? How do we keep track of our plants and animals? How do we know that some species are in danger of disappearing? What would happen if you continuously cut trees?</p> <p><i>The cell</i></p> <p>What is the internal structure of a plant – what will we see if we look under the microscope? Which cells from our bodies can be easily seen? Are all cells similar?</p> <p><i>How babies are formed</i></p> <p>How do babies develop inside the mother? Why does our body change when we reach our teens? How is the sex of the child determined? Who looks after the babies in your homes? Do all</p>	<p>Conservation of biodiversity/wild life/plants; zoos, sanctuaries, forest reserves etc. flora, fauna endangered species, red data book; endemic species, migration.</p> <p>Cell structure, plant and animal cells, use of stain to observe, cell organelles – nucleus, vacuole, chloroplast, cell membrane, cell wall.</p> <p>Sexual reproduction and endocrine system in animals, secondary sexual characters, reproductive health; internal and external fertilisation.</p>	<p>Films on wild life, TV programmes, visit to zoo/forest area/sanctuaries etc.; case study with information on disappearing tigers; data on endemic and endangered species from MEF, Govt. of India, NGOs .</p> <p>Microscope, onion peels, epidermal peels of any leaves, petals etc, buccal cavity cells, <i>Spirogyra</i>; permanent slides of animal cells.</p> <p>Counsellors, films, lectures.</p>	<p>(Periods - 44)</p> <p>Discussion on whether we find as many diverse plants/animals in a ‘well kept area’ like a park or cultivated land, as compared to any area left alone. Discussion on depletion of wild life, why it happens, on poaching, economics.</p> <p>Use of a microscope, preparation of a slide, observation of onion peel and cheek cells, other cells from plants e.g. <i>Hydrilla</i> leaf, permanent slides showing different cells, tissues, blood smear; observation of T.S. stem to see tissues; observing diverse types of cells from plants and animals (some permanent slides).</p> <p>Discussion with counsellors on secondary sexual characters, on how sex of the child is determined, safe sex, reproductive health; observation on eggs, young ones, life cycles.</p>



Questions	Key Concepts	Resources	Activities/ Processes
<p>animals give birth to young ones?</p> <p>4. Moving things, People and Ideas</p> <p>Idea of force</p> <p>What happens when we push or pull anything? How can we change the speed, direction of a moving object? How can we shape the shape of an object?</p>	<p>Idea of force-push or pull; change in speed, direction of moving objects and shape of objects by applying force; contact and non-contact forces.</p>	<p>Daily-life experience, kit items.</p>	<p>Discussion on Gender issues and social taboo's.</p> <p>Observing and analysing the relation between force and motion in a variety of daily-life situations. Demonstrating change in speed of a moving object, its direction of motion and shape by applying force. Measuring the weight of an object, as a force (pull) by the earth using a spring balance.</p>
<p>Friction</p> <p>What makes a ball rolling on the ground slow down?</p>	<p>Friction – factors affecting friction, sliding and rolling friction, moving; advantages and disadvantages of friction for the movement of automobiles, airplanes and boats/ships; increasing and reducing friction.</p>	<p>Various rough and smooth surfaces, ball bearings.</p>	<p>Demonstrating friction between rough/smooth surfaces of moving objects in contact, and wear and tear of moving objects by rubbing (eraser on paper, card board, sand paper). Activities on static, sliding and rolling friction. Studying ball bearings. Discussion on other methods of reducing friction and ways of increasing friction.</p>



Questions	Key Concepts	Resources	Activities/ Processes
<p>Pressure</p> <p>Why are needles made pointed? Why does a balloon burst if too much air is blown into it? Why does an inverted glass/ bottle/pitcher resist being pushed down into water? How can air/liquids exert pressure?</p>	<p>Idea of pressure; pressure exerted by air/liquid; atmospheric pressure.</p>	<p>Daily-life experiences; Experimentation - improvised manometer and improvised pressure detector.</p>	<p>Observing the dependence of pressure exerted by a force on surface area of an object.</p> <p>Demonstrating that air exerts pressure in a variety of situations.</p> <p>Demonstrating that liquids exert pressure.</p> <p>Designing an improvised manometer and measuring pressure exerted by liquids.</p> <p>Designing improvised pressure detector and demonstrating increase in pressure exerted by a liquid at greater depths.</p>
<p>Sound</p> <p>How do we communicate through sound? How is sound produced? What characterises different sounds?</p>	<p>Various types of sound; sources of sound; vibration as a cause of sound; frequency; medium for propagation of sound; idea of noise as unpleasant and unwanted sound and need to minimise noise.</p>	<p>Daily-life experiences; kit items; musical instruments.</p>	<p>Demonstrating and distinguishing different types (loud and feeble, pleasant/ musical and unpleasant / noise, audible and inaudible) of sound.</p> <p>Producing different types of sounds. using the same source. Making a 'Jal Tarang'. Demonstrating that vibration is the cause of sound.</p> <p>Designing a toy telephone.</p> <p>Identifying various sources of noise. (unpleasant and unwanted sound) in the</p>



Questions	Key Concepts	Resources	Activities/ Processes
<p>5. How Things Work <i>Electric current and circuits</i></p> <p>Why do we get a shock when we touch an electric appliance with wet hands?</p> <p>What happens to a conducting solution when electric current flows through it?</p> <p>How can we coat an object with a layer of metal?</p>	<p>Water conducts electricity depending on presence/absence of salt in it. Other liquids may or may not conduct electricity.</p> <p>Chemical effects of current.</p> <p>Basic idea of electroplating.</p>	<p>Rubber cap, pins, water, bulb or LED, cells, various liquids.</p> <p>Carbon rods, beaker, water, bulb, battery.</p> <p>Improvised electrolytical cell, CuSO_4</p>	<p>locality and thinking of measures to minimise noise and its hazards (noise-pollution).</p> <p style="text-align: right;">(Periods - 14)</p> <p>Activity to study whether current flows through various liquid samples (tap water, salt solution, lemon juice, kerosene, distilled water if available).</p> <p>Emission of gases from salt solution. Deposition of Cu from copper sulphate solution. Electric pen using KI and starch solution.</p> <p>Simple experiment to show electroplating.</p>
<p>6. Natural Phenomena <i>Rain, thunder and lightning</i></p> <p>What is lightning? What safety measures should we take against lightning strikes?</p> <p>Light What are the differences</p>	<p>Clouds carry electric charge. Positive and negative charges, attraction and repulsion. Principle of lightning conductor.</p> <p>Laws of reflection.</p>	<p>Articles on clouds and lightning; kit items.</p> <p>Mirror, source of light,</p>	<p style="text-align: right;">(Periods - 26)</p> <p>Discussion on sparks. Experiments with comb and paper to show positive and negative charge. Discussion on lightning conductor.</p> <p>Exploring laws of</p>



Questions	Key Concepts	Resources	Activities/ Processes
<p>between the images formed on a new utensil and an old one? Why is there this difference?</p> <p>When you see your image in the mirror it appears as if the left is on the right – why?</p> <p>Why don't we see images on all surfaces around us?</p> <p>What makes things visible?</p>	<p>Characteristics of image formed with a plane mirror.</p> <p>Regular and diffused reflection.</p> <p>Reflection of light from an object to the eye.</p>	<p>ray source (mirror covered with black paper with a thin slit).</p> <p>Plane glass, candle, scale.</p> <p>Experience.</p>	<p>reflection using ray source and another mirror.</p> <p>Locating the reflected image using glass sheet and candles.</p> <p>Discussion with various examples.</p> <p>Activity of observing an object through an object through a straight and bent tube; and discussion.</p>
<p>How do we see images of our back in a mirror?</p>	<p>Multiple reflection.</p>	<p>Mirrors and objects to be seen.</p>	<p>Observing multiple images formed by mirrors placed at angles to each other.</p> <p>Making a kaleidoscope.</p>
<p>Why do we sometimes see colours on oil films on water?</p>	<p>Dispersion of light.</p>	<p>Plane mirror, water.</p>	<p>Observing spectrum obtained on a white sheet of paper/wall using a plane mirror inclined on a water surface at an angle of 45°.</p>
<p>What is inside our eye that enables us to see?</p>	<p>Structure of the eye.</p>	<p>Model or chart of the human eye.</p>	<p>Observing reaction of pupil to a shining torch.</p> <p>Demonstration of blind spot.</p>
<p>Why are some people unable to see?</p>	<p>Lens becomes opaque, light not reaching the eye.</p> <p>Visually challenged use other senses to make sense of the world around.</p>	<p>Experiences of children; case histories.</p> <p>Samples of Braille sheets.</p>	<p>Description of case histories of visually challenged people who have been doing well in their studies and careers.</p> <p>Activities with Braille sheet.</p>



Questions	Key Concepts	Resources	Activities/ Processes
<p>Night sky</p> <p>What do we see in the sky at night? How can we identify stars and planets?</p>	<p>Alternative technology available.</p> <p>Role of nutrition in relation to blindness</p> <p>Idea about heavenly bodies/celestial objects and their classification – moon, planets, stars, constellations.</p> <p>Motion of celestial objects in space; the solar system.</p>	<p>Observation of motion of objects in the sky during the day and at night; models, charts, role-play and games, planetarium.</p>	<p>Observing and identifying the objects moving in the sky during the day and at night.</p> <p>Observing and identifying some prominent stars and constellations.</p> <p>Observing and identifying some prominent planets, visible to the naked eye, (Venus, Mars, Jupiter) in the night sky and their movement.</p> <p>Design and preparing models and charts of the solar system, constellations, etc. Role-play and games for understanding movement of planets, stars etc.</p>
<p>Earthquakes</p> <p>What happens during an earthquake? What can we do to minimise its effects?</p>	<p>Phenomena related to earthquakes.</p>	<p>Earthquake data; visit to seismographic centre.</p>	<p>Looking at structures/ large objects and guessing what will happen to them in the event of an earthquake; activities to explore stable and unstable structures.</p>





Questions	Key Concepts	Resources	Activities/ Processes
<p>7. Natural Resources <i>Man's intervention in phenomena of nature</i></p> <p>What do we do with wood? What if we had no wood? What will happen if we go on cutting trees/grass without limit?</p> <p>What do we do with coal and petroleum? Can we create coal and petroleum artificially?</p>	<p>Consequences of deforestation: scarcity of products for humans and other living beings, change in physical properties of soil, reduced rainfall. Reforestation; recycling of paper.</p> <p>Formation of coal and petroleum in nature. (fossil fuels?). Consequences of over extraction of coal and petroleum.</p>	<p>Data and narratives on deforestation and on movements to protect forests.</p> <p>Background materials, charts etc.</p>	<p>Narration and discussions. Project- Recycling of paper.</p> <p>Discussion.</p>
<p>Pollution of air and water</p> <p>What are the various activities by human beings that make air impure? Does clear, transparent water indicate purity?</p>	<p>Water and air are increasingly getting polluted and therefore become scarce for use. Biological and chemical contamination of water; effect of impure water on soil and living beings; effect of soil containing excess of fertilisers and insecticides on water resources. Potable water.</p>	<p>Description of some specific examples of extremely polluted rivers.</p>	<p>Case study and discussion. Purification of water by physical and chemical methods including using sunlight. Discussion on other methods of water purification.</p>



SOCIAL SCIENCES

SOCIAL SCIENCES
CLASSES VI – VIII

Introduction

The revised syllabus for the Social Sciences in Classes VI-XII attempts to advance an on-going process of assisting children and young people to understand that a healthy engagement with the world must come as much from the way society takes shape and functions as from a proper sense of its material and physical foundations. From this, it is expected, a vision will evolve that the Social Sciences provide both essential skills of comprehension that are fundamental to any activity, and a means of self-understanding and fulfillment that can be diverting, exciting and challenging. The syllabus assumes that the knowledge apparatus of the child and the young person is itself complex—both given the wide range of materials that the visual and print media have drawn into country and urban life and the nature of the problems of everyday life. To negotiate the diversity and confusion and excitement the world throws up itself requires activity and insight that the Social Sciences can substantially provide. To have a firm and flexible perspective on India's past and the world from which, and in which, the country develops, sensitivity to crucial social problems is essential. The syllabus attempts to encourage such sensitivity and provide it with the ground on which it may deepen—stressing that attention should be paid to the means through which sensitivity and curiosity are aroused as much as the specific information that stimulates it.

The Social Sciences have been a part of the school curriculum before Class VI as part of the teaching of Environmental Studies. The revised EVS syllabus has attempted to draw the child's attention in Classes III-V to the broad span of time, space and the life in society, integrating this with the way in which she or he has come to see and understand the world around them.

In Classes VI-X, this process continues, but with a greater attention to specific themes and with an eye to the disciplines through which Social Sciences perspectives have evolved. Up to a point, the subjects that are the focus of college-level teaching—History, Geography, Political Science, and Economics—are meant to take shape in the child's imagination during these years—but only in a manner where their boundaries are open to dispute, and their disciplinary quality is understated. With such intentions, syllabus-makers have been more concerned with theme and involvement rather than information. Textbook writers will be concerned to ensure that understanding does not suffer through suffocation by obsession with detail. Equally, the themes and details that are brought before the child for attention and discussion are also meant to clarify doubts and disputes that take shape in contemporary society—through an involvement of the classroom in discussions and debates via the medium of the syllabus.





With such a focus in mind, syllabus-makers for the Upper Primary and Secondary Stages have sought to ensure that their course content overlaps at various levels, to strengthen understanding, and provide a foundation in detail from which natural curiosity and the capacity for investigation may evolve and develop. It is also anticipated that, in keeping with the spirit of the National Curriculum Framework the syllabus itself will promote project work that encourages the child to take stock of the overlap, to see a problem as existing at different and interconnected levels. Guides to this as well as specific instances will be provided in textbooks.

Throughout, India's own experiences over time, and the solutions advocated by national governments, as well as the problems they have encountered, are expected to give the child a firm sense of locality, region and nation in an interconnected and complex manner. Both the intentions that have stimulated policy, the ideals and compulsions that have guided them as well as the diversity of experience of what has taken place finds attention and enquiry in the syllabus. Equally, comparisons between India's experience and global experiences are encouraged and India's interactions with the world find attention. Social, cultural and political issues are the focus of comparison.

It is within such a framework that the deeper engagement with disciplines are expected to evolve in Classes XI and XII – allowing the young person either to prepare for higher education or a broad range of professions that require more specific skills. While anticipating some of the concerns of higher education, the syllabus of this time must and does focus on foundation rather than information – stimulating an awareness of essential categories, and a broad sense of disciplinary areas.



HISTORY: OUR PASTS

Rationale

From Class VI all students would read history as a component of Social Sciences. This component has been devised in a way that would help students develop a historical sensibility and awareness of the significance of history. The assumption has been that students need to see history not simply as a set of facts about the past – economic, social, political, and cultural – but that they have to learn to think historically. Students have to acquire a capacity to make interconnections between processes and events, between developments in one place and another, and see the link between histories of different groups and societies.

In these three years (VI – VIII) the focus would be primarily on Indian History, from the earliest times to the present. Each year one chronological span of time would be studied. The effort would be to understand some of the social, economic, political and cultural processes within them.

Objectives

- Provide a general idea of the developments within these periods of history. This can be achieved by presenting a broad overview of a theme and a detailed case study. Care will be taken to avoid an excess of detail which can burden textbooks.
- Give an idea of the way historians come to know about the past. Students would be introduced to different types of sources and encouraged to reflect on them critically. This would require that extracts from sources – inscriptions, religious texts, travel accounts, chronicles, newspapers, state documents, visual material etc. – become an integral part of textbooks. Discussions built around these sources would allow learners to develop analytical skills.
- Create a sense of historical diversity. Each theme would provide a broad over view, but would also focus on a case study of one region or a particular event. In choosing the case studies the focus would shift from one region to another, so that the diversity of historical experiences can be studied without over burdening the syllabus.
- Introduce the child to time lines and historical maps that would situate the case studies being discussed, and locate the developments of one region in relation to what was happening elsewhere.
- Encourage the students to imagine what it would be like to live in the society that was being discussed, or how a child of the time would have experienced the events being talked of.



Themes	Objectives
<p>An Introduction to History</p> <p>When, Where and How</p> <p>(a) The time frame under study. (b) The geographical framework. (c) Sources.</p> <p>The Earliest Societies</p> <p>(a) Hunting and gathering as a way of life, its implications. (b) Introduction to stone tools and their use. (c) Case study: the Deccan.</p> <p>The First Farmers and Herders</p> <p>(a) Implications of farming and herding. (b) Archaeological evidence for crops, animals, houses, tools, pottery, burials, etc. (c) Case study: the North-West, and North-East.</p> <p>The First Cities</p> <p>(a) The settlement pattern of the Harappan civilisation. (b) Unique architectural features. (c) Craft production. (d) The meaning of urbanism. (e) Case study: the North-West.</p> <p>Different Ways of Life</p> <p>(a) The Vedas and what they tell us. (b) A contemporary chalcolithic settlement. (c) Case studies: the North-West and the Deccan.</p>	<p>Explain the specific nature of the discipline.</p> <p>(a) Familiarise the learner with the major developments to be studied. (b) Develop an understanding of the significance of geographical terms used during the time frame. (c) Illustrate the sources used to reconstruct history.</p> <p>(a) Appreciate the skills and knowledge of hunter-gatherers. (b) Identify stone artefacts as archaeological evidence, making deductions from them.</p> <p>(a) Appreciate the diversity of early domestication. (b) Identify the material culture generated by people in relatively stable settlements. (c) Understand strategies for analyzing these.</p> <p>(a) Appreciate the distinctive life in cities. (b) Identify the archaeological evidence of urban centres. (c) Understand how this is used to reconstruct processes such as craft production.</p> <p>(a) Appreciate that different developments were taking place in different parts of the subcontinent simultaneously. (b) Introduce simple strategies of textual analysis. (c) Reinforce the skills of archaeological analysis already developed.</p>



Themes	Objectives
<p>Early States</p> <p>(a) Janapadas to Mahajanapadas (b) Case study: Bihar, Magadha and the Vajji confederacy.</p>	<p>(a) Introduce the concept of the state and its varieties. (b) Understand the use of textual sources in this context.</p>
<p>New Ideas</p> <p>(a) Upanisads. (b) Jainism. (c) Buddhism.</p>	<p>(a) Outline the basic tenets of these systems of thought, and the context in which they developed and flourished. (b) Introduce excerpts from sources relating to these traditions.</p>
<p>The First Empire</p> <p>(a) The expansion of the empire. (b) Asoka (c) Administration.</p>	<p>(a) Introduce the concept of empire. (b) Show how inscriptions are used as sources.</p>
<p>Life in towns and villages</p> <p>(a) The second urbanisation. (b) Agricultural intensification. (c) Case study: Tamil Nadu.</p>	<p>(a) Demonstrate the variety of early urban centres—coastal towns, capitals, religious centres. (b) Illustrate the use of archaeological material including coins, sculpture, as well as textual sources to reconstruct social and economic histories.</p>
<p>Contacts with Distant lands</p> <p>(a) The Sangam texts and long distance exchange. Suggested regions: the Tamil region, extending to south east Asia and the west. (b) Conquerors from distant lands: north western and western India. (c) The spread of Buddhism: north India to Central Asia.</p>	<p>(a) Introduce the idea of different contexts of contact between distant lands, and the motivating forces (including conquest). (b) Examine the implications of journeys within the subcontinent. (c) Illustrate the use of textual and visual material for reconstructing the histories of such contacts.</p>
<p>Political Developments</p> <p>(a) Gupta empire and Harshavardhana. (b) Pallavas and Chalukyas.</p>	<p>(a) Introduce the idea that strategies of expansion, and their logic, differ.</p>

Themes	Objectives
<p>Culture and Science</p> <p>(a) Literature, including the Puranas, the epics, other Sanskrit and Tamil works.</p> <p>(b) Architecture including early monasteries and temples, sculpture, painting (Ajanta);</p> <p>(c) Science.</p>	<p>(b) Explain the development of different administrative systems.</p> <p>(c) Understand how <i>prasastis</i> and <i>caritas</i> are used to reconstruct political history.</p> <p>(a) Develop a sense of appreciation of textual and visual traditions of the period.</p> <p>(b) Introduce excerpts from texts and visual material for analysis and appreciation.</p>

CLASS VII: OUR PASTS – II

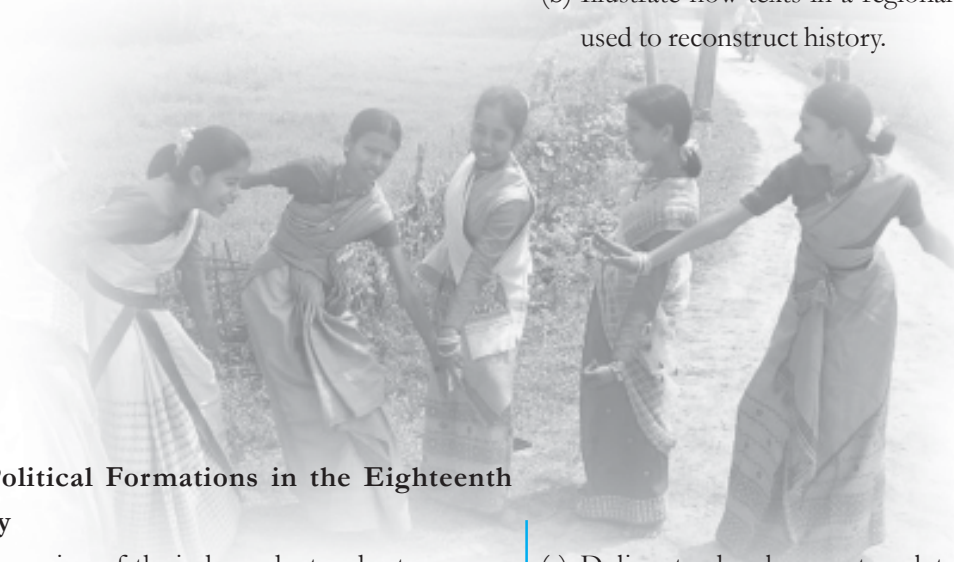
Themes	Objectives
<p>Where, When and How</p> <p>(a) Terms used to describe the subcontinent and its regions with a map.</p> <p>(b) An outlining of the time frame and major developments.</p> <p>(c) A brief discussion on sources.</p> <p>New Kings and Kingdoms</p> <p>(a) An outline of political developments c. 700-1200</p> <p>(b) A case study of the Cholas, including agrarian expansion in the Tamil region.</p>	<p>(a) Familiarise the student with the changing names of the land.</p> <p>(b) Discuss broad historical trends.</p> <p>(c) Give examples of the kinds of sources that historians use for studying this period. E.g., buildings, chronicles, paintings, coins, inscriptions, documents, music, literature.</p> <p>(a) Trace the patterns of political developments and military conquests – Gurjara Pratiharas, Rashtrakutas, Palas, Chahamanas, Ghaznavids.</p> <p>(b) Develop an understanding of the connections between political and economic processes through the exploration of one specific example.</p> <p>(c) Illustrate how inscriptions are used to reconstruct history.</p>



Themes	Objectives
<p>The Sultans of Delhi</p> <p>(a) An overview.</p> <p>(b) The significance of the court, nobility and land control.</p> <p>(c) A case study of the Tughlaqs.</p>	<p>(a) Outline the development of political institutions, and relationships amongst rulers.</p> <p>(b) Understand strategies of military control and resource mobilisation.</p> <p>(c) Illustrate how travellers' accounts, court chronicles and historic buildings are used to write history.</p>
<p>The Creation of An Empire</p> <p>(a) An outline of the growth of the Mughal Empire.</p> <p>(b) Relations with other rulers, administration, and the court.</p> <p>(c) Agrarian relations.</p> <p>(d) A case study of Akbar.</p>	<p>(a) Trace the political history of the 16th and 17th centuries.</p> <p>(b) Understand the impact of an imperial administration at the local and regional levels.</p> <p>(c) Illustrate how the <i>Akbarnama</i> and the <i>Ain-i-Akbari</i> are used to reconstruct history.</p>
<p>Architecture as Power: Forts and Sacred Places</p> <p>(a) Varieties of monumental architecture in different parts of the country.</p> <p>(b) A case study of Shah Jahan's patronage of architecture.</p>	<p>(a) Convey a sense of the range of materials, skills and styles used to build: waterworks, places of worship, palaces and havelis, forts, gardens.</p> <p>(b) Understand the engineering and construction skills, artisanal organisation and resources required for building works.</p> <p>(c) Illustrate how contemporary documents, inscriptions, and the actual buildings can be used to reconstruct history.</p>
<p>Towns, Traders and Craftsmen</p> <p>(a) Varieties of urban centres—court towns, pilgrimage centres, ports and trading towns.</p> <p>(b) Case studies: Hampi, Masulipatam, Surat.</p>	<p>(a) Trace the origins and histories of towns, many of which survive today.</p> <p>(b) Demonstrate the differences between founded towns and those that grow as a result of trade.</p> <p>(c) Illustrate how travellers' accounts, contemporary maps and official documents are used to reconstruct history.</p>



Themes	Objectives
<p>Social Change: Mobile and settled communities</p> <p>(a) A discussion on tribes, nomads and itinerant groups.</p> <p>(b) Changes in the caste structure.</p> <p>(c) Case studies of state formation: Gonds, Ahoms.</p>	<p>(a) Convey an idea of long-term social change and movements of people in the subcontinent.</p> <p>(b) Understand political developments in specific regions.</p> <p>(c) Illustrate how anthropological studies, inscriptions and chronicles are used to write history.</p>
<p>Popular Beliefs and Religious Debates</p> <p>(a) An overview of belief-systems, rituals, pilgrimages, and syncretic cults.</p> <p>(b) Case Study: Kabir.</p>	<p>(a) Indicate the major religious ideas and practices that began during this period.</p> <p>(b) Understand how Kabir challenged formal religions.</p> <p>(c) Illustrate how traditions preserved in texts and oral traditions are used to reconstruct history.</p>
<p>The Flowering of Regional Cultures</p> <p>(a) An overview of the regional languages, literatures, painting, music.</p> <p>(b) Case study: Bengal.</p>	<p>(a) Provide a sense of the development of regional cultural forms, including 'classical' forms of dance and music.</p> <p>(b) Illustrate how texts in a regional language can be used to reconstruct history.</p>
<p>New Political Formations in the Eighteenth Century</p> <p>(a) An overview of the independent and autonomous states in the subcontinent.</p> <p>(b) Case study: Marathas</p>	<p>(a) Delineate developments related to the Sikhs, Rajputs, Marathas, later Mughals, Nawabs of Awadh and Bengal, and Nizam of Hyderabad.</p> <p>(b) Understand how the Marathas expanded their area of control.</p> <p>(c) Illustrate how travellers' accounts and state archives can be used to reconstruct history.</p>



CLASS VIII: OUR PASTS – III

Themes	Objectives
<p>Where, When, How</p> <p>(a) An overview of the period. (b) Introduction to the new geographical categories. (c) An outline of the time frame. (d) An introduction to the sources.</p>	<p>(a) Introduce the changing nomenclature of the subcontinent and regions. (b) Delineate major developments within the time frame. (c) Suggest how the sources of study for this period are different to those of earlier periods.</p>
<p>The Establishment of Company Power</p> <p>(a) Mercantilism and trade-wars. (b) Struggle for territory, wars with Indian rulers. (c) The growth of colonial army and civilian administration. <i>Regional focus: Tamil Nadu.</i></p>	<p>(a) Unravel the story of a trading company becoming a political power. (b) Show how the consolidation of British power was linked to the formation of colonial armies and administrative structures.</p>
<p>Rural Life and Society</p> <p>(a) Colonial agrarian policies; their effect on peasants and landlords. (b) Growth of commercial crops. (c) Peasant revolts: focus on indigo rebellions. <i>Regional focus: Bengal and Bihar. Some comparison with later developments in Punjab.</i></p>	<p>(a) Provide a broad view of changes within rural society through a focus on two contrasting regions. (b) Show the continuities and changes with earlier societies. (c) Discuss how growth of new crops often disrupted the rhythms of peasant life and led to revolts.</p>
<p>Colonialism and Tribal Societies</p> <p>(a) Changes within tribal economies and societies in the nineteenth century. (b) Tribal revolts: focus on Birsa Munda. <i>Regional focus: Chotanagpur and North-East.</i></p>	<p>(a) Discuss different forms of tribal societies. (b) Show how government records can be read against the grain to reconstruct histories of tribal revolts.</p>
<p>Crafts and Industries</p> <p>(a) Decline of handicrafts in the nineteenth century. (b) Brief reference to growth of industries in the twentieth century. <i>Case-studies: textiles.</i></p>	<p>(a) Familiarise students with the processes of de-industrialisation and industrialisation. (b) Give an idea of the technologies of weaving and the lives of weavers.</p>





Themes	Objectives
<p>The Revolt of 1857-58</p> <p>(a) The rebellion in the army and the spread of the movement.</p> <p>(b) The nature of elite and peasant participation. <i>Regional focus: Awadh.</i></p> <p>Education and British rule</p> <p>(a) The new education system – schools, syllabi, colleges, universities, technical training.</p> <p>(b) Changes in the indigenous systems.</p> <p>(c) Growth of ‘National education’.</p> <p><i>Case-studies: Baroda, Aligarh.</i></p> <p>Women and reform</p> <p>(a) Debates around <i>sati</i>, widow remarriage, child marriage and age of consent.</p> <p>(b) Ideas of different reformers on the position of women and women’s education.</p> <p><i>Regional focus: Maharashtra and Bengal.</i></p> <p>Challenging the Caste System</p> <p>(a) Arguments for caste reform. The ideas of Phule, Veerasalingam, Sri Narayana Guru, Periyar, Gandhi, Ambedkar.</p> <p>(b) Consequences and implications of the activities of the reformers.</p> <p><i>Region: Maharashtra, Andhra.</i></p> <p>Colonialism and Urban Change</p> <p>(a) De-urbanisation and emergence of new towns.</p> <p>(b) Implications of colonial policies and institutions – municipalities, public works, planning, railway links, police.</p> <p><i>Case-study: Delhi.</i></p>	<p>(a) Discuss how revolts originate and spread.</p> <p>(b) Point to the changes in colonial rule after 1857.</p> <p>(c) Illustrate how vernacular and British accounts can be read to understand the rebellion.</p> <p>(a) Show how the educational system that is seen as universal and normal today has a history.</p> <p>(b) Discuss how the politics of education is linked to questions of power and cultural identity.</p> <p>(a) Discuss why so many reformers focused on the women’s question, and how they visualised a change in women’s conditions.</p> <p>(b) Outline the history of new laws that affect women’s lives.</p> <p>(c) Illustrate how autobiographies, biographies and other literature can be used to reconstruct the histories of women.</p> <p>(a) Familiarise students with the biographies and writings of individuals who sought to criticise and reform the caste system.</p> <p>(b) Discuss why the question of caste was central to most projects of social reform.</p> <p>(a) Outline the nature of urban development in the 19th and 20th centuries.</p> <p>(b) Introduce students to the history of urban spaces through photographs.</p> <p>(c) Show how new forms of towns emerged in the colonial period.</p>



Themes	Objectives
<p>Changes in the Arts: Painting, Literature, architecture</p> <p>(a) Impact of new technologies and institutions: art schools, printing press.</p> <p>(b) Western academic style and nationalist art.</p> <p>(c) Changes in performing arts – music and dance enter the public arena.</p> <p>(d) New forms of writing.</p> <p>(e) New architecture.</p> <p><i>Case-studies: Mumbai, Chennai.</i></p>	<p>(a) Outline the major development in the sphere of arts.</p> <p>(b) Discuss how these changes are linked to the emergence of a new public culture.</p> <p>(c) Illustrate how paintings and photographs can be used to understand the cultural history of a period.</p>
<p>The Nationalist Movement</p> <p>(a) Overview of the nationalist movement from the 1870s to the 1940s.</p> <p>(b) Diverse trends within the movement and different social groups involved.</p> <p>(c) Links with constitutional changes.</p> <p><i>Case study: Khilafat to Non Cooperation.</i></p>	<p>(a) Outline the major developments within the national movement and focuses on a detailed study of one major event.</p> <p>(b) Show how contemporary writings and documents can be used to reconstruct the histories of political movements.</p>
<p>India after Independence</p> <p>(a) National and regional developments since 1947.</p> <p>(b) Relations with other countries.</p> <p>(c) Looking to the future.</p>	<p>(a) Discuss the successes and failures of the Indian democracy in the last fifty years.</p> <p>(b) Illustrate how newspapers and recent writings can be used to understand contemporary history.</p>





GEOGRAPHY

Rationale

Geography is an integral component of social science. At this stage learners are introduced to the basic concepts necessary for understanding the world in which they live. Geography will be introduced to promote the understanding of interdependence of various regions and countries. The child will be introduced to the contemporary issues such as global distribution of economic resources, gender, marginalized group, and environment and on going process of globalisation.

The course at this stage comprises study of the earth as the habitat of humankind, study of environment, resources and development at different scales local, regional/national and the world.

Objectives

The major objectives of the course are to:

1. develop an understanding about the earth as the habitat of humankind and other forms of life.
2. initiate the learner into a study of her/his own region, state and country in the global context.
3. introduce the global distribution of economic resources and the on going process of globalisation.
4. promote the understanding of interdependence of various regions and countries.

CLASS VI : THE EARTH - OUR HABITAT

Topics	Objectives
Planet: Earth in the solar system.	To understand the unique place of the earth in the solar system, which provides ideal condition for all forms of life, including human beings; (Periods-8)
Globe: the model of the earth, latitudes and longitudes; motions of the earth rotation and revolution.	To understand two motions of the earth and their effects; (Periods-12)
Maps: essential components of maps distance, directions and symbols.	To develop basic skills of map reading; (Periods-10)
Four realms of the earth: lithosphere, hydrosphere, atmosphere and biosphere: continents and oceans.	To understand interrelationship of the realms of the earth; (Periods-12)

Themes	Objectives
Major relief features of the earth.	To understand major landforms of the earth; (Periods-10)
India in the world: physiographic divisions of India – mountains, plateaus and plains; climate; natural vegetation and wild life; need for their conservation.	To comprehend broad physiographic divisions of India; To describe the influence of land, climate, vegetation and wildlife on human life; To appreciate the need for conserving natural vegetation and wild life. (Periods-13)
<p>Project/Activity</p> <ul style="list-style-type: none"> • Make a chart showing distance of the planets from the sun. • Draw a sketch of your school and locate the following: <ul style="list-style-type: none"> (i) the principal's room (ii) your classroom (iii) playground (iv) library • Show the major wildlife sanctuaries of your region on a political map of India. • Arrange for a trip to a wildlife sanctuary or zoo. <p>Note: Any similar activities may be taken up.</p>	

CLASS VII : OUR ENVIRONMENT

Topics	Objectives
Environment in its totality: natural and human environment.	To understand the environment in its totality including various components both natural and human; (Periods-6)
Natural Environment: land – interior of the earth, rocks and minerals; earth movements and major land forms. (One case study related with earthquake to be introduced)	To explain the components of natural environment; To appreciate the interdependence of these components and their importance in our life; To appreciate and develop sensitivity towards environments; (Periods-12)





Themes	Objectives
Air – composition, structure of the atmosphere, elements of weather and climate – temperature, pressure, moisture and wind. (One case study related with cyclones to be introduced)	To understand about atmosphere and its elements; (Periods-10)
Water – fresh and saline, distribution of major water bodies, ocean waters and their circulation. (One case study related with tsunami to be introduced)	To know about distribution of water on the earth; (Periods-10)
Natural vegetation and wild life.	To find out the nature of diverse flora and fauna. (Periods-5)
Human Environment: settlement, transport and communication.	To explain the relationship between natural environment and human habitation; To appreciate the need of transport and communication for development of the community; To be familiar with the new developments making today’s world a global society; (Periods-7)
Human – Environment Interaction: Case Studies – life in desert regions – Sahara and Ladakh; life in tropical and sub-tropical regions – Amazon and Ganga-Brahmaputra; life in temperate regions – Prairies and Veldt.	To understand the complex inter relationship of human and natural environment; To compare life in one’s own surrounding with life of other environmental settings; To appreciate the cultural differences existing in the world which is an outcome of interaction, between human beings and their environment; (Periods-15)

Project/Activity

- Collect stories / find out about changes that took place in their areas (identify how things/ surroundings change overnight and why).
- Discuss the topic “How weather forecast helps us” in your class after assigning the role of a farmer, a hawker, a pilot of an aeroplane, a captain of ship, a fisherman and an engineer of a river dam to different students.
- Write observations about local area house types, settlements, transport, communication and vegetation.

Note: Any similar activities may be taken up.

CLASS VIII : RESOURCES AND DEVELOPMENT

Syllabus
for
Classes
at the
Elementary
Level

176



Topics	Objectives
Resources: resources and their types – natural and human.	To know the meaning of resources their variety, location and distribution; (Periods-10)
Natural resources: their distribution, utilisation and conservation, land and soil, water, natural vegetation, wildlife, mineral and power resources (world patterns with special reference to India).	To understand the importance of resources in our life; To appreciate the judicious use of resources for sustainable development; To develop awareness towards resources conservation and take initiative towards conservation process; (Periods-14)
Agriculture: types of farming, major crops, food crops, fibres, beverages, agricultural development – two case studies – one from India and the other from a developed country/a farm in the US/ Netherlands/ Australia.	Learn about various types of farming and agricultural development in two different regions. (Periods-15)
Industries: classification of industries based on size, raw material, ownership; major industries and distribution; infrastructure and development.	To understand important forms of manufacturing industries. (Periods-14)
Iron and Steel (a comparative study of Jamshedpur and a centre in USA e.g., Detroit). Textile Industry (Ahmedabad and Osaka). Information Technology (Bangalore and Silicon Valley).	
Human Resources – composition, population change, distribution and density.	To understand the role of human resources in development of nation's economy. (Periods-12)
<p>Project/Activity</p> <ul style="list-style-type: none"> • Observe and report about local agricultural practices, crops grown/manufacturing industries. • Collect information regarding some endangered plants and animal species of India. • Visit to an industry/local agricultural farm. • Prepare a chart showing difference between life style of farmers in the developed countries and India on basis of pictures collected from magazines, newspapers and the internet. <p>Note: Any similar activities may be taken up.</p>	



SOCIAL AND POLITICAL LIFE

Rationale

At the elementary stage, the idea is to introduce students to various aspects of political, social and economic life. This will be done through a preliminary focus on certain key concepts, knowledge of which is essential to understand the functioning of Indian democracy. These concepts will be explained using imaginary narratives that allow children to draw connections between these and their everyday experiences. There will be no attempt made at this level to cover all aspects of India's democratic structure, but rather the effort is more to provide an overview with which the child learns to critically engage by constructing herself as an interested citizen of a vibrant and on-going democratic process. The focus on the real-life functioning of institutions and ideals is to enable the child to grasp the deep interconnectedness between the political and social aspects of her everyday life, as well as the impact of these two in the realm of economic decision-making.

Objectives

- To enable students to make connections between their everyday lives and the issues discussed in the textbook;
- To have students imbibe the ideals of the Indian Constitution;
- To have children gain a real sense of the workings of Indian democracy: its institutions and processes;
- To enable students to grasp the interconnectedness between political, social and economic issues;
- To have them recognise the gendered nature of all of the issues raised;
- To have them develop skills to critically analyse and interpret political, social and economic developments from the point of view of the marginalised;
- To have them recognise the ways in which politics affects their daily lives.

CLASS VI

DIVERSITY AND INTERDEPENDENCE

Rationale

In the first year of the new subject area, 'Social and Political Life' the themes of diversity, interdependence and conflict are to be focused on. This is done through first elucidating aspects of social diversity through a discussion of linguistic diversity as well as the diversity of art forms. In discussing these topics the idea is to celebrate diversity and interdependence while also highlighting that this can be zone for conflict. The idea of government is introduced at this grade and then elaborated upon through a discussion of the types of government at the local level, as well as different aspects of their functioning. Through focusing chapters on concrete, though narrativised,

examples of land administration in the rural context and sanitation services in the urban one, the attempt is to have the child gain an experiential understanding of the ways in which local government functions. The last chapter through its focus on how people make a living in the rural and urban context discusses issues of the diversity of livelihoods.

Objectives

The specific objectives of the course, where it is not clear from the rationale of the approach, are indicated beside the themes to be taught in the course.

Themes	Objectives
<p>UNIT 1: Diversity</p> <p>In this unit we focus on various aspects of diversity. The first section begins by having the child recognise diversity as a fact of being human and understanding diversity as different ways of doing the same thing. The second section builds on this by having the child interrogate societal prejudices against diversity, recognising that the self can be made up of multiple identities and that the Constitution compels us to respect diversity.</p> <p>Section 1</p> <ul style="list-style-type: none"> • Diversity as a fact of being human. • What diversity adds to our lives. • Diversity in India. <p>Section 2</p> <ul style="list-style-type: none"> • Prejudice and discrimination. • Inequality and discrimination. • Recognition of multiple identities in oneself. • The Constitution and respect for diversity. <p>UNIT 2: Government</p> <p>This unit introduces the student to the idea of government. The first section focuses on the need for it, the history of adult franchise, the various types of governments that exist at present. The second section discusses the key elements that influence the functioning of democratic government.</p>	<p>To enable students to:</p> <ul style="list-style-type: none"> • understand and appreciate various forms of diversity in their everyday environments, • develop a sensitivity towards pluralism and interdependence, • understand how prejudice can lead to discrimination, • understand the difference between diversity and inequality, • recognise that there are multiple identities within ourselves that we use in different contexts and that these can come into conflict with each other, • understand that the Constitution compels us to respect diversity. <p>To enable students to:</p> <ul style="list-style-type: none"> • gain a sense of why government is required, • recognise the need for universal adult franchise, • appreciate need to make decisions with collective sanction, • understand key elements that influence the functioning of democracy.






Themes	Objectives
<p>Section 1</p> <ul style="list-style-type: none"> • The need for government. • Decision-making and participation. • The quest for universal adult franchise through examples of the sufferagate movement and the anti-apartheid struggle. • Various forms of government and absence of collective sanction. <p>Section 2</p> <p>Key elements that influence the functioning of democratic government:</p> <ul style="list-style-type: none"> • Participation and accountability. • Resolution of Conflict. • Concerns for Equality and Justice. <p>UNIT 3: Local Government</p> <p>This unit familiarises the student with both rural and urban local government. It covers the <i>Panchayati Raj</i>, rural administration and urban government and administration. The effort is to have the child draw contrasts and comparisons between the ways in which urban and rural local government function.</p> <p>Section 1</p> <p>Panchayati Raj</p> <ul style="list-style-type: none"> • Description of panchayat including electoral process, decision making, implementation of decisions • Role of a gram sabha • Women and the panchayat <p>Section 2</p> <p>Urban Local Government</p> <ul style="list-style-type: none"> • Municipal corporation elections, decision making structures • The provision of water and the work of the municipal corporation • Citizens protests to get their grievances addressed 	<p>To enable children to</p> <ul style="list-style-type: none"> • understand local level of government functioning, • understand the workings of the panchayati raj and appreciate its importance, • gain a sense of who performs what role within the local administration, • understand how the various levels of administration at the local level are interconnected, • understand the intricacies involved in the local administration's provision of water.





Themes	Objectives
<p>Section 3 Rural Administration</p> <ul style="list-style-type: none"> • Focus on a land dispute and show the role of local police and <i>patwari</i>. • On land records and role of <i>patwari</i>. • On the new inheritance law. <p>UNIT 4: Making a Living This unit focuses on individuals earn a livelihood both in the rural and the urban context. The rural context focuses on various types of farmers and the urban one on various types of occupations people engage in to earn an income. The student should be able to compare and contrast the urban and the rural context.</p> <p>Section 1 Rural Livelihoods</p> <ul style="list-style-type: none"> • Various types of livelihoods prevalent in a village. • Different types of farmers: middle farmer, landless labourers and large farmers. <p>Section 2 Urban Livelihoods</p> <ul style="list-style-type: none"> • Difference between primary, secondary and tertiary occupations. • Descriptions of various types of livelihoods including vegetable vendor, domestic servant, garment worker and bank employee. • Differences between self-employed, regular employment and wage employment. • The interlinkage between rural and urban lives through a discussion of migration. 	<p>To enable students to:</p> <ul style="list-style-type: none"> • understand conditions that underline and impact life strategies of various groups of people, • understand that these conditions and opportunities for making a living are not equally available to all. 



DEMOCRACY AND EQUALITY

Rationale

Democracy and Equality are the key ideas to be engaged with this year. The effort is to introduce the learner to certain core concepts, such as equality, dignity, rule of law etc that influence Democracy as a political system. The role of the Constitution as a document that provides the guiding framework to function in a democratic manner is emphasised. This section deals with making the link between democracy and how it manifests itself in institutional systems in a concrete and live manner through case studies and real experiences. The objective is not to represent democracy as a fixed idea or system, but one that is changing and evolving. The learner is introduced to a wide range of institutions- the government, the bureaucracy and civil society organizations like the Media so that she can develop a broad understanding of the relationship between the State and Citizens.

Equality as a value is explored in some detail, where its relationship with democracy is highlighted and the challenges or questions it raises on inequities and hierarchies that exist at present in society is also discussed. An analysis of everyday experiences in the domain of gender enable the learner to understand how these are related to the creation of differences that are discriminatory in nature.

Objectives


The specific objectives of the course, where it is not clear from the rationale of the approach, are indicated beside the themes to be taught in the course.

Themes	Objectives
<p>UNIT 1: Democracy</p> <p>This unit will focus on the historical as well as the key elements that structure a democracy. The structures in place to make people’s representation a reality will be discussed with reference to its actual functioning.</p> <p>Section 1</p> <p>Why Democracy</p> <p>Two main thrusts</p> <ul style="list-style-type: none"> • Historical <p>What were some of the key junctures and transformations in the emergence of democracy in modern societies.</p>	<p>To enable students to:</p> <ul style="list-style-type: none"> • develop an understanding of the rule of Law and our involvement with the law, • understand the Constitution as the primary source of all laws, • develop the ability to distinguish between different systems of power, • understand the importance of the idea of equality and dignity in democracy, • develop links between the values/ideas of democracy and the institutional forms and processes associated with it,



Themes	Objectives
<p>• Key Features</p> <ul style="list-style-type: none"> – The different systems of power that exist in the world today. – Significant Elements that continue to make Democracy popular in the contemporary world: <ul style="list-style-type: none"> • Formal Equality. • Decision Making mechanisms. • Accommodation of differences. • Enhancing human dignity. <p>Section 2</p> <p>Institutional Representation of Democracy</p> <ul style="list-style-type: none"> • Universal Adult Franchise. • Elections. • Political parties. • Coalition Governments. <p>Unit 2: State Government</p> <p>This unit will focus on the legislative, executive and administrative aspects of state government. It will discuss processes involved in choosing MLAs, passing a bill and discuss how state governments function through taking up one issue. This unit might also contain a section on the nation-state.</p> <p>Section 1: Its working</p> <ul style="list-style-type: none"> • Main functionaries-broad outline of the role of the Chief minister and the council of ministers <p>Section 2: Its functioning</p> <p>Through one example: land reform/irrigation/education/water/health discuss</p> <ul style="list-style-type: none"> • The nature of the role played by the government – regarding resources and services. • Factors involved in distribution of resources/ services. • Access of localities and communities to resources/ services. 	<ul style="list-style-type: none"> • understand democracy as representative government, • understand the vision and the values of the Constitution. <p>To enable students to:</p> <ul style="list-style-type: none"> • gain a sense of the nature of decision-making within State government. • understand the domain of power and authority exercised by the state government over people's lives. • gain a critical sense of the politics underlying the provision of services or the distribution of resources.



Themes	Objectives
<p>UNIT 3: Understanding Media</p> <p>In this unit the various aspects of the role of a media in a democracy will be highlighted. This unit will also include a discussion on advertising as well as on the right to information bill.</p> <p>Section 1: Media and Democracy</p> <p>Media's role in providing the following:</p> <ul style="list-style-type: none"> • providing information, • providing forum for discussion/debate creating public opinion. <p>Media ethics and accountability.</p> <p>Relationship between Government and Information</p> <p>A case-study of the popular struggle that brought about the enactment of this legislation.</p> <p>Section 2: On Advertising</p> <ul style="list-style-type: none"> • Commercial Advertising and consumerism, • Social advertising. <p>UNIT 4: Unpacking Gender</p> <p>This unit is to understand the role gender plays in ordering our social and economic lives.</p> <p>Section 1: Social Aspects</p> <p>Norms, values that determine roles expected from boys and girls in the:</p> <ul style="list-style-type: none"> • family, • community, • schools, • public spaces, • understanding Inequality: The role of gender in creating unequal and hierarchical relations in society. <p>Section 2: Economic Aspects</p> <ul style="list-style-type: none"> • gender division of labour within family, • value placed on women's work within and outside the home, • the invisibilisation of women's labour. 	<p>To enable students to:</p> <ul style="list-style-type: none"> • understand the role of the media in facilitating interaction between the government and citizens, • gain a sense that government is accountable to its citizens, • understand the link between information and power, • gain a critical sense of the impact of media on people's lives and choices, • appreciate the significance of people's movements in gaining this right. <p>To enable students to:</p> <ul style="list-style-type: none"> • understand that gender is a social construct and not determined by biological difference, • learn to interrogate gender constructions in different social and economic contexts, • to link everyday practices with the creation of inequality and question it. 



Themes	Objectives
<p>UNIT 5: Markets Around Us</p> <p>This unit is focussed on discussing various types of markets, how people access these and to examine the workings of an actual market.</p> <p>Secton 1</p> <ul style="list-style-type: none"> • On retail markets and our everyday needs • On role and impact of wholesale markets how are these linked to the above • People’s access to markets depends upon many factors such as availability , convenience , credit, quality , price, income cycle etc. <p>Secton 2</p> <p>Examine the role of an observable wholesale market such as grain, fruit, or vegetable to understand the chain of activities , the role of intermediaries and its impact on farmer -producers.</p>	<p>To enable students to:</p> <ul style="list-style-type: none"> • understand markets and their relation to everyday life, • understand markets and their function to link scattered producers and consumers, • gain a sense of inequity in market operations.

CLASS VIII

RULE OF LAW AND SOCIAL JUSTICE


Rationale

The theme of law and social justice for Class VIII attempts to connect constitutional values and vision to the reality of contemporary India and to look at the constitution as an inspiring and evolving document. Some provisions of the constitution relating to fundamental rights, parliamentary form of government, role of the judiciary and economic role of government are the topics discussed in this light. The attempt is to move from listing rules and functions to discussing some of the key ideas underlying the working of these institutions. The role of people as desiring and striving for a just society and hence responding and evolving laws and structures that govern us is brought forth.

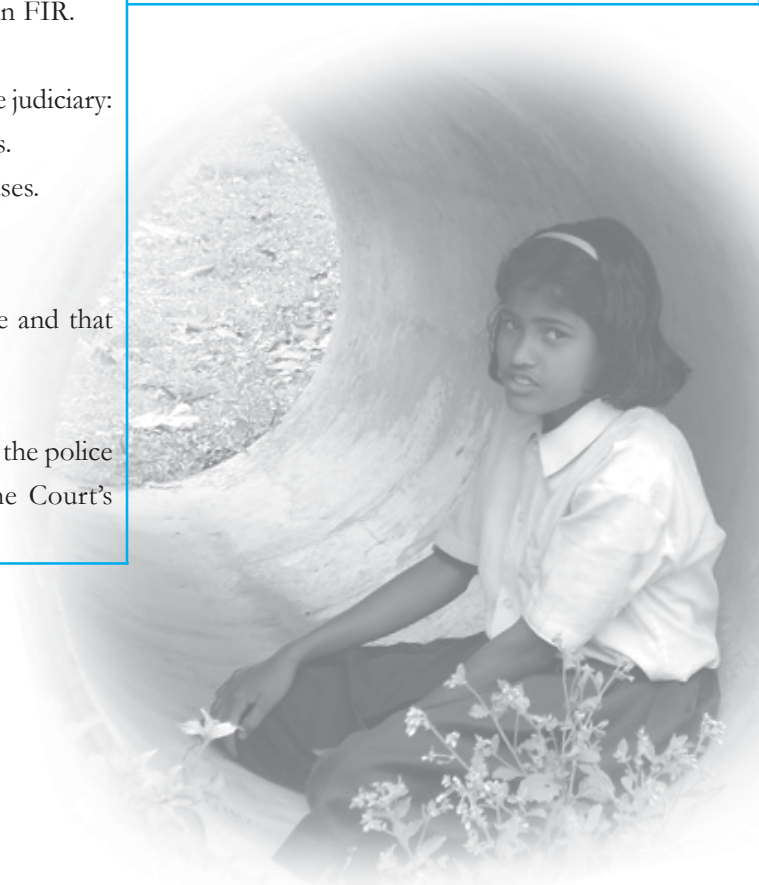
Objectives

The specific objectives of the course, where it is not clear from the rationale of the approach, are indicated beside the themes to be taught in the course.




Themes	Objectives
<p>UNIT 1: The Constitution</p> <p>This unit focuses on the Constitution through first highlighting why there is a need for laws and then showing how the Constitution is the framework that determines the making of laws in this country. Aspects of secularism as well as economic justice are highlighted with respect to the Constitution.</p> <p>Section 1</p> <p>The Role of the Constitution and the Need for Laws</p> <ul style="list-style-type: none">• On need for laws discussed through an example like dowry,• Role of Constitution in determining the authority/ legitimacy of the law,• Laws and Dissent: Salt Satyagraha and a post-1947 example such as anti-liquor agitation. <p>Section 2</p> <ul style="list-style-type: none">• Vision set forth in the Indian Constitution with a focus on secularism.• On how an ideal of the Constitution translates into a law• On how ideals of secularism got translated into fundamental rights.• On Fundamental rights as human rights.• On Fundamental Duties.• On whether the fact that a law exists to secure certain rights mean that in effect these rights have been realised for all. This will be discussed with examples from current efforts of various marginalised communities to realise their rights.	<p>To enable students to:</p> <ul style="list-style-type: none">• develop an understanding of the rule of law and our involvement with the law,• understand the Constitution as the primary source of all our laws,• understand laws as evolving and subject to change.• understand the vision and the values of the Constitution,• develop an appreciation of human rights guaranteed in the Constitution• appreciate our continuous involvement with the constitution as a living document 
<p>UNIT 2: Parliamentary Government</p> <p>In this unit the functioning of parliamentary government and the roles and responsibilities of the various individuals involved in explained in context. In addition the workings of the central government are explained through the steps involved in passing a new law that arose out of people's struggles.</p>	<p>To enable students to:</p> <ul style="list-style-type: none">• understand why India chose a parliamentary form of govt,• gain a sense\rationale of the essential elements of the parliamentary form of government,• analyse the role of people's agency in placing demands for legislation,



Themes	Objectives
<p>Section 1</p> <ul style="list-style-type: none"> • Reasons why parliamentary form chosen in India. • Main features of composition of parliament and its role in debating a bill. • Accountability of the government to the parliament. • Role of President, PM and the Council of Ministers. <p><i>Case Study:</i> Debate between Nehru and Rajendra Prasad on the real powers of the President.</p> <p>Section 2</p> <p>Understand central government through issue of minimum wages or other struggles keeping following in mind:</p> <ul style="list-style-type: none"> - Translation of felt need into law and the critical features of the legislation. - Implication of law. <p>UNIT 3: The Judiciary</p> <p>This unit focuses on understanding the judiciary through tracing a case from the lower to the higher courts. It also examines the difference between civil and criminal cases and the difference between the police and the courts as well as provides information on an FIR.</p>	<ul style="list-style-type: none"> • understand the ways in which the government and other groups respond to such issues. <p>To enable students to:</p> <ul style="list-style-type: none"> • understand the main elements of our judicial structure, • appreciate the need for the processes followed, • understand what an FIR is and how to file one.
<p>Section 1</p> <ul style="list-style-type: none"> • The structure and process followed by the judiciary: Trace a case from lower to higher courts. • Distinguish between civil and criminal cases. • Indicate the rationale of the process <p>Section 2</p> <p>Difference between the roles of the police and that of the courts.</p> <ul style="list-style-type: none"> • Role of the Public Prosecutor. • On an FIR: filing one, on the illegality of the police not accepting an FIR and the Supreme Court's directive on this. 	



Themes	Objectives
<p>UNIT 4: Social Justice and the Marginalised</p> <p>This unit focuses on issues of social justice and the marginalised. It first provides an understanding of what is meant by ‘marginalised’ groups. It then discusses in-depth the issue of untouchability and reservations.</p> <p>Section 1</p> <p>A brief explanation of what is meant by marginalised. Include how various communities (SC, ST, OBC, minorities) fit in.</p> <ul style="list-style-type: none">• Forms of social inequality – Constitutional provisions relating to social justice.• Effect of social inequalities on economic inequalities.• On Reservations. <p>Section 2</p> <p>Different forms of untouchability that continue to exist</p> <ul style="list-style-type: none">• The law on manual scavenging with reference to existing realities in rural and urban areas. <p>UNIT 5: Economic Presence of the Government</p> <p>Introduction of various ways by which government is engaged in developmental activities, especially in infrastructure and social sectors.</p> <p>Explain with an example from this area why we need the government, how is the provision done, how does it impact upon people.</p>	<p>To enable students to:</p> <ul style="list-style-type: none">• understand what is meant by marginalised,• gain a critical understanding of social and economic injustices,• develop skills to analyse an argument from the marginalised point of view.  <p>To enable students to:</p> <ul style="list-style-type: none">• think about the role of government in the economic sphere,• see some links between people’s aspirations \ needs and role of government.