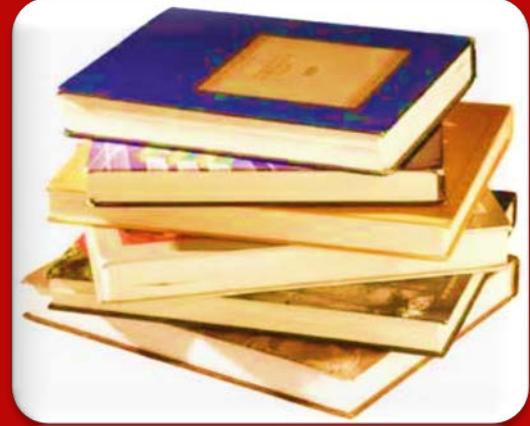


# English



## Class VII

### The Revision in Curriculum envisages the following:

- 1) The retention of teaching core aspects of language learning i.e. the Listening, Speaking, Reading and Writing (LSRW) skills.
- 2) It is recommended that the Literature classroom and the Literature Reader be used as spaces and tools to teach English Language. This will automatically ensure the following:
  - The fulfilling of the Curricular objective of teaching Language skills, Grammar and Vocabulary in context.
  - It will free up time for the teacher of English who will now not be required to teach the text as a fact-based subject.
  - It will help make concepts clearer and less abstract as grammar and vocabulary will now be studied in the context of the Literature lesson in which they are encountered by the student.
  - When the Literature Reader is used as a source for **comprehension passages**, the children will better understand the use and application of language skills, grammar and vocabulary.
  - It will reinforce the idea that language skills cannot be studied or acquired in isolation in the 'language' classes alone but can indeed be acquired more naturally through the study of different texts and subjects.
  - It will promote understanding and application rather than just rote learning of Literature.
  - The teacher will be able to use the Literature Reader to teach the components of Grammar in the context of the stories and poems in the Literature text.

## Listening and Speaking

Listen to different texts across the curriculum, discourses (verbal & nonverbal) through various media and respond accordingly. Speak on a wide range of topics / situations both in school and outside.

### Learning Outcomes:

Children will be able to:

- listen** keenly, answer accurately and respond with appreciation to a variety of questions on a text (seen and unseen) for aural/ written comprehension;
- participate** in group discussions taking on the role of leader, facilitator, or listener, with the ability to critique;
- collate** ideas and seeks clarification to keep discussions relevant;
- apply** strategies for making listening effective in the classroom;
- record** / recollect the understanding of the flow of ideas by taking notes;
- compile information/ share ideas in texts, discussions, and uses class-level vocabulary to make a presentation;
- display** analytical and persuasive skills through debates and discourse on contemporary issues or current affairs;

### Listening and Speaking

Suggested areas/Content	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"><li>▷ Listen to a variety of texts from different genres and registers such as story, poems, narratives, lecture, speech, dialogue etc for aural/written comprehension.</li><li>▷ Listen and comprehend issues/topics raised in spoken texts e.g.<ul style="list-style-type: none"><li>☛ <i>speech</i></li><li>☛ <i>lecture</i></li><li>☛ <i>discourse</i></li><li>☛ <i>debate</i></li><li>☛ <i>discussion</i></li><li>☛ <i>group discussions</i></li></ul></li><li>▷ Use of graphics, images, music, sound and visual displays in presentations.</li><li>▷ Speak in a variety of contexts and tasks e.g.<ul style="list-style-type: none"><li>☛ <i>tone</i></li><li>☛ <i>gestures</i></li><li>☛ <i>stress</i></li><li>☛ <i>facial expressions</i></li><li>☛ <i>body language</i></li><li>☛ <i>voice modulation</i></li></ul></li></ul>	<ul style="list-style-type: none"><li>▷ Reviewing and building on previous learning</li><li>▷ Reading aloud/ playing audio recordings of poems, narratives, anecdotes, etc. and asking them to identify the main ideas (E.g. listen to an autobiography read aloud and create your own.)</li><li>▷ Providing issue-based texts/ topics and encouraging children to have discussion on it. E.g. Child rights and privileges / Global warming</li><li>▷ Creating opportunities to lead/ facilitate group discussions etc.</li><li>▷ Creating situations that require children to identify the main ideas/ points based on text that is read out/ speech that is delivered.</li><li>▷ Providing opportunities for children to express their personal opinion/ views through activities such as role-play (assigning specific roles/ perspectives from which to approach the topic under discussion. E.g. 'Why do we need rules in school' – to be discussed from the point of view of the Principal/ teacher/ School leaders/ Students etc.).</li></ul>	<ul style="list-style-type: none"><li>▷ Listening to authentic themes / situations based on:<ul style="list-style-type: none"><li>☛ <i>poetry, songs, stories etc.</i></li><li>☛ <i>in contexts, (e.g. at the post office, at the railway station)</i></li><li>☛ <i>speech, conversation, lecture.</i></li><li>☛ <i>Group Discussion</i></li><li>☛ <i>Role play, dramatization etc.</i></li><li>☛ <i>Decoding difficult sounds (Pronunciation)</i></li></ul></li><li>▷ Use audio / video programmes (5 – 20 minutes' duration)</li><li>▷ Posters/ Models/ advertisements/ Charts etc.</li><li>▷ Articles, current affairs etc. from magazines, newspapers focusing on drug abuse, discrimination etc.</li></ul>

Listening and Speaking		
Suggested areas/Content	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>☛ choice of words</li> <li>▷ Collect and collate ideas and seeks clarification to keep discussions relevant.</li> </ul>	<ul style="list-style-type: none"> <li>▷ Introducing texts in different areas and focusing on developing positive attitudes, values and life skills.</li> <li>▷ Creating opportunities and situations for children to listen, respond and question/ challenge others' views in a well-reasoned/ logical and polite manner.</li> <li>▷ Creating opportunities to question / challenge claims made by an author and put forward alternate views through classroom discussions and debates.</li> <li>▷ Ensuring children have ample opportunities to speak/debate/ express their opinions and thoughts in the class.</li> <li>▷ <i>NOTE: The examples given above are intended merely as guidelines. The teachers are welcome to be as innovative as the classroom situation allows.</i></li> <li>▷ <i>The activities suggested above are not necessarily restricted to listening and speaking. As the language teacher is well aware, all four language skills are inter-related and often overlap.</i></li> </ul>	

**NOTE:** Recitation should form an integral part of the school class-table and may be evaluated and included for Internal Assessment.

## Reading

**Children read, analyse and evaluate a range of texts (seen /unseen) and raise questions on pertinent issues and themes.**

### Learning Outcomes:

Children will be able to:

- read, comprehend and analyse** literary/ non-literary texts, cull out salient points of what the writer states with textual evidence to support claims;
- comment** on the choice of vocabulary/figurative language and tone/mood used in the text;
- deconstruct** the textual piece into sections to enhance understanding of the structure used by author;
- question** views expressed by authors and suggests an alternative argument.

Reading		
Suggested areas/Content	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"><li>► Literary/ non-literary texts on a wide range of themes covering different genres and registers. The themes may include:<ul style="list-style-type: none"><li>☛ <i>Self, Family, Home, Friends and Pets</i></li><li>☛ <i>Neighbourhood and Community at large</i></li><li>☛ <i>The Nation – diversity (socio-cultural, religious and ethnic, as well as linguistic heritage</i></li><li>☛ <i>Myths/legends/folktales</i></li><li>☛ <i>The World – India's neighbours and other countries (their cultures, literature and customs)</i></li><li>☛ <i>Adventure and Imagination</i></li><li>☛ <i>Sports and Yoga</i></li><li>☛ <i>Issues relating to Adolescence (drugs, values, life skills)</i></li><li>☛ <i>Science and Technology</i></li><li>☛ <i>Peace and Harmony</i></li><li>☛ <i>Travel and Tourism</i></li><li>☛ <i>Mass Media</i></li><li>☛ <i>Art and Culture</i></li><li>☛ <i>Health and Reproductive health</i></li><li>☛ <i>Famous Personalities &amp; achievers,</i></li><li>☛ <i>Environmental concerns –</i></li></ul></li></ul>	<ul style="list-style-type: none"><li>► Reviewing and building on previous learning</li><li>► Introducing different types of texts such as prose, poetry, drama, travelogue, feature, autobiography, speech, article, etc. for comprehension and appreciation of different forms of literature.</li><li>► Providing opportunities for the learner to read, evaluate and objectively sum up the ideas expressed in the passage.</li><li>► Providing a range of texts to facilitate appropriate interpretation of mood / tone / use of figurative language / imagery etc.</li><li>► Encouraging children to raise questions based on their reading.</li></ul>	<ul style="list-style-type: none"><li>► Activities for relating ideas of the text with their lives.</li><li>► Text types: Very short stories, poems and songs, texts with visuals, etc. Age appropriate magazines, newspapers, picture books, story books / tactile material etc. for reading and connect it to their own experiences.</li><li>► Realia / Flashcards / Posters / puppets / Charts etc. to stimulate language.</li><li>► Group/ pair work</li><li>► Build a class library</li></ul>

Reading		
Suggested areas/Content	Suggested Transactional Processes	Suggested Learning Resources
<p>water conservation, cleanliness and sanitation, Safety –personal safety &amp; awareness about child abuse, conservation of energy, Sustainable development</p> <ul style="list-style-type: none"> <li>➢ Extensive and intensive reading of the texts for comprehension, inference etc.</li> <li>➢ Focus on choice of vocabulary/figurative language and tone/mood used in the text.</li> <li>➢ Deconstruct the textual piece to enhance understanding of the structure used by author.</li> </ul>		

# Writing

Children develop a diverse and creative style of writing. They express themselves through stories, poems and anecdotal records, narratives, etc.

## Learning Outcomes:

Children will be able to:

- develop** different styles of writing with focus on adjusting to the task, purpose and audience;
- focus** on the use of grade appropriate vocabulary, using precise phrases, sensory language to make the writing vivid and vibrant;
- work** on small projects individually and in groups to provide opportunities for collaborative work and help foster greater interaction among students;
- develop** age appropriate skills of writing on a range of disciplines;
- apply** technology as a resource to enhance research work.

## Creative writing

- write a composition** (three or more paragraphs) of about 200 - 250 words at a more advanced level on any given topic;
- write a short story** based on inputs provided in the class or through personal experience;
- write narratives** that recount a well-elaborated event or short sequence of events; include details to describe actions, thoughts, and feelings;
- organise and structure** meaningful sentences in a sequential manner;
- use linkers such as however, therefore etc.** to link sentences to indicate flow of ideas;
- draw from personal experiences or real life situations;
- prepare** informal letter in the prescribed format;
- prepare** notices/ invitations/ greetings etc.

Writing		
Suggested areas/Content	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"><li>➢ Write messages, invitations, short paragraphs, informal letters and applications,</li><li>➢ Simple narrative and descriptive pieces, etc.</li><li>➢ Creative writing: stories, First Person Account (e.g. Give an account of the very first time that you helped your mother in the kitchen)</li><li>➢ Organize and structure thoughts in writing.</li><li>➢ Organise and structure meaningful sentences in a sequential manner.</li><li>➢ Use of linkers such as however, therefore etc. to link sentences to</li></ul>	<ul style="list-style-type: none"><li>➢ Reviewing and building on previous learning</li><li>➢ Creating situations/ contexts to write letters /narratives/ first person accounts/ imaginative accounts</li><li>➢ Providing rubrics / checklists to revise and edit written material</li><li>➢ Discussing concepts such as rhyme, imagery, metaphors, simile etc. in a poem.</li><li>➢ Providing opportunities to write on a specific topic to produce a well sequenced,</li></ul>	<ul style="list-style-type: none"><li>➢ Age appropriate activities / tasks/ Flashcards/ Posters/ Charts etc. to stimulate language.</li><li>➢ Newspaper/ magazines/ articles/ pictures/ advertisement etc.</li><li>➢ Group/ pair work</li></ul>

<b>Writing</b>		
<b>Suggested areas/Content</b>	<b>Suggested Transactional Processes</b>	<b>Suggested Learning Resources</b>
<p>indicate passage of time and provide a sense of closure.</p> <ul style="list-style-type: none"> <li>➢ Age appropriate use of words and phrases</li> <li>➢ Follow process approach to writing. planning, revising, reviewing editing, rewriting.</li> <li>➢ Prepare informal letters in the prescribed format</li> <li>➢ Prepare notices/invitations/greetings</li> </ul>	<p>cohesive piece of writing making appropriate use of linkers, grade appropriate vocabulary and register.</p> <ul style="list-style-type: none"> <li>➢ Providing topics to prepare poster for social / global awareness.</li> <li>➢ Providing Topics for the letters from the children's context such as letters to Parent, friends, family, relatives, neighbours etc.).</li> <li>➢ Creating learning situations for children to be able to write greetings and invitation</li> </ul>	

## Grammar and Vocabulary in Context

Children use a varied range of vocabulary and grammar in context that reflects their complex use of language.

### Learning Outcomes:

Children will be able to:

- identify** phrases and clauses;
- Identify a verb in the active/passive voice and **demonstrate** the ability to transform from one voice to the other;
- demonstrate** a further understanding of figurative language, (e.g. pun, personification, alliteration, metaphor, simile, onomatopoeia in the context of the Literature class ONLY);
- acquire** grade-appropriate words and phrases and domain-specific vocabulary to convey comprehension and clear expression;
- use** language appropriate to context.

Grammar and Vocabulary in Context		
Suggested areas/Content	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"><li>▷ Phrases and clauses;</li><li>▷ Active and passive voice.</li><li>▷ Synonym, antonym and analogy in the right context.</li><li>▷ Figurative language, (e.g. pun, personification, alliteration, metaphor, simile, onomatopoeia).</li><li>▷ Age appropriate words and phrases and domain-specific vocabulary.</li></ul>	<ul style="list-style-type: none"><li>▷ Reviewing and building on previous learning</li><li>▷ Providing examples of grammar in context to make children understand various aspects of grammar such as phrases, clauses, active and passive voice (used in newspaper reporting/ in recording experiments in a science lab etc.)</li><li>▷ Creating activities/tasks for children to be able to use grammar in context/ identify and use figurative language (e.g. pun, personification, alliteration, metaphor, simile, onomatopoeia).</li><li>▷ Providing audio visual aids and verbal clues to reinforce the use of grammar and develop language skills.</li></ul>	<ul style="list-style-type: none"><li>▷ Self / teacher created materials e.g. Activities on grammar in context.</li><li>▷ Audio, video, print / text / tactile form</li><li>▷ Authentic tasks and activities of short duration which would bring Vocabulary in context in an engagement with<ul style="list-style-type: none"><li>☛ words,</li><li>☛ word chunks,</li><li>☛ formulaic use</li><li>☛ collocations</li><li>☛ expressions in dialogue.</li><li>☛ Word / Languages games.</li></ul></li><li>▷ Posters/ puppets/ Charts etc. to stimulate language.</li></ul>

## ENGLISH LITERATURE

Literature encompasses both literary and non-literary writings. Literary writing is an expression of life through the medium of language that is aesthetically pleasing. Literature makes us think about ourselves and our society, allows us to enjoy language and beauty. It helps us appreciate life in its myriad colours along with language learning. Children get exposure to rich use of language through carefully structured sentences and words. Different forms of literature such as prose, poetry, and drama use rhyme, rhythm, alliteration, irony, dialogue and a number of other devices that help develop appreciation and language. These forms of literature introduce children to a range of writings such as story, bio/autobiography, letter, poetic drama, different genres of poetry etc. In literary writing, imagination plays the most important role that would help develop creative expression, sensitization to local and global issues. Non-literary texts such as reports, articles etc. provide academic information thereby enriching the repertoire of children.

### Suggested Reading List

#### **Classes VI & VII**

- Novels by Gerard Durrell
- Malgudi Days - R.K. Narayan
- I am Malala – Malala Yousafzai
- Detective stories – Agatha Christie
- The Lost World – Sir Arthur Conan Doyle
- The Happy Prince and Other Tales – Oscar Wilde
- Animal Farm – George Orwell
- Tuck Everlasting – Natalie Babbit
- Short Stories (O' Henry/ Saki/ Leo Tolstoy/Rudyard Kipling/ Guy De Maupassant/Mark Twain/ Oscar Wilde/Jorge Luis Borges/William Faulkner/Anton Chekhov/ Edgar Allan Poe/Franz Kafka/Earnest Hemingway /Flannery O'Connor/James Joyce/Ray Bradbury/Roald Dhal/ Nicolai Gogol and Translations from Indian writers like Tagore, Premchand , etc.)
- Something Out of nothing
- Marie Curie and Radium – Carl Killough
- Ignited minds – APJ Kalam
- Graphic Novels: Tintin Series/ Asterix series

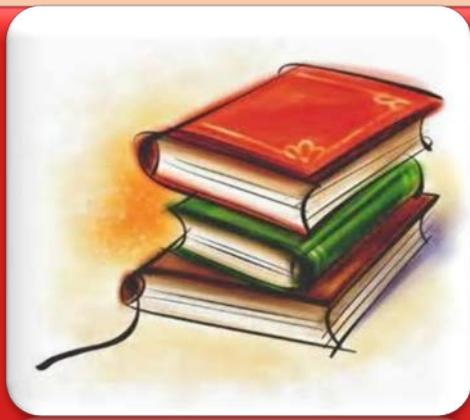
#### **Class VIII**

- Lord of the Flies – William Golding
- A Wizard of Earth Sea – Ursula Le Guin
- The Hobbit – J.R.R. Tolkien
- Watership Down – Richard Adams
- To Kill a Mockingbird – Harper Lee
- The Boy in the Striped Pyjamas – John Boyne
- A tale of Two Cities – Charles Dickens

- Les Misérables – Victor Hugo (Abridged)
- Sherlock Holmes – Sir Arthur Conan Doyle
- The Old Man and the Sea – Ernest Hemingway
- The Pearl – John Steinbeck
- P.G. Wodehouse (Jeeves/ Blandings Castle etc.)
- The Ramayana/ Mahabharata – C. Rajagopalachari
- Graphic Novels (e.g. Maus – Art Spiegelman)
- David Copperfield - Charles Dickens

The above list is only recommended reading - Teachers are welcome to exercise flexibility in an age appropriate selection of books that may include traditional and contemporary authors.

# हिन्दी



## कक्षा - VII

## थीम 1: सुनना और बोलना

### अधिगम उपलब्धियाँ (Learning outcomes):

- पढ़ी, सुनी या देखी बातों जैसे – सामाजिक घटनाओं, कार्यक्रमों, मुद्दों, सामाजिक सरोकारों आदि पर बेझिझक चर्चा कर सकेंगे।
- टीवी पर प्रसारित चर्चा, संगोष्ठी, सोशल मीडिया और इंटरनेट की दृश्य-श्रव्य सामग्री का अर्थ-ग्रहण कर सकेंगे। आवश्यकता अनुरूप अपनी प्रतिक्रिया प्रकट कर सकेंगे।
- रेडियो, टीवी, आदि पर सुनी देखी बातों और खबरों को अपनी भाषा में अभिव्यक्त कर सकेंगे।
- विविध कलाओं, जैसे – हस्तकला, वास्तुकला, नृत्य कला आदि में प्रयुक्त भाषा के शब्दों को समझ सकेंगे।
- नए शब्दों को जानने के लिए खोजबीन करेंगे।
- वक्ता के विचारों से असहमत होते हुए भी उसकी बात ध्यानपूर्वक शिष्टाचार के साथ सुन सकेंगे और उसके दृष्टिकोण को समझ सकेंगे।
- अपने विचारों को आत्मविश्वास से प्रस्तुत कर सकेंगे।
- प्रश्नों को सुनकर समझेंगे और उनके अनुरूप उत्तर दे सकेंगे।
- विभिन्न संदर्भों में प्रयुक्त भाषा-शैली को समझाते हुए उसका आनंद ले सकेंगे।
- साहित्यिक अंशों का सुनकर आनंद ले सकेंगे और अर्थ-ग्रहण कर सकेंगे।
- लिंग / वचन का सही प्रयोग करते हुए अपनी बात कह सकेंगे।
- मल्टी-मीडिया (ग्राफिक्स, तस्वीरें, संगीत, ध्वनि आदि) का प्रयोग करते हुए दृश्य-सामग्री प्रस्तुत कर सकेंगे।
- अपनी आयु के अनुरूप विषयों पर आशुभाषण प्रस्तुत कर सकेंगे।

### सुनना और बोलना

सुझावित विषय / क्षेत्र	सुझावित शिक्षण-अधिगम प्रक्रिया	सुझावित अधिगम स्रोत
<ul style="list-style-type: none"><li>► पाठ्य सामग्री पर आधारित विविध प्रकार के प्रश्न।</li><li>► सामूहिक चर्चा - विषय –<ul style="list-style-type: none"><li>➡ लड़का-लड़की एक समान</li><li>➡ मोबाइल फ़ोन</li><li>➡ परीक्षाएँ नहीं होनी चाहिए</li></ul></li><li>► अपनी कक्षा के स्तर की शब्दावली</li></ul>	<ul style="list-style-type: none"><li>► ऑडियो सुनवाएँ और प्रश्न पूछें। विविध विधियों की भाषा सुनवाने के लिए परिस्थितियाँ / अवसर प्रदान करें।</li><li>► अतिथियों द्वारा वक्तव्य के अवसर दें, मल्टीमीडिया सामग्री सुनाकर – दिखाकर विद्यार्थियों को अपनी प्रतिक्रिया देने के अवसर दें।</li></ul>	<ul style="list-style-type: none"><li>► [REDACTED]</li><li>► विविध प्रकार की ऑडियो/ वीडियो सामग्री</li><li>► साहित्यिक लेख (अखबार, पत्रिकाओं से)</li></ul>

## सुनना और बोलना

सुझावित विषय / क्षेत्र	सुझावित शिक्षण-अधिगम प्रक्रिया	सुझावित अधिगम स्रोत
<ul style="list-style-type: none"> <li>► पी०पी०टी० या वीडियो द्वारा प्रस्तुत सामग्री</li> <li>► सूचनाएँ, जानकारियाँ</li> <li>► विभिन्न संदर्भों, सामाजिक, सांस्कृतिक, ऐतिहासिक, राजनीतिक आदि में भाषा की समझ और विश्लेषण</li> <li>► समाचार-पत्र, टी०वी०, विज्ञापन आदि की भाषा</li> <li>► विभिन्न संदर्भों, जैसे – भाषण, वाद-विवाद आदि में प्रयुक्त भाषा</li> <li>► मल्टीमीडिया का प्रयोग करते समय विभिन्न अंगों (जैसे – ग्राफ़िक्स, तस्वीरें, संगीत, ध्वनि आदि) का दृश्य सामग्री में प्रस्तुति</li> <li>► विषय – <ul style="list-style-type: none"> <li>➢ आदिवासी जीवन</li> <li>➢ किसी वैज्ञानिक का जीवन</li> <li>➢ साहित्यकार का जीवन</li> <li>➢ किसी खिलाड़ी का जीवन</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>► श्रुतभाव-ग्रहण के लिए अलग-अलग अभ्यास करवाने के अवसर प्रदान करें।</li> <li>► सक्रिय और जागरूक बनाने वाली रचनाएँ, अखबार के लेख, फ़िल्म, ऑडियो, वीडियो सामग्री को देखने, सुनने और समझने के अवसर दें।</li> <li>► अपने परिवेश, समय और समाज से जुड़े विषयों पर रचनाएँ उपलब्ध करवाएँ।</li> <li>► कल्पनाशीलता और सृजनशीलता को विकसित करने वाली गतिविधियों जैसे – अभिनय, कविता – पाठ, वाक् प्रस्तुति के आयोजन करें।</li> <li>► साहित्य और साहित्यिक तत्वों की समझ बढ़ाने के अवसर दें।</li> <li>► मल्टीमीडिया का प्रयोग करते हुए परियोजना का कार्य करवाएँ।</li> </ul>	<p style="text-align: center;"><b>ગ્રંથ</b></p> <ul style="list-style-type: none"> <li>► नेट सुविधा/ मल्टीमीडिया</li> <li>► श्रुतभाव- ग्रहण की सामग्री / प्रपत्र</li> </ul>

## थीम 2: पढ़ना एवं लिखना (पठन एवं लेखन कौशल)

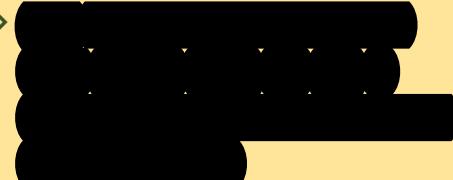
### अधिगम उपलब्धियाँ (Learning outcomes):

- ✓ पत्र-पत्रिकाओं, पुस्तकों आदि से सामग्री को पढ़कर समसामयिक संदर्भों में उसका अर्थ समझ सकेंगे।
- ✓ किसी विशिष्ट उद्देश्य को ध्यान में रखते हुए उससे संबंधित विशेष स्थल को पहचान कर पढ़ सकेंगे। शीर्षक एवं उपशीर्षक दे सकेंगे।
- ✓ पाठ के सार एवं विचार सारणी को ग्रहण कर सकेंगे।
- ✓ शब्दकोश को देखकर अर्थ ढूँढ़ सकेंगे।
- ✓ अपने विचारों से अलग पाठ्य-सामग्री के मूलभूत तथ्यों को पहचान सकेंगे।
- ✓ विभिन्न प्रकार के प्रश्नों को पढ़कर समझेंगे और उनके अनुकूल उत्तर लिख सकेंगे।
- ✓ शब्दों, मुहावरों और पदबंधों का अपने लेखन में प्रभावशाली और उपयुक्त प्रयोग कर सकेंगे।
- ✓ विद्यालय की पत्रिका के लिए कहानी, कविता, चुटकुले, लेख, रिपोर्ट आदि लिख सकेंगे।
- ✓ विभिन्न प्रिंट और डिजिटल माध्यमों से जानकारी प्राप्त करके अपने लेखन में उसका उपयोग कर सकेंगे।
- ✓ प्रभावशाली शैली, तार्किक और व्याकरण सम्मत भाषा में अपनी बात लिखकर अभिव्यक्त कर सकेंगे।

### पढ़ना एवं लिखना

सुझावित विषय / क्षेत्र	सुझावित शिक्षण-अधिगम प्रक्रिया	सुझावित अधिगम स्रोत
<ul style="list-style-type: none"><li>► विविध प्रकार के प्रश्न</li><li>► पाठ्य सामग्री के केंद्रीय-भाव का अनुमान</li><li>► काव्य रचना की समझ और भाव-ग्रहण</li><li>► अपनी व्यक्तिगत राय से भिन्न पाठ्य-सामग्री के मूलभूत तथ्यों की पहचान</li><li>► संदर्भ के अनुरूप शब्द, मुहावरे और पदबंध</li><li>► पाठ्य-सामग्री को टुकड़ों में बाँटकर अपनी समझ का संवर्द्धन</li><li>► वास्तविक, काल्पनिक अनुभव</li></ul>	<ul style="list-style-type: none"><li>► कल्पना, अनुमान लगाने और खुले अंत वाले प्रश्नों के उत्तर लिखवाएँ और उनपर चर्चा करें।</li><li>► विभिन्न विधाओं जैसे – कविता, कहानी, एकांकी आदि को भावपूर्ण ढंग से पढ़वाएँ। आदर्श वाचन प्रस्तुत करें और विद्यार्थियों को ऐसे अवसर प्रदान करें जिसमें वे विभिन्न विधाओं को उपयुक्त शैली में पढ़ सकें और लिख सकें।</li><li>► [REDACTED]</li><li>► वाक् प्रस्तुति करवाने के अवसर प्रदान करें।</li><li>► सक्रिय और जागरूक बनाने के लिए समसामयिक लेख पढ़ने को दें और उन पर अपनी प्रतिक्रिया लिखने को कहें।</li><li>► कल्पनाशीलता और सृजनशीलता को</li></ul>	<ul style="list-style-type: none"><li>► साहित्यिक - सामग्री के लिए पुस्तकें और पत्रिकाएँ</li><li>► प्रासंगिक, तात्कालिक/ समसामयिक पुस्तकें</li><li>► नेटसुविधा/ मल्टीमीडिया</li><li>► लेखन- प्रतियोगिताएँ</li><li>► समाचार-पत्र</li></ul>

## पढ़ना एवं लिखना

सुझावित विषय / क्षेत्र	सुझावित शिक्षण-अधिगम प्रक्रिया	सुझावित अधिगम स्रोत
<ul style="list-style-type: none"> <li>► विभिन्न प्रिंट एवं डिजिटल माध्यमों से प्राप्त उपयुक्त जानकारी</li> <li>► विभिन्न भाषा शैलियों के उदाहरण – व्यंग्यात्मक, विचारात्मक, भावात्मक आदि</li> <li>► साहित्य की विभिन्न विधाएँ – कहानी, एकांकी, कविता, लेख, निबंध आदि का पठन एवं लेखन</li> </ul>	<ul style="list-style-type: none"> <li>► विकसित करने के लिए अतिरिक्त अध्ययन के लिए प्रेरित करें।</li> <li>► अपने परिवेश, समय और समाज से जुड़े विषयों पर रचनाएँ उपलब्ध करवाएँ और लेखन के अवसर भी दें।</li> <li>► पुस्तकें उपलब्ध करवाएँ तथा ऐसी गतिविधियों का आयोजन करें जिसमें पढ़ने और लिखने की क्षमता का विकास हो।</li> <li>► भाषा-खेलों का आयोजन करें।</li> <li>► </li> <li>► किसी परिचित से साक्षात्कार करने के लिए प्रश्न निर्माण करवाएँ और जानकारी को दर्ज करने के लिए कहें।</li> </ul>	

## थीम 3: व्याकरण और भाषा

### अधिगम उपलब्धियाँ (Learning outcomes):

- हिंदी भाषा में प्रयुक्त विभिन्न प्रकार के शब्दों को पहचान सकेंगे और अपनी भाषा में उनका प्रयोग कर सकेंगे।
- उपसर्ग - प्रत्यय का तात्पर्य समझ सकेंगे और मूल शब्दों में जोड़कर नए शब्द बना सकेंगे।
- संज्ञा के तीन भेद – व्यक्तिवाचक संज्ञा, जातिवाचक संज्ञा और भाववाचक संज्ञा को पहचान सकेंगे और भाववाचक संज्ञाओं का निर्माण कर सकेंगे।
- सर्वनाम के भेदों की पहचान और उसका सही प्रयोग कर सकेंगे। भेद – पुरुषवाचक सर्वनाम, निश्चयवाचक, अनिश्चयवाचक, प्रश्नवाचक, संबंधवाचक, निजवाचक का स्पष्टीकरण।
- विशेषण तथा विशेषण के चार भेदों - गुणवाचक विशेषण, परिमाणवाचक विशेषण, संख्यावाचक विशेषण, सार्वनामिक विशेषण पहचान सकेंगे और उसका प्रयोग कर सकेंगे। अन्य पदों से विशेषण बना सकेंगे।
- क्रिया - कर्म के आधार पर दो भेद - अकर्मक क्रिया और सकर्मक क्रिया की पहचान कर सकेंगे।
- क्रिया विशेषण और उसके चार भेदों – रीतिवाचक क्रिया विशेषण, परिमाणवाचक क्रिया विशेषण, कालवाचक क्रिया विशेषण और स्थानवाचक क्रिया विशेषण की पहचान कर सकेंगे।
- व्यावहारिक भाषा में लिंग और वचन का सही प्रयोग कर सकेंगे।
- काल व काल के तीन भेदों – भूतकाल, वर्तमान काल और भविष्यत् काल का समुचित प्रयोग कर सकेंगे।
- कारक -चिह्नों को समझ कर अपनी भाषा में सही प्रयोग कर सकेंगे।
- वाक्य भेद – अर्थ के आधार पर वाक्यों को पहचान सकेंगे। परस्पर परिवर्तन कर सकेंगे। भेद – विधानवाचक – निषेधवाचक, प्रश्नवाचक, विस्मयादिबोधक, आज्ञावाचक, इच्छावाचक, संदेहवाचक और संकेतवाचक। वाक्य-शोधन भी करते हैं।
  - (क) विराम -चिह्नों को पहचान सकेंगे और उनका सही प्रयोग कर सकेंगे।
  - (ख) 'की' और 'कि' तथा 'रि' और 'ऋ' के अंतर, अनुस्वार 'र' के विभिन्न रूपों को ठीक से समझते हुए लेखन में सही प्रयोग कर सकेंगे।
- शब्द-भंडार - विलोम, पर्यायवाची, अनेक के लिए एक शब्द, समरूपी भिन्नार्थक शब्द, अनेकार्थी शब्दों का अपनी भाषा में प्रयोग करते हैं।
- मुहावरों को वाक्यों और भाषा में समझ कर प्रयुक्त कर सकेंगे।
- अपठित अनुच्छेद पढ़कर समझ सकेंगे और अपनी भाषा में संक्षिप्त उत्तर लिख सकेंगे।
- पत्र-लेखन का प्रारूप समझते हुए औपचारिक और अनौपचारिक पत्र लिख सकेंगे।
- निबंध-लेखन द्वारा अपने विचारों को अभिव्यक्त कर सकेंगे। भाषा शैली, प्रस्तुति का क्रमशः विकास हो सकेगा।

## पढ़ना एवं लिखना

सुझावित विषय / क्षेत्र	सुझावित शिक्षण-अधिगम प्रक्रिया	सुझावित अधिगम स्रोत
<ul style="list-style-type: none"> <li>► वर्ण विचार</li> <li>► भाषा विचार</li> <li>► शब्द विचार – उपसर्ग – प्रत्यय</li> <li>► संज्ञा, लिंग, वचन, कारक, सर्वनाम, विशेषण, क्रिया, काल तथा उनके भेद</li> <li>► वाक्य भेद – अर्थ के आधार पर</li> <li>► विराम चिह्न</li> <li>► ‘की’ और ‘कि’, ‘रि’ और ‘ऋ’ का अंतर</li> <li>► शब्द भंडार – विलोम, पर्यायवाची, अनेक के लिए एक शब्द, समरूपी भिन्नार्थक शब्द, अनेकार्थी शब्द</li> <li>► सामान्य मुहावरे</li> <li>► रोचक अपठित गद्यांश / पद्यांश (स्तारानुकूल)</li> <li>► पत्र लेखन – औपचारिक और अनौपचारिक पत्र</li> <li>► निबंध लेखन (150 से 180 शब्दों में)</li> <li>► [REDACTED]</li> <li>► [REDACTED]</li> </ul>	<ul style="list-style-type: none"> <li>► स्वरों और व्यंजनों के अंतर को स्पष्ट करें। अब ‘ओ’ हिंदी के स्वर के रूप में मान्य है, जानकारी दें। डॉक्टर, कॉलेज, बॉल आदि उदाहरणों से स्पष्ट करें। इ, उ और अ की मात्रा के प्रयोग पर ध्यान दिलाएँ – रू और रु, रूप, ज़रूरत, रूपया, रूकना, रुचि आदि उदाहरणों से समझाएँ। संयुक्त व्यंजन के रूपों को बताएँ – क्ष, त्र, झ, श्र।</li> <li>► मौखिक रूप पहले आया, क्यों ? आदि पर चर्चा करें। दोनों रूपों को स्पष्ट करें।</li> <li>► तत्सम – तद्भव रूप को समझाएँ। नवीन सोच की ओर भी संकेत किया जा सकता है कि ‘तत्सम’ शब्द वे हैं जो किसी अन्य भाषा से ज्यों के त्यों ले लिए गए हैं, जैसे – अग्नि, अस्थि, मॉल, रॉकेट, कॉलेज, इडली, ज़रूरत आदि। ‘तद्भव’ वे हैं जिन्हें हिंदी भाषा के अनुरूप ढाल लिया गया है, जैसे – दूध, हाथ, त्रासदी, अलबम आदि।</li> <li>► पाठ के शब्दों का चयन कर संज्ञा भेदों को बताएँ। उदाहरण – पेड़ – जातिवाचक संज्ञा, आगरा – व्यक्तिवाचक संज्ञा, सौंदर्य – भाववाचक संज्ञा। भाववाचक संज्ञा निर्माण – ऊँचा से ऊँचाई।</li> <li>► पाठ्य – सामग्री से सर्वनाम छाँटकर उनके भेदों को पहचानने के लिए कहें।</li> <li>► सर्वनाम के भेदों की पहचान और उनके सही रूप का प्रयोग करने का अभ्यास करवाएँ। (भेद – पुरुषवाचक सर्वनाम, निश्चयवाचक, अनिश्चयवाचक, प्रश्नवाचक, संबंधवाचक, निजवाचक)।</li> <li>► जब सन्दर्भ के साथ यह, वह, इन्हें, उन्हें, उसे आदि का प्रयोग हो तब तो निश्चयवाचक सर्वनाम मान सकते हैं। जब संदर्भ न हों तब सर्वनाम पुरुषवाचक भी हो सकता है और निश्चयवाचक भी, इसका निर्णय कैसे लें ? इसे</li> </ul>	<ul style="list-style-type: none"> <li>► कार्य पत्र</li> <li>► कार्य पत्र</li> <li>► कार्य पत्र (कुछ तत्सम और तद्भव शब्दों की सूची)</li> <li>► शब्द-परिवार के लिए कार्यपत्रक या भाषा-खेल</li> <li>► डाकखाना भ्रमण, पोस्ट कार्ड, अंतर्देशीय पत्र, लिफाफ़ा,</li> <li>► सुन्दर चित्र</li> <li>► विज्ञापनों के नमूने पत्र पत्रिकाओं से</li> <li>► डायरी लेखन की कुछ पुस्तकें</li> </ul> <p>○ अनौपचारिक पत्र</p> <div style="border: 1px solid black; padding: 10px; width: fit-content; margin: auto;"> <p>अपना पता</p> <p>तिथि</p> <p>संबोधन</p> <p>विषय वस्तु</p> <hr/> <hr/> <hr/> </div> <p>अपना नाम</p>

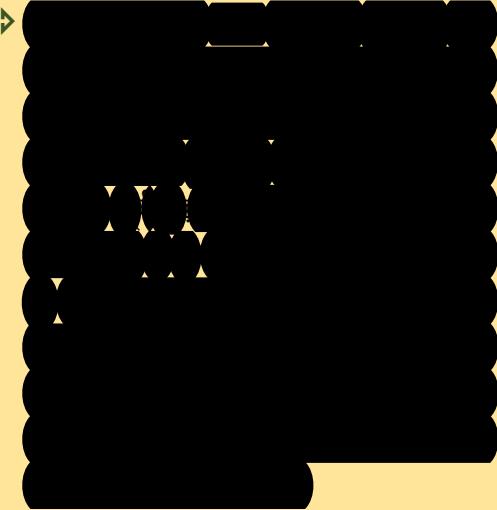
## पढ़ना एवं लिखना

सुझावित विषय / क्षेत्र	सुझावित शिक्षण-अधिगम प्रक्रिया	सुझावित अधिगम स्रोत
	<p>इस प्रकार समझा जा सकता है कि यदि व्यक्ति के लिए यह, वह का प्रयोग हुआ है तब तो वह पुरुषवाचक सर्वनाम होगा और वस्तु, घटना आदि के लिए आया है तो निश्चयवाचक सर्वनाम होगा। इससे समस्या का काफ़ी हद तक समाधान हो जाएगा। जैसे –</p> <ul style="list-style-type: none"> <li>● उसे समझा दो / वह वहाँ खड़ी है/ यह तो यहाँ ही बैठी है। इन वाक्यों में उसे, वह, यह व्यक्तियों के लिए आया है यह विभिन्न क्रियाओं से स्पष्ट है। इन्हें पुरुषवाचक माना जाएगा।</li> <li>● यह यहाँ रख दो। वह वहाँ पड़ा रहने दो। उसे उठा लाओ। इन वाक्यों में यह, वह, उसे वस्तुओं के लिए ही प्रयुक्त हुआ है अतः इन्हें निश्चयवाचक मानना चाहिए।</li> <li>● कुछ अन्य वाक्य देखिए–</li> <li>● उन्हें भी बुला लो / उन्हें रखा रहने दो / उन्हें रहने दो - पहले वाक्य में ‘उन्हें’ व्यक्तियों के लिए ही प्रयुक्त हुआ है जबकि दूसरे वाक्य में वस्तुओं के लिए और तीसरे में व्यक्ति भी हो सकते हैं और वस्तु भी। ऐसी स्थिति में दोनों संभव है। संदर्भ ज्ञात हो तो उसी के अनुरूप भेद किया जा सकता है अन्यथा दोनों भेद माने जा सकते हैं।</li> </ul> <p>► पाठ्य-सामग्री से विशेषण छाँटकर अभ्यास करवाएँ। सार्वनामिक विशेषण को समझना आवश्यक है।</p> <ul style="list-style-type: none"> <li>● यह घर साफ़ है और वह कितना गंदा। इस वाक्य में ‘यह’ घर की विशेषता बता रहा है इसलिए सार्वनामिक विशेषण है और ‘वह’ घर के लिए आया है इसीलिए सर्वनाम है।</li> <li>● सर्वनाम और सार्वनामिक विशेषण दोनों रूप रचना के स्तर पर समान होते हैं केवल वाक्य प्रयोग के स्तर दोनों में अंतर होता है। जो शब्द संज्ञा के स्थान पर प्रयुक्त होते हैं वे सर्वनाम होते हैं लेकिन जब कोई सर्वनाम किसी संज्ञा (विशेष्य) के साथ लगकर संज्ञा</li> </ul>	<p>○ औपचारिक पत्र</p> <div style="border: 1px solid black; padding: 10px; margin-bottom: 10px;"> <p>अपना पता</p> <p>तिथि</p> <p>जिसके लिए है</p> </div> <p>उसका पद</p> <p>पता</p> <p>विषय</p> <p>संबोधन</p> <p>विषय वस्तु</p> <hr/> <hr/> <p>भवदीय</p> <p>अपना नाम</p>

दिनांक..... स्थान.....

समय

## पढ़ना एवं लिखना

सुझावित विषय / क्षेत्र	सुझावित शिक्षण-अधिगम प्रक्रिया	सुझावित अधिगम स्रोत
	<p>की विशेषता बताता है तो सार्वनामिक विशेषण होता है। जैसे - <b>कुछ</b> बच्चे पौधे रोप रहे हैं, उस लड़की को बुलाओ।</p> <ul style="list-style-type: none"> <li>▶ विशेषण बनवाएँ, जैसे – सुगंध – सुगंधित, कौन – कैसा, गर्मी – गर्म।</li> <li>▶ क्रिया-कर्म के आधार पर दो भेद - अकर्मक और सकर्मक की पहचान करवाएँ। प्रायः कर्म के साथ सकर्मक क्रिया आती है। उदाहरणों द्वारा स्पष्ट करें। इस स्तर पर मिश्रित, संयुक्त और प्रेरणार्थक क्रियाओं के उदाहरणों से बचा जाए तो बेहतर है।</li> <li>▶ </li> <li>▶ क्रिया विशेषण के भेदों की पहचान के लिए क्रिया के साथ कैसे, कितना, कब और कहाँ लगाकर स्पष्ट किया जा सकता है। पाठ्य पुस्तक से उदाहरण छूटवाकर अभ्यास करवाया जा सकता है।</li> <li>▶ लिंग और वचन का अभ्यास करवाएँ। हिंदी में निर्जीव वस्तुओं के लिए भी स्त्रीलिंग या पुलिंग निर्धारित होता है और कभी-कभी मातृभाषा से प्रभावित होकर लिंग भेद देखा जा सकता है जैसे पंजाब में ट्रक आती है जबकि हिंदी क्षेत्र में ट्रक आता है। इसका संकेत किया जा सकता है और प्रयोग विद्यार्थी पर छोड़ा जा सकता है। परीक्षा में ऐसे अपवादों को पूछने से बचना चाहिए। प्रयोग के आधार पर अभ्यास</li> </ul>	

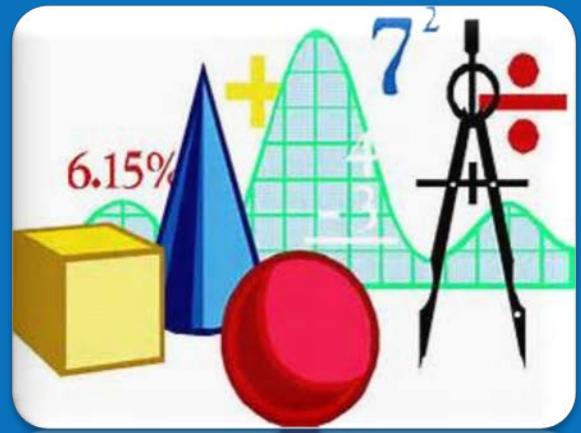
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सुझावित विषय / क्षेत्र	सुझावित शिक्षण-अधिगम प्रक्रिया	सुझावित अधिगम स्रोत
	<p>करवाया जाए। वचन को भी स्पष्ट करें। कभी-कभी शब्द के रूप में एकवचन और बहुवचन समान होते हैं लेकिन प्रयोग या क्रिया आदि से एकवचन या बहुवचन का निर्धारण होता है, जैसे – फूल लगा है। फूल लगे हैं। इन वाक्यों में ‘फूल’ का रूप दोनों वाक्यों में समान है जबकि पहले वाक्य में एकवचन है जबकि दूसरे में बहुवचन। इसका पता क्रिया से लगा। इस प्रकार के उदाहरण देकर स्पष्ट करें। कार्यपत्रों के माध्यम से अभ्यास करवाएँ।</p> <p style="text-align: center;">► [REDACTED]</p> <p>► काल के तीन भेद— भूतकाल, वर्तमान काल, भविष्यत् काल का अभ्यास करवाएँ। परस्पर परिवर्तन का अभ्यास करवाएँ। मैं लिखती थी। मैं लिखती हूँ। मैं लिखूँगी। रोचक कार्यपत्रों द्वारा पहचान करवाएँ।</p> <p>► कारकों के भेद प्रयोग द्वारा स्पष्ट करें। सामान्य कारक-चिह्नों के प्रयोग का अभ्यास करवाएँ।</p> <p>► अर्थ के आधार पर वाक्य-भेद की पहचान करवाएँ। परस्पर रूपांतरण करने पर अर्थ भी बदल जाता है, अतः इसका रूपांतरण अपेक्षित नहीं है, फिर भी कहीं-कहीं दिया जाता है अतः अर्थ बदलेगा – इसे समझाएँ। जैसे – वह सुंदर है। (विधानवाचक)</p> <ul style="list-style-type: none"> <li>➔ इसका निषेधवाचक होगा – वह सुंदर नहीं है।</li> <li>➔ न कि वह असुंदर नहीं है।</li> </ul> <p>► विराम चिह्नों का प्रयोग करवाएँ। पूर्ण-विराम, प्रश्न चिह्न, अल्पविराम, उद्धरण चिह्न, कोष्ठक, विस्मयादिबोधक, योजक चिह्नों का प्रयोग स्थल बताएँ और अभ्यास करवाएँ।</p> <p>► विद्यार्थियों द्वारा अनजाने में की गई ‘की’ और ‘कि’, ‘रि’ और ‘ऋ’ की अशुद्धियों की ओर ध्यान दिलवाएँ।</p>	

## पढ़ना एवं लिखना

सुझावित विषय / क्षेत्र	सुझावित शिक्षण-अधिगम प्रक्रिया	सुझावित अधिगम स्रोत
	<ul style="list-style-type: none"> <li>► शब्द भंडार – विलोम, पर्यायवाची, अनेक शब्दों के लिए एक शब्द, समरूपी भिन्नार्थक शब्द और अनेकार्थी शब्दों का प्रयोग करवाएँ। पाठ्य-सामग्री से ऐसे शब्दों को चुनने का अभ्यास करवाएँ। (स्तर को ध्यान में रखते हुए प्रति सत्र 15-20 शब्दों की सूची देकर भी अभ्यास करवाया जा सकता है। सूची की सीमा के कारण विद्यार्थी तैयारी अच्छी कर पाते हैं। छठी की सूची सातवीं में जोड़ कर पूछें और आठवीं में छठी, सातवीं जोड़कर)।</li> <li>► पाठ्य-सामग्री में आए मुहावरों का अपने वाक्यों में प्रयोग करवाएँ। रचनात्मक लेखन में उसका प्रयोग करने के लिए प्रेरित करें।</li> <li>► रोचक अपठित गद्यांश और काव्यांश देकर प्रश्न अभ्यास करवाएँ। सामग्री को स्वयं समझकर उत्तर देने की क्षमता विकसित करें।</li> <li>► पत्र लेखन – औपचारिक और अनौपचारिक पत्रों के प्रारूप को स्पष्ट करें। यह भी स्पष्ट करें कि पता, तिथि, विषय, संबोधन और समाप्ति की आवश्यकता क्यों है? भाषा शैली पर विशेष ध्यान दिलवाएँ। अति संक्षेप या अनावश्यक विस्तार से बचने की प्रेरणा दें।</li> <li>► निबंध लेखन के लिए विद्यार्थियों को उनके स्तर के अनुकूल समसामयिक, उनसे संबद्ध और रोचक विषय दें। निबंध का प्रारंभ, मुख्य विषय-वस्तु और उपसंहार को स्पष्ट करें। यह निबंध वर्णनात्मक, कल्पनात्मक आदि हो सकते हैं।</li> </ul>	

# Mathematics



**The Core concepts of Mathematics for Class VII are as follows:**

## Class VII

**Number System**

**Ratio and Proportion**

**Algebra**

**Geometry**

**Mensuration**

**Data Handling**

## Theme 1: Number System

In this theme the rules developed by children for addition and subtraction of integers will be extended to the formation of rules for their multiplication and division by using patterns and generalization.

Another important type of number called rational number will also be introduced in this class. This exposure will develop children's understanding about various kinds of numbers as a system and a structure. At this stage a relationship will also be established between fractions and rational numbers for which children will extend the rules used for performing operations on fractions to integers. This is also the time when children will be enabled to understand that fractions are not only representing part of a whole but also a number that operates on quantities. Extension of fractions and rational numbers is further done to decimal fractions. Once children understand that decimal notation of numbers is another convenient way of writing fractions with denominator as 10, 100, 1000 etc, they will be able to form rules for operating decimal fractions too. Children's exploration on properties of natural numbers through a play way method will help in learning exponential form of numbers, divisibility rules, LCM and HCF. The learning of Sets and their types and use in daily life is further extended in this class.

### Learning Outcomes:

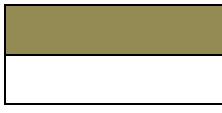
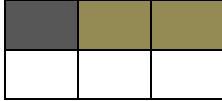
Children will be able to:

- multiply integers by using patterns and generalize the rules to multiply a positive integer by a negative integer, a negative integer by a positive integer and two negative integers;
- divide integers by using patterns;
- get a feel of necessity of rational numbers;
- perform operations on rational numbers (addition, subtraction, multiplication and division);
- understand and use fraction as an operator;
- find reciprocal of a fraction;
- multiply fractions by using patterns/paper folding/pictures and form general rules;
- divide fractions by using patterns/visualization/picture and forms rules;
- solve word problems involving mixed fractions and operations on them;
- represent rational number as a decimal and vice-versa;
- multiplication and division of decimal fractions;
- use exponential form;
- revise idea of sets;
- define equal, equivalent, and universal sets.

## Number System

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>➢ Multiplication and division of integers</li> <li>➢ Properties of operations on integers: Commutativity, associativity, existence of identity and inverse and distributivity (Only for discussion, no assessment).</li> <li>➢ Problem solving using operations on integers</li> <li>➢ Introduction to rational numbers (with examples only, representation on number line and word problems not required)</li> <li>➢ Decimal representation of rational numbers</li> <li>➢ Problem solving using operations on rational numbers and decimal fractions</li> <li>➢ Fraction as an operator</li> <li>➢ Reciprocal of a fraction</li> <li>➢ Multiplication and division of decimal fractions</li> <li>➢ Exponents only natural numbers. (Expressing any natural number in exponent form only, and also finding the value of given exponents without using any Laws. Only problems such as, <math>4^3</math>, <math>2^3</math>, <math>3^4</math>, <math>3^2 + 6^2</math> to be included.</li> <li>➢ Revision of idea of sets without solving any sums based on representation of sets, Roster form, tabular form, finite, infinite sets etc.</li> </ul>	<ul style="list-style-type: none"> <li>➢ Revising previous concepts learnt by children.</li> <li>➢ Building on children's previous learning.</li> <li>➢ Involving children in discussion to find their own ways of multiplying integers using their understanding about the rules for multiplication and division of whole numbers</li> <li>➢ Providing enough time to children to use patterns in multiplying a negative integer by another integer as this may be a new idea. Up till now they have learnt that multiplication is repeated addition or an operator in case of fractions. Sufficient time should be given to children to appreciate why the product of two negative integers is positive.</li> <li>➢ Encouraging children to explore and use the concept of dividing a natural number by another by simply finding the number which when multiplies the divisor gives the dividend as product. So to find <math>-4 \div -2</math> we have to find the number which on multiplication with <math>-2</math> gives the result <math>-4</math>. Many children will be able to infer that the required number must be <math>+2</math>. Many such examples will help the child to make their own rule like <math>+ve \div -ve = -ve</math>, <math>-ve \div +ve = -ve</math> and <math>-ve \div -ve = +ve</math>.</li> <li>➢ Involving children in classification of numbers on the basis of their properties like even, odd, multiples and factors. These numbers can be used to classify numbers in to various categories</li> <li>➢ Introducing divisibility rules using patterns, and then different division problems could be discussed to show their use. For example, let children form multiplication tables of different numbers like 2, 3, 4, etc. and then from</li> </ul>	<ul style="list-style-type: none"> <li>➢ Shapes used in daily life (for demonstrating number system, algebra, geometry mensuration and data handling)</li> <li>➢ Geoboard with rubber bands (for demonstrating various shapes and Charts)</li> <li>➢ Brief life history of mathematicians with their contributions at elementary level.</li> <li>➢ Maths Kit</li> </ul>

## Number System

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>► Equal, equivalent, universal sets</li> </ul>	<p>the multiplication facts ask them to identify the pattern like multiple of 3 has sum of its digits divisible by 3, multiple of 5 has either 5 or zero in its ones place etc.</p> <p>► Utilising children's knowledge about describing multiplication of fractions as operator 'of' and explain by paper folding, shading parts of whole etc. for example <math>\frac{1}{3} \times \frac{1}{2}</math> is one-third of one-half which can be shown as:</p>   <p>The double shaded region is one-sixth of the whole which shows that <math>\frac{1}{3} \times \frac{1}{2} = \frac{1}{6}</math>.</p> <ul style="list-style-type: none"> <li>► Solving of sums by children and observing the pattern that in all cases the product of fractions can be obtained by multiplying their numerators and their denominators</li> <li>► Providing opportunities to children to observe and find through pictures that <math>\frac{1}{2} \div \frac{1}{4}</math> means the number of one-fourths in one-half. Simple visualization is required to find that one-half contains two one-fourths. Let children observe the patterns and find their own ways of dividing a fraction by another fraction.</li> <li>► Conducting discussion with children to observe and generalise that to divide a fraction by another fraction (non-zero) can be done by multiplying the dividend by reciprocal of the divisor.</li> <li>► Involving children in exploring their own ways of writing repeated</li> </ul>	

Number System		
Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
	multiplication in a short form as repeated addition is represented by multiplication. With discussion let the children reach the conclusion of writing repeated multiplication in exponent form.	

**Life Skills:** Solving daily life problems

## Theme 2: Ratio and Proportion

This theme will focus on developing children's ability to solve higher problems on the use of ratio and proportion in daily life in this class. Children are enabled to use ratio, proportion and their properties appropriately in problem solving. The idea of percentage, unitary method, simple interest, time, work and speed are also introduced through simple daily life problems. Children will appreciate that this is the part of mathematics that they can use the most in their daily lives.

### Learning Outcomes:

Children will be able to:

- rewrite fractions and decimals into percentage and vice-versa;
- solve problems related to profit and loss (single transaction only);
- apply simple interest (time period in complete years) in daily life situations.

Ratio and Proportion		
Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"><li>➢ Converting fractions and decimals into percentage and vice-versa.</li><li>➢ Application to profit and loss: single transaction only. (Only Profit, Loss, Profit % and Loss %. Discount problems not required)</li><li>➢ Application to simple interest (time period in complete years).</li></ul>	<ul style="list-style-type: none"><li>➢ Children know about many ways of comparing quantity. Utilise their experiences to conclude that ratio is another way of comparing quantities. Percentages and their applications are also in child's daily life experiences which can be used to form various formulae and solving problems using them.</li></ul>	<ul style="list-style-type: none"><li>➢ Maths Kit</li></ul>

**Life Skills:** Solving daily life problems

## Theme 3: Algebra

Children in class VI were exposed to and were enabled to understand that algebra is an extension and generalization of arithmetic. Letters for numbers are to be seen as a compact language to express situations in expressions. The basic idea of various terminologies that form the language to learn algebra is also to be communicated to children in a gradual manner. Children should get a feel that algebra is just extension of numbers and quantities. They should also gain fluency in mathematical language through operations on algebraic expressions and solving linear equations.

### Learning Outcomes:

Children will be able to:

- generate algebraic expressions involving one or two variables/unknowns;
- add and subtract algebraic expressions;
- express situations in simple linear equations and find solution of related problems.

Algebra		
Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"><li>► Generate algebraic expressions</li><li>► Performs simple operations (addition and subtraction) on algebraic expressions with integral coefficients only.</li><li>► Simple linear equations in one variable (in contextual problems) with two operations. (Simple word problems with two operations is included)</li></ul>	<ul style="list-style-type: none"><li>► Revising previous concepts learnt by children.</li><li>► Building on children's previous learning.</li><li>► Use child's context and encourage them to generate algebraic expressions by proper choice of variable/unknown and operations.</li><li>► Child's daily life experiences like adding/subtracting a group of 2 notebooks and 5 pencils to/from another group of 3 notebooks and 8 pencils etc. Let children form their own rule that like terms can only be added or subtracted.</li></ul>	<ul style="list-style-type: none"><li>► Notebooks, pencils, pens, etc.</li><li>► Textbooks</li></ul>

**Skills:** pursuing assumptions to logical conclusions

## Theme 4: Geometry

Children in this class will be enabled to perceive relationships between properties and figures. The children will develop the ability to give the minimum number of properties, eliminating redundancies and formulate meaningful definitions and understand inclusion relationships. Note that if a student is requiring to "know a definition" before attaining this level, it will be a memorized definition with little meaning to the student. Their concept definition is likely not to match their concept image.

### Learning Outcomes:

Children will be able to:

- identify pairs of angles like linear, supplementary, complementary, adjacent and vertically opposite and finds the one when other is given;
- verify angle sum and other properties of triangles and uses these properties to find unknown elements of a triangle;
- construct simple triangles when three out of six elements are given (like three sides, two sides and included angle, a side and two angles etc.).

Geometry		
Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"><li>▶ Pairs of angles (linear, supplementary, complementary, adjacent, vertically opposite)</li></ul> <p>NOTE: Concept to be explained clearly but the level of difficulty should be reduced</p> <ul style="list-style-type: none"><li>▶ <b>Properties of triangles:</b><ul style="list-style-type: none"><li>▶ Angle sum property</li><li>▶ Exterior angle property</li><li>▶ Construction of simple triangles. (SSS, SAS, ASA, RHS).</li></ul></li></ul>	<ul style="list-style-type: none"><li>▶ Revising previous concepts learnt by children.</li><li>▶ Building on children's previous learning</li><li>▶ Using diagrams to help children in visualizing the relationship between various pairs of angles when a transversal cuts two lines (parallel and non-parallel), angles of triangle and relationship among its sides.</li></ul>	<ul style="list-style-type: none"><li>▶ Maths Kit</li><li>▶ Geoboard with rubber band</li><li>▶ Geometry box</li></ul>

**Skill:** Identify, visualise and quantify measures of shapes and objects

## Theme 5: Mensuration

This theme will focus on developing children's understanding and ability on measurement of area, volume and capacity. This begins with children finding rules/forming formulae for standard figures like cube, cuboid, etc. The major focus will be on finding the area of 2-D shapes. It is also expected that children will be able to learn to write measurement in smaller and larger units with conversion.

### Learning Outcomes:

Children will be able to:

- measure approximate area of simple regular and irregular closed shapes by using unit square grid sheet;
- form formulae to find area of the region enclosed in a rectangle and a square as a better way of counting the number of units squares that fill them completely.

Mensuration		
Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"><li>➢ Revision of perimeter and Idea of Circumference of Circle</li><li>➢ Area of a circle.</li><li>➢ Concept of measurement using a basic unit area of a square, rectangle, triangle, circle, and combined figures (2 similar figures to be combined- 2 squares, 2 rectangles, 2 circles).</li></ul>	<ul style="list-style-type: none"><li>➢ Revising previous concepts learnt by children.</li><li>➢ Building on children's previous learning</li><li>➢ Involving children in activities targeted to measurement of region enclosed by closed figures on a plan surface and encouraging them to come to the conclusion that a unit is required.</li><li>➢ Conducting activities related to measuring units squares within a figure drawn on a square grid and to compare the various regions.</li></ul>	<ul style="list-style-type: none"><li>➢ Maths Kit</li></ul>

## Theme 6: Data Handling

Finding a representative value for a given set of observations called data is a necessary requirement in most of the daily life situations, like one number for heights of the children in a class, number of children in a class when numbers of total children in all classes of the school is known etc. This theme aims at developing children's understanding about the meaning and use of averages like mode of simple data not having more than 15 observations.

### Learning Outcomes:

Children will be able to:

- find various representative values (mode) for simple data from daily life;

Data Handling		
Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
► Mode of ungrouped data – understanding what they represent	► Revising previous concepts learnt by children. ► Building on children's previous learning ► Involving children in drawing inferences for future events from the existing data	► Maths Kit

**Integration:** Arts Education

**Life Skills:** Understanding and interpreting data, drawing inferences

# *History, Civics & Geography (HCG)*

- *History and Civics*
- *Geography*



# *History and Civics*

**Core concepts of History and Civics for Class VII are as under:**

## **Class VII**

### **The Medieval World**

Medieval Europe – Rise and Spread of Christianity

Rise and Spread of Islam

The Delhi Sultanate

The Mughal Empire

### **Civics**

The Constitution of India

Directive Principles of State Policy

## The Medieval World

### Theme 1: Medieval Europe – Rise and Spread of Christianity

'Medieval Europe - Rise and Spread of Christianity' aims at exposing and providing children information to be able to understand the transition of Europe from the Ancient Roman Empire to the Medieval Byzantium Empire. The rise and spread of Christianity will broaden their perspective on beliefs over the globe. In these days of globalized lifestyle, this is critical for developing an in depth understanding about the rise of religion.

#### Learning outcomes:

Children will be able to:

- trace the origin and spread of Christianity;
- reflect on the basic principles and teachings of Christianity;
- identify similarities of the good teachings of the various forms of Religion;
- discuss and analyse the relevance of Christ's teachings in the present day context;
- analyse the relationship between the decline of the Roman empire and the spread of Christianity;
- study the impact of crusades in Europe;
- analyse the influence of the church on the life of people in Europe.

#### Medieval Europe – Rise and Spread of Christianity

Key Concepts / Concerns	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>▷ Meaning of the term 'Medieval', tracing the beginning of Medieval period in the world and India on the basis of evidences.</li> <li>▷ Socio / political circumstances.</li> <li>▷ Birth of Christianity.</li> <li>▷ Roman conquest of Palestine.</li> <li>▷ Main Teachings of Jesus.</li> <li>▷ Role of Emperor Constantine in spreading Christianity.</li> <li>▷ Emergence of Constantinople as a new Christian Capital.</li> </ul> <p><b>Medieval Europe.</b></p> <ul style="list-style-type: none"> <li>▷ Decline of the Ancient Roman Empire.</li> <li>▷ Byzantium: birth of a new empire.</li> </ul>	<ul style="list-style-type: none"> <li>▷ <b>Mind mapping</b> on the society in medieval Europe and the circumstances that led to the rise of Christianity.</li> <li>▷ <b>Organising</b> discussions with children on: <ul style="list-style-type: none"> <li>→ sharing their previous knowledge (if any) about Christianity.</li> <li>→ appreciating the good teachings that various religions offer.</li> <li>→ constructing a time line on the rise and spread of the Roman Empire.</li> <li>→ analysing the reasons and impact of the Barbarian and Byzantium invasions.</li> <li>→ explaining the meaning and the impact of crusades.</li> </ul> </li> <li>▷ <b>Showing</b> Audio Visual aids on: <ul style="list-style-type: none"> <li>→ practices in Christianity – Crusades and Sacred journeys.</li> <li>→ suggested film – Greatest Story ever told as a movie experience.</li> </ul> </li> <li>▷ <b>Enactment</b> of scenes by children from Jesus's life through role plays / skits.</li> <li>▷ <b>Conducting</b> activities related to: <ul style="list-style-type: none"> <li>→ celebrating of Christmas in School.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▷ Related films, videos and documentaries.</li> <li>▷ Role play</li> <li>▷ Mind mapping</li> <li>▷ Flowcharts</li> <li>▷ Quizzes</li> <li>▷ Children's illustrated Bible and Encyclopaedia.</li> <li>▷ PPTs.</li> <li>▷ Outline map of the world</li> <li>▷ Newspapers Clippings and articles.</li> </ul>

## Medieval Europe – Rise and Spread of Christianity

Key Concepts / Concerns	Suggested Transactional Processes	Suggested Learning Resources
► Emergence of the Turks and the Crusades.	<ul style="list-style-type: none"> <li>☛ organising 'a day of Selfless Service' in school.</li> <li>☛ designing web charts and flow charts (individually and in groups) on the rise and spread of Christianity.</li> <li>☛ class presentations on the common features of religions.</li> <li>☛ Flow chart of chronology of events</li> <li>► <b>Creating</b> an imaginary role of a monk or nun living in a monastery during the medieval period – writing an account of your daily routine.</li> <li>► <b>Showing</b> the routes on an outline map of the world taken by crusaders and mark countries where Christianity is the official religion.</li> </ul>	

## Theme 2: Rise and Spread of Islam

The theme 'Rise and Spread of Islam' aims at enabling children to understand a major turning point in the history of mankind with the emergence of a new faith that spread across many continents and affected the politics, life and culture of many places. The suggested pedagogies will help children appreciate the 'welfare of mankind' as the basis of all religions.

### Learning outcomes:

Children will be able to:

- trace the emergence and spread of Islam in Saudi Arabia;
- discuss the basic principles and teachings of Islam;
- report on observations related to some other beliefs and practices;
- appreciate a humanitarian approach as the basis of all religions.

Rise and Spread of Islam		
Key Concepts / Concerns	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"><li>▷ Birth of Prophet Mohammad</li><li>▷ Early life teachings and five basic principles of Islam</li><li>▷ Spread of Islam</li></ul>	<ul style="list-style-type: none"><li>▷ <b>Organising discussions on:</b><ul style="list-style-type: none"><li>☛ appreciating the similarities in the basic teachings and principles of all the religions.</li><li>☛ inculcating a sense of compassion, empathy and welfare among humans that forms the basis of all religions.</li></ul></li><li>▷ <b>Showing</b> documentaries on -the City of Mecca and Medina, Haj, Eid celebrations. This will be followed by discussions.</li><li>▷ <b>Narrating</b> / reading stories from "illustrated Quran Stories", followed by discussions.</li></ul>	<ul style="list-style-type: none"><li>▷ Timeline</li><li>▷ Mind mapping</li><li>▷ Films and documentaries.</li><li>▷ Related videos and PPTs</li><li>▷ Books, magazines and encyclopaedias</li><li>▷ Flash cards – Pillars of Islam – Words, Symbols and actions</li></ul>

## Theme 3: The Delhi Sultanate

'The Delhi Sultanate' will provide children an insight and enable them to understand the times of the Sultans of Delhi. Interesting pedagogy motivates children to discuss, explore, compare and analyse the information on this period and relate it to present day life. It will help children understand how the past has shaped the present.

### Learning outcomes:

Children will be able to:

- discuss the emergence of Delhi as a seat of power;
- name the five dynasties that ruled Delhi;
- analyse the influence and impact of notable rulers on the Sultanate.

### The Delhi Sultanate

Key Concepts / Concerns	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"><li>► The Turkish invasions</li><li>The rule of the five dynasties of Delhi Sultanate period, the important rulers and their significance (briefly):<ul style="list-style-type: none"><li>☛ <i>Mamluk / Slave Dynasty - Iltutmish, Ghiyasuddin Balban;</i></li><li>☛ <i>Khilji Dynasty - Alauddin Khilji;</i></li><li>☛ <i>Tuglaq dynasty - Mohammad bin Tuglaq.</i></li></ul></li></ul>	<ul style="list-style-type: none"><li>► <b>Organising</b> discussions with children on:<ul style="list-style-type: none"><li>☛ interpreting the meaning of "Sultanate".</li><li>☛ analysing the reasons and the impact of invasions.</li></ul></li><li>► <b>Showing</b> Audio visuals on:<ul style="list-style-type: none"><li>☛ the Impact of the Sultanate period</li><li>☛ the invasions of Mahmud of Ghazini and his plunder of temples.</li><li>☛ "Bharat ek Khoj".</li><li>☛ the Episodes on the rulers of Delhi Sultanate.</li></ul></li><li>► <b>Making</b> a Flow chart activity on Sultans of Delhi</li><li>► Role plays/skits on:<ul style="list-style-type: none"><li>☛ the failed experiments of Muhammad bin Tughlaq.</li><li>☛ an actual transfer of Class to comprehend Muhammad bin Tughlaq's transfer of capital.</li><li>☛ creating a simulation of markets in the Khilji dynasty and designing market policies.</li></ul></li><li>► <b>Organizing</b> a debate on the views of historians on Muhammad bin Tughlaq (wisest fool/way ahead of his time)</li><li>► <b>Written</b> Assignments may include:<ul style="list-style-type: none"><li>☛ designing a Delhi Sultanate Newspaper</li><li>☛ creating a royal officials account in Ghiyasuddin Balban's Court –</li></ul></li></ul>	<ul style="list-style-type: none"><li>► Charts, Maps</li><li>► Flowchart</li><li>► Related Videos, films, documentaries and slide shows.</li><li>► Written expression</li><li>► Books, Comics, Encyclopedias and plays (Tughluq).</li><li>► Illustrations made by learners.</li><li>► Bulletin Board.</li><li>► Puppets.</li><li>► Coins, Costumes – images or actual.</li></ul>

## The Delhi Sultanate

Key Concepts / Concerns	Suggested Transactional Processes	Suggested Learning Resources
	<p>Giving an account of their observations of the usual day to day proceedings in the Royal court.</p> <ul style="list-style-type: none"> <li>☛ timeline exercise on the Sultans of Delhi.</li> <li>▷ <b>Conducting</b> Activities relating to:           <ul style="list-style-type: none"> <li>☛ narrating events based on the Delhi Sultanate.</li> <li>☛ reading excerpts from the play “Tughlaq” by Girish Karnad</li> <li>☛ designing a class bulletin board on the Monuments of the Delhi Sultanate.</li> <li>☛ writing a historian’s account of any one of the policies introduced in the Delhi Sultanate and the impact it caused.</li> </ul> </li> <li>▷ <b>Preparing</b> a case study on expansion of empire, administration, significance of court, nobility and land control of any of the rulers mentioned above.</li> </ul>	

## Theme 4: The Mughal Empire

The theme will expose children to the Mughal Empire and enable them to understand why and how it became the most important Empire of the later period of Medieval Indian History. The Empire stretched over a vast territory of the Indian subcontinent and had a rich diversity of people and cultures. Children will also appreciate the Mughal Art and Architecture which forms a rich heritage of India.

### Learning outcomes:

Children will be able to:

- trace the emergence of the Mughal dynasty in India;
- identify the factors that led to the conquest of India by Babur;
- analyse the achievements and failures of Mughal emperors;
- discuss and appreciate the administration, foreign policy, relation with regional kings and Din-e-Illahi of Akbar;
- evaluate the influence of the legacy this period left behind;
- understand the rise of regional powers posing a threat to the Mughal empire.

### The Mughal Empire

Key Concepts / Concerns	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"><li>» An Overview of the Mughal Empire.</li><li>» The first battle of Panipat and establishment of Mughal Empire.</li><li>» Babur</li><li>» Akbar: a case study of Akbar and his times. (relation with other rulers, administrator, revenue system, religious policy).</li><li>» Aurangzeb and his Deccan policy.</li><li>» Decline of Mughal Empire</li></ul>	<ul style="list-style-type: none"><li>» <b>Organising</b> discussions on:<ul style="list-style-type: none"><li>☛ the origin of the Mughals.</li><li>☛ difference in the origin of the Mughals and the rulers of the Delhi Sultanate.</li><li>☛ analysing the reasons Of defeat of Ibrahim Lodi in the first battle of Panipat and the establishment of Mughal Empire.</li><li>☛ Akbar's policy towards Indian rulers with special reference of the Rajputs and Din-E-Illahi</li><li>☛ political developments and military conquests during the times of Akbar and Aurangzeb.</li><li>☛ the varieties of monumental architecture, range of materials, skill and styles used and resources required for building works.</li></ul></li><li>» <b>Conducting</b> Audio Visual shows on the Mughal rulers and their achievements</li><li>» <b>Narrating</b> stories of this period through printed / published material that is age appropriate.</li><li>» <b>Enactment</b> of Role Plays by children on:<ul style="list-style-type: none"><li>☛ a simulation of Diwan-i-aam, where the class resolves their issues.</li><li>☛ Akbar Birbal stories.</li><li>☛ any one ruler of the Mughal dynasty</li></ul></li></ul>	<ul style="list-style-type: none"><li>» Interactions</li><li>» Pictures of Mughal era.</li><li>» Videos and films.</li><li>» Illustrations made by the learner.</li><li>» Games designed by children.</li><li>» Books and encyclopaedia's</li><li>» Creating a Mughal newspaper</li><li>» Pictorial depictions</li><li>» Diary recording</li><li>» Quizzes.</li><li>» Web chart, flow charts</li></ul>

## The Mughal Empire

Key Concepts / Concerns	Suggested Transactional Processes	Suggested Learning Resources
	<ul style="list-style-type: none"> <li>☛ Ad- acting on the rich legacy of the Mughal era – art, culture, language, jewellery, dresses, etc.</li> <li>☛ <b>Written</b> assignments may include:           <ul style="list-style-type: none"> <li>☛ launching a Newspaper based on events of the Mughal era.</li> <li>☛ devising Web charts and flow charts</li> <li>☛ assembling a 'Recipe book of Mughal Cuisine.'</li> </ul> </li> <li>☛ <b>Creating</b> a Newspaper Ad- Games inviting membership to Designing Board Games Din – I - Ilahi.</li> <li>☛ achievement of rulers.</li> <li>☛ a diary recording of Shahjahan when imprisoned in the Agra Fort.</li> </ul>	

**Integration:** Arts Education

## Theme 1: The Constitution of India

The theme 'The Constitution of India' aims at providing information and an insight to children into the supreme law of India containing fundamental rules governing its politics and society as a whole. Children will also be able to discuss and understand the need for a Constitution. This understanding is necessary for them to grow into responsible citizens in a secular democracy.

### Learning outcomes:

Children will be able to:

- infer and illustrate the idea of a Constitution and its purpose;
- discuss the role of the Constituent Assembly;
- understand the preamble, its aims and objectives;
- appreciate the contribution of great Indian thinkers in framing the Constitution of India.

<b>The Constitution of India</b>		
<b>Key Concepts / Concerns</b>	<b>Suggested Transactional Processes</b>	<b>Suggested Learning Resources</b>
<ul style="list-style-type: none"> <li>▷ The Constitution – its meaning and purpose.</li> <li>▷ The role of the Constituent Assembly.</li> <li>▷ The Preamble, its aims and objectives.</li> </ul>	<ul style="list-style-type: none"> <li>▷ <b>Organising</b> discussions on: <ul style="list-style-type: none"> <li>➔ the meaning of Constitution.</li> <li>➔ purpose of a Constitution</li> <li>➔ the important elements of the Preamble</li> <li>➔ the ideas of the Indian Constitution</li> <li>➔ the role of prominent members of the Constituent assembly</li> </ul> </li> <li>▷ <b>Conducting</b> Audio Visual shows on: <ul style="list-style-type: none"> <li>➔ the Documentary - Tryst with Destiny</li> <li>➔ the making of India's Constitution Part 1 -2.</li> <li>➔ making of the Constitution –</li> <li>➔ Indian Pride: Making of the Indian Constitution.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▷ A copy of the Indian Constitution.</li> <li>▷ Videos and Films.</li> <li>▷ Experts/ Judge/Advocate</li> </ul>

## Theme 2: Directive Principles of State Policy

'Directive Principles of State Policy' will enable children to understand the principles that directs the state to create opportunities for the welfare of all citizens. The understanding in turn will help them grow as sensitive, deliberative, responsible and transformative citizens.

### Learning outcomes:

Children will be able to:

- discuss the meaning of the Directive Principles of State Policy;
- examine the features of a welfare state;
- assess the importance of the directive principles;
- analyse the welfare activities by various kings in Indian history;
- compare the welfare activities in the past with today's welfare activities.

### Directive Principles of State Policy

Key Concepts / Concerns	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"><li>► Welfare State – Features.</li><li>► Directive Principles of State Policy – Meaning and Importance</li></ul>	<ul style="list-style-type: none"><li>► <b>Organising</b> discussions on:<ul style="list-style-type: none"><li>☛ the reasons for a welfare state.</li><li>☛ rulers in history who believed in and created welfare states.</li><li>☛ a comparison of a welfare state of previous times with today's welfare state.</li></ul></li><li>► <b>Conducting</b> a Debate on the Directive Principles of State Policy – A Dream or a reality.</li><li>► Audio Visuals:<ul style="list-style-type: none"><li>☛ short documentaries on initiatives started by Government.</li><li>☛ building toilets</li><li>☛ removal of child labour.</li><li>☛ promotion of cottage Industries.</li></ul></li><li>► <b>Enactment</b> of Role plays by children on: An Effective Village Panchayat' who can resolve daily problems of villagers and help towards establishing a welfare state.</li><li>► <b>Written</b> Assignments may include:<ul style="list-style-type: none"><li>☛ writing a letter to the DM giving suggestions for fixing the street lights in your area.</li><li>☛ The 'welfare school' plan</li></ul></li><li>► <b>Preparing</b> a project report by individual or groups of children based on a survey/ research conducted on local craftsman and the help provided by the government / NGOs to them.</li></ul>	<ul style="list-style-type: none"><li>► Discussions/Debate<ul style="list-style-type: none"><li>☛ News Paper articles</li><li>☛ Magazine articles and Images.</li><li>☛ Films/videos and Documentaries.</li><li>☛ Experts.</li></ul></li><li>► Audio – visuals</li><li>► Project work</li></ul>

# *Geography*



**Core concepts of Geography for Class VII are as under:**

**Class VII**

**Representation of Geographical Features**

**Weather and Climate**

**Atmosphere**

**Industries**

**Study of Continents: Europe, Africa and Australia**

## Theme 1: Representation of Geographical Features

This theme aims at developing in children the ability to interpret topographical sheets. They will also be able to measure distances using a scale.

### Learning outcomes:

Children will be able to:

- identify purpose of using different colours scheme on the map;
- identify features on a topographical sheet on the basis of colours;
- use scales for measurement of distance.

Representation of Geographical Features		
Key Concepts	Suggested transactional processes	Suggested Learning resources
<ul style="list-style-type: none"><li>➢ Use of Colours on Topographical sheets Blue – Water body Red – Settlements Yellow – Agriculture Brown – High relief Green – Forests</li><li>➢ Use of scales for measurement: types of scales (representative fraction, linear scale).</li><li>➢ Measuring distance on the map using scales (straight line).</li></ul>	<ul style="list-style-type: none"><li>➢ Engaging children in an activity for identifying features on topographical maps.</li><li>➢ Asking children to prepare individual maps on plain paper showing roads, settlements, water bodies, etc. with colours and conventional symbols.</li><li>➢ Engaging children in observing and using different types of scales. This is to be followed by a discussion on the scales and their uses.</li></ul>	<ul style="list-style-type: none"><li>➢ Power point presentation and Blackboard/whiteboard/interactive boards.</li><li>➢ Mind mapping</li><li>➢ Hands on activity</li><li>➢ Atlas and maps.</li><li>➢ Experts.</li></ul>

**Integration:** Mathematics, Arts Education

## Theme 2: Weather and Climate

This theme will enable children to understand the elements that affect the weather of a place and also differentiate between weather and climate. They will know about instruments used for measurement of rain, temperature, atmospheric pressure, etc.

### Learning outcomes:

Children will be able to:

- list the elements that affect the weather of a place;
- distinguish between weather and climate;
- identify different instruments used to measure elements of weather.

Weather and Climate		
Key Concepts	Suggested transactional processes	Suggested Learning resources
<ul style="list-style-type: none"><li>► Elements of Weather:<ul style="list-style-type: none"><li>☛ Temperature</li><li>☛ Atmospheric pressure</li><li>☛ Humidity</li><li>☛ Precipitation (rain, dew, hail, snow)</li><li>☛ Winds</li><li>☛ Cloud (different types)</li></ul></li><li>► Difference between Weather and Climate.</li><li>► Weather Instruments:<ul style="list-style-type: none"><li>☛ Thermometer</li><li>☛ Rain gauge</li><li>☛ Barometer</li><li>☛ Hygrometer</li><li>☛ Anemometer and wind vane</li></ul></li></ul>	<ul style="list-style-type: none"><li>► Encouraging children to:<ul style="list-style-type: none"><li>☛ discuss the weather conditions of the place they live in with their peers.</li><li>☛ collect information and data about weather from various sources such as newspapers, articles and internet and then writing a report on it.</li></ul></li></ul>	<ul style="list-style-type: none"><li>► Weather station, Weather report from the website of IMD.</li><li>► Newspapers, articles and internet.</li><li>► Report writing.</li></ul>

**Integration:** Languages, Physics, Chemistry

## Theme 3: Atmosphere

This theme aims at enabling children to understand the importance and composition of gases found in the atmosphere.

### Learning outcomes:

Children will be able to:

- describe the importance of gases that comprise the atmosphere;
- describe the percentage of different gases in the atmosphere;
- highlight importance of layers of atmosphere to sustain life on the earth;
- draw diagram to show the structure of atmosphere.

Atmosphere		
Key Concepts	Suggested transactional processes	Suggested Learning resources
<ul style="list-style-type: none"><li>➢ Introduction</li><li>➢ Composition of the Atmosphere (percentage of different gases)</li><li>➢ Structure of the Atmosphere (brief description of Troposphere, Stratosphere (ozone layer), Thermosphere, Mesosphere, Exosphere). To be done in a tabular format.</li></ul>	<ul style="list-style-type: none"><li>➢ Encouraging children to:<ul style="list-style-type: none"><li>☛ collect information and data about weather from various sources such as newspapers, articles and internet.</li><li>☛ develop models /diagrams to show structure and composition of the atmosphere.</li></ul></li></ul>	<ul style="list-style-type: none"><li>➢ Clay models for the structure</li><li>➢ Weather station, Weather report from the website of IMD.</li><li>➢ Weather crossword puzzle.</li><li>➢ Graphs and statistical data from internet resources to study the changes in the variation of temperature and precipitation</li></ul>

**Integration:** Biology, Chemistry, Languages

**Life Skills:** Environmental Conservation

## Theme 4: Industries

This theme aims to develop children's understanding of how geographical and other factors are responsible for the location of industries. They will also be made aware and sensitised towards pollution caused by industries and measures that need to be taken to prevent the same.

### Learning outcomes:

Children will be able to:

- discuss our dependence on industries for fulfilment of our daily needs;
- identify agro based industries and their raw materials;
- discuss factors responsible for localisation of industries.
- name some important industrial centres of the world;
- discuss how industries contribute towards environmental pollution and suggest ways to prevent the same.

Industries		
Key Concepts	Suggested transactional processes	Suggested Learning resources
<ul style="list-style-type: none"><li>➢ Introduction</li><li>➢ Need for industries in the world.</li><li>➢ Agro based industries.</li><li>➢ Factors related to establishment of an industry.</li><li>➢ Important industries of the world: Iron and Steel, Cotton Textile, Information Technology, fishing; important centres of these industries.</li><li>➢ Pollution due to industries and its prevention.</li></ul>	<ul style="list-style-type: none"><li>➢ Mind mapping and familiarising children with the kind of resources required for industrial development through audio-visuals and interactive board.</li><li>➢ Organising activity where children prepare a poster or model to display industrial pollution.</li><li>➢ Tracing the journey of any item from raw material to finished product (e.g.: your shirt from a cotton field to your wardrobe).</li></ul>	<ul style="list-style-type: none"><li>➢ Wall maps of the World map and Atlas.</li><li>➢ Internet resources.</li><li>➢ Visuals and Articles from Newspapers, journals, magazines, etc.</li><li>➢ Posters and models.</li></ul>

**Life Skills:** Conservation of environment

**Integration:** Biology, Languages, Chemistry

## Theme 5: Study of Continents: Europe, Africa and Australia

In the previous class, as a part of the Study of Continents, children were given an overview of North and South America. In this class the theme will take the study of different Continents further as children will be introduced to the Continents of: Europe, Africa and Australia. As in the previous class, children will also get an opportunity to undertake case studies.

### Learning outcomes:

Children will be able to:

- locate Europe, Africa and Australia on the world map;
- identify the countries in Europe, Africa and Australia;
- locate the major physical features of these continents on the map.

### Study of Continents: Europe, Africa, Australia and Antarctica

Key Concepts	Suggested transactional processes	Suggested Learning resources
► Europe, Africa, Australia: <ul style="list-style-type: none"><li>➢ Introduction</li><li>➢ Location</li><li>➢ Boundaries</li><li>➢ Political divisions (countries with capitals)</li><li>➢ Major Physical features</li><li>➢ Locating the above on the map (details given in the table below).</li></ul>	► Mind mapping and encouraging children to locating Europe, Africa and Australia and on the World map. ► Locating the different countries Europe, Africa and Australia on the political map. ► Providing opportunities to children to share their experiences if they have visited any countries in the 3 Continents being focussed on in the theme and make flags of a few countries of Europe, Africa and Australia. ► Encouraging discussions on the life of people in these continents. ► Making a scrap book (individually) about the people of different continents.	► Map of Europe, Africa, Australia and Antarctica ► Mind mapping ► Flags ► Scrap book ► Political outline map ► Project Work

**Integration:** Biology, Languages, history, Arts Education

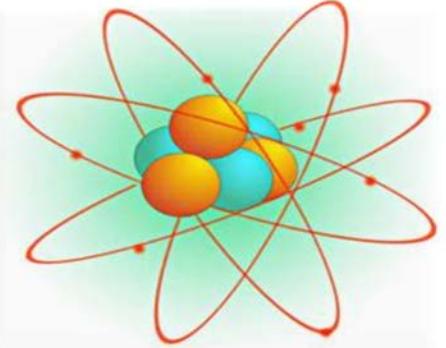
**Life Skills:** Sensitivity towards environment

Name of the Continent	Physical Features	Map Pointing
<b>Europe</b>	Mountains	Alps
		Ural
		Scandinavian highlands
		Elbrus
		Pyrenees
		Caucasus
		Atlas
		Drakensberg
<b>Africa</b>		Ethiopian Highlands
<b>Australia</b>		Great Dividing Range
<b>Europe</b>	Plateaus	Meseta
	Plains	Great European Plains
<b>Africa</b>	Deserts	Kalahari, Sahara, Namib
<b>Australia</b>		Great Australian Desert
<b>Water Bodies</b>		
<b>Africa</b>	Lakes	Victoria, Malawi, Chad
		Great Rift Valley
<b>Europe</b>	Rivers	Ural, Danube, Volga
<b>Africa</b>		Nile, Congo, Niger, Zambezi, Orange
<b>Australia</b>		Murray Darling

# *Science*

- *Physics*
- *Chemistry*
- *Biology*

# *Physics*



**The Core concepts of Physics for Class VII are as follows:**

## **Class VII**

**Physical Quantities and Measurement**

**Force and Pressure: Motion**

**Energy**

**Light Energy**

**Heat**

**Sound**

**Electricity and Magnetism**

## Theme 1: Physical Quantities and Measurement

In the earlier classes teaching- learning emphasised on the measurement of length, mass, and time using devices made for such measurements and how a particular unit and symbol are used to express the result of measurement of each physical quantity. In continuity this theme aims at enabling children to develop the ability to measure volume and determine the density of a regular solid. They will be introduced to and understand the concept of speed, that contains simple problems to get an idea of the speed of objects around them and also to know how fast or slow an object is moving. The concept of speed has been introduced that contains simple problems to get an idea of speed of objects around us.

### Learning outcomes:

Children will be able to:

- define volume;
- express volume of an object in a proper unit with proper symbols;
- measure volume of a liquid using a graduated cylinder and a graduated beaker;
- estimate the area of an object of a regular shape using formula;
- define density and write its formula;
- express density in a proper unit and symbol;
- measure density of a regular;
- express result of measurement in a proper unit with proper symbol;
- define speed and write its formula;
- express speed in proper units with proper symbol.

### Physical Quantities and Measurement

Key Concepts	Suggested Transactional Processes	Suggested Learning resources
<ul style="list-style-type: none"><li>► Measurement of Volume (3D concept):<ul style="list-style-type: none"><li>◆ Concept of unit volume</li><li>► Measurement of area of a regular shaped body using formula</li></ul></li><li>► Measurement of Density of Regular Solids:<ul style="list-style-type: none"><li>◆ Basic concept</li><li>◆ Formula</li></ul></li><li>► Calculation of Speed:<ul style="list-style-type: none"><li>◆ Basic Concept</li><li>◆ Formula</li></ul></li></ul>	<ul style="list-style-type: none"><li>► Explanation of process of measurement of volume</li><li>► Explanation of concept of speed with examples from daily life</li></ul>	<ul style="list-style-type: none"><li>► Graduated cylinder</li><li>► Graduated beaker in activities</li><li>► A regular object</li><li>► Objects of irregular shape</li><li>► Video on volume measuring devices</li></ul>

**Integration:** Chemistry, Technology in daily life

**Life Skills:** Creative thinking, Problem-solving

## Theme 2: Force and Pressure: Motion

An object is said to be in motion if its position changes with time. When walking, running or cycling or when a bird is flying there is motion involved. Various objects have different types of motion. They can be classified into translatory motion, circular motion and oscillatory motion. Motion of an object can also be classified as periodic and non-periodic. If an object travels equal distance in equal time, its motion is said to be uniform, if not, the motion is said to be non-uniform. A physical quantity used to distinguish between uniform and non-uniform motion is average speed.

### Learning outcomes:

Children will be able to:

- define motion;
- identify objects in motion and at rest;
- describe different types of motion, with examples from daily life;
- define uniform and non-uniform motion with examples from daily life;
- define weight;
- relate weight of an object with its mass.

### Force and Pressure: Motion

Key Concepts	Suggested Transactional Processes	Suggested Learning resources
<ul style="list-style-type: none"><li>➢ Motion as a change in position of an object with respect to time.</li><li>➢ Types of motion:<ul style="list-style-type: none"><li>➡ Translatory</li><li>➡ Circulatory</li><li>➡ Oscillatory</li><li>➡ Repetitive (Periodic and Non Periodic)</li><li>➡ Random</li></ul></li><li>➢ Uniform and Non Uniform Motion</li><li>➢ Weight:<ul style="list-style-type: none"><li>➡ Concept</li><li>➡ Differences between Mass and Weight.</li></ul></li></ul>	<ul style="list-style-type: none"><li>➢ Demonstrating objects at rest and in motion.</li><li>➢ Explaining uniform and non-uniform motion by citing examples from daily life</li><li>➢ Explaining the concept of weight.</li><li>➢ Explaining the difference between mass and weight.</li></ul>	<ul style="list-style-type: none"><li>➢ A ball.</li><li>➢ A stopwatch.</li><li>➢ A bob with hook.</li><li>➢ Thread.</li><li>➢ Laboratory stand.</li><li>➢ Video on motion and types of motion.</li><li>➢ Video on uniform and non-uniform motion.</li></ul>

**Integration:** Mathematics, Chemistry, Geography, Technology in daily life.

**Life Skills:** Problem-solving, Cooperation and working together.

## Theme 3: Energy

This theme aims at enabling children to know about energy and the different forms namely, kinetic energy, potential energy, heat energy, electrical energy. They will also understand that one form of energy can be converted into another form and that this is known as transformation of energy. Energy is conserved during transformation. This is known as the law of conservation of energy.

### Learning outcomes:

Children will be able to:

- define energy;
- express energy in proper units;
- discuss about different forms of energy;
- describe conversion of energy from one form to another in different situations;
- state the Law of Conservation of Energy, with examples.

Energy		
Key Concepts	Suggested Transactional Processes	Suggested Learning resources
<ul style="list-style-type: none"><li>► Energy:<ul style="list-style-type: none"><li>◆ Energy as capacity to do work.</li><li>◆ Units of energy (joule and calorie).</li><li>◆ Different forms of energy.</li><li>◆ Inter-conversion of energy</li></ul></li><li>► Law of Conservation of Energy:<ul style="list-style-type: none"><li>◆ Real world examples.</li></ul></li></ul>	<ul style="list-style-type: none"><li>► Explanation of the term energy.</li><li>► Explanation of relation between work and energy.</li><li>► Discussion with children about the different forms of energy, with examples.</li><li>► Providing examples of different applications of conservation of energy (Roller coaster, Production of hydroelectricity etc.) and encouraging children to carefully make energy conversion diagrams and deduce that energy is conserved.</li></ul>	<ul style="list-style-type: none"><li>► A simple pendulum.</li><li>► Charts showing different forms of energy.</li><li>► Video/s showing interconversion of different forms of energy.</li></ul>

**Integration:** Chemistry, Biology, Technology in daily life.

**Life Skills:** Cooperation and working together, problem-solving.

## Theme 4: Light Energy

Light travels in a straight line. Light from an object can move through space and reach the human eye that enables one to see this page, or a face in a mirror. This process is known as reflection. It obeys a law known as law of reflection. Light travels in air at a constant speed of  $3 \times 10^8$  m/s or 3 lakh kilometre per second. In other mediums, like glass or water, it slows down. Light from sun is composed of seven colours. The colours of objects fascinate everybody.

### Learning outcomes:

Children will be able to:

- explain the phenomenon of reflection;
- define the terms plane, normal to the plane, point of incidence, angle of incidence and angle of reflection;
- state the laws of reflection;
- describe reflection of light from a plane mirror;
- define the terms virtual image, real image and lateral inversion;
- state the value of speed of light.

Light Energy		
Key Concepts	Suggested Transactional Processes	Suggested Learning resources
<ul style="list-style-type: none"><li>➢ Reflection:<ul style="list-style-type: none"><li>➡ Definition and Examples.</li><li>➡ Terms related to reflection - Normal, plane, point of incidence, angle of incidence, angle of reflection.</li></ul></li><li>➢ Laws of Reflection.</li><li>➢ Plane mirror:<ul style="list-style-type: none"><li>➡ Virtual and real image</li><li>➡ Lateral inversion</li><li>➡ Uses.</li></ul></li><li>➢ Speed of light (<math>3 \times 10^8</math> m/s).</li></ul>	<ul style="list-style-type: none"><li>➢ Demonstrating reflection of light on a plane mirror. Explaining the point of incidence, normal, angle of incidence and angle of reflection.</li></ul>	<ul style="list-style-type: none"><li>➢ A plane mirror.</li><li>➢ Reflecting surfaces.</li><li>➢ A laser pencil pointer.</li><li>➢ Pencil, scale, eraser, marker.</li><li>➢ White paper sheet.</li></ul>

**Integration:** Art, Mathematics, Technology in daily life.

**Life Skills:** Cooperation and working together, problem-solving.

## Theme 5: Heat

Heat is a form of energy. Sunlight carries heat that gives warmth when exposed to it. When water is heated, its energy in the form of heat increases and becomes hot. When heat energy of an object increases, it can result in (i) change of temperature, (ii) change in size and/or (iii) change in state of an object. Some materials like aluminium are good conductors of heat and some, like wood are bad conductors of heat. Heat from a hot object is transferred to a cold object in three different ways- conduction, convection and radiation. Previous learning included topics on temperature and its measurement in degree Celsius. Further two other frequently used temperature scales, Fahrenheit scale and Kelvin scale have been introduced for a better understanding of concepts related to temperature.

### Learning outcomes:

Children will be able to:

- define heat as energy;
- define units of heat;
- describe temperature scales: degree Celsius, Fahrenheit and Kelvin;
- describe different effects of heat;
- explain different modes of heat transfer;
- decide about conductor and insulator of heat in different applications;

Heat		
Key Concepts	Suggested Transactional Processes	Suggested Learning resources
<ul style="list-style-type: none"><li>➢ Heat as a form of energy and its units, joule(J) and calorie (cal).</li><li>➢ Different units of Temperature (<math>^{\circ}\text{C}</math>, <math>^{\circ}\text{F}</math>, K). (No numerical to be done)</li><li>➢ Effects of Heat:<ul style="list-style-type: none"><li>➡ Change in Temperature.</li><li>➡ Change in Size (Expansion and contraction).</li><li>➡ Change in State.</li><li>➡ Good Conductors and Bad Conductors of Heat and their examples.</li><li>➡ Choice of conductors and insulators in day to day life (Pan handles, metal cooking utensils etc.)</li></ul></li><li>➢ Methods of Heat Transfer:<ul style="list-style-type: none"><li>➡ Conduction</li><li>➡ Convection</li><li>➡ Radiation</li></ul></li></ul>	<ul style="list-style-type: none"><li>➢ Explanation of use of thermometer marked in (<math>^{\circ}\text{C}</math> and <math>^{\circ}\text{F}</math>).</li><li>➢ Explanation of different effects of heat.</li><li>➢ Children have to deduce where conduction, convection and radiation is taking place in some real-world applications.</li></ul>	<ul style="list-style-type: none"><li>➢ Thermometer graduated in <math>^{\circ}\text{C}</math> and <math>^{\circ}\text{F}</math>.</li><li>➢ Water in beaker.</li><li>➢ A tripod with mesh screen.</li><li>➢ A burner for heating.</li><li>➢ A set up to show heat transfer by conduction.</li><li>➢ A round flask.</li><li>➢ Potassium Permanganate Crystals.</li><li>➢ Test tube.</li><li>➢ Test tube holder.</li></ul>

**Integration:** Geography, Biology, Technology in daily life.

**Life Skills:** Cooperation and working together, problem-solving.

## Theme 6: Sound

Sound is produced by the vibration of objects and different types of instruments are used to produce sound. In Humans sound is produced by the voice box or larynx. Sound needs a medium to propagate hence in space it is not possible to hear one another. Sound wave is a longitudinal wave. A wave is characterised by an amplitude and a frequency. Like light, sound is also reflected from a surface. Sound is also absorbed by a medium. Therefore, walls of a theatre are lined with layers of materials that absorb sound. Sound travels with different speeds in different medium and travels fastest in solids. This theme will enable children to know and understand sound, different sources of sound and how it travels.

### Learning outcomes:

Children will be able to:

- identify different sources of sound;
- describe sound as a longitudinal wave;
- define amplitude and frequency of sound;
- demonstrate that sound requires a medium to transmit;
- list examples of Reflection and Absorption of sound;
- analyse the Relative speed of Sound in different mediums.

Sound		
Key Concepts	Suggested Transactional Processes	Suggested Learning resources
<ul style="list-style-type: none"><li>➢ Sources of sound.</li><li>➢ Sound as a longitudinal wave.</li><li>➢ Characteristics of a sound wave: Amplitude (Relate amplitude with loudness) and Frequency.</li><li>➢ Sound needs a medium to propagate.</li><li>➢ Reflection and Absorption of sound.</li><li>➢ Relative speed of sound in different mediums.</li></ul>	<ul style="list-style-type: none"><li>➢ Demonstration of production of sound using simple objects within the classroom followed by discussion</li><li>➢ Children place their hand on their throats and when they speak they feel vibration.</li><li>➢ Explanation of the characteristics of sound.</li><li>➢ Explanation of relative speed of sound in solid, liquid and gas.</li></ul>	<ul style="list-style-type: none"><li>➢ Different sources of sound.</li><li>➢ A set up to show that sound need a medium to propagate.</li><li>➢ Materials for reflecting sound.</li><li>➢ Materials for absorbing sound.</li><li>➢ Videos on sound, sources, need of a medium, characteristic, reflection, absorption.</li></ul>

**Life Skills:** Cooperation and working together, Problem solving, Critical thinking.

**Integration:** Music, Mathematics, Technology in daily life.

## Theme 7: Electricity and Magnetism

The basic law of magnetism states that "Like poles of magnets repel one another and unlike poles attract". A cell is a source of electricity and are used in torches, watches, calculators, etc. When connected to a device like bulb, it sends current through the bulb and the bulb lights up. Flow of charges constitute current. Materials that allow current to flow through them are called conductors whereas materials that do not allow passage of current through them are called insulators. Children will learn how electric components are arranged in simple series and simple parallel arrangements.

### Learning outcomes:

Children will be able to:

- state law of magnetism;
- describe test for a magnet;
- relate current to flow of charge;
- recognize electric cell as a source of electricity;
- define resistors as the component that opposes the flow of current;
- represent different components like cell, battery, key, bulb, connecting wire, resistor by standard symbols;
- recognize battery as series combination of cells;
- define conductors and insulators of electricity.

Electricity and Magnetism		
Key Concepts	Suggested Transactional Processes	Suggested Learning resources
<ul style="list-style-type: none"><li>» Laws of magnetism</li><li>» Test for a magnet (by repulsion)</li><li>» Electric current as a flow of charges</li><li>» Resistors as components that oppose the flow of current.</li><li>» Symbolic representation of electrical components (key, battery, bulb, conducting wire, resistor)</li><li>» Battery as a collection of cells connected in series.</li><li>» Good and Bad conductors of electricity</li></ul>	<ul style="list-style-type: none"><li>» Revisiting previous concepts.</li><li>» Building on children's previous learning.</li><li>» Familiarizing children with symbols for electric components.</li><li>» Explaining the role of key in electric circuits.</li><li>» Explaining the precautions to be taken before an electric circuit is switched-on.</li></ul>	<ul style="list-style-type: none"><li>» Two bar magnets</li><li>» Laboratory stand</li><li>» Thread and hook for magnet</li><li>» An iron nail</li><li>» A cell</li><li>» A coil of wires</li><li>» A compass</li><li>» Dry cell</li><li>» Key</li><li>» Connecting wires</li><li>» Three bulbs</li><li>» Banana clips</li></ul>

**Integration:** Chemistry, Geography, Technology in daily life.

**Life Skills:** Problem-solving, Critical thinking, Cooperation and working together.

# *Chemistry*



**The Core concepts of Chemistry for Class VII are as follows:**

## **Class VII**

**Matter and Composition**

**Physical and Chemical Changes**

**Atomic Structure**

**Language of Chemistry**

**Metals and Non-Metals**

## Theme 1: Matter and its Composition

This theme focuses on informing and making children aware of the different types of matter/objects found in their surroundings such as stones, water, soil, oil, sugar, air. Some of them have common characteristics in terms of states, some are solids, liquids and some are gases. These states vary in their shape, volume and texture. All these are made up of some materials which have mass and occupy space. Children will also realize that the study of their composition is of great importance in their daily lives.

### Learning Outcomes:

Children will be able to:

- describe matter;
- discuss the constituents (atoms/molecules) of matter;
- explain the forces which keep atoms/molecules in matter together.

Matter and its Composition		
Key Concepts / Concerns	Pedagogy/ Transactional Strategies*	Suggested Learning Resources
<ul style="list-style-type: none"><li>➢ Definition of matter.</li><li>➢ Matter has mass and occupies space - Explanation.</li><li>➢ Composition of matter – brief introduction</li></ul>	<ul style="list-style-type: none"><li>➢ Demonstrating that air in a balloon occupies space. It can be shown that any matter like a solid or liquid has mass.</li><li>➢ Discussing that matter is made up of tiny particles. They are tightly packed in solids, loosely packed in liquids and have random motion in gases. The intermolecular attraction between the particles keeps them together (reference: solids, liquids and gases).</li><li>➢ Asking children to draw the above in the notebook.</li></ul>	<ul style="list-style-type: none"><li>➢ Samples of solids, liquids and examples of gases (virtual / video).</li></ul>

**Integration:** Physics

**Life skills:** Cooperation and working together, drawing conclusion.

## Theme 2: Physical and Chemical Changes

The theme focuses on informing children and making them aware about the different types of changes physical and chemical that are regularly observed occurring in the environment. Some occur on their own and some are caused due to human activities to meet their requirements. Keeping in view the unending role of these changes, it becomes worthwhile that children learn about them.

### Learning Outcomes:

Children will be able to:

- differentiate between physical and chemical changes;
- observe activities related to physical and chemical changes;
- classify changes such as respiration, preparation of solution of sugar, burning of paper, ripening of fruit, spoiling of food materials as physical and chemical changes;
- discuss that in a chemical change, a new substance with different properties is formed.

Physical and Chemical Changes		
Key Concepts / Concerns	Pedagogy/ Transactional Strategies*	Suggested Learning Resources
<ul style="list-style-type: none"><li>► Physical and chemical changes.</li><li>► Chemical change - formation of a new product with new properties.</li><li>► Differentiating between physical and chemical change.</li><li>► Classification as physical &amp; chemical change.</li><li>► Types of change involved when there is a change of state of matter.</li><li>► Types of change involved when there is a change of energy.</li></ul>	<ul style="list-style-type: none"><li>► Asking children to classify the following changes as: (i) Desirable and Undesirable (ii) Physical and Chemical change:<ul style="list-style-type: none"><li>- drying of clothes; melting of ice; evaporation of water as physical changes; rusting of iron; burning of fuels &amp; fireworks; curd from milk; reaction of iron powder with sulphur powder as chemical changes.</li><li>Discussing about the formation of a new compound in a chemical change.</li></ul></li><li>► Sharing videos of demonstrations/ experiments and discussing with children to classify changes: respiration, burning, dissolution of sugar, boiling an egg, other daily life examples into physical and chemical changes.</li><li>► Sharing videos of simple experiments with children and asking them to observe and study the interchange of state of water, sublimation of ammonium chloride or iodine.</li><li>► Sharing videos and discussing the processes of: melting, boiling, reversible, irreversible, dissolution of quick lime in water, ammonium chloride in water, burning of match stick, etc.</li></ul>	<ul style="list-style-type: none"><li>► Virtual laboratory or videos</li><li>► Home activity for students- freezing of water and sublimation of camphor.</li></ul>

**Integration:** Physics, Geography, Biology

**Life skills:** Problem solving, critical thinking

## Theme 3: Atomic Structure

This theme will enable children to understand that every matter is made up of tiny particles known as atoms and molecules. Molecules are also constituted by the atoms. Hence atoms are the building blocks of matter. The physical and chemical properties of matter are governed by atoms. Therefore, the knowledge of the concepts of atoms and molecules of elements, compounds and radicals of compounds is necessary to understand different processes and principles of Chemistry.

### Learning Outcomes:

Children will be able to:

- define atom, molecule and radical;
- discuss the significance of valency of elements and radicals;
- define valency in terms of number of hydrogen atoms combined or replaced by one atom of the element;
- apply the definition based on hydrogen atom to find out the valency of other elements and radicals;
- correlate the valency of the elements with group number of periodic table.

Atomic Structure		
Key Concepts / Concerns	Pedagogy/ Transactional Strategies*	Suggested Learning Resources
<b>Atoms, Molecules and Radicals</b> <ul style="list-style-type: none"><li>➢ An atom is the smallest particle of an element.</li><li>➢ It is not capable of independent existence.</li><li>➢ The properties of an element depend upon the atoms constituting it.</li><li>➢ A molecule is the smallest particle of an element or compound, capable of independent existence. It consists of one or more than one atom of the same or different elements.</li><li>➢ A radical is a single atom of an element or a group of atoms of different elements behaving as single unit and with a charge on group.</li><li>➢ Atomicity (no. of atoms in an entity) of elements and compounds – mono atomic, di atomic, tri atomic, polyatomic.</li><li>➢ Associate the first 20 elements in the periodic table with their names and symbols</li><li>➢ Valency is the combining capacity of an element or the number of hydrogen atoms with which it combines or replaces.</li></ul>	<ul style="list-style-type: none"><li>➢ Discussing about atoms, molecules and radicals and explain the difference between them.</li><li>➢ Discussing different examples of elements having mono, di, tri and poly atomicity.</li><li>➢ Preparing a list of some elements and radicals which have valency of 1, 2, 3 and 4.</li><li>➢ Conducting a quiz on valency.</li><li>➢ Explaining the meaning of valency and correlating the valency with the group number of the periodic table.</li><li>➢ Discussing that development of the periodic table is a classification of the element and is based on their physical and chemical properties.</li></ul>	<ul style="list-style-type: none"><li>➢ Periodic table.</li><li>➢ Quiz.</li></ul>

**Integration:** Physics

## Theme 4: Language of Chemistry

Chemistry involves the study of a large number of elements and compounds that also have been learnt earlier with their representation by their short hand notations i.e. symbols and formulae. This theme will enable children to understand that it is not convenient to write the full names of the elements and compounds, and the use of symbols has made the job of the chemists much easier. In addition, they will further realize that Chemistry also involves the occurrence of a large number of chemical reactions that are written in the form of equations known as chemical equations. The writing of chemical equations involves writing of reactants and products as their symbols and formulae. Thus symbols and formulae have also made writing of chemical equations in Chemistry very convenient.

### Learning Outcomes:

Children will be able to:

- identify the names of reactants and products of different chemical reactions;
- write a chemical reaction in the form of a chemical word equation;
- recognize the usefulness of a word equation.

Language of Chemistry		
Key Concepts / Concerns	Pedagogy/ Transactional Strategies*	Suggested Learning Resources
<p>Chemical reactions</p> <p>► A chemical reaction may take place when two or more reactants come in contact with one another and transfer of energy takes place.</p> <p>► Characteristics of occurrence of a chemical reaction:</p> <p>Change of:</p> <ul style="list-style-type: none"><li>☛ Colour</li><li>☛ State</li><li>☛ Smell</li><li>☛ Evolution of gas</li><li>☛ Precipitate formed</li><li>☛ Heat evolved / released</li></ul> <p>► Chemical Equations:</p> <ul style="list-style-type: none"><li>☛ Writing word equations for chemical reactions and emphasize on the observational skills and the names of products formed</li><li>☛ Some examples of word equations for practice.</li></ul>	<ul style="list-style-type: none"><li>► Sharing of videos by the teacher: Adding dilute HCl to solid sodium carbonate taken in a test tube. A reaction takes place with the evolution of gas.</li><li>► Sharing of videos by the teacher of these changes through activities:<ul style="list-style-type: none"><li>☛ Colour: KI + Lead acetate reaction. Yellow colour formed. Precipitate is also formed.</li><li>☛ Heat NH<sub>4</sub>Cl. NH<sub>3</sub> gas is evolved.</li><li>☛ HCl+ NaOH; heat is evolved.</li></ul></li><li>► Guiding children to identify the reactants and products of the reaction, put an arrow in between the reactants and products with the arrow pointing towards the products side.</li><li>► Involving each child to write word equations of some simple reactions.</li></ul>	<p>► PPT/Video</p>

### Integration: Physics

## Theme 5: Metals and Non-Metals

In day-to-day life many elements are commonly found such as iron, aluminium, zinc, lead, chlorine, carbon, sulphur etc. and their compounds. The elements have been classified in two classes, namely metals and non-metals. In this theme children will learn to differentiate between metals and non-metals on the basis of their physical properties.

### Learning Outcomes:

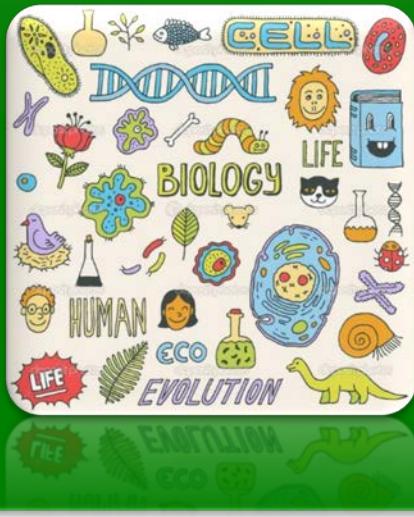
Children will be able to:

- differentiate between metals and non-metals on the basis of their physical properties such as lustre, conduction of electricity and heat, malleability, ductility, sonority, melting point, boiling point, density and strength.

Metals and Non-Metals		
Key Concepts / Concerns	Pedagogy/ Transactional Strategies*	Suggested Learning Resources
<b>Metals, non-metals</b> ► Properties ► Distinguish between metals and non-metals with the general properties (lustre, conduction of electricity, heat, malleability, ductility, sonority, melting point, boiling point, density, strength.)	► Asking children to name some metals that they know of/have seen being used in daily life. ► Examining the properties of metals and non-metals through sharing videos of: <ul style="list-style-type: none"><li>☛ Taking a small iron nail, a coal piece, aluminium wire, and pencil lead. Beating each separately with a hammer and recording the observations. (malleability).</li><li>☛ Making separate electric circuits using a metal and a non-metal (Al wire, coal piece) - (conductivity).</li><li>☛ Dropping the above samples one by one. Noting the sound produced -(sonority).</li></ul>	► Pictures of some metals such as copper, iron nail, a coal piece, aluminium wire, and pencil lead.

**Integration:** Physics, Geography

# Biology



The core concepts of Biology for Class VII are as follows:

## Class VII

Tissue

Kingdom Classification

Plant Life

Human Body

## Theme 1: Tissue

In the previous class, children learnt about the cell, which is the basic unit of life in plants and animals. The cells are organized into tissues, organs, organ-systems and finally into an organism. The theme in this class will focus on enabling children to know about the tissues and the different types of tissues in plants and animals.

### Learning Outcomes:

Children will be able to:

- define the term 'tissue';
- relate that plants and animals have different types of tissues;
- explain the differences between meristematic and permanent tissues with examples;
- classify the different types of animal tissues (epithelial, connective, muscular and nerve tissues).

<b>Tissue</b>		
<b>Key Concepts</b>	<b>Suggested Transactional Processes</b>	<b>Suggested Learning Resources</b>
<p><b>Plant Tissues</b></p> <ul style="list-style-type: none"><li>➢ Definition of tissue.</li><li>➢ Classification of plant tissues: Meristematic and permanent (simple and complex).</li><li>➢ Meristematic tissues: characteristics (any two), simple structure, location, function, examples.</li><li>➢ Simple permanent tissues: parenchyma, collenchyma, sclerenchyma (simple structure, location and functions of each), examples.</li><li>➢ Complex permanent tissues: xylem, phloem- function only. (Elements of xylem and phloem not to be mentioned).</li></ul>	<ul style="list-style-type: none"><li>➢ Explaining the different plant tissues to children - their location, structure, characteristics and functions.</li><li>➢ Encouraging children to develop charts and models.</li></ul> <p><b>Experiments</b></p> <ul style="list-style-type: none"><li>➢ Keep a twig of petunia with white flowers in a beaker containing coloured water and observe the flowers after a few hours (flowers will become coloured).</li><li>➢ Ask children to observe and record what happens to the plant seedlings if the roots are removed and seedlings are kept in coloured water.</li></ul>	<ul style="list-style-type: none"><li>➢ PPTs and Videos on tissues.</li><li>➢ Photographs and pictures of tissues.</li></ul>
<p><b>Animal Tissues</b></p> <ul style="list-style-type: none"><li>➢ Epithelial tissue: simple location, and function (types of epithelial tissue not to be mentioned).</li><li>➢ Connective tissue location and functions of bone, cartilage, blood, ligament, tendon.</li><li>➢ Muscular tissue: location and one function of:</li></ul>	<p><b>Animal Tissues</b></p> <ul style="list-style-type: none"><li>➢ Showing diagrams of the following tissues: Epithelial, Connective, Muscular and Nervous tissue.</li><li>➢ Showing children diagram/images of the nervous system and pictures of Dendron and axon.</li><li>➢ Asking children to draw a</li></ul>	<ul style="list-style-type: none"><li>➢ Models and pictures of nervous system.</li><li>➢ Children's drawings.</li></ul>

Tissue		
Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"> <li>☛ <i>striated (voluntary or skeletal muscle),</i></li> <li>☛ <i>unstriated (involuntary/ smooth muscle),</i></li> <li>☛ <i>cardiac (specialized muscle).</i></li> </ul> <p>► Nerve tissue: parts of neuron (cell body, Dendron, axon).</p> <p><b>Note:</b> Only basic structure and basic functions of the above mentioned tissues to be done.</p>	<ul style="list-style-type: none"> <li>diagram of nerve tissue.</li> <li>► Discussing functions of nervous system.</li> </ul>	

## Theme 2: Kingdom Classification

This theme gives an insight into the study of the types of Kingdoms in Plants and Animals. Living organisms are divided into two kingdoms – Kingdom Plantae and Kingdom Animalia. The kingdom Plantae includes plants, while the animals are included under kingdom Animalia. This two-kingdom classification was found inadequate in the light of disputed position of organisms like bacteria and fungi. In view of the objections to the two-kingdom system of classification, a Five-Kingdom Classification was proposed in 1969. The five Kingdoms are Monera, Protista, Fungi, Plantae and Animalia.

### Learning Outcomes:

Children will be able to:

- explain the purpose and advantages of classification;
- explain the basis of five - kingdom classification;
- differentiate between major groups of organisms;
- draw pictures of organisms representing each kingdom.

Kingdom Classification		
Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"><li>► Meaning and concept of classification.</li><li>► Need and advantages of Classification.</li><li>► Characteristics of each kingdom with suitable examples:<ul style="list-style-type: none"><li>(i) Monera: bacteria - shape;</li><li>(ii) Protista: <i>Amoeba</i> - basic structure;</li><li>(iii) Fungi: basic structure of mould;</li><li>(iv) Plantae: characteristics and examples (classification of plantae not to be discussed);</li><li>(v) Animalia<ul style="list-style-type: none"><li>(a) Vertebrates.</li><li>(b) Invertebrates: 9 major Phyla, Porifera, Cnidaria, Coelenterata, Platyhelminthes, nematoda, Annelida, Arthropoda, Mollusca, Echinodermata)</li></ul></li></ul></li><li>(Two characteristics and two examples of each Phylum).</li></ul>	<ul style="list-style-type: none"><li>► Asking children to classify or group these plants and animals in their own way.</li><li>► Learning about different organisms belonging to each kingdom and asking them to write about examples of each kingdom.</li><li>► Drawing pictures of organisms belonging to each kingdom.</li><li>► Encouraging children to collect more information on each phylum.</li><li>► Assigning projects to make picture cards and writing their features on the other side.</li></ul>	<ul style="list-style-type: none"><li>► Plants and animals in their natural habitats.</li><li>► Photographs.</li><li>► PPTs and Videos.</li><li>► Picture cards.</li></ul>

**Life Skill:** appreciate diversity of life

## Theme 3: Plant Life

The theme Plant Life aims at promoting children's understanding that all living organisms despite their great diversity in shapes and sizes, show similarity in their activities. They all need food, energy, grow, remove waste materials from their bodies, reproduce and respond to their environment. Growth, excretion, reproduction and response to stimuli are some of the basic life processes. This theme will particularly focus on enabling children to understand the two important processes in plants of Photosynthesis and Respiration, differences between the two and factors affecting them.

### Learning Outcomes:

Children will be able to:

- discuss and demonstrate that leaves perform the function of photosynthesis;
- enlist the factors affecting photosynthesis;
- draw picture of stomata and chloroplast;
- identify the difference between respiration and photosynthesis and relate that respiration and photosynthesis help maintain the balance of CO<sub>2</sub> and O<sub>2</sub> in the atmosphere;
- reason out that the energy produced in respiration is used up by the body to perform life-sustaining activities;
- differentiate between the aerobic and anaerobic respiration;
- discuss the need for growing more and more plants.

<b>Plant Life</b>		
<b>Key Concepts</b>	<b>Suggested Transactional Processes</b>	<b>Suggested Learning Resources</b>
<b>Photosynthesis</b> <ul style="list-style-type: none"><li>► Definition, basic process, factors affecting photosynthesis: (light, carbon dioxide, water, chlorophyll), significance of photosynthesis, setup.</li><li>► Photosynthesis process (demonstration).</li></ul> <b>Respiration</b> <ul style="list-style-type: none"><li>► Basic process, word equation; respiration as a process which releases energy; respiration in plants: two types (aerobic and anaerobic: basic concept, word equations for both, examples).</li><li>► Respiration and photosynthesis in plants, difference in both processes.</li></ul>	<ul style="list-style-type: none"><li>► Revisiting previous concepts.</li><li>► Building on children's previous learning.</li><li>► Asking children to observe the colour of leaves and also name plants that have yellow or red coloured leaves, discussing the reasons for such colours.</li><li>► Observation of stomata and chloroplasts present in the leaves (using images).</li><li>► Drawing picture of stomata and chloroplast and labelling their parts.</li><li>► Summarizing the process of photosynthesis with the help of a word equation (No symbols)</li><li>► Showing video of the hydrilla experiment to show evolution of oxygen during photosynthesis.</li><li>► Discussing the difference between aerobic and anaerobic respiration and citing examples of both.</li><li>► Discussing differences between the respiration and photosynthesis</li></ul>	<ul style="list-style-type: none"><li>► Images, PPTs, videos.</li></ul>

Plant Life		
Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
	process in plants and asking children to explain both the processes in their own words.	

## Theme 4: Human Body

In the previous classes, children were exposed to basic information regarding some of the organ systems in the human body (digestive, respiratory and circulatory systems). In this theme, children will study the excretory system in the human body.

### Learning Outcomes:

Children will be able to:

- define the term 'excretion' and its need/significance;
- draw the outline figure of the human body and mark the location of kidneys, skin, sweat glands and lungs;
- infer that the kidneys play an important role in excretion.

Human Body		
Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<b>Excretory System</b> <ul style="list-style-type: none"><li>➢ Excretion: Definition.</li><li>➢ Organs and their excretory products (kidneys, sweat glands, lungs);</li><li>➢ Renal Excretory System - kidneys, ureter, urinary bladder, urethra (location and functions to be explained along with diagram).</li></ul>	<ul style="list-style-type: none"><li>➢ Building on children's previous learning.</li><li>➢ Explaining the various parts of excretory system with the help of PPTs and videos.</li><li>➢ Explaining the difference between excretory and waste products.</li><li>➢ Asking children to label diagram of the excretory system.</li><li>➢ Providing children opportunities to share their personal experiences.</li></ul>	<ul style="list-style-type: none"><li>➢ PPTs and videos.</li><li>➢ Children's drawings.</li></ul>



# Computer Studies

**The Core Concepts of Computer Studies for Class VII are as follows:**

## Class VII

**Number System – An Introduction**

**Computer Virus**

**Ethics and Safety Measures in Computing**

**Spreadsheets – An Introduction**

**HTML – Advanced Features**

## Topic 1: Number System – An Introduction

Number System is a set of values used to represent different quantities. In day-to-day life we use the decimal number system, which has a base of 10 as it uses 10 digits (0-9). The digital computer represents all kind of data and information (text, numbers, graphics, video, etc.) in binary numbers which have a base of 2 as the computer uses 2 digits (0 and 1). Other number systems used in computer are octal and hexadecimal. Values from one number system can be converted to other number system. This theme aims at enabling children to know and understand the different number systems and their uses in general and in particular that of the digital computer.

### Learning outcomes:

Children will be able to:

- explain the need for Number Systems;
- list the uses of various Number Systems in computer learning;
- convert a value from decimal number system to binary and vice versa;
- citing examples of binary, decimal conversion and demonstrating them.

Number System – An Introduction		
Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"><li>➢ Introduction to Number system: need for number systems and examples of various number systems.</li><li>➢ Digits and bases of different number systems.</li><li>➢ Represent value in different number systems (Decimal, binary, octal and hexadecimal number system).</li><li>➢ Conversions from decimal to binary and vice versa.</li></ul>	<ul style="list-style-type: none"><li>➢ Illustrating to children the various number systems (Decimal, binary, octal and hexadecimal) through videos/presentation.</li><li>➢ Providing opportunities, through examples to children to undertake hand-on-activity for practicing the technique of conversion binary to decimal and vice versa.</li></ul>	<ul style="list-style-type: none"><li>➢ Computers/ IWB with presentation software.</li><li>➢ Hands-on-activity</li><li>➢ Interactive class</li><li>➢ Videos on number systems.</li><li>➢ Projector, etc.</li></ul>

**Life Skills:** Such as logical thinking may be developed through this content.

## Topic 2: Computer Virus

A computer virus is a 'piece of code' that copies itself and corrupts the system to destroy existing data on a computer. Computer viruses are manmade. There are many types of viruses which infect systems in different ways causing damage to the system. To counter-effect the virus, antivirus programs are developed. This Topic aims at developing children's ability to understand and discuss about what a computer virus is the different types, symptoms and causes along with remedies and protection tips.

### Learning outcomes:

Children will be able to:

- define a virus.
- list different types of viruses.
- follow standard measures to prevent virus attack.
- identify symptoms of virus attack on a computer.
- use a suitable antivirus software.

Computer Virus		
Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"><li>➢ Definition and example of computer virus.</li><li>➢ Types of Virus (boot sector and program file virus - definition and examples).</li><li>➢ Virus symptoms and harm caused by virus</li><li>➢ Antivirus – definition and examples.</li><li>➢ Ways to prevent a virus (e.g. scanning pen drive, and CDs, downloading only from secured sites, updating of antivirus regularly etc.).</li><li>➢ Definition and example of forms of virus attack (malware, worm, spyware, Trojan horse, sweeper).</li></ul>	<ul style="list-style-type: none"><li>➢ Illustrating different types of viruses (boot sector and program file virus with examples).</li><li>➢ Discussing the different forms/types of viruses.</li><li>➢ Showing children through videos/ presentations the symptoms and harm caused by viruses and conducting a discussion with them after that.</li><li>➢ Demonstrating different ways to prevent virus attacks and asking children to replicate the same.</li></ul>	<ul style="list-style-type: none"><li>➢ Computers/ IWB with presentation software.</li><li>➢ Videos.</li><li>➢ Discussion on harmful effects of virus</li><li>➢ Scanning process of pen drive, CD</li></ul>

**Life Skills:** Awareness and Management skills

## Topic 3: Ethics and Safety Measures in Computing

Ethics in computing or computer ethics is a set of moral principles which regulate the use of computers. This theme aims at making children aware of the ethics in computing while using the Internet. Further, in order to safeguard the computer and prevent attacks of viruses and hacking, etc. they will know about certain safety features which need to be applied.

### Learning outcomes:

Children will be able to:

- follow ethics in computing;
- identify online threats;
- identify positive and negative uses of social media;
- show responsible behaviour when using computer and internet;
- become responsible digital citizens;
- take care about the digital footprint being created by their online behaviour;
- use information ethically when developing presentations/ projects/ etc.

Ethics and Safety Measures in Computing		
Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"><li>➢ Advantages and disadvantages of using internet.</li><li>➢ A brief introduction to ethics in computing.</li><li>➢ Unethical practices prevalent in the society, related to internet:<ul style="list-style-type: none"><li>→ <i>Plagiarism</i></li><li>→ <i>Cyber bullying</i></li><li>→ <i>Hacking</i></li><li>→ <i>Phishing</i></li><li>→ <i>Spamming</i></li><li>→ <i>Individual right to privacy</i></li><li>→ <i>Software Piracy,</i></li><li>→ <i>Intellectual property rights</i></li></ul></li><li>➢ Meaning and a brief explanation of the different unethical practices stated above in point no. 3. along with the preventive measures.</li><li>➢ Safety Measures to be taken while using the computer and internet. Parental assistance for minors, such as- viewing age appropriate websites, keeping strong password, not sharing passwords, frequently changing passwords, responding to emails only from known person or organisation etc. Protection using Firewall (meaning and a brief explanation).</li><li>➢ Digital footprints (meaning and sensitising children about it.)</li></ul>	<ul style="list-style-type: none"><li>➢ Discussing with children various Topic/Topics related to ethical and non-ethical issues and practices on the Internet.</li><li>➢ While working on the computers inculcating, among the children, the habit of ethical online conduct and responsible behavior while using information and technology.</li><li>➢ Encouraging children to follow safety measures while using the computer and internet.</li><li>➢ Citing examples from real life to sensitise children on the implications of the digital footprint created by their posts, comments, pictures, social groups, etc.</li></ul>	<ul style="list-style-type: none"><li>➢ Computers/ IWB with Presentation Software.</li><li>➢ Videos.</li><li>➢ Discussion on ethical and unethical practices related to internet use</li></ul>

**Life Skills:** Net Safety, Social intelligence, work ethics and interpersonal skills.

## Topic 4: Spreadsheets - An Introduction

A Spreadsheet is an interactive computer application for storing data, in a tabular form (in rows and columns of a grid), that can be manipulated and used for calculations. Spreadsheets are one of the most popular uses of computer. This Topic aims at developing children's understanding about the basic components and operations of the Spreadsheet, namely: creating/ saving/ modifying a workbook.

### Learning outcomes:

Children will be able to:

- define a spreadsheet;
- list the features and components of a spreadsheet;
- create a worksheet;
- identify the components of spreadsheet window;
- differentiate between a workbook and a worksheet;
- edit/format a worksheet.

Spreadsheets – An Introduction		
Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"><li>➢ Features of spreadsheet and its advantages.</li><li>➢ Components of Spreadsheet window: workbook and worksheet, sheet tab, cell, cell address, active cell, formula bar, row, column, name box.</li><li>➢ Entering data in a spreadsheet</li><li>➢ Types of data (number, string and formula).</li><li>➢ Perform calculations.</li><li>➢ Enter simple formulae.</li><li>➢ Select cells.</li><li>➢ Change cell contents.</li><li>➢ Use Undo and Redo features.</li><li>➢ Insert and deleting columns and rows.</li><li>➢ Copy and move data.</li><li>➢ Use autofill feature.</li></ul>	<ul style="list-style-type: none"><li>➢ Demonstrating to children the different components of a spread sheet along with discussion.</li><li>➢ Demonstrating the use of Spreadsheets using real life examples: children can be individually/in groups asked to collect data of a group of people on two- three criteria (e.g. age, height, weight, etc.), enter the data on a spread sheet and perform the various functions on them.</li><li>➢ Using formatting features by children created on the spread sheets.</li><li>➢ Discussion on advantages of spreadsheet and workbook.</li><li>➢ Providing each child the opportunity to work on computers and undertake the following tasks:<ul style="list-style-type: none"><li>• Entering data in a spreadsheet</li><li>• Perform calculations.</li><li>• Enter simple formulae.</li><li>• Select cells.</li><li>• Change cell contents.</li><li>• Use Undo and Redo features.</li><li>• Insert and deleting columns and rows.</li><li>• Copy and move data.</li><li>• Use autofill feature.</li></ul></li></ul>	<ul style="list-style-type: none"><li>➢ Computers/ IWB with spreadsheet software.</li><li>➢ Questionnaires/surveys/ polls</li><li>➢ Discussion on advantages of spreadsheet and workbook</li></ul>

**Life Skills:** creative thinking, analytical and deductive skills

**Integration:** Mathematics

## Topic 5: HTML – Advanced Features

This topic will develop children's ability to create a web page by not only using basic HTML tags but upgrading their skills to use advanced tags like lists, images, links, tables and forms. This will make the creation of a web page more attractive and useful to children.

### Learning outcomes:

Children will be able to:

-  add advanced features to a web page, like lists, images, links, tables and forms

HTML – Advanced Features		
Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
<ul style="list-style-type: none"><li>➢ Create lists (&lt;OL&gt;, &lt;UL&gt;) .</li><li>➢ Insert Images in web pages &lt;img src&gt;.</li><li>➢ Insert links &lt;a href&gt;, tables &lt;tr&gt;, &lt;td&gt;, &lt;table&gt;.</li><li>➢ Display objects through &lt;Marquee&gt;.</li><li>➢ Create forms using &lt;form&gt; tag.</li></ul>	<ul style="list-style-type: none"><li>➢ Revising and revisiting previous concepts learnt by children i.e. The HTML tags and building on the same.</li><li>➢ Encouraging children to discuss:<ul style="list-style-type: none"><li>• about the features of the websites that they like and their reasons for the same.</li><li>• how a webpage can be made more impressive/user friendly.</li></ul></li><li>➢ Illustrating how to create lists, insert images, links, tables and forms in a web page and encouraging each child to do the same on his/her computer.</li><li>➢ Providing opportunities for hands on activity through web page development.</li></ul>	<ul style="list-style-type: none"><li>➢ Computers/ IWB with HTML editor.</li><li>➢ Internet facility.</li></ul>