

# Grade 8 – Learning Area

## Specific Course Descriptions



### ENGLISH

By the end of Grade 8, students consolidate many of the skills acquired in the previous grades. They are able to select text structures for different purposes and audiences and use various language features, images and vocabulary for the desired effect, and express ideas in new ways. Students learn how events, situations and people can be represented from different viewpoints. They are receptive to others' opinions and points of view, and take a firm stand on their opinion.

Students listen for and identify different emphases in texts, using that understanding in discussions and debates. They are able to select language features for particular purposes and effects, and make language choices to influence the audience. Students contribute actively to class and group discussions, using language patterns. They are able to create, edit and refine their writing to make it more effective.

### MATHEMATICS

From the comfort of context and/or models linked to their experience, the students of Grade 8 move towards working with ideas. Learning to abstract helps formulate and understand arguments. The capacity to see interrelations among concepts help to deal with ideas in other subjects as well. It also helps to understand and make better patterns, maps, appreciate area and volume and see similarities between shapes and sizes. While this is regarding the relationship of other fields of knowledge to mathematics, its meaning in life and the environment is re-emphasised. Students will be able to identify the principles to be used in contextual situations, for solving problems, sift through, and choose the relevant information as the first important step. Students will be able to find a way to use the knowledge they have and reach where the problem requires them to go. They identify and define a problem, select or design possible solutions and revise or redesign the steps, if required. In Grade 8I students develop the ability to construct appropriate models by breaking up the problem and evolving their own strategies and analysis of problems.

By the end of Grade 8, students further explore concepts of Numbers and Algebra. Students apply the knowledge acquired in their previous grade to delve further into Geometry, Commercial Arithmetic, Statistics and Mensuration. The curriculum arranges for classroom activities that promote the true understanding of the nature of mathematics through specific knowledge, skills and attitudes among and between strands.



### SCIENCE

Students will use scientific and engineering processes, protocols, and tools, including inquiry, to build understanding of structures, patterns, and relationships explained throughout this course. Critical thinking, collaboration, and communication skills are emphasized as students refine their scientific literacy through close reading of scientific research papers and texts.

In Biology, students will use the geologic time scale to organize Earth's 4.6-billion-year-old history. They will analyse rock formations and the fossils they contain to establish relative ages of major events in Earth's history. Students will be introduced to biological classification, central ideas of evolution, evolutionary trees and cladograms. Asexual and sexual reproduction, heredity and genes will be included. This will help students make connections to diversity of species tracing changes evident in the fossil records and relating this content to evolution.

In Chemistry, the attractions and motion of atoms and molecules (kinetic theory of matter) will be explored. The changes of states of matter and the effect of temperature on these processes will be examined. Students will develop models to represent the atomic composition of the substances. They will be able to provide molecular level accounts to explain states of matters. Scientific investigations will be conducted to understand the concept of density and pressure. Chemical interactions including exothermic and endothermic reactions are included. The role of density and pressure in the formation of planets will be explored.

In Physics, natural laws as they apply to motion, forces, and energy transformations are explored. Physics will include a basic introduction to the field model. Investigations will be conducted to provide evidence that fields exist between objects exerting forces on each other even though the objects are not in contact. Electric, magnetic, and gravitational fields will be studied along with the electromagnets. Concepts related to forces and motion, properties of waves and electromagnetic radiation will be included. Structure, dynamics, and geophysical systems of the earth are introduced. Physical features of Earth like plate tectonics, constructive and destructive forces will be examined in detail.



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### SOCIAL SCIENCE

The History curriculum provides a comprehensive learning about the Mughal Empires in India and the achievements of significant rulers. In World History, students do an in depth study of the Renaissance period in Europe. The content provides opportunities to develop historical understanding through key concepts, including evidence, continuity and change, cause and effect, perspective and contestability. These concepts may be investigated within a particular historical context to facilitate an understanding of the past and to provide a focus for historical inquiries.

In Civics, students analyze the constitution and the fundamental rights and duties of citizens. They will be able to classify the Hierarchy and Types of Law in our country. Students will investigate the factors that shape national identity

There are two units of study in the Year 8 curriculum for Geography: 'Landforms and landscapes' and 'Changing nations'.

'Landforms and landscapes' focuses on investigating geomorphology through a study of landscapes and their landforms. This unit examines the processes that shape individual landforms, the values and meanings placed on landforms and landscapes by diverse cultures, hazards associated with landscapes, and management of landscapes. 'Landforms and landscapes' develops students' understanding of the concept of environment and enables them to explore the significance of landscapes to people, including Indigenous Peoples. These distinctive aspects of landforms and landscapes are investigated using studies drawn from India and throughout the world.

'Changing nations' investigates the changing human geography of countries, as revealed by shifts in population distribution. The spatial distribution of population is a sensitive indicator of economic and social change, and has significant environmental, economic and social effects, both negative and positive. The unit explores the process of urbanisation and draws on a study of a country of the Asia region to show how urbanisation changes the economies and societies of low- and middle-income countries. It investigates the reasons for the high level of urban concentration in India, one of the distinctive features of India's human geography, and compares India with other countries. The redistribution of population resulting from internal migration is examined through case studies of India and China, and is contrasted with the way international migration reinforces urban concentration in more developed countries. The unit then examines issues related to the management and future of India's urban areas.



### SECOND LANGUAGE – HINDI/KANNADA

By the end of Grade 8 students begin to communicate in Hindi/Kannada using a range of vocabulary and formulaic expressions appropriate for context and need. They recognise and respond to various elements of the language - punctuation marks, anusak, anuswar and nukta, joining common word (sandhi) and compound words (samās). Students brainstorm, plan, draft and compose written work - samvaad, soochna, chitra varnan/chitrada varnane, vinyasan/vignapane, radio show, and letters. They are receptive to others' opinions - modifying their response and manner of interaction to match context. Students will get familiar with different types of Hindi/Kannada texts like, One act plays, biographical narratives, travelogues and formal letter writing.

Students are able to recognize that intonation carries meaning. They use comprehensible pronunciation to emphasise what they convey. They use their proficiency in Hindi/Kannada to explore and study other areas of knowledge through print and non-print media. Students will also make use of formal and informal salutations in their talk and interact with peers to negotiate and complete assigned project. They acquire the ability to listen with concentration, empathy and understanding.

### THIRD LANGUAGE

Grade 8 curriculum offers Kannada or Sanskrit as the third language\*. The third language curriculum helps students with the skills of listening, speaking, reading and writing in a variety of contexts and trains students to be able to adapt language to suit different tasks, audiences and purposes. It aims to develop confidence in the students so that they can communicate in the language effectively. It helps the students work on their ability to critique - to analyse and evaluate diverse texts, thereby, questioning ideas and articulating their point of view.

\*Please check school specific second and third language options as Boards specify these for all their schools.



# Grade 8 – Learning Area Specific Course Descriptions



## COMPUTER SCIENCE

Students analyze the consequences of leaving digital footprints online. They identify Arduino Uno board components and common electronic components. They identify the hazards of working with electricity. Students use Arduino Uno board and sensors such as motion detectors, photoresistors and piezo-buzzers to build detection systems and control systems for specific purposes. Students explore Python Collections- lists, dictionaries and tuples. Students understand how data can be grouped and manipulation using dictionaries and tuples. They are then introduced to Python functions. Students write various python programs to explore the use of functions. They implement searching and sorting algorithms using Python functions. Students learn about data representation in computers. They convert data present in one number system to another system. They design technology based solutions for real world problems. They learn about computer networks.

### Practical Skills:

- Design, build and test detection and control systems using Arduino.
- Use Google apps to create and share information and collaborate with peers.
- Recall Python Lists
- Manipulate Python - Dictionaries and Tuples.
- Demonstrate the use of built in functions and modules.
- Create and demonstrate user defined functions in Python.
- Demonstrate how standard searching and sorting algorithms work using Python functions.

## LIFESKILLS

The life-skills curriculum in Middle School is modelled off habits of the mind and heart, used by both students and teachers. This helps students develop a realistic sense of their personal abilities, qualities, strengths and the factors that influence and affect their emotional responses.

Students participate in discussions on real life situations and understand how to tackle such instances – learning how to deal with roles and responsibilities, importance of teamwork, etc. Students are able to express themselves freely in a positive and safe environment.

Through role plays and activities, they learn to show respect for and understand others' perspectives. As learners, they manage and monitor their own emotional responses, and persist in completing tasks and overcoming hurdles.



## OTHER

Students in Grade 8 also attend weekly sessions in Yoga, Physical Education and quiet reading time at the school library.



