Grade 10 – Learning Area specific course descriptions

ENGLISH

The purpose of Grade 10 English curriculum is to enable students to communicate effectively and appropriately in real-life situation. Students work further on the four language skills – listening, speaking, reading and writing. They read, comprehend and appreciate texts in English, using different strategies like reading aloud, silent reading, scanning and skimming. Students understand the rules of grammar and their use in writing, learn to write in an appropriate style and format, plan organise and present ideas coherently. They also develop an interest in reading and appreciating Literature in English.

MATHEMATICS

The Mathematics curriculum in Grade 10 aims to enhance the capacity of students to employ Mathematics in solving day-to-day life problems. Students acquire the ability to solve problems using algebraic methods and apply the knowledge of simple trigonometry to solve problems of height and distances. They carry out experiments with numbers and forms of geometry, frame hypothesis and verify these with further observations. Students apply the knowledge and skills acquired to solve problems and wherever possible, by more than one method and develop ability to think, analyse and articulate logically.

The Grade 10 curriculum is imparted through activities which may involve the use of concrete materials, models, patterns, charts, pictures, posters, games, puzzles and experiments. It helps students to further study the number system, algebra, geometry, trigonometry, mensuration, statistics, graphs and coordinate geometry.

SECOND LANGUAGE – HINDI/Kannada

By the end of Grade 10, students communicate in Hindi/Kannada with confidence, locate details in the text, and develop coherent arguments supported by reason and examples. They use critical thinking to read between the lines and go beyond what is in text. They are able to modify their responses and manner of interaction to match a situation.

Students write soochna, vigyapan, anuched lekhan, and formal letters for real purposes and with accuracy. They recognise and respond to all compound words (samas), types of sentences (vaky bhed), and correct form of sentences (suddh vaky). Students undertake small projects like presentations and interviews on a regular basis. They develop the skill to listen and understand in a non - linear way, to make connections and draw inferences. They also acquire the ability to listen with concentration, empathy and understanding.

SCIENCE – PHYSICS, CHEMISTRY, BIOLOGY

The Science program is designed with an aim of developing a sense of wonder and curiosity about cosmos, subatomic world and biology and making students “science aware”. Students learn through hands-on activities which include researching, observing, recording, analysing, inferring and designing, thereby develop the skill of scientific inquiry and thinking analytically, critically and creatively.

In Physics, students investigate and understand the different physical phenomena. They come across various tools to quantify these phenomena and learn to use these tools to solve real life problems. Emphasis is given on strengthening the science aptitude and reasoning by working on

relevant problems. Students would be able to solve the most complex problems through mathematical and logical interventions.
In biology, the course encompasses traditional concepts and encourages exploration of new discoveries in the field. The components include biochemistry, cell biology, cell processes, heredity and reproduction, the evolution of life, taxonomy, human body systems, and ecology. Earth and Space Science concepts are integrated in a strategic way, designed to deepen student understanding of life on Earth and the interactions between the biotic and abiotic systems. Throughout the course students build an understanding of life and how life changes over time in response to a changing environment. Central to this understanding is the study of interactions of living organisms and their environments on both macroscopic and microscopic scales.
In chemistry, students learn about the fundamentals and its context in life. They learn about matter - its interaction, properties and its composition. Starting from basic structure of atom to properties of various elements and different chemical reactions involving these elements and compounds, students understand the relevant chemical phenomena occurring around them. Emphasis is laid on concept building, scientific reasoning and problem solving.

HISTORY

Under the Grade 10 curriculum, students explore the formation of nation states in Europe in the post-1830 period. Students discuss rise of nationalism and cover the relationship and difference between European nationalism and anti-colonial nationalisms. The theme 'Nationalism in India' familiarizes students with the writings and ideals of different political groups and individuals, notably Mahatma Gandhi. In 'The Age of Industrialization', students explore the Proto-Industrial phase and early factory system to understand the process of industrialization, and its impact on labour class.

Students explore the history of print in Europe, growth of press in nineteenth century India, the relationship between print culture, public debate and politics. Students discuss the link between print culture and the circulation of ideas. They examine pictures, cartoons, extracts from propaganda literature and newspaper debates on important events and issues in the past.

GEOGRAPHY

The Grade 10 curriculum allows students to understand the value of resources, the need for their judicious utilisation and conservation.They examine the importance of agriculture in national economy, identify various types of farming, describe the spatial distribution of major crops, understand the relationship between rainfall regimes and cropping pattern. They explain various government policies for institutional and technological reforms since independence.
Students discuss various types of minerals, uneven nature of distribution , explain the need for their judicious utilisation. They also discuss various types of conventional, non- conventional resources, and their utilization. They examine the importance of industries in the national economy, understand the regional disparities which resulted due to concentration of industries in some areas. Students explore the need for a planned industrial development and debate over the role of government towards sustainable development. They explain the importance of transport and communication in the ever shrinking world and understand the role of trade in the economic development of a country.

CIVICS

By the end of Grade 10, students are introduced to the centrality of power-sharing in a democracy, as they understand the working of spatial and social power-sharing mechanisms and analyse federal provisions and institutions. They explore the model of Panchayati Raj in rural and urban areas and analyse the relationship between social divisions and political competition with reference to the situations in India. They analyse the challenges posed by communalism to Indian democracy, the enabling and disabling effects of caste and ethnicity in politics. They will develop a gender perspective on politics, analyse party systems in democracies. They will be introduced to major political parties in India, as they explore the role of social movements and non- party political formations. Students examine the difficult question of evaluating the functioning of democracies and develop skills of evaluating Indian democracy on some key dimensions. They distinguish between sources of strength and weaknesses of Indian democracy and reflect on the different kinds of measures possible to deepen democracy, promote an active and participatory citizenship.

ECONOMICS

By the end of Grade 10, students familiarise students with some macroeconomic concepts, sensitize them about the rationale for overall human development in our country, which include the rise of income, improvements in health and education rather than income. Students will inquire whether the increase in income alone is sufficient for a nation,how and why people should be healthy and provided with education, become aware of a major employment generating sector. The content sensitises the learner of how and why governments invest in such an important sector. They investigate the concept of money as an economic concept, develop awareness of the role of financial institutions from the point of view of day-to- day life. Students gather idea about how a particular economic phenomenon is influencing their surroundings and day-to-day life. They develop awareness of their rights and duties as a consumer, familiarizing with the legal measures available to protect from being exploited in markets.

DISASTER MANAGEMENT - PROJECT WORK

Every student has to compulsorily undertake any one project on the following units /topics.

1. Disaster Management (Pertaining to GRADE 10 curriculum of Disaster Management only). OR
2. Popular Struggles and Movements OR
3. Money and Credit

The projects have been carefully designed so as to

- Create awareness in learners.
- Enable them to understand and co-relate all aspects of Disaster Management.
- Relate theory with practice.
- Relation of different aspects with life.
- Provide hands on experience.

LIFESKILLS

The life-skills curriculum in Senior 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 and importance of teamwork. 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. Students are exposed to problem solving and decision-making skills that teach them how to use particular strategies to manage themselves in a range of situations. Students reflect on and evaluate their learning, identify personal characteristics and learn from success and failure.

COMPUTER SCIENCE

Students analyse the need for Java functions. They learn about function headers, access modifiers and return types. They differentiate between void and non-void methods. They identify actual and formal parameters and compare passing arguments by value and passing arguments by reference. They explore the need for Function overloading. They define and describe arrays. Students learn to declare, instantiate and initialize arrays. They implement array operations: Insertion, Deletion, Merging, Searching and Sorting.

Students explore matrix manipulation using two-dimensional arrays in Java. They define and classify Exceptions and identify situations where Exception Handling should be used. They use try-catch-finally blocks in their programs. They learn about basic OOP concepts: Object, Class, Data Abstraction, Inheritance, Encapsulation, Polymorphism. They learn how to invoke methods of a class. They learn about static data members and member methods. They build Java projects using OOP concepts.

Practical Skills:

- Use Google apps to create and share information and collaborate with peers.
- Identify and implement single dimensional and multidimensional arrays.
- Implement insertion, deletion, searching and sorting algorithms using Java arrays.
- Manipulate arrays to solve specific programming questions.
- Write and invoke functions to solve specific programming questions.
- Demonstrate the use of Function overloading.
- Write Java programs using object-oriented programming techniques including classes, objects, methods, instance variables and polymorphism.
- Design and build software solutions using OOP concepts for real world problems.

OTHER

Students in Grade 10 also attend weekly sessions in Yoga, Physical Education and quiet reading time at the school library.