

# **SCIENCE CURRICULUM**

MIDDLE-SCHOOL

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مدرستنا الثانوية الإنجليزية، الشارقة  
OUR OWN ENGLISH HIGH SCHOOL, SHARJAH  
GIRLS'



## ***Middle School-Science Curriculum (Gr.6–Gr.8)***

### **Introduction**

The Science Curriculum of Middle School has been designed on the needs, interests, purposes and abilities of the learners. It focuses on helping the students comprehend the fundamental concepts in Science through experimental and inquiry-based learning.

The Curriculum aims to ensure all-round development of every student. Apart from being comprehensive, it is very practical and stresses the importance of developing the personality of all students. It also enables students to become confident learners and achieve the required academic success.

### **Overview**

The Curriculum fully meets the requirements of the CBSE board and the Ministry of Education, UAE. The Middle School years can be seen as a period of transition to adolescence. During the four years of Middle school education, the students' intellectual, aesthetic, physical, cultural growth and development are intensified so that they have a clearer sense of their strengths, interests, goals, values, ethics and attitudes. So it is aimed to meet the holistic development of all students.

The Science Curriculum emphasizes the need for balance between the acquisition of scientific knowledge, skills, values and attitudes. This curriculum visualizes the learning of Science relevant and related to daily life, making the subject real and meaningful to the learners. It is interdisciplinary, project-based, inquiry-based and research-driven. It is designed to challenge students and to provide the needs of all groups of students to make them 21<sup>st</sup>- century learner and an inquirer.

## **Aim of the Curriculum**

The curriculum aims to enable all young students to become:

- successful learners who enjoy learning, make progress and achieve
- global contributors to meet the challenges of the present world
- confident individuals who are able to lead healthy and fulfilling lives
- responsible citizens who make a positive contribution to society.

The curriculum is planned with the aim of providing a broad, balanced, and relevant course of study for all students. Every lesson integrated to foster and develop the best practices among all students.

The science curriculum has been designed in such a way that effective learning happens in the classrooms. It provides all learning opportunities, as every learner is unique in the heart of the curriculum. The teacher creates a learning environment that will relate the concepts with real-life experiences and enrich the learning through extended activities and inquiry-based learning to develop their sense of inquiry.

Thus, teaching and learning enable the student as an effective learner and the teacher as the orchestrator of learning.

The mode of learning founded on three integral domains of:

- Knowledge, Understanding
- Application
- Skills.
- Values and Attitudes



## **The Vision of the Curriculum**

*“Every child matters at the heart of the Curriculum”*

## **The Mission of the Curriculum**

The learning outcome of the curriculum based on the Mission statement of the school –

*‘Striving for excellence, striving towards success and seeking new horizons of personal growth and worth’.*

Science education involves training students to be equipped with the skills, to be able to use scientific knowledge to identify problems, and to draw evidence-based conclusions in order to make decisions about the global world and the changes made to it through human activity.

It aims to promote critical, creative thinking skills and effective communication skills. Education is a powerful instrument for change and the key to preparing learners for global challenges.

## **The Objectives of the Middle School Science Curriculum**

(i) It enables students to acquire knowledge with the understanding of application in their daily lives so that they are motivated to learn science through activities.

Hence, they are able-

- to solve - problems and use thinking skills.
- to communicate effectively.
- to become confident, responsible and productive citizens who are able to cope with the changing and progressive nature of Science and Technology in the world.

(ii) It enables students to develop 21st-century competencies, which would

- equip them to acquire life-long learning skills, attitudes and values which are useful in everyday life.
- enable them to show care and concern for people and the environment.



In Grades 6, Science studied as General Science. However, in Grades 7 and 8, Science studied as individual disciplines of Physics, Chemistry and Biology, which dealt by teachers in an integrated manner.

## **Provides Individual Differences**

*‘Each child is important and each capacity is respected’*

In any given classroom, students may demonstrate a wide range of learning styles and needs. Teachers plan activities that recognize this diversity and give students performance tasks with respect to their particular abilities so that all students can benefit from the teaching and learning process.

Providing a differentiated curriculum is necessary to fulfil the learning needs of all groups of pupils. Appropriate activities planned to suit the levels of students’ ability. Teachers provide support and guidance for the low achievers. Extra worksheets are given to students who need improvement.



A reduction of 20% in the syllabus can be given for Children with severe learning difficulties. Out of class support given to students on one to one basis. Moreover, remedial classes conducted and extra support worksheets are given to low achievers. IEP and IAP provided for students identified with special needs with the help of counsellors. Groups made in a flexible way to give extra help to some children during the learning activities. Teachers provide advanced level questions and opportunities for extended learning and research work to G & T within the classrooms.

## **Cross-curricular learning**

Science as a core subject can be related to other subjects like Math, Social studies, English, Moral instruction and Art. A large number of scientific formulae represented in the form of mathematical expressions, for which it is necessary for the student to

have a sound mathematical basis. Numerical skills applied in solving Science problems.

Language is the principal means of communication in every aspect of the learning process. In science, students use a range of language skills, they build subject-specific vocabulary, interpret diagrams and charts, and read instructions relating to investigations and procedures.



Student learning linked to daily life situations and their applications in real-life situations make content easier to understand when demonstrated by real-life examples.

To develop curiosity in Science, many Science activities are conducted which is an effective way to learn as the students directly observe and learn.

## **GEMS Core Values**

**GEMS Core Values** form the foundation of the GEMS educational programme. These Core Values are unique to **GEMS** and are part of the planned curriculum, woven into the very fabric of school life.

- **Global Citizenship**  
Empowering students with a global and local perspective.
- **Leading through Innovation**  
Find the courage to challenge convention
- **Growing by Learning**  
Developing each student's individuality and discovering their potential
- **Pursuing Excellence**  
Developing skills for the future



## **Development of Life Skills**

The fast life of society has strongly affected the lifestyles, attitudes and life skills of the learners. The younger generation is seen to be more active, responsive and curious.

The inability to cope with changing life patterns, unrealistic comparisons with peers in the society, excessive exposure to irrelevant information have made them restless. It really means that the learners have to be equipped with relevant emotional skills and competencies so that they are able to understand their role in society in a more realistic manner.

Emphasis on teaching emotional skills and life skills given priority in the curriculum. The curriculum gives opportunities for empowering learners with emotional skills and competencies. It is essential that a child grows up to be a compassionate human being.

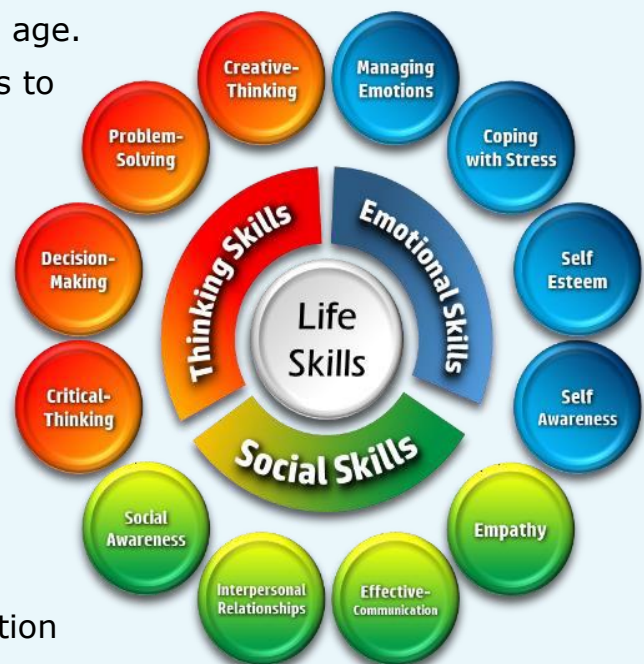
At the same time, it is essential that they learn to shoulder their responsibilities at an early age.

The aim of developing life skills in schools is to capture the true essence of adolescence.

Adolescence is a time of immense creative energy, self-discovery and a desire to explore the world.

Developing life skills help the holistic development of children and its significance are given importance.

Life skills consist of thinking skills, social skills, emotional skills, effective communication skills, cooperation skills and leadership skills.





## **Instilling Eco-values across the Curriculum**

Our planet and its inhabitants are facing a growing number of issues related to the environment. Education is the key to creating environmental awareness.

To instil among students the values of positive behaviour, a sense of responsibility and empower them with sustainable practices, the Eco Club of the school provides opportunities to explore and create solutions through various Eco initiatives. The school is



encouraging many programs to create an eco-friendly attitude in students. We have a very active Eco-club, which organizes 'Newspaper collection' and 'Can-collection drive' every year.

### **Eco Club Vision**

***'To foster a generation of environmentally conscious citizens capable of positive action.'***

### **Eco Club Code**

***'A healthy environment and a healthy economy from takeover to makeover.'***

### **Eco Values**

- To encourage the child to behave responsibly to protect and conserve the environment to promote sustainable development.
- To enable the child to communicate ideas, present work and report findings using a variety of media.

### **Eco - Activities**

- Clean-up Campaigns
- Poster making
- Best out of waste
- Environment Day/ Earth Day activities
- Recycling Campaigns (collection of cans, newspaper etc.)

## **Earth Day**

Every year, students of middle school celebrate Earth Day, which is on 22 April. A theme is chosen every year by the Eco-club. Students are shown videos, clips that will create awareness and appreciation of the Earth's natural environment. Students will take a pledge to save and protect their environment on that day. They learn to appreciate the uniqueness of our planet Earth with its incredible biodiversity.



On this day, various activities are conducted to understand them to understand biodiversity and how should we protect our nature. Sustainable development is embedded across the curriculum. Green values are integrated into the teaching and learning of all subjects. The aim of the Eco Club is to encourage all stakeholders to transform Our Own into an Eco-School, a symbol of Foundation for Environmental Education.



## **Distance Learning - Middle School 2020-21**

COVID-19 has resulted in the closure of schools across the country. As a result, education has changed dramatically, with the distinctive rise of e-learning, whereby teaching is undertaken remotely on digital platforms. With the wonders of modern technology and multi-sensory learning techniques, our children are receiving an amazing education. Our students participate in meaningful learning experiences in their classes, even though they are not physically present on the campus. We are using an online learning platform "THE CLASSROOM" to protect the continuity of our students' education.

Teachers use a variety of online tools to improve, motivate and inspire our children every day through distance learning and to navigate this crisis.

Teachers use the following tools to measure the learning progress of students.

<b>ONLINE TOOLS</b>	<b>LEARNING EXPERIENCES</b>
Near pod	Collaboration, Activities, Quiz's, Polls, Web Content.
Pear Deck	Presentations, Discussions, Collaborations.
Microsoft Forms - QUIZ	AFL
Microsoft Whiteboard	Class activities, Teaching and Collaboration
Socrative	Quiz, Polls, AFL
Padlet	Collaboration and Discussion
Quizzes	AFL, Plenary
Quizlet	AFL, Plenary
Polly	Plenary
Linoit	Collaboration and Discussion
Testmoz	AFL, Plenary
MindMeister	Mind map
Kahoot	Quiz, Plenary
Mentimeter	Plenary, Collaboration and Discussion

## **Assessments - An Integral part of teaching and learning**

Assessment is an integral part of the teaching and learning process. It involves gathering information through various assessment techniques to grade students. An assessment provides information to the teacher about students' achievement in relation to the learning objectives. Therefore, the teacher makes decisions about what should be done to improve the teaching methods and enhance the learning of the students.

- The assessment provides feedback to **students**, allows them to understand their strengths and weakness. Through assessment, students can monitor their own performance and progress. It also points out to them in the direction they need to improve further.

- The assessment provides feedback to **teachers**, enables them to understand the strengths and weaknesses of their students. It provides information about students' achievement of the learning outcomes as well as the effectiveness of their teaching.
- The assessment provides feedback to **schools**. The information gathered facilitates the promotion of students from one level to the next. It also allows the schools to review the effectiveness of their instructional programme.
- The assessment provides feedback to **parents**, allows them to monitor their children's progress and achievement.

In addition to the written tests, teachers conduct a performance-based assessment using the following suggested modes:

- |                          |                            |
|--------------------------|----------------------------|
| • Inquiry-based learning | Research based projectwork |
| • Hands-on activities    | Group Discussions          |
| • Extended learning      | Flipped Classroom          |
| • Poster making          | PowerPoint presentations   |
| • Roleplay               | Model-making               |

## **Assessment Structure**

The assessment scheme for classes VI-VIII have been designed on Term Assessment basis with a gradual increase in the learning assessment as the students move forward. This would prepare the students to cover the whole syllabus of the academic year and face the challenge of class X Board examination, and would thus, ensure the 'quality of education'.

**Scholastic Area:** The assessment structure and examination for classes VI to VIII comprises of two terms. Term-1 and 2 as explained below:

The internal assessment marks will include:

### **1. Marks of Periodic Tests (40 Marks)**

One Periodic test out of 40 will be conducted in a term.

### **2. Notebook maintenance (5 Marks)**

Notebook maintenance is assessed before the end of each term based on the following parameters.

- (a) Regularity
- (b) Assignment completion
- (c) Display of neatly labelled illustrations
- (d) Research work/extended activities
- (e) Neatness and upkeep of the notebook

### **3. Subject Enrichment Activity (5 Marks)**

Subject enrichment activities comprise of lab activities, projects, model making, and firetraps, which are to be conducted twice a year.

These are subject-specific activities aimed at enhancing the understanding and skills of the students. These activities are to be carried out throughout the term; however, they should be evaluated at the term-end

### **Grading Scale for Scholastic Areas**

MARKS RANGE	GRADE
91- 100	A1
81- 90	A2
71- 80	B1
61- 70	B2
51- 60	C1
41- 50	C2
33- 40	D
32 & Below	E (Needs Improvement)

<b>SCIENCE</b>	<b>TERM-1 (100 marks)</b> (1st half of the session)		<b>TERM-2 (100marks)</b> (2nd half of the session)	
	40 marks Periodic Assessment + 80 marks for Half Yearly Exam		40 marks Periodic Assessment + 80 marks for Yearly Exam	
	<b>PT-1 40 marks</b>	<b>Half Yearly Exam</b>	<b>PT-2 40marks</b>	<b>Annual Exam</b>
	Periodic Test 10 markswith syllabus covered until the announcement of test dates by the school.  Notebook Submission 5 marks at term-end.  Sub Enrichment- 5 marks at term- end	Written exam for 80 marks with syllabus covered until the announcement of Half Yearly exam dates by the school.	Periodic Test for 10 marks with syllabus covered until the announcement of test dates by the school.  Notebook submission 5 marks at term-end.  Sub Enrichment 5 marks at term-end.	Written exam for 80 marks with syllabus coverage as below:  <b>Class VI:</b> 10% of 1st term covering significant topics + entire syllabus of 2nd term  <b>Class VII:</b> 20% of 1st term covering significant topics + entire syllabus of 2nd term  <b>Class VIII:</b> 30% of 1st term covering significant topics + entire syllabus of 2nd term.



**Discipline:** The students will also be assessed for the discipline, which will be based on the factors like attendance, sincerity, behaviour, values, and tidiness, respectfulness for rules and regulations, attitude towards society, nation and others. Grading on Discipline will be done term-wise on a 3-point grading scale (A = Outstanding, B = Very Good and C = Fair)

## **Teacher Resources**

### **Syllabus**

A syllabus is an outline of topics to be covered in an academic year. It is set by the team of teachers who controls course quality. They describe what learners need to know in each term, topics assessed each term and how they will be assessed.

### **Schemes of Work**

Scheme of Work is a detailed plan that defines work to be done in the classroom. It defines the structure and content of a course and term plan that gives an idea of how teachers deliver the course. It maps out clearly how resources and class activities (eg. teacher-talk, group work, practical's, discussions) and assessment strategies used to ensure that the aims and objectives of learning are met.

### **APOW**

APOW is a plan of what portions are to be covered in each week or session of the learning programme or course. This gives a detailed teaching plan. APOW consider how many lessons are to be covered in a specific theme. It makes sure that all teachers deliver their lessons in a uniform manner. It can also support communication and planning between departments. Once it has been finalized, it can be used to write lesson plans weekly.

### **Curriculum Framework**

The systematic structure of the curriculum as set out in document(s) specifying the way in which learning and assessment are to be organized. The school conducts regular reviews and develops its curriculum to ensure progression in all subjects in line with the CBSE, MOE Sharjah and the UAE National priorities and IBT. The curriculum includes interesting and relevant programmes that develop students' knowledge, understanding and appreciation of the heritage of the UAE. The HOD's and subject coordinators identify gaps if any and make provisions to incorporate the same into the curriculum for the next session.

### **Curriculum Mapping**

The curriculum is planned to ensure horizontal and vertical progression across grades and phases.

### **Syllabus content at a glance**

Students study the following topics as given in the syllabus below in Grades 6, 7 and 8.

	GRADE 6	GRADE 7	GRADE 8
FOOD	<b>L.1 SOURCES OF FOOD SELF STUDY</b> > Food from plants > Food from animals > Special characteristics of animals according to their food habits > Scavengers and decomposers > Food Chain, Food web <b>ASSET</b>	<b>L.1 NUTRITION IN PLANTS</b> > Autotrophic and Heterotrophic nutrition > Different modes of heterotrophic nutrition in plants	<b>L.1 CROP PRODUCTION</b> > Agriculture- crop-based seasons > Steps of Agricultural practices: > Selection & sowing of seeds > Weeding and crop protection <b>TIMSS</b> Protection from pest and diseases > Methods to increase crop yields Nitrogen cycle
	<b>L.2 COMPONENTS OF FOOD ACTIVITY</b> Subject Enriched Activity Categorize different sources of food into the following group as per the function they perform a) Bodybuilding b) Energy giving c) Protective food Plan a diet for growing children	<b>L.2 NUTRITION IN ANIMALS</b> >Steps of nutrition > Human digestive system >Oesophagus, Stomach, small intestine > Process of digestion, absorption, assimilation and egestion. > Nutrition in Ruminants- Ingestion, Digestion and Absorption > Nutrition process in Amoeba	<b>L.2 THE MICROBIAL WORLD</b> > Types of microorganisms > Useful microorganisms > Medicinal, agricultural, environmental uses of microorganisms > Harmful microorganisms- disease causing microorganism in humans, plants and animals > Different methods of food preservation
MATERIALS	<b>L.4 FIBRE TO FABRIC</b> > Different plant fibres -Cotton, jute, coir, silk cotton, hemp, flax and > steps involved in its production and extraction. > Types of soil suitable for cotton cultivation > Types of animal fibre > Synthetic fibres > Water absorption and fire-resistant property > Weaving and knitting	<b>L.3 ANIMAL FIBRES</b> > Different types of animals from which we get fibres. > Steps involved in the extraction of wool and silk. > Health hazards in the wool industry > Definition of 'sericulture' > Identify different stages in the life cycle of a silk moth. > Health hazards in the silk industry	<b>L.3 SYNTHETIC FIBRES AND PLASTIC</b> > Structure of synthetic fibres > Monomers, polymers, polymerization > Types of synthetic fibres its properties > Uses of synthetic fibres > Blending fibres > Advantages & disadvantage of synthetic fibres > Plastic and its properties > Plastic pollution.

	GRADE 6	GRADE 7	GRADE 8
	<p><b>L.3 SEPARATION OF SUBSTANCES</b></p> <ul style="list-style-type: none"> <li>&gt; Pure substance and mixtures</li> <li>&gt; properties of mixtures</li> <li>&gt;Types of mixtures- homo and hetero</li> <li>&gt;Methods of separation of purities from food grains.</li> <li>&gt; Threshing, winnowing, handpicking, sieving, filtration, condensation, evaporation.</li> <li>&gt; Solution and solubility</li> <li>&gt; Elements, Symbols of common elements</li> <li>&gt; Formula of common compounds</li> <li>&gt; Structure of CO<sub>2</sub>, H<sub>2</sub>O</li> </ul> <p><b>TIMSS</b></p>	<p><b>L.5 MATTER AND CHEMICAL FORMULA</b></p> <ul style="list-style-type: none"> <li>&gt;Composition of matter</li> <li>&gt; Atoms, molecules, elements, compounds, mixtures</li> <li>&gt; Chemical Symbols, Valency,</li> <li>&gt; Writing a chemical formula</li> <li>&gt; Polyatomic ions – its structure, chemical formula with metals</li> <li>&gt; Balancing chemical equations</li> <li>&gt; Polyatomic ions – Valency</li> <li>&gt; Formation of its compounds with metals</li> </ul>	<p><b>STRUCTURE OF ATOMS</b> <b>TIMSS</b></p> <ul style="list-style-type: none"> <li>&gt; Subatomic particles</li> <li>&gt; Structure of atoms</li> <li>&gt; Electronic configuration of atoms</li> <li>&gt;Valence electrons and valency.</li> <li>&gt; Formation of cation and anions</li> <li>&gt; Diagram of the structure of water molecule</li> <li>&gt; Check whether an element is a metal or a non-metal.</li> </ul> <p><b>L.4 METALS &amp; NON-METALS</b></p> <ul style="list-style-type: none"> <li>&gt; Physical properties of metals and non-metals.</li> <li>&gt; Chemical properties- the reaction of metals with air, water and acids.</li> <li>&gt; Corrosion of metals</li> <li>&gt; Reactivity series of metals</li> <li>&gt; Displacement reaction.</li> <li>&gt; Uses of metals and non-metals</li> <li>&gt; Alloys – composition and uses</li> </ul>
	<p><b>L.5 SORTING MATERIALS INTO GROUPS</b></p> <ul style="list-style-type: none"> <li>&gt; Grouping on the basis of similar properties - Appearances, lustre, hardness, texture transparency</li> <li>&gt; Solubility, Floatation and Density</li> <li>&gt; Attraction towards a magnet,</li> <li>&gt; Mode of transfer of heat</li> <li>&gt; Conduction and convection</li> </ul>	<p><b>L.6 ACIDS, BASES &amp; SALTS</b></p> <ul style="list-style-type: none"> <li>&gt; Definition of acid &amp; base</li> <li>&gt;Types of Acids and bases</li> <li>&gt; Properties of acids and bases.</li> <li>&gt; Uses of acids and bases</li> <li>&gt; Perform activities to investigate whether the sub.is acidic and basic</li> <li>&gt; Distinguish between natural and synthetic indicators.</li> <li>&gt; Universal Indicator</li> <li>&gt; Preparation of salts and its uses</li> <li>&gt; Application of neutralization reaction</li> </ul>	<p><b>L.6 COMBUSTION AND FLAMES</b></p> <ul style="list-style-type: none"> <li>&gt; Combustion and types of combustion.</li> <li>&gt; Factors affecting combustion</li> <li>&gt; Chemical equation for the combustion</li> <li>&gt; Extinguishing fire</li> <li>&gt; Types of fire extinguishers</li> <li>&gt; Flame and zones of a flame</li> <li>&gt; Fuels and its type</li> <li>&gt; Characteristic of fuel.</li> </ul>

	GRADE 6	GRADE 7	GRADE 8
	<p><b>L.6 CHANGES AROUND US</b></p> <ul style="list-style-type: none"> <li>&gt; Reversible and irreversible changes</li> <li>&gt; Expansion and contraction of materials and its applications</li> <li>&gt; Transfer of heat in solids</li> </ul>	<p><b>L.7 PHYSICAL &amp; CHEMICAL CHANGES</b></p> <ul style="list-style-type: none"> <li>&gt; Differentiate physical and chemical changes. <b>RECAP</b></li> <li>&gt; Characteristics of a chemical change.</li> <li>&gt; Rusting and methods of prevention</li> <li>&gt; Examples of common chemical reactions</li> <li>&gt; Displacement reaction</li> <li>&gt; Combination and decomposition reaction</li> <li>&gt; Crystallization, evaporation methods</li> </ul>	<p><b>L.5 COAL AND PETROLEUM</b></p> <ul style="list-style-type: none"> <li>&gt; Fossil fuels</li> <li>&gt; Formation of coal in different stages.</li> <li>&gt; Destructive distillation of coal</li> <li>&gt; Extraction of petroleum</li> <li>&gt; Fractional distillation of petroleum</li> <li>&gt; Conservation of fossil fuels</li> </ul>
		<p><b>L.4 TEMPERATURE.&amp; HEAT</b></p> <ul style="list-style-type: none"> <li>&gt; Measurement of temperature</li> <li>&gt; Comparison of different types of thermometers</li> <li>&gt; Interconversion of the various units of temperature</li> <li>&gt; Effects of heat</li> <li>&gt; Methods of transfer of heat – conduction, convection, radiation</li> <li>&gt; Working of Thermos Flask</li> </ul>	
	<p><b>L.7 THE LIVING AND NON LIVING</b></p> <ul style="list-style-type: none"> <li>&gt; Characteristics of living and non- living</li> <li>&gt; structure, Growth, food, respiration, excretion, Reproduction, life span</li> <li>&gt; Response to stimuli</li> </ul>	<p><b>L.12 REPRODUCTION IN PLANTS</b></p> <ul style="list-style-type: none"> <li>&gt; Asexual reproduction</li> <li>&gt; Vegetative reproduction</li> <li>&gt; Artificial methods of reproduction</li> <li>&gt; Advantage of vegetative reproduction.</li> <li>&gt; Interdependence of plants and animals</li> </ul>	

	GRADE 6	GRADE 7	GRADE 8
<b>WORLD OF LIVING</b>		<b>L.10 RESPIRATION IN ORGANISMS</b> <ul style="list-style-type: none"> <li>&gt; Describe the process of breathing &amp; respiration.</li> <li>&gt; Steps of respiration</li> <li>&gt; Respiration in Human beings</li> <li>&gt; Mechanism of breathing</li> <li>&gt; Identify various organs present in the the respiratory system of animals and humans</li> <li>&gt; Differentiate aerobic and anaerobic respiration</li> <li>&gt; How do animals breathe?</li> <li>&gt;Respiration in plants</li> </ul>	<b>L.9 REPRODUCTION IN ANIMALS</b> <ul style="list-style-type: none"> <li>&gt; Mode of reproduction</li> <li>&gt; Reproduction in human beings</li> <li>&gt; Reproductive organs</li> <li>&gt; Fertilization</li> </ul>
	<b>L.8 PLANT WORLD</b> <ul style="list-style-type: none"> <li>&gt; Root system its modifications and functions</li> <li>&gt; Functions and modifications of the stem</li> <li>&gt; Function of leaves and its modifications</li> <li>&gt; Structure of a flower</li> <li>&gt; Pollination</li> </ul>	<b>L.9 SOIL</b> <b>Subject Enrichment Activity TIMSS</b> 1. Mark the type of soil found in different regions on a political map of India	<b>L.8 STRUCTURE AND FUNCTION OF A CELL</b> <ul style="list-style-type: none"> <li>&gt; Cell theory</li> <li>&gt; Variation in cells – in number, shape size</li> <li>&gt; Parts of a cell</li> <li>&gt; Comparison of Plant and animal cell</li> </ul>
	<b>L.9 FORM, MOVEMENT IN ANIMALS</b> <ul style="list-style-type: none"> <li>&gt; Organization of body</li> <li>&gt; Movement and locomotion</li> <li>&gt; Movement in animals like an earthworm, cockroach, fish and snakes,</li> <li>&gt; The Human skeleton, its functions and parts of a skeleton</li> <li>&gt; Types of joints</li> <li>&gt; Movement of bones</li> </ul>	<b>L.11 TRANSPORT AND EXCRETION</b> <ul style="list-style-type: none"> <li>&gt; Transportation of substances in animals</li> <li>&gt; Circulatory system in Humans</li> <li>&gt; The blood and its types</li> <li>&gt; Structure and functioning of Heart</li> <li>&gt;Excretion in Humans</li> <li>&gt; Transport of substances in plants</li> <li>&gt; Identify different types of excretory organs found in different animals</li> </ul>	<b>L 10 AGE OF ADOLESCENCE</b> <ul style="list-style-type: none"> <li>&gt; Changes during Puberty</li> <li>&gt; Role of the hormone during puberty</li> <li>&gt; Reproductive phase</li> <li>&gt; Nutritional requirement</li> <li>&gt; Personal hygiene</li> </ul>



	GRADE 6	GRADE 7	GRADE 8
	<p><b>L.10 ADAPTATIONS IN LIVING ORGANISM</b></p> <ul style="list-style-type: none"> <li>&gt;Organisms and their surroundings</li> <li>&gt; Habitat and its types</li> <li>&gt; Define adaptation.</li> <li>&gt; Adaptations showed by plants and an animal in deserts, polar and mountain regions, Grasslands, tropical rainforests and Aquatic</li> <li>&gt; Acclimatization</li> </ul>	<p><b>L8.WEATHER, CLIMATE &amp; ANIMAL ADAPTATION</b></p> <ul style="list-style-type: none"> <li>&gt; Climate and weather</li> <li>&gt; Factors that affect climate and weather of a place</li> <li>&gt; Adaptation in animals for different climate and habitat</li> </ul>	<p><b>L.7 CONSERVATION OF PLANTS AND ANIMALS</b></p> <ul style="list-style-type: none"> <li>&gt; Biodiversity and its importance</li> <li>&gt; Threat to biodiversity <ul style="list-style-type: none"> <li>• Deforestation, overexploitation</li> <li>• Climatic changes</li> </ul> </li> <li>&gt; Conservation of biodiversity-</li> <li>&gt; Red data book</li> </ul>
MOVING THINGS, PEOPLE & IDEAS	<p><b>L.11 MOTION</b></p> <ul style="list-style-type: none"> <li>&gt; What is measurement?</li> <li>&gt;Standard unit of measurement</li> <li>&gt; Advantages of the SI system</li> <li>&gt;Need for measurement</li> <li>&gt; Estimation in measurement</li> <li>&gt;Rest and motion</li> <li>&gt; Types of motion <ul style="list-style-type: none"> <li>• Translational motion</li> <li>• Rotational motion</li> <li>• Periodic motion</li> <li>• Non-periodic motion</li> </ul> </li> </ul>	<p><b>L.13.TIME &amp; MOTION</b></p> <ul style="list-style-type: none"> <li>&gt; Measurement of time</li> <li>&gt; Simple pendulum</li> <li>&gt; Time period of a pendulum</li> <li>&gt; Motion and Speed</li> <li>&gt; Calculation of speed using formula</li> <li>&gt; Different units of speed and its conversion</li> <li>&gt; Distance and time graph for uniform motion and non-uniform motion</li> </ul>	<p><b>L.11 FORCE &amp; FRICTION</b></p> <ul style="list-style-type: none"> <li>&gt; Effects of Force</li> <li>&gt; Friction and its types</li> <li>&gt; Causes of friction</li> <li>&gt; Advantages and disadvantages of friction</li> <li>&gt; Methods of reducing and increasing friction</li> </ul> <p><b>L.12 PRESSURE</b></p> <ul style="list-style-type: none"> <li>&gt; Pressure and its applications</li> <li>&gt;liquid pressure and its measurement</li> <li>&gt; Working of Manometer</li> <li>&gt; Atmospheric pressure</li> <li>&gt; Working of barometer</li> </ul> <p><b>L.13 SOUND</b></p> <ul style="list-style-type: none"> <li>&gt; How is the sound produced?</li> <li>&gt; Propagation of sound</li> <li>&gt; Structure of the human ear</li> <li>&gt; Characteristics of sound</li> <li>&gt; Speed of sound</li> <li>&gt; Musical instruments</li> <li>&gt; Noise</li> <li>&gt; Sound from the electric bell in a jar <b>TIMSS</b></li> <li>&gt; Echo and its applications</li> </ul>

	GRADE 6	GRADE 7	GRADE 8
<b>HOW THINGS WORK</b>	<p><b>L.14 ELECTRICITY AND CIRCUITS</b></p> <ul style="list-style-type: none"> <li>&gt; Electric circuit conductors &amp; insulator</li> <li>&gt;Working of a torch</li> </ul> <p><b>L.12 MAGNETS AND THEIR EFFECTS</b></p> <ul style="list-style-type: none"> <li>&gt; Magnets,</li> <li>&gt; Poles of a Magnet</li> <li>&gt; Law of magnetism</li> <li>&gt;Test for magnetism, magnetic compass</li> <li>&gt;Earth as a magnet</li> <li>Preserving magnets</li> </ul>	<p><b>L.16 ELECTRIC CURRENT &amp; CIRCUITS</b></p> <ul style="list-style-type: none"> <li>&gt; Electric circuit diagrams</li> <li>&gt; Heating effect of electric current</li> <li>&gt; Electric fuse</li> <li>&gt; Magnetic effect of electric current</li> <li>&gt; Electromagnet</li> </ul>	<p><b>L.14 CHEMICAL EFFECT OF CURRENT</b></p> <ul style="list-style-type: none"> <li>&gt; Electrical conductivity</li> <li>&gt; Electrolysis</li> <li>&gt; Uses of electrolysis</li> <li>&gt; Electroplating</li> </ul>
<b>NATURAL PHENOMENA</b>	<p><b>L.15 WATER AND ITS IMPORTANCE</b></p> <ul style="list-style-type: none"> <li>&gt; Importance of water, water cycle, drought and flood</li> </ul> <p><b>L.16 AIR AROUND US</b> <b>Subject Enrichment Activity</b></p> <ul style="list-style-type: none"> <li>&gt; Composition of air</li> <li>&gt; Properties of air</li> <li>&gt; Need for oxygen</li> </ul>	<p><b>L.17 WATER</b> <b>(Self-study)</b></p> <ul style="list-style-type: none"> <li>&gt; Sources of water</li> <li>&gt; Water cycle <b>TIMSS</b></li> <li>&gt; Uses of water</li> <li>&gt; Causes of the scarcity of water</li> <li>&gt; Conservation of water</li> </ul>	<p><b>L.17 THE UNIVERSE</b></p> <ul style="list-style-type: none"> <li>&gt; Solar system, Planets, Stars</li> <li>&gt; <b>Constellations</b></li> <li>&gt; Other heavenly bodies</li> <li>&gt; Satellites</li> </ul> <p><b>L.15 SOME NATURAL PHENOMENON</b></p> <ul style="list-style-type: none"> <li>&gt; Electric charges</li> <li>&gt; Transfer of charge</li> <li>&gt; Lighting</li> <li>&gt; Earthquakes</li> <li>&gt; Protection against earthquake</li> </ul>
	<p><b>L.13 LIGHT, SHADOWS &amp; REFLECTION</b></p> <ul style="list-style-type: none"> <li>&gt; Propagation of light</li> <li>&gt; Shadows and characteristics</li> <li>&gt; Types of reflection</li> <li>&gt; Sources of light</li> <li>&gt; Reflecting surfaces</li> <li>&gt; A pinhole camera</li> <li>&gt; Reflection and image</li> </ul>	<p><b>L.15 LIGHT</b></p> <ul style="list-style-type: none"> <li>&gt; Rectilinear propagation of light</li> <li>&gt; Reflection of light, the law of reflection</li> <li>&gt;Plane mirror and spherical mirrors</li> <li>&gt;Convex and concave mirrors and Image formed by mirrors</li> <li>&gt; Uses of curved mirrors</li> <li>&gt; Lenses and image formation</li> <li>&gt; Dispersion</li> </ul>	<p><b>L.16 MORE ABOUT LIGHT</b></p> <ul style="list-style-type: none"> <li>&gt; Reflection and laws of reflection</li> <li>&gt; Image formed by a plane mirror</li> <li>&gt; Regular and diffused reflection</li> <li>&gt; Multiple reflections and applications</li> <li>&gt; Refraction</li> <li>&gt;Types of lenses</li> <li>&gt; Dispersion of light</li> <li>&gt; Structure of the human eye</li> <li>&gt; Defects of the human eye</li> <li>&gt; Nutrition and eye health</li> </ul>

	GRADE 6	GRADE 7	GRADE 8
	<p><b>L.17 GARBAGE IN, GARBAGE OUT</b></p> <ul style="list-style-type: none"> <li>&gt; Segregation of waste</li> <li>&gt; Management of biodegradable &amp; non-biodegradable waste</li> </ul>	<p><b>L.19 WASTEWATER MANAGEMENT</b></p> <ul style="list-style-type: none"> <li>&gt; Sources of sewage</li> <li>&gt; Sewage system</li> <li>&gt; Wastewater treatment plant and the steps involved</li> <li>&gt; Steps to control sewage generation</li> <li>&gt; Alternative methods of sewage disposal</li> </ul>	<p><b>L.18 POLLUTION OF WATER AND AIR</b></p> <ul style="list-style-type: none"> <li>&gt; Air pollution, its effects</li> <li>&gt; Methods to prevent air pollution</li> <li>&gt; Water pollution and its effects</li> <li>&gt; Methods to prevent water pollution</li> </ul>
	<b>Earth Science Portions for TIMSS - Portions included in Social studies /Extra worksheet</b>		
	<p><b>Earth's Structure and Physical Features</b></p> <p>Rocks and its types Formation of rocks</p>	<p>Describe the structure of the Earth (i.e., crust, mantle, and core) and the physical characteristics of these distinct parts.</p> <p>Distinguish between weather (i.e., day-to-day variations in temperature, humidity, precipitation in the form of rain</p> <p>Order of steps in the water cycle, Volcanic eruption effects, Major cause of tides Difference between planets and moons. Soil change due to natural causes Material that breaks down quickly. Changes at high elevations-</p> <p>Topographic map: Topographic map: river path Location of jungle</p>	