

# Sunday Science School

## Level 1

For Std 7 to 9

The most comprehensive  
Program to learn Science  
by "Hands-on" method.  
It has countless benefits  
for child !!!



Over 50+ Experiments



Activity Kits given permanently



Activities and thorough discussion



21 Sunday program



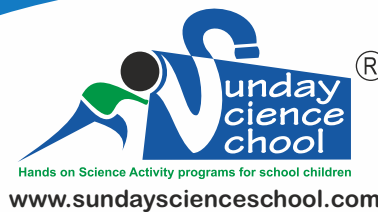
Science  
Activity and  
learning program  
with material support

Course  
starting from  
14<sup>th</sup> July 2024

Course Fee  
Rs.7300/-

Avail discount of Rs. 300/-  
if registered on or before  
07<sup>th</sup> July 2024

Last date of  
Registration  
12<sup>th</sup> July 2024



For enquiry and registration

[www.courses.sundayscienceschool.com](http://www.courses.sundayscienceschool.com)

9850047933 / 9373035369 / 8779678709



## Know more about it..

**Duration** 21 sessions in 7 months span

**Eligibility** Std 7 to 9

**Starting from** July 14, 2024

**Total Fee** Rs. 7300.00  
(To be paid in 2 installments)

Avail discount of Rs. 300/- if registered on or before 07<sup>th</sup> July 2024

### Methodology

#### Common for All students

- SSS annual program starts in July and ends in January. On each Sunday, students understand a new topic and perform activities based on that topic.
- All material needed for activities is given to every child permanently. Study notes on all topics are also given for future reference.
- The program schedule, giving week by week topics and activities, will be shared at the beginning of the program. There will be a few Holidays on occasion of Diwali and other festivals, which will be clearly mentioned.
- Two MCQ type tests will be conducted during the course. Each student will be given certificate of 'Course completion' after final test.

#### Details the program

- On each Sunday, there will be a session of 2 hours at specified location. Facilitator will discuss the topic and then activities will be done by students independently. Facilitator will help students in case of difficulty.
- Ready model or material of experiments will be given to each student on 'take-home' basis.

Experiential Science Learning is the correct learning method at school age.

#### Endless benefits...

- 🔊 Develops scientific outlook
- 🔊 Enhances brain function & episodic memory.
- 🔊 Heightens appreciation of how science works.
- 🔊 Enhances understanding of scientific concepts.
- 🔊 Builds fine motor skills.

## Sunday Science School Level 1 Program

This is the most comprehensive activity based Science learning program for students from 7<sup>th</sup> to 9<sup>th</sup> std. The important activities are selected from syllabi of these 3 standards of different Boards. It covers most of the important concepts, that children should understand and appreciate.

The program is of span of 21 sessions. The wide span of the program helps children to interact with us more frequently and their knowledge sphere expands.

Regular Hands-on activities and support from our facilitators for all topics of science will make this program a "comprehensive package" during this 'Post-Covid' time. This will be a program that stands out on its uniqueness of material based Activity support, that no other program gives in India !!!

### Salient features of SSS Level 1

- ➔ SSS level 1 for Academic Year 2024-25 is much different that same level of previous years.
- ➔ The topics chosen are carefully selected covering maximum syllabi of std 7 to 9 and also keeping in view, topics of std 10.
- ➔ Activities are selected from all three subjects of Science, viz. Physics, Chemistry and Biology. Children will find these activities very interesting and exciting.
- ➔ Videos giving crisp theory and steps to complete the activities of a particular topic will be shared with students periodically. It will keep interest of students alive through out the duration of the course.
- ➔ Objective type "QUIZ" based on the topics of the course will be conducted Two times during 22 week program. Students will solve these tests to assess their understanding of the topics discussed during SSS sessions. This will be useful for SSS team (and parents) to assess students for their understanding of science.
- ➔ To summarize the program, it will have multiple benefits to the students -
  - ➔ Child will explore different science concepts through experiments.
  - ➔ Child will understand and explain science of the topics.
  - ➔ Habit of Experimentation is developed at young age

### What is Sunday Science School?

Sunday Science School has developed different Academic year-based programs for students to explore Science by doing it and thereby enrich their knowledge sphere. The concept is promoted and nurtured by people, who are active for over 30 years, in development of products and content for "Hands-On Science" for children.

The programs are based on experiential learning, which fosters an environment of accelerated learning through self-discovery and participation.

Our attempt is to give children Science Activities to engage them intellectually and physically. The goal is not necessarily to create Scientist but to create civilized citizens with scientific outlook, who apply their Brain to the problems and use scientific approach to find solution.

Day 1

## Hydro Electricity

- ▶ Potential and Kinetic energy
- ▶ Working of Dynamo
- ▶ Making Hydro Electricity model
- ▶ Working of the project
- ▶ Glowing multiple LEDs in parallel
- ▶ Understanding EM induction



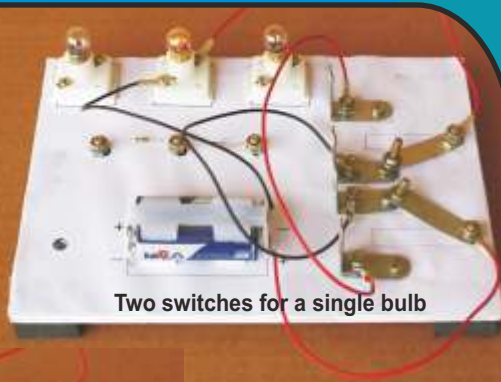
When we produce electricity from flowing water, we are converting mechanical energy to electrical energy. Potential energy of stored water is used to drive a turbine and that runs a dynamo to produce electricity.

A great discovery for students to know how energy changes its form. It is never created.

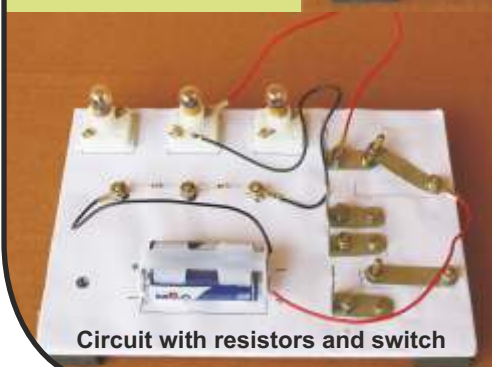
Day 2

## Electricity Day 1

- ▶ Preparing base for circuits
- ▶ Simple circuit
- ▶ Short circuit
- ▶ Circuit using switch
- ▶ Cells in series/parallel
- ▶ switch 1 bulb
- ▶ Potential Difference



Two switches for a single bulb



Circuit with resistors and switch

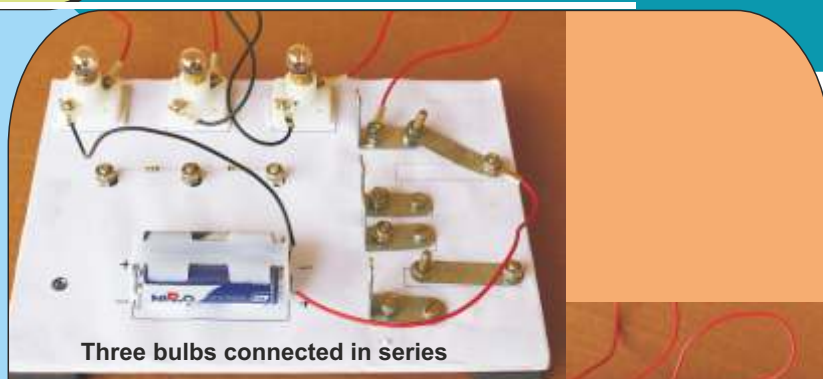
This day is to understand very basic concepts, like, charge, current, voltage, resistance, fuse, short circuit etc.

A special purpose board to mount all components and try different circuits will be prepared as the first step and then simple circuits to understand above-said concepts will be completed by student

Day 3

## Electricity Day 2

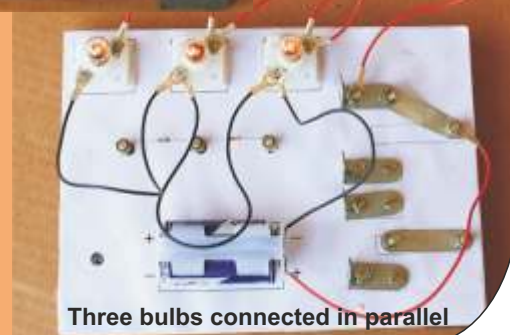
- ▶ Connecting Bulbs in series
- ▶ Connecting Bulbs in parallel
- ▶ Relationship between Voltage, Current and Resistance
- ▶ Ohm's Law
- ▶ Use of Carbon Resistor



Three bulbs connected in series

This day is to understand relationship between Voltage, Current and Resistance. This will take students to understanding of Ohm's law.

In this process, students will make series and parallel wiring and see difference between the two. Electricity has different effects, like Magnetic, Heating and Chemical effects. They are discussed in third session of Electricity.

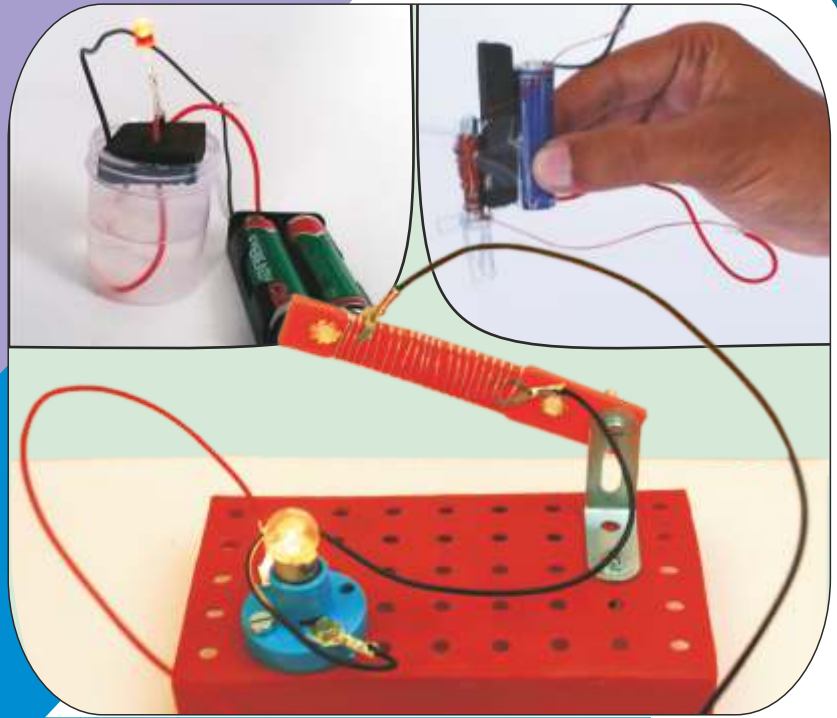


Three bulbs connected in parallel

## Day 4

### ● Effects of Electricity

- ▶ Study of Electrolytes
- ▶ Simple Electrolysis of water
- ▶ Working of Heater
- ▶ Joule's law
- ▶ Changing Resistance - Rheostat
- ▶ Magnetic lines of Electromagnet
- ▶ Magnetic effect of electricity



### ● Solar Powered Car

## Day 5

- ▶ Study of Solar panel
- ▶ Understanding Photovoltaic cell
- ▶ Making a Solar Car
- ▶ Working of car in Sunlight

Solar energy is used today at limited scale but it is one of the very important future sources of energy.

This project will make children aware of applications of photovoltaic (PV) cells and Solar panel. Electric cars will replace fossil fuel cars in another decade. Understanding of this application will trigger imagination of students.



## Day 6

### ● Understanding Energy

- ▶ Force, motion and its types
- ▶ Effects of force on objects
- ▶ Newton's laws of motion
- ▶ Momentum and its conservation
- ▶ Washer and marble activity
- ▶ Forms of energy
- ▶ Potential to kinetic conversion
- ▶ Elastic based returning roller
- ▶ YoYo to explain Newton's laws



Day 7

## Plant & Animal Cell

- ▶ Structure of Plant cell
- ▶ Main organelles of Plant cell
- ▶ Functions & working of organelles
- ▶ Structure of Animal cell
- ▶ Organelles in Animal cell
- ▶ Comparison of Plant - Animal cell

Cell is a primary functional unit of any living thing. Nucleus and other organelles have specific functions. Few organelles are specifically present in either plant or animal cell.

Students will make models of Plant and Animal cell to understand similarities and differences of these two cells. This study is useful for understanding of Biology.



## Human Anatomy

Day 8

- ▶ Systems in our body
- ▶ Working of Digestive system
- ▶ Working of Respiratory system
- ▶ Making of Paper structure of internal parts
- ▶ Making of skeleton model
- ▶ Study of Bones and Joints

This session will have simple but quite useful models. Students will place all paper organs at correct places in Human outline and complete internal structure. They will also make human skeleton using pre-punched card board bones.

The discussion on different systems and their coordinated functioning will help students know working of human systems together.

Day 9

## Human Anatomy

- ▶ Measuring lung's capacity
- ▶ How do we breathe? - Lung's model
- ▶ We exhale air with more Co<sub>2</sub> - expt
- ▶ Study of Circulatory system
- ▶ Making POP model of Heart

Respiration and circulation are two important systems for our survival. Children will do simple activities to understand them.

More discussion on these two systems will help kids understand them better.



Day 10

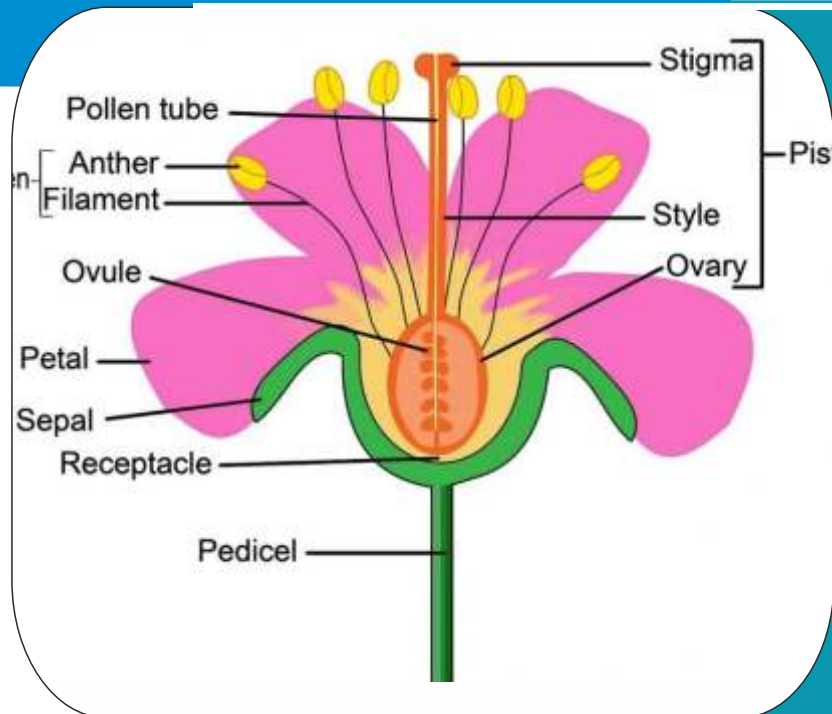
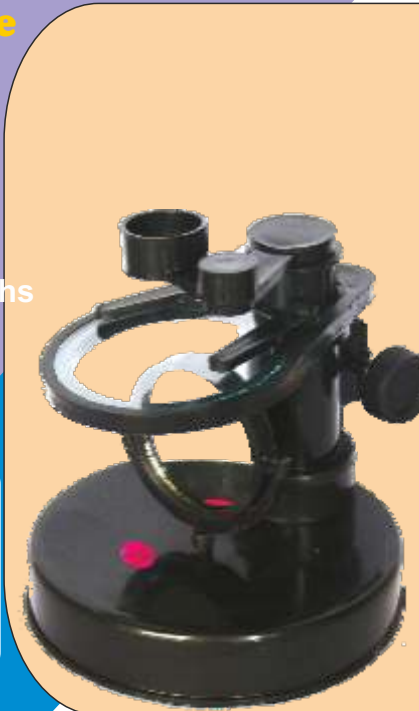
## ● Study of Microscope

Simple microscope and its parts

- ▶ Magnification of microscope
- ▶ Observing small objects
- ▶ Observing fabric structure of diff cloths
- ▶ Observing insects under microscope

This day is to start microscopic observations using a simple microscope. It has 20 X magnification. Students can observe insect parts, fabric and fibers etc.

Students will also understand difference between simple and compound microscope. They will know ray diagram of compound microscope.



Day 11

## ● Microscopic study

- ▶ Dissecting Hibiscus flower
- ▶ Observing Pollen grains
- ▶ Study of ovary and ovules under microscope
- ▶ Observing yeast and its budding
- ▶ Observing other flower parts

Day 12

## ● Test No 1

**First Objective type Test based on the topics discussed till this session in this Level of SSS**



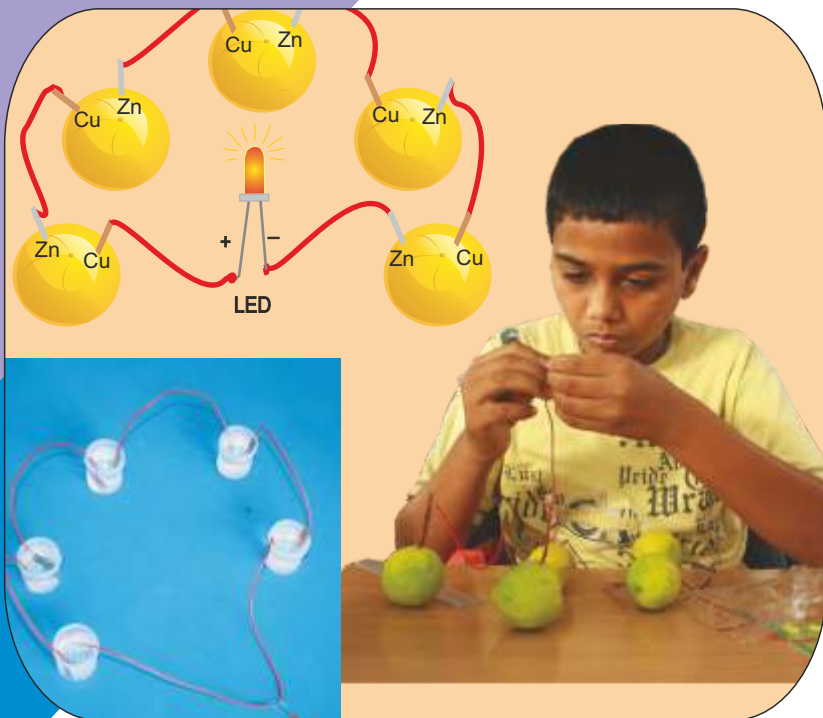
## Day 13

### Chemical Battery

- ▶ Cu - Zn battery using lemons
- ▶ Salt water battery
- ▶ Connecting multiple Zn-Cu cells in series
- ▶ Understanding Voltage using cells
- ▶ Observing corrosion of Zinc plates
- ▶ Observation of inner structure of dry cell

Each chemical battery uses two electrodes made up of two different metals or Carbon. In this session, students will study structure of dry cell and make chemical cell using lemon and salt as electrolytic medium.

Students will connect multiple Zn - Cu plates as Cathode and Anode in lemons in series and generate electricity.



## Day 14

### Density of objects

- ▶ Making of Hydrometer
- ▶ Study of density of liquids
- ▶ Density of solids using a ball
- ▶ Density of metal
- ▶ Working of Submarine

Objects float or sink depending on their density compared to density of water. Understanding of density, floating - sinking and buoyant force is necessary to understand Archimedes' principle.

This session provides complete knowledge of all this fundamental concepts.

## Day 15

### Archimedes' principle

- ▶ Measuring displaced liquid
- ▶ Finding volume of object
- ▶ Buoyant force on sinking objects
- ▶ Buoyant force on floating objects
- ▶ Finding weight of any object
- ▶ Applications of Archimedes' principle

Students have to study Archimedes' principle and its applications in school syllabus. SSS provides a kit to try out many experiments to understand Archimedes' principle thoroughly.

The experiments include volume of regular and irregular objects, buoyant force calculation by measuring displaced liquid, measuring weight of object by recording sinking level of container etc.



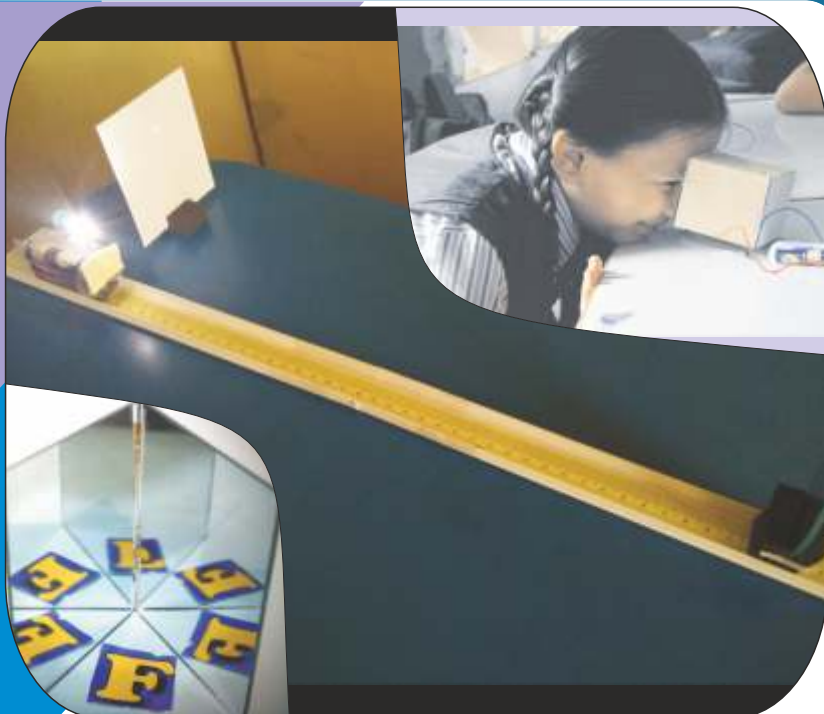
Day 16

## Study of Light

- ▶ Reflection of light
- ▶ Regular and Diffuse reflection
- ▶ Laws of Reflection
- ▶ Multiple Reflection
- ▶ Images using Concave Mirror
- ▶ Making Infinity street light

Light falls and reflects from all surfaces. The reflection of light makes it possible to see the objects. Regular reflection follows laws of Reflection. Students will study these laws. They will also study multiple reflection and image formation.

Images using concave mirror, Focal length of concave mirror will also be studied.

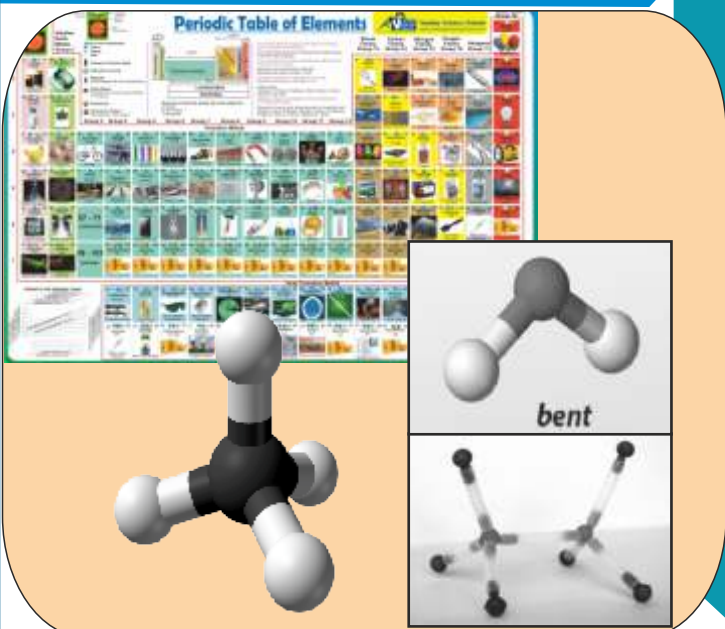


Day 17

## Study of Elements

- ▶ Classification of Elements
- ▶ Modern Periodic Table
- ▶ Groups and Periods and properties
- ▶ Electron configuration and Orbits
- ▶ Compounds and bonds
- ▶ Valency, electron distribution

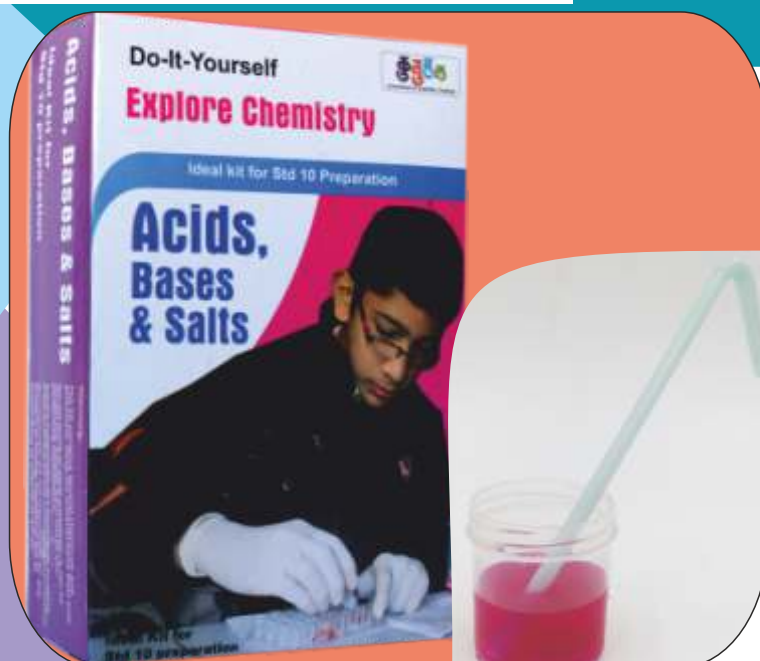
This will be a beginning of study of Chemistry. Starting from Atoms, molecules to formation of compounds and chemical reactions, several concepts will be introduced to students. Study of Modern Periodic Table helps students know properties of elements of same groups. They will know Metals, Non-metals and Metalloids and their position.



Day 18

## Acids and Bases

- ▶ Acids and Bases in our use
- ▶ Properties of Acids and Bases
- ▶ Indicators to test Acids and Bases
- ▶ Preparing Natural indicators
- ▶ Reaction between Acids and Bases

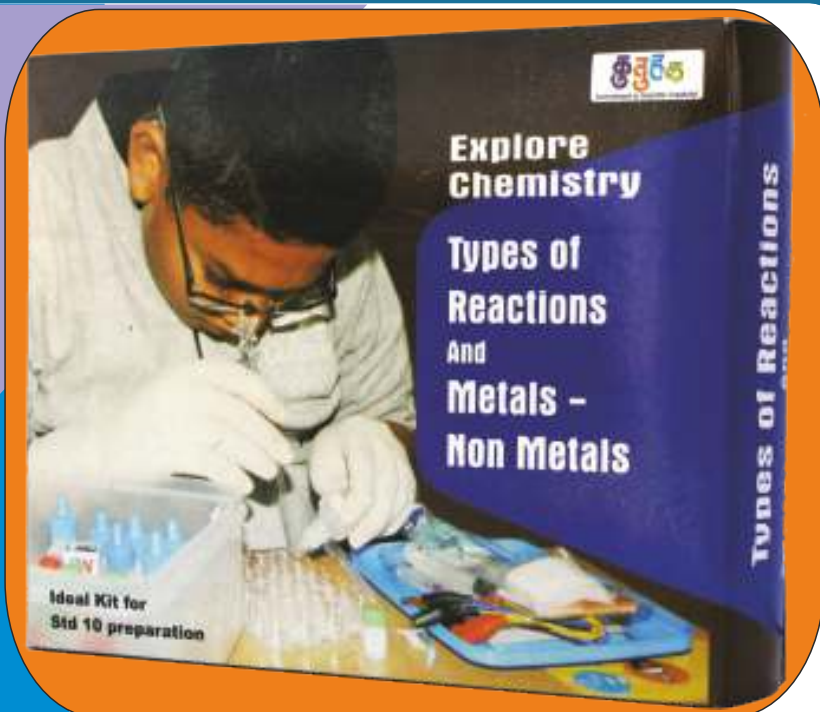




Day 19

## Types of Reactions

- ▶ Single displacement
- ▶ Double displacement
- ▶ Hydrogen formation and test
- ▶ Heats of reactions
- ▶ Chemical Equilibrium
- ▶ Combination reaction
- ▶ Redox reaction



Day 20

## Study of Elements

- ▶ Study of properties of metals
- ▶ Properties of non-metals
- ▶ Reaction of metals with acids
- ▶ Oxides of metals
- ▶ Metal reactions with bases
- ▶ Reactions of non-metals



Day 21

## Test No 2

**Final Objective  
type Test based on  
the topics  
discussed during  
this Level of SSS**



## Our Vision

Our vision is to inculcate habit of experimentation in young minds at formative age and to imbibe scientific thinking in them. This is possible through 'hands-on' science activities from young age. They develop scientific attitude and enhance qualities like Curiosity, Observation skills, Analytical approach, Problem solving techniques, Creativity and Patience.

Science is mostly taught in didactic way in our country, which results in children either fearing the subject or adapting to rote learning to secure marks. Our vision is to make children aware that science should be understood through active learning, experimentation and observation. Students should know and understand that science is a way of life and not just a subject.

## KUTUHAL Group

"KUTUHAL" group is working actively for promotion of science and math activities through indigenously designed DIY kits since 1994. It has always strived to add to the joy of learning.

The group, through its pioneering company, "KUTUHAL Science Activities Pvt Ltd" designs and manufactures science activity kits for students since 1994.

### Sunday Science School...

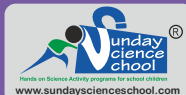
**Sunday Science School**, a company to facilitate "hands-on" science activities for students and teachers was formed in 2010.

Sunday Science School has designed "hands-on" science programs ranging from 1 hour science activities to academic year-long programs.

SSS has also launched syllabus mapped activities for standard 3 to 10. All such "hands-on" programs are designed with activity kits and experimentation material given to students on take-away basis.

## Sunday Science School

- ☞ Sunday Science School - Level 1 is a 'hands-on' Activity program of about 23 sessions of 2 hours each.
- ☞ Students, who are in 7<sup>th</sup> to 9<sup>th</sup> std or have completed Intermediate Level of Sunday Science School can enroll for this program.
- ☞ Different topics, covering important concepts of higher secondary science syllabus are discussed in sessions and students perform activities based on these topics.
- ☞ All models and experimentation material are given on 'take-home' basis. This Creates a small Lab at home.



Head office

### Sunday Science School

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