Standard 7

At this age, students need to be given activities, which will help them 'discover' science at their own pace. We are offering them opportunity to study lenses and mirrors. They will design their own "Solar powered car". Students will hatch brine shrimp eggs and observe life cycle of brine shrimps.
We are introducing chemical bonds, chemical reactions this year. Making of simple DC motor and heating effect of electricity will also help them understand magnetism and electricity thoroughly. In atmosphere and air, we intend to make them record temperature and humidity. As an attempt to know application of 'air pressure', they will make a plastic airplane.

Sunday Science School™
Hands-on Science Activity programs for school children

Hands-On Science Activities

701. Respiratory system

1 Working of Diaphragm

2 Working of lungs model

3 Measure your lungs capacity

We breath in air and exhale air with more CO_2. Try to measure capacity of lungs. Also know about working of diaphragm to inhale and exhale air.

702. Life cycle

1 Making brine solution

2 Grow and observe life cycle of brine shrimp

How do animals increase in number? Stages & development of butterfly. Observe life cycle of brine shrimp at home.

Standard 7

703. Study of Temperature / Humidity

1. Measuring room temperature
2. Getting wet temperature
3. Calculation of relative humidity

What is temperature? why does it differ from time to time and place to place? what is humidity? relationship between temp. and humidity, its effect on weather, effect of temp on winds etc.

704. Acid bases test

1. Testing acids using litmus
2. Testing bases using litmus
3. Understanding salts
4. Phenolphelein indicator for bases
5. Blowing air in base solution

Use of litmus papers in testing acids and bases, indicators, their use in solutions to test acidity and basicity. Fun activity of making coloured solution of base and making it colourless by blowing air into the solution.

705. Aeroplane Bernoulli's Principle

1. Curved paper activity
2. Making plastic plane
3. Controls of plane

Explanation on difference in air pressure, its use for flying, why winds blow? How do airplanes work? Difference forces on flying planes.

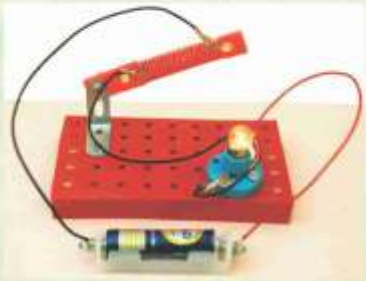
706. Making DC generator

1. Study of dynamo structure
2. Big pulley - small pulley ratio
3. Making a hand generator

Conversion of one form of energy into other form, our muscle energy, electromagnetic induction, use of big and small pulley.

Standard 7

707. Electric Heater



1. Making a wire based heater
2. Understanding Rheostat

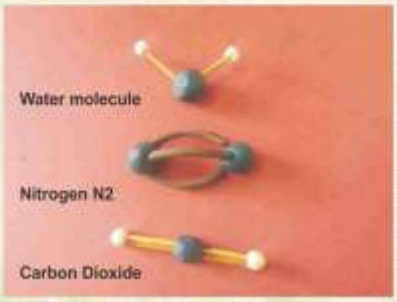
When electricity flows through a wire which has high resistance and heating property, it works as a heater. We can vary current in the circuit by changing length of wire (resistance).

708. Simple DC motor

1. Making an electromagnet
2. Making of armature
3. Making & testing DC motor

Working of DC motor, electromagnet, magnetic field of magnet and electromagnet, Fleming's left hand rule, stator, rotor, commuter, brush, difference between AC and DC current.

709. Formation of different Bonds



1. Making simple molecules
2. Hydrogen, Oxygen bonds
3. Making water molecule
4. Triple bond of Nitrogen

What is a molecule? bonding of atoms, physical states of matter, chemical changes in matter, double and triple bond, What is molecule and what are compounds.

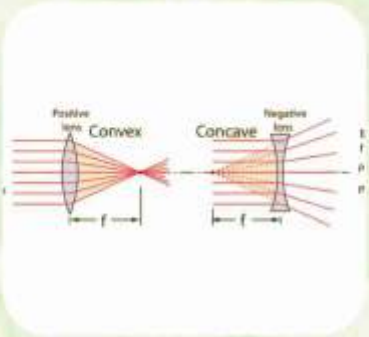
710. Convex Concave mirrors

1. Images of concave mirrors using bright object & screen
2. Images of convex mirror, magnification using mirror.
3. Drawing Ray diagrams for different placements of objects.

What is a mirror?, convex-concave mirrors, their radius of curvature and focal length, image formations, magnification, applications, ray diagrams etc.

Standard 7

711. Study of lenses



1. Study of Convex lens
2. Images using lens
3. Study of concave lens
4. Ray diagrams

Understanding working of lens, light travels in straight line, image formation, working of camera, screen of a camera and similarity with retina etc.

712. Chemical changes

1. Heats of reaction
2. Endothermic reaction
3. Exothermic reaction
4. Nitrogen Dioxide
5. Chemical equilibrium

Types of reaction, heats of reaction, why heat is released or absorbed? Inter-convertability of Nitrogen Dioxide and Di-Nitrogen Tetroxide.

713. Study of solar panel

1. Using solar panel to generate energy
2. Converting electrical energy to mechanical energy
3. Making car base with wheels

What is Solar energy? what are photons? what is solar cell? solar panel, conversion of one form of energy to the other form, reusable energy, clean and green energy etc.

714. Working of Solar Car

1. Making solar car body
2. Fitting panel on the car and running the car with solar energy

Developing an application of solar energy and to demonstrate its real life use, what is mechanical drive? pulley belt, chain, fuels, pollution etc.