

BIFURCATION OF SYLLABUS**SUBJECT : SCIENCE****CLASS : CLASS VIII****TEXT BOOK - NCERT**

TERM-1	ASSESSMENT	MONTH	CHAPTER & Sub Topics	LEARNING OBJECTIVES	ACTIVITIES	SYLLABUS COVERAGE
APRIL TO SEPTEMBER		APRIL	Ch 1 - Crop Production and Management <ul style="list-style-type: none">• Agricultural Practices• Basic Practices of crop production:<ol style="list-style-type: none">i. Preparation of soilii. Sowingiii. Adding Manure and Fertilisersiv. Irrigationv. Protection	<ol style="list-style-type: none">1. Classify the major crops based on the seasons they are sown in the field to explain the months Kharif and Rabi crops are cultivated.2. Sequence the tasks involved in cultivating the crop to list major steps of agricultural practices.3. Compare the advantages of agricultural implements used in agricultural field	<ul style="list-style-type: none">•Preparing a table or a chart on different irrigation practices and sources of water in different parts of India.• Preparing herbarium specimens of some crop plants and seeds• Activity to separate healthy seeds for sowing.•Activity to observe	

from weeds
vi.
Harvesting
vii. Storage
• Food From
Animals

to justify the variety of agricultural practices.
4. Distinguish between manure and fertilisers to identify ways in which nutrients in soil is replenished. 5. Evaluate how weeds adversely affects the growth of plants and Describes the process of crop rotation to explain ways in which nutrients in soil is replenished. 6. Compare and analyse the traditional and modern methods of irrigation.
7. Elaborate the process of harvesting and Storage of grains.
8. Identify commonly known food items based their sources to define animal husbandry

**Ch 2 -
Microorgani
sms : Friend
and Foe**

•
Microorgani
sms
• Where do

1. Categorize and describe the comparative features of types of

the effect of manure and fertiliser on the growth of seedlings.
• Model on Green revolution or Modern Irrigation.
• Visit a farm, nursery or a garden nearby to gather information on Agricultural Practices.
• Enrichment Exercises • Ncert Exercises
• Worksheets.

• To observe, sketch and study the various microorganisms

Microorganisms Live? •
Microorganisms and Us
• Harmful Microorganisms
• Food Preservation
• Nitrogen Fixation
• Nitrogen cycle

microorganisms.
2. Elucidate the reason for increasing volume when yeast is added to dough in baking industry to explain fermentation.
3. Define Pathogens and Explain the role of antibiotics and vaccinations in fighting with diseases caused by microbes.
4. Describe how mosquitoes spread malaria and dengue to explain the role of carriers in spreading communicable disease.
5. List examples of diseases in humans, plants and animals caused by microorganisms in order to explain the harmful effects of microorganisms.
6. List various methods of preserving food in order to demonstrate the restriction of growth of microorganisms.
7. Illustrate the process of fixing the nitrogen back in soil to explain

(bacteria, algae, fungi, and protozoa) via permanent slides.
• Activity to study the fermentation of sugar by yeast cells.
• Activity to show the presence of microorganisms in moist soil.
• Experiment to show fermentation of dough by yeast cells.
• Role play: "Microbes and Man"
• Clay model making of microbes.
• To create a microbial zoo/museum.
• To observe the growth of Rhizopus.
• Worksheets. • Ncert + Enrichment Exercises.

		the role of microorganisms in increasing soil fertility and to balance the concentration of nitrogen back in atmosphere.	
May	<p>Ch 3 - Synthetic Fibres and Plastics (Rationalized)</p> <ul style="list-style-type: none"> • What are Synthetic Fibres • Types of Synthetic Fibres • Characteristics of Synthetic Fibres • Plastics • Plastics as Materials of Choice • Plastics and the Environment. 	<ol style="list-style-type: none"> 1. Enlist different types of synthetic fibres and their characteristics in order to explain their specific uses. 2. Distinguish between Synthetic and Natural fibres based on their properties. 3. List characteristics of plastics ability to bend to differentiate between thermoplastics and thermosetting plastics. 4. Differentiate between plastics based on their ability to decompose in order to explain why plastics are a threat to the environment. 	<ul style="list-style-type: none"> • Art of collecting, designing and pasting different pieces of fabrics in an activity book. • Activity to compare the tensile strength of different fibres of same length and same thickness. • Activity to compare the water absorbing capacity of natural fibre and synthetic fibre. • Article writing on green fabrics OR Poster Making on 5R Principle / "Say NO to plastic with slogan • Model Making - Best Out Of Waste. • Enrichment Exercises • Ncert Exercises. • Worksheets.

**Ch 4 -
Metals and
Non-
metals(Rati
onalized)**

- Physical Properties of Metals and Non-Metals
- Chemical Properties of Metals and Non-Metals
- Uses of Metals and Non-Metals

1. Categorize the commonly known materials as Metals and Non-Metals in order to explain their physical properties.

2. Differentiate between the commonly known materials based on their ability to be bent and formed into sheets, be drawn into wires, ability to produce ringing sound and to shine, ability to conduct electricity and heat in order to define and analyse the various properties of metal and non-metals.

3. Apply the concept of reactivity of a metal to predict if a given metal will displace other metal or not in displacement reaction.

4. Predict the utility of a given material for a specific task to reinforce the physical and chemical properties of metals and non-metals

•To observe the Physical and Chemical Properties of Metals and Non-Metals.

•Activity to show that metals are malleable and non-metals are brittle.

• Activity to show that metals are good conductors of electricity while non-metals are poor conductors of electricity.

• Activity to show that metal reacts with oxygen to form basic oxides.

• Activity to study chemical reactions of metals and non-metals with dilute acids and bases.

• Activity to study displacement reactions of Zn, Fe and Cu metals.

• Working model making of simple

					<p>electrical circuit to study metal conductivity.</p> <ul style="list-style-type: none"> • Visit a blacksmith and observe how metals are moulded. • Locate the Indian states where mining of minerals are done on the physical map of India. • Worksheets • Ncert + Enrichment Exercises 	
	<p>PT-1 Max M: 40 (Weightage 5m)</p>	<p>JULY</p>	<p>Ch 5 - Coal and Petroleum</p> <ul style="list-style-type: none"> • Coal • Petroleum • Natural Gas • Some Natural resources are Limited 	<ol style="list-style-type: none"> 1. Classify natural resources based on their ability to replenish in order to distinguish between inexhaustible and exhaustible natural resources. 2. Describe the process of formation of coal to explain why coal is an exhaustible natural 	<ul style="list-style-type: none"> • Project : To make a report on the formation of fossil fuels and petroleum. • Activity to study exhaustible natural resources. • Activity to study destructive distillation of coal. 	<p>30% of Term1</p>

**Ch 6 -
Combustion
and Flame**

- What is Combustion
- How Do We Control Fire?

resources.
3. Classify different constituents of petroleum according to their use in daily life in order to derive various products of petroleum.
4. Infer why gas, oil and water are found in particular sequence in location where petroleum is found in order to explain the difference in their densities .
5. List the useful by products after processing coal to explain that natural resources can be used to obtain useful products other than fuel.

1. Explain the process of combustion in order to describe the role of fuel and oxygen in the process as necessary conditions for

- To mark the places in the outline map of India where coal, petroleum and natural gases are found.
- To find out the locations of major thermal power plants in India.
- Worksheets.
- Ncert Exercises.
- Enrichment Exercises.

- Experiment to show that oxygen (air) is necessary for combustion.
- Activity to find whether a given

- Types Of Combustion
- Flame
- Structure Of A Flame
- What is a Fuel
- Fuel Efficiency

combustion to take place.

2. Compile and list the commonly known inflammable substances to explain that certain substance catch fire.

3. Define ignition temperature and differentiate between types of combustion to assess rapid, spontaneous combustions and explosion.

4. List the conditions necessary for producing fire to discover how combustible materials can be prevented from catching the fire.

5. Explain the different parts of flame in order to explain why goldsmiths blow the outer zone a flame to melt gold and silver.

6. Compare the calorific value of commonly used fuel to examine fuel efficiency.

7. List harmful by-products of burning fuel to be aware of its harmful effects on

substance is combustible or non-combustible.

- Activity to show that a combustible substance will not catch fire if its temperature is lower than its ignition temperature.
- Activity to show that the outer zone is the hottest part of candle flame.
- Activity to show the presence of unburnt carbon particles in the middle zone of candle flame.
- Activity to show the presence of wax vapours in the dark inner zone of a candle flame.
- Worksheets.
- Ncert Exercises.
- Enrichment Exercises.

			individuals and environment.	
		<p>Ch 7 - Conservation of Plants and Animals</p> <ul style="list-style-type: none"> • Deforestation and Its Causes • Consequences Of Deforestation • Conservation Of Forest and Wildlife • Biosphere Reserve • Flora and Fauna • Endemic Species • Wildlife Sanctuary • National Park • Red Data Book • Migration • Recycling Of Paper • Reforestation 	<p>1. List causes of deforestation to reflect on its rampant existence despite forest being essential to life.</p> <p>2. Describe the process of desertification and droughts to elaborate the consequence of deforestation.</p> <p>3. List the flora and fauna of various regions to describe the terms endemic, endangered and extinct species.</p> <p>4. Interpret the importance of Red Data Book to explain why keeping a track of endangered species is important.</p> <p>5. List some famous biosphere, wildlife sanctuaries and national parks to describe different mechanisms and measures taken by government to protect and conserve forest and wildlife.</p> <p>6. Explain recycling and reforestation to describe ways to reduce</p>	<ul style="list-style-type: none"> • Activity to identify and classify the animals and plants in the following categories: (a) Endangered animals and plants. (b) Endemic species. (c) Threatened but not endangered. (d) Extinct Species and to paste pictures. • Activity to write a report on different organisations involved in conservation of wildlife. • Activity to locate the Wildlife Sanctuaries, National parks and Biosphere reserves of one's state on an outline map of India. • ICT Project : To prepare a power point presentation on the distinct features of Endemic,
	AUGUST			

n

deforestation.

Endangered and Extinct species of flora and fauna of one's geographical area.

- Enrichment Exercises.
- Ncert Exercises.
- Worksheets.

Ch 8 - Cell: structure and Functions
(Rationalized)

- Discovery Of Cell
- The Cell
- Organisms Show Variety In Cell Number, Shape and Size
- Cell Structure and Function
- Parts of the Cell
- Comparison

1. Classify animals based on their cell number, shape and size in order to describe the unicellular and multicellular animals.
2. List and distinguish between the different parts and functions of a typical cell in order to appreciate the unit structure in an organism.
3. Distinguish between plant and animal cells to explain the functions of cell organelles.

- Activity to prepare a temporary stained mount of an onion peel and to study its structure under a microscope.
- Activity to prepare a temporary stained mount of a human cheek cells and to study its structure under a microscope.
- Model making of Plant and Animal cells Or Shapes of human cells.
- Worksheets.

Of Plant and Animal Cells.

**Ch 9 -
Reproduction in Animals**

- Modes of Reproduction
- Sexual Reproduction
- Asexual Reproduction

1. Differentiate between asexual and sexual reproduction in order to list two modes of reproduction.
2. Differentiate between sex cells corresponding to parents in order to explain male and female gamete.
3. Differentiate between Internal and External fertilisation in order to describe two modes of fertilisation in animals
4. Classify animals based on their ability to give birth or lay eggs to distinguish between Viviparous and Oviparous animals .
5. Describe process of fertilization to explain Zygote, embryo, and foetus formation to understand how an individual is formed inside mother's womb.
6. Describe the life cycle

Ncert Exercises.

- Enrichment Exercises.

- To Study the Sexual Reproduction in Human beings using Videos and Models
- Activity to study asexual reproduction in Hydra (budding) and Amoeba (binary fission) using permanent Slides .
- Model making of Human Male and Female Reproductive Systems.
- Worksheets. • Ncert Exercises.
- Enrichment Exercises.

				of frog from eggs to adult frogs in order to explain metamorphosis. 7. Describe the process of reproduction in hydra and amoeba to explain the process of asexual reproduction		
TERM-2						30 + 20 = 50% Of Annual Syllabus
		SEPTEMBER	REVISION			
OCTOBER TO MARCH	PT2 Max M: 80 (Weightage 80 m)	OCTOBER	Ch 10 - Reaching the Age of Adolescence • Adolescence and Puberty • Changes at Puberty • Secondary Sexual Characters • Role Of Hormones in Initiating	1. Define adolescence and adolescent age in order to explain changes at puberty. 2. Enumerate different variations that take place in body at puberty to explain the effect of adolescence on changing human body. 3. Explain the effects and functions of hormones in the development of secondary sexual	• Activity to Compare the average rate of growth in the heights of boys and girls with respect to age and predict the height of a boy/girl at the end of growth period and to Plot the data on a graph sheet • Group discussion on "Natural requirements	

Reproductive Function

• Reproductive Phase Of Life in Humans

• How is the Sex of the Baby Determined ?

• Hormones Other than Sex Hormones

• Role Of Hormones in Completing the Life History Of Insects and Frogs

• Reproductive Health

Ch 11 - Force and Pressure

• Force A Push or a Pull

characteristics to illustrate growth during puberty.

4. Describe mensuration, menarche, and menopause to explain the reproductive phase of life in humans.

5. Illustrate the procedure for determining the sex of a baby to establish that sex of child is decided by chromosome from male gamete.

6. Elucidate the need for a balanced diet in order to explain the nutritional needs of adolescents.

7. Identify the harmful consequences of taking drugs to explain why drugs are not a solution to confused and insecure feeling during adolescence

1. Classify common actions involving motion of objects as push or

during Adolescence".

• Art prints or collage making on Reproductive Health.

• Worksheets. • Ncert Exercises.

• Enrichment Exercises.

• Activity to demonstrate that frictional force is a

- Forces are due to an Interaction
- Exploring Force
- A Force can Change the State of Motion
- Force can Change the Shape of an Object
- Contact Forces
- Non-Contact Forces
- Pressure
- Pressure Exerted by Liquids and Gases
- Atmospheric Pressure.

pull to define the term force.

2. Cite examples where force is being applied to explain that two objects must interact for force to come into play.

3. Analyse motion of an object when force is applied in same and opposite direction to infer that force in same direction add while forces in opposite directions subtract.

4. Illustrate with examples from daily life where an action causes change in movement or shape with and without contact between two objects in order to define contact and non-contact forces.

5. Predict the motion and changes when force is applied to a body to explain that force can cause change in the state of motion and shape of objects.

6. Derive the formula and calculate pressure for given force applied on a given area to

contact force.

- Activity to demonstrate that Magnetic & electrostatic forces are non-contact forces
- Activity to show that pressure exerted by water at the bottom of the container depends on the height of its column.
- Activity to show that pressure exerted by water increases with depth.
- Activity to show that liquid pressure exerts equal pressure at the same depth
- Activity to show the presence of atmospheric pressure.
- Numericals based on force and pressure.
- Worksheets.
- Ncert + Enrichment Exercises.

			<p>explain the phenomenon of pressure acting on objects in daily life. 7. Discover the direction of pressure applied by liquids when put in a container to infer that liquids exert pressure on walls of container. 8. Demonstrate and calculate the atmospheric pressure exerted due to air column above a given area to establish that atmospheric pressure is exerted without us realising it.</p>		
	NOVEMBER	<p>Ch 12 - Friction</p> <ul style="list-style-type: none"> • Force of Friction • Factors affecting Friction • Friction: A Necessary Evil • Increasing and Reducing Friction •Wheels Reduce 	<p>1. Analyse situations where resistance is felt while applying force to move a body to explain friction force. 2. Discover the factors that cause friction when two bodies moving relatively to explain why it is easier to move an object on a smooth surface compared to rough surface. 3. Differentiate between</p>	<ul style="list-style-type: none"> •Activity to study the force of friction depends upon the nature of the two surfaces in contact. • Activity to show that rolling friction is less than the sliding friction in magnitude. • Activity to test the effect of mass on friction. •Model making on Friction Ramp. •Enrichment 	

Friction
• Fluid
Friction

static, sliding and rolling friction to formulate strategies to reduce friction.
4. Provide advantages and disadvantages of friction in order to justify friction as necessary evil.
5. Explain why the streamlined body is needed when flying to explain drag caused by air.

Exercises. • Ncert Exercises.
• Worksheets.

Ch 13 - Sound

• Sound is Produced by a Vibrating Body
• Sound Produced by Humans
• Sound Needs a Medium for Propagation
• We Hear Sound through Our Ears
• Amplitude,

1. List examples of body moving in to and fro motion in order to explain vibration.
2. Cite examples where sound travels from one point to another in order to establish that sound needs a medium to propagate.
3. List commonly known musical instruments and identify the parts that vibrate to explain that vibration produce sound.
4. Differentiate between

• Activity to show that sound travels through Solids, Liquids, and gases.
• Activity to show that Sound does not travel through Vacuum.
• To construct a Toy phone.
• Activity to make a Jaltarang which produces Sound of different frequencies.
• Activity to demonstrate the

Time Period
and
Frequency
Of a
Vibration

- Audible
and
Inaudible
Sounds
- Noise and
Music
- Noise
Pollution

frequency and
amplitude to describe
factors responsible for
loudness and pitch of
the sound.

5. List and identify
functions of parts of
human body that
produces sound to
explain the process of
sound production in
humans.

6. Describe the
structure and function
of an eardrum to
explain how humans
hear sound.

7. Distinguish
between the ranges of
audible and inaudible
sounds to explain why
certain sounds cannot
be heard by humans.

8. List the harmful
effects of noise
pollution to mitigate it.

functioning of vocal
cords.

- Worksheets.
- Ncert Exercises.
- Enrichment
Exercises.

**Ch 14 -
Chemical
Effects of
Electric
Current**

- Do Liquids
Conduct

1. Distinguish between
good and poor
conductors of electricity
to explain that various
materials can conduct

- Activity to test
whether a given
liquid is a good
conductor or poor
conductor of

		<p>Electricity</p> <ul style="list-style-type: none"> • Chemical Effects of Electric Current • Electroplating 	<p>electricity under certain conditions.</p> <p>2. List chemical effects of electricity to establish that electricity causes chemical reactions.</p> <p>3. Describe the process of electrolysis and electroplating to explain the application of chemical effects of electricity on metals</p>	<p>electricity.</p> <ul style="list-style-type: none"> • Activity to study the process of Electrolysis and Electroplating. • Activity to identify the Positive terminal of the battery. • Model making of an Electric Tester (Simple Electric Circuit) and Electrolytic cell. • To make an electric pen • Worksheets. • Ncert Exercises. • Enrichment Exercises. 	
<p>PT-3 Max M: 40 (Weightage 5m)</p>	<p>DECEMBER</p>	<p>Ch 15 - Some Natural Phenomena</p> <ul style="list-style-type: none"> • Lightning 	<p>1. Analyse if two objects attract or repel each other to establish that</p>	<ul style="list-style-type: none"> • Project: To make a report on safety measures to be taken during a 	<p>30% of Term 2</p>

- Charging by Rubbing
- Types of Charges and Their Interaction
- Transfer of Charge
- The Story of Lightning
- Lightning Safety
- Earthquakes

similar charge repel while opposite charge attract each other.

2. Cite examples of visible sparks to explain the phenomenon of lightning.

3. Examine the sequence of lightning occurring in clouds to explain the process of electric discharge in nature.

4. Predict how lightning travels from the clouds to ground to describe the measures that must be taken during lightning.

5. Examine the working of electroscope to detect if an object is charged or not to apply the concept of similar charged objects repel each other.

6. Illustrate with a diagram the movement of earth to explain phenomenon of earthquake.

7. Identify and explain Seismic zones around earth to explain why some area are more affected by earthquake

thunderstorm, lightning and earthquake.

- To Experiment with comb and paper to show the positive and negative charge.
- Discussion on Sparks and on lightning conductor.
- Activity to show that like charges repel each other while the unlike charges attract each other.
- Activity to show the transfer of charges via electroscope.
- To prepare a report on the impact of earthquakes on the earth surface and human life Or Model making of Electroscope or Seismograph.
- Worksheets.
- Ncert + Enrichment Exercises.

		than others.	
JANUARY	<p>Ch 16 - Light</p> <ul style="list-style-type: none"> • What makes Things Visible • Laws of Reflection • Regular and Diffused Reflection • Reflected Light Can be Reflected Again • Multiple Images • Sunlight- White or Coloured • What is inside Our Eyes? • Care of 	<ol style="list-style-type: none"> 1. Identify and calculate the angles of incidence and reflection of ray of light to illustrate the laws of reflection in real life. 2. Illustrate with a line diagram how images invert when reflecting from a mirror to see the application of the laws of reflection. 3. Distinguish between reflection from rough and smooth surface to differentiate between diffused and regular reflection. 4. Establish that light can reflect multiple time with a set of mirrors by constructing a kaleidoscope. 	<ul style="list-style-type: none"> • Activity to study the nature of image formed in a Plane mirror • Activity to study the nature of image formed by Concave & Convex lenses • To Study the image formation in the Eye • Activity to study dispersion of light using a plane mirror inclined on a water surface. • Activity to prove the laws of reflection of light by using plane mirror. • Activity to study Thaumatrope.

the Eyes
• Visually Impaired Persons Can Read and Write
• What is the Braille System

5. Describe the various parts of human eye and identify their functions to explain how humans see objects in presence of light.
6. Recommend different measures for protecting eyes when a problem is felt to establish the importance of eye care.
7. Describe the braille system to explain how people with visual impairment manage to read and write.

• Model Making a Kaleidoscope;
Observing multiple images formed by mirrors placed at angles to each other.
• Model Making of a Periscope.
• Model Making of a Human eye.
• Worksheets. • Ncert Exercises.
• Enrichment Exercises.

Ch 17 - Stars and Solar System
(Rationalized)

• The Moon
• The stars
• Constellations
• The Solar System
• Some Other Members of Solar System

1. Explain with diagram the different phases of moon to explain that moon rotates around earth.
2. Differentiate between asteroids, comet and meteor to identify the celestial body.
3. Categorize the name of commonly known group of stars to explain that constellations are

• To explore heavenly bodies: To find about structure, temperature, atmosphere, size and number of moons of each planet present in solar system.
• Activity to observe different phases of the

group of stars with recognisable shape.

4. Outline and illustrate the planets of the solar system in order to correctly identify them.
5. Identify the name of different celestial bodies in the solar system to explain the constituting bodies of a solar system.
6. Describe artificial satellites in order correctly classify them as man-made celestial body.

- moon.
- Model making of Solar system;
- Observing and identifying some prominent planets, visible to the naked eye.
- Visit to a Planetarium to explore celestial bodies.
- Working Model making of celestial bodies.
- Art Prints or Model making of Constellations.
- ICT Project: To prepare a PPT presentation on Heavenly bodies.
- Worksheets.
- Ncert Exercises.
- Enrichment Exercises.

**Ch 18 -
Pollution of
Air and
Water**
(Rationalize

1. Analyse and describe

- Activity to create awareness about

d)

- Air Pollution
- How does Air Get Polluted
- Case Study-The Taj Mahal
- Greenhouse Effect
- What can be Done?
- Water Pollution
- How does Water Get Polluted ?
- What is Potable Water and How is Water Purified ?
- What Can be Done ?

the problem of air pollution and water pollution to explain why it is a threat to human beings.

2. Explain the effect of greenhouse gases on the planet to explain potential reason for rising temperature of the planet.

3. Elaborate the formation and effects of acid rain to explain the reason for discolouration of the marble of monuments.

4. Enumerate steps that can be taken to clean water for drinking to explain how water can be made safe for drinking.

5. Explain how reducing, reusing and recycling industrial waste helps in reducing water pollution to explore measures to deal with water pollution.

6. Suggest alternate mechanism to lower carbon emission to explain ways to curb air pollution.

harmful effects of air and water pollution and developing need to control them.

- Case study and discussion on Air and water pollution.
- Construction of waterfilter with simple everyday materials.
- Activity to show the impact of acid rain on plants growth.
- Visit to nearby water treatment plant OR sewage treatment plant
- 5E Project: To delve into the water conservative techniques adapted in locality.
- Working model making of "Types of pollution" OR "Waste water treatment plant".
- Article writing on "The impact of Green house effect/ global warming on

	February			7. Cite steps taken to prevent water pollution in major rivers to explain measures to deal with water pollution.	Earth". • Worksheets. • Ncert Exercises. •Enrichment Exercises.
			REVISION		
	ANNUAL EXAMINATION Max M: 80 (Weightage 80 m)				
		MARCH			

***Note-**
Rationalized
chapters be taught
through activities.
Not to be tested.

