Fun of learning
Syllabus/Curriculum

SURAJ

7

(Domains of Development)

- Sensory Development (sight, hearing, touch, taste, smell, control, location, relationship)

  Book (G.K., Computer, Social Science)

- Language Development (listening, communication, conversation, read, write, print, sentence, recognition, differentiate sounds)

  Book (English Literature/Reader/Grammar)
  (Hindi Reader/Grammar)

- Academics Development (Mathematics/Science) (know, change, look, feel, objects, events, people classification, space, quantity, length, counting, observing, reasoning, problem solving, explore physical, natural, predictions, generalization)

  Book (Mathematics, Science, Reasoning, Computer)

- Creative Development (objects, events, ideas, in the form of drawing/music/dance)

  Book (Drawing/Art and Craft/Music)

- Personal (social and emotional) Development (Self concept, self control, self help, initiative, curiosity, independence, behaviour, attention span, friendship with peers, cooperation, empathy)

  Book (Social Science/Values/Computer)

- Physical, Health and Motor Development (muscles, strength, body parts, nutrition , sound, health, hygiene, safety)

  Book (Physical Education/Games/Exercise)

Children's Rights

A child is every person under the age of 18 years. Parents have the primary responsibility for the upbringing and development of the child. Suraj School will respect and ensure the rights of the child.

Dignity and Expression

- I have the right to know about my Rights
- I have rights being a child and no matter who I am where I live, what my parents do, what language I speak, what religion I follow, whether I am a boy or a girl, what culture I belong to, whether I am disabled, whether I am rich or poor. I should not be treated unfairly on any basis. Everyone has the responsibility to know this.
- I have the Right to express my views freely which should be taken seriously, and everyone has the Responsibility to listen to others.
- I have the Right to make mistakes, and everyone has the Responsibility to accept we can learn from our mistakes.
- I have the Right to be included whatever my abilities, and everyone has the Responsibility to respect others for their differences.

Development

- I have the Right to a good education, and everyone has the Responsibility to encourage all children to go to school.
- I have the Right to good health care and everyone has the Responsibility to help others get basic health care and safe water.
- I have the Right to be well fed and everyone has the Responsibility to prevent people starving.
- I have the Right to a clean environment, and everyone has the Responsibility not to pollute it.
- I have the Right to play and rest.

Care & Protection

- I have the Right to be loved and protected from harm and abuse, and everyone has the Responsibility to love and care for others.
- I have the Right to a family and a safe and comfortable home and everyone has the Responsibility to make sure all children have a family and home.
- I have the Right to be proud of my heritage and beliefs, and everyone has the Responsibility to respect the culture and belief of others.
- I have the Right to live without violence and corporal punishment (verbal, physical, emotional), and everyone has the Responsibility not to be violent to others.
- I have the Right to be protected from economic exploitation and sexual and everyone has the Responsibility to ensure that no child is forced to work and is given a free and secure environment.
- I have the Right to protection from any kind of exploitation and everyone has the Responsibility to ensure that I am not being subjected to be taken advantage in any manner.

IN ALL ACTION CONCERNING CHILDREN THE BEST INTERESTS OF THE CHILD SHALL BE A PRIMARY CONSIDERATION.

My Name ……

My Father's Name ……

My Mother's Name. ……

My School Name.……

Admission No. …… *Class/Section* ……

Contact No. (Father) ……

Contact No. (Mother) ……

Contact No. (Home) ……

Photo

I Pledge

I am proud to be a student of ***SURAJ SCHOOL****. The great heritage and culture of my school always influence and give me direction.*

I will not tolerate any type of ***abusive activities*** *that occur anywhere against me as well as against other children who are my sisters and brothers.*

I will always be in the forefront to report any such instances to the ***parents and authorities*** *of school. This is my duty and* ***responsibility****. Since an abuse and* ***exploitation free childhood*** *and world is necessary for my future.*

"*I solemnly affirm that I will always stand for the same.*"

Signature of Student ….....

SUBJECT ENRICHMENT ACTIVITIES

MATHMATICS

1. To show sum of integer.
2. To show sum of fraction.
3. To show product of decimals.
4. To show sum of decimals.
5. To show commutative property of addition for whole number.
6. To show commutative property of multiplication for whole number.
7. To show sum of angles around a point is 360.°
8. To show vertically opposite angles are equal.
9. To show corresponding angles are equal when 2 parallel lines cuts by a transversal.
10. To show exterior angle of triangle is equal to sum of its interior opposite angles (exterior angle property).
11. To show sum of angles of triangle is 180°.
12. To show sum of two sides of triangle is greater than the third side. (triangle inequality)
13. To show phythagoras theorem.
14. To show lines of symmetry in different figures.(line , angle , square , rectangle …… etc.)
15. To make 3 D shapes. (triangular pyramid , prism)
16. To show area of circle.
17. To show curved surface area of cylinder.
18. To verify that in a triangle the medians pass through a common point.
19. To show two triangles are congruent or non congruent.
20. Percentage on a grid paper.

SOCIAL STUDIES

1. Write the genealogy of Mughal Empire.
2. Write about the slave Dynasty and their main architectural work.
3. Describe 6 famous Mughals.
4. Describe main architecture of Medieval period.(Hint-Historical Building
5. Main tribal communities of India. (Include map work).
6. Paste or draw the paintings of Mughal time period .Explain the characteristics of painting.
7. Explain Maratha Dynasty.
8. Collect information about the Rajput rule. Give information about famous Prithaviraj Chowhan.
9. Collect and paste different types of rock and also give characteristics of each role.
10. Explain different types of volcanoes with their characteristics .
11. Explain Natural Disasters . Write precautions during Earth quake and fire.
12. Collect the different types of leaves. Paste and write about the plants and trees.
13. Write the name and uses of medicinal plant that we plant in our home. Also write their characteristics.
14. Write a report on panama canal .what are its characteristics.
15. Explain different types of government in the world with example.
16. Explain election system in India.
17. Explain National Parties (establishment year, symbol , ideology main leaders).(India has 6 national parties)
18. Explain regional party of Haryana.(Case study)
19. Explain the healthcare programs launched by government of India.(Pulse Polio , Swatch Bharat). (Poster making)
20. Collect and paste the information about different types of advertisement with newspaper cutting.

SCIENCE

1. To test a leaf for starch.
2. To show that light is necessary for photosynthesis.
3. To show difference between compound and mixture.
4. Show heating effect on solids. (Expansion)
5. To show heating effect on liquid. (Expansion)
6. To measure body temperature by clinical thermometer.
7. To show that some material are conductor and some are insulators.
8. To show the process of convection.
9. Find out acid and base by litmus paper.(Project report group work)
10. Show a neutralization reaction.
11. Show a precipitation reaction.(lead nitrate and potassium iodide).
12. To prepare CO_2 in laboratory.
13. To study the texture of soil.
14. To find out proportion of different solid in soil.
15. To find out absorption of water by soil.
16. Show osmosis to student by using potato potato.(Class demonstration)
17. Show and explain vegetative reproduction in onion, potato and in grass.(Presentation group wise)
18. Show types of mirror and lenses.
19. Show spectrum of light by prism.
20. To show how to make an electromagnet.

ENGLISH

1. Noun:- What is noun? Write 20 words classify them as different types of noun.
2. Countable and uncountable Noun:- There is a box of picture ,separate the pictures Noun in countable Or uncountable Noun.
3. Adjectives:- Write the qualities of your friend with adjectives, also make a picture also of your friend.
4. Articles:- There is paragraph, here are some articles which are wrongly used correct them.
5. Pronoun:- Write 20 sentences with different types of pronouns.
6. Preposition:- Paste some pictures related to preposition like:- Under , On , Upon, In , at etc.
7. The sentences:- Cut different sentences from the newspaper and write their kinds
8. Modal auxiliaries:- use modals and write a conversation happened in your class room.
9. Adverb:- What is an adverb write ten adverb in comparative and superlative form.
10. Cross questions:- Divide class into two groups . Then Teacher ask some students individually and get them to do pair work.
11. Tense :- Write your hobbies and of past of present and what you want to be (write in sentences)
12. Conjunctions:- You have 20 different sentences join with correct conjunction word.
13. Direct and Indirect speech:- Make a group of 4 and 5 students and discuss any topic . Write Changes of speech in your Notebooks.
14. Sentences:- Simple , Compound and complex.
    Cut a paragraph from a magazine or a book and colour different sentences according to their types.
15. Word formation:- Write its kind and write some example with picture like happy- unhappy Correct- incorrect.
16. Writing skill:- What are some of the things that friends do together.
17. Your class is performing a play for the class day. Design a poster about the play and put it up on Your school notice board.
18. Paste any picture and write a story based on this picture. (Picture is given by teacher)
19. Why is it important to participate in games and sports. Deliver a speech on same topic (a note down in your notebook also)
20. Write the difference between do and make, write some example also.

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ACTIVITY PLANNER

Sr.	Activities	Remarks
1	Orientation of new students	
2	Baisakhi Celebration	
3	Clay Modelling	
4	Green Colour Day (NLU)	
5	Earth Day Celebration	Tree Plantation by Students
6	Mother's Day	Kurta Painting activity
7	Card Making	With ice cream spoon
8	Talk Show	
9	Labour Day Celebration	
10	Fruits and Vegetable Day	Fruit chat and salad decoration
11	Tearing and Pasting Competition	
	AFTER SUMMER BREAK	
12	Holiday Homework Exhibition	
13	Yellow Colour Day (NLU)	
14	Young Chef activity	NimbuPani
15	Colouring Competition	
16	Nature Walk	
17	Sowing of seeds	How a baby plant grows
18	Hindi recitation competition	
19	Show and Tell Competition	
20	Collage Making Competition	
21	Eid Celebration	
22	Healthy Tiffin	
23	Kite Making Competition	
24	Raksha Bandhan Special Assembly	
25	Rakhi Making activity	
26	Janamashtami Celebration	
27	Mukut Decoration Competition	
28	Paper Plate activity	
29	Literacy Day Celebration	
30	Short Course of Dinning Manners	
31	Drawing Competition	
32	Thumb Printing activity	
33	Wild Animal's Week Competition	
34	Letter Drafting	
35	Visit to Post Office	
36	Orange Colour Day Competition	
37	Gandhi Jayanti Competition	
38	English Recitation Competition	
39	Matchsticks activity	
40	Dusshera Celebration	
41	Hindi Calligraphy Competition	
42	Sports Meet	Yoga, Drill & PT

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Sr.	Activities	Remarks
43	Diya Making activity	
44	Rangoli Making Competition	
45	Spray Printing	
46	Garden of Five senses	
47	English Calligraphy Competition	
48	Shlok Recitation Competition	
49	Santa Claus Cap Making activity	
50	X-Mas related activities	
51	Vegetable Printing	
52	Origami activity	Paper folding
53	Book Mark Making activity	
54	Paper Bag Activity	Say NO to Polybags
55	Pista Shell Activity	
56	Pencil Peel activity	
57	Red and White Colour Day	
58	Table Mat Making activity	
59	Cut and Paste activity	
60	Spell Well Competition	
61	Fancy Dress Competition	
62	Basant Panchami Competition	
63	What I want to be – Extempore	
64	Blue Colour Day activity (NLU)	
65	Story Telling Competition	
66	The 1st Whirlpool - Inter School Skating Championship	
	EXCURSIONS	
67	Visit to Temple	
68	Visit to Aquarium	
69	Visit to Gurudwara	
70	Visit Air Force Station	
71	Mcdonalds Visit	
72	Church visit	
73	Visit to Hotel	
	OTHER CELEBRATION	
74	Grandparent's Day Celebration	
75	Sports Day	
76	Making of First Aid Box	

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Sr.	Activities	Remarks
77	Class Decoration Competition (1-5)	
78	Inter house dance competition	
79	Inter house Kabaddi match (4-5)	
80	1st inter house wall magazine contest (1-5)	
81	Inter house group song competition (1-8)	
82	Spin a yarn story telling competition (1-3)	
83	Inter house skating competition (1-5)	
84	Mental math quiz (1-5)	
85	Cyber quiz competition (4-8)	
86	2nd wall magazine competition (6-8)	
87	Independence Day celebration (1-5)	
88	Investiture ceremony	
89	Special assembly on Janamashtmi (1-5)	
90	Character enactment competition (1-3)	
91	Calligraphy competition (1-8)	
92	Handwriting competition (1-3)	
93	Spell- bee competition (1-3)	
94	Mask making competition (4-5)	
95	Paragraph reading competition (1-3)	
96	Newspaper reading (1-8)	
97	One act play class activity (4-5)	
98	Christmas tree decoration (1-5)	
99	Republic day competition	
100	Nukkad Natak on Swacch Bharat Abhiyan (9-12)	
101	Activity on save mother earth (1-3)	
102	Mother day celebration(1-3)	
103	Summer camp(1-5)	
104	Graduation day(kinder garden)	
105	Picnic(1-3) (Under 50 K.M. Radius)	
106	English Debate for classes IX-X	
107	Inter house skating	
108	Inter –house patriotic song competition	
109	Special Assembly on Independence	
110	Teachers day celebration	
111	Special assembly on Gandhi Jayanti	
112	Japanese poetry & snacks	
113	Poster making	
114	Hindi Extempore	
115	Workshop on staff development	
116	One act play	
117	Special assembly on Guru Nanak Jayanti	
118	English carol singing	
119	Special assembly on Republic Day	

Sr.	Activities	Remarks
120	CBSE Quiz	
121	Guinness world Record	
122	Science Competition	
123	Children's Day Celebration	
124	Workshop on waste material management	
125	Annual Athletics Meet	
126	Inter active Session of class X students.	
127	Painting competition	
128	Inter school cricket	
129	Mathematics Quiz and Science Quiz	
130	Visit to adopted Village	
131	Quizzes(CBSE Heritage India Quiz, Pearson Quiz, Britannica Quiz by Bournvita Quiz)	
132	Brochure Making	
133	Participation in National Level CBSE Science Exhibition	
134	Designing of Greeting Cards	
135	Finding of area and perimeter of tiles and other things outside the classroom – A mathematical Activity	
136	Workshop for teachers	
137	Wall Painting	
138	Bharat Vikas Parishad (School Level)	
139	Annual Alumni Meet	
140	Graduation Ceremony	

Mathematics 7

Number System (50 hrs) (i) ***Knowing our Numbers:***

Integers

- Multiplication and division of integers (through patterns). Division by zero is meaningless
- Properties of integers (including identities for addition & multiplication, *commutative, associative, distributive*) (through patterns). These would include examples from whole numbers as well. Involve expressing commutative and associative properties in a general *form*. Construction of counter- examples, including some by children. Counter examples like subtraction is not commutative.
- Word problems including integers (all operations)

(ii) ***Fractions and rational numbers:***

- Multiplication of fractions • Fraction as an operator • Reciprocal of a fraction • Division of fractions
- Word problems involving mixed fractions • Introduction to rational numbers (with representation on number line)
- Operations on rational numbers (all operations) • Representation of rational number as a decimal.
- Word problems on rational numbers (all operations) • Multiplication and division of decimal fractions
- Conversion of units (length & mass) • Word problems (including all operations)

(iii) ***Powers:***

- Exponents only natural numbers.

Algebra (20 hrs) ALGEBRAIC EXPRESSIONS

- Generate algebraic expressions (simple) involving one or two variables
- Identifying constants, coefficient, powers
- Like and unlike terms, degree of expressions e.g., x^2y etc. (exponent $\leq$ 3, number of variables)
- Addition, subtraction of algebraic expressions (coefficients should be integers).
- Simple linear equations in one variable (in contextual problems) with two operations (avoid complicated coefficients)

Ratio and Proportion (20 hrs)

- Ratio and proportion (revision)
- Unitary method continued, consolidation, general expression.
- Percentage- an introduction.
- Understanding percentage as a fraction with denominator 100
- Converting fractions and decimals into percentage and vice-versa.
- Application to profit and loss (single transaction only)
- Application to simple interest (time period in complete years).

Geometry (60 hrs)

(i) ***Understanding shapes:***

- Pairs of angles (linear, supplementary, complementary, adjacent, vertically opposite) (verification and simple proof of vertically opposite angles)
- Properties of parallel lines with transversal (alternate, corresponding, interior, exterior angles
- Mapping the space around approximately through visual estimation.

(v) *Congruence*

- Congruence through superposition (examples- blades, stamps, etc.)
- Extend congruence to simple geometrical shapes e.g. triangles, circles.
- Criteria of congruence (by verification) SSS, SAS, ASA, RHS

(vi) *Construction (Using scale, protractor, compass)*

- Construction of a line parallel to a given line from a point outside it.(Simple proof as remark with the reasoning of alternate angles)
- Construction of simple triangles.

Like given three sides, given a side and two angles on it, given two sides and the angle between them.

Mensuration (15 hrs)

- Revision of perimeter, Idea of , Circumference of Circle

Area

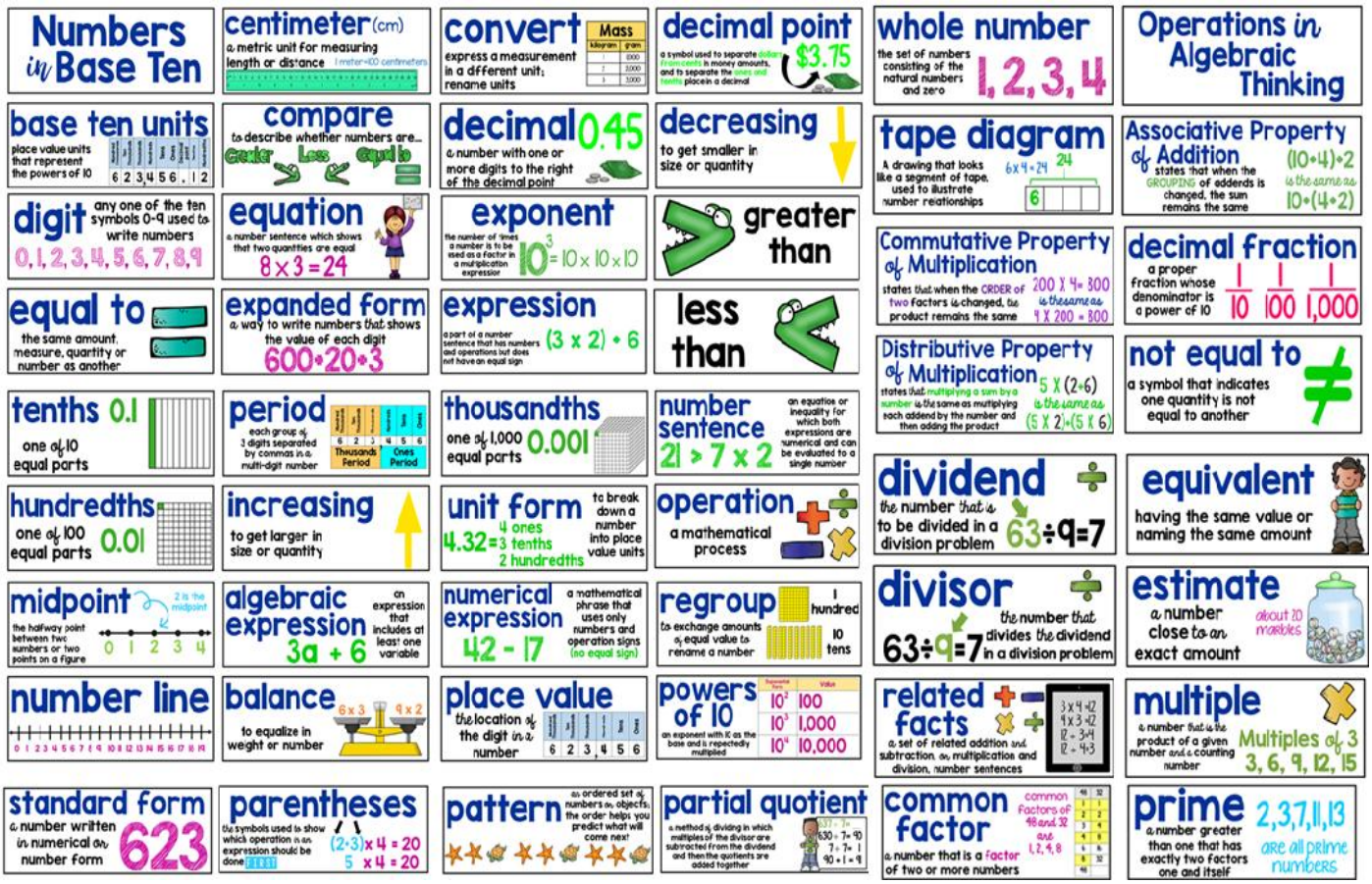
Concept of measurement using a basic unit area of a square, rectangle, triangle, parallelogram and circle, area between two rectangles and two concentric circles.

Data handling (15 hrs) (i) Collection and organisation of data – choosing the data to collect for a hypothesis testing.

(ii) Mean, median and mode of ungrouped data – understanding what they represent.

(iii) Constructing bargraphs

(iv) Feel of probability using data through experiments. Notion of chance in events like tossing coins, dice etc. Tabulating and counting occurrences of 1 through 6 in a number of throws. Comparing the observation with that for a coin.Observing strings of throws, notion of randomness.



Science 7

Questions	Key Concepts	Resources	Activities/ Processes
1. Food ***Food from where*** How do plants get their food?	Autotrophic and heterotrophic nutrition; parasites, saprophytes; photosynthesis.	Coleus or any other plant with variegated leaves, alcohol, iodine solution, kit materials.	**(Periods - 22)** Need for light, green leaf for photosynthesis, looking at any saprophyte/parasite and noting differences from a green plant.
Utilisation of food How do plants and animals utilise their food?	Types of nutrition, nutrition in amoeba and human beings, Digestive system – human, ruminants; types of teeth; link with transport and respiration.	Model of human teeth, charts of alimentary canal, types of nutrition etc., chart and model of amoeba. The story of the stomach with a hole.	Effect of saliva on starch, per manent slide of *Amoeba*. Role play with children.
2. Materials ***Materials of daily use*** Do some of our clothes come from animal sources? Which are these animals? Who rears them?	Wool, silk – animal fibres. Process of extraction of silk; associated health problems.	Samples of wool and silk; brief account of silkworm rearing and sheep breeding.	**(Periods - 38)** Collection of different samples of woolen and silk cloth. Activities to differentiate natural silk and wool from artificial fibres. Discussion.
Which parts of the animals yield the yarn? How is the yarn extracted?			
What kinds of clothes help us to keep warm? What is heat? What is the meaning of 'cool'/'cold' and 'warm' 'hot'? How does heat flow from/to our body to/ from the surroundings?	Heat flow; temperature.	Potassium permanganate, metal strip or rod, wax, common pins, spirit lamp, matches, tumblers, Thermometer etc.	Experiment to show that 'hot' and 'cold' are relative. Experiments to show conduction, convection and radiation Reading a thermometer.
Different kinds ofmaterials Why does turmeric stain become red on applying soap?	Classification of substances into acidic, basic and neutral; indicators.	Common substances like sugar, salt, vinegar etc, test tubes, plastic vials, droppers, etc.	Testing solutions of common substances like sugar, salt, vinegar, lime juice etc. with turmeric, litmus, china rose. Activity to show neutralization.
How things change/ react with one another What gets deposited on a *tawa/khur pi /kudal* if left in a moist state? Why does the exposed surface of a cut brinjal become black?	Chemical substances; in a chemical reaction a new substance is formed.	Test tubes, droppers, common pins, vinegar, baking powder, $CuSO_4$, etc.	Experiments involving chemical reactions like rusting of iron, neutralisation (vinegar and baking soda), displacement of Cu from $CuSO_4$ etc. *Introduce chemical formulae without explaining them.*
Why is seawater salty? Is it possible to separate salt from seawater?	Substances can be separated by crystallization.	Urea, copper sulphate, alum etc, beaker, spirit lamp, watch glass, plate, petridish etc.	Making crystals of easily available substances like urea, alum, copper sulphate etc. using supersaturated solutions.

Questions	Key Concepts	Resources	Activities/ Processes
3. The World of the Living			**(Periods - 42)**
Surroundings affect the living Why are nights cooler? How does having winters and summers affect soil? Are all soils similar? Can we make a pot with sand? Is soil similar when you dig into the ground? What happens to water when it falls on the cemented/ bare ground?	Climate, soil types, soil profile, absorption of water in soil, suitability for crops, adaptation of animals to different climates.	Data on earth, sun – size, distance etc, daily changes in temperature, humidity from the newspaper, sunrise, sunset etc.	Graph for daily changes in temperature, day length, humidity etc.; texture of various soils by wetting and rolling; absorption / percolation of water in different soils, which soil can hold more water.
The breath of life Why do we/animals breathe? Do plants also breathe? Do they also respire? How do plants/ animals live in water?	Respiration in plants and animals.	Lime water, germinating seeds, kit materials.	Experiment to show plants and animals respire; rate of breathing; what do we breathe out? What do plants 'breathe' out? Respiration in seeds; heat release due to respiration. Anaerobic respiration, root respiration.
Movement of substances How does water move in plants? How is food transported in plants? Why do animals drink water? Why do we sweat? Why and how is there blood in all parts of the body? Why is blood red? Do all animals have blood? What is there in urine?	Herbs, shrubs, trees; Transport of food and water in plants; circulatory and excretion system in animals; sweating.	Twig, stain; improvised stethoscope; plastic bags, plants, eg g, sugar, salt, starch, Benedicts solution, $AgNO_3$ solution.	Translocation of water in stems, demonstration of transpiration, measurement of pulse rate, heart beat; after exercise etc. Discussion on dialysis, importance; experiment on dialysis using eg g membrane.
Multiplication in plants Why are some plant parts like potato, onion swollen – are they of any use to the plants? What is the function of flowers? How are fruits and seeds for med? How are they dispersed?	Vegetative, asexual and sexual reproduction in plants, pollination - cross, self pollination; pollinators, fertilisation, fruit, seed.	*Bryophyllum* leaves, potato, onion etc.; yeast powder, sugar.	Study of tuber, corm, bulb etc; budding in yeast; T.S./ L.S. ovaries, w.m. pollen grains; comparison of wind pollinated and insect pollinated flowers; observing fruit and seed development in some plants; collection and discussion of fruits/seeds dispersed by different means.

Questions	Key Concepts	Resources	Activities/ Processes
4. Moving Things, People and Ideas ***Moving objects*** Why do people feel the need to measure time? How do we know how fast something is moving?	Appreciation of idea of time and need to measure it. Measurement of time using periodic events. Idea of speed of moving objects – slow and fast motion along a straight line.	Daily-life experience; metre scale, wrist watch/ stop watch, string etc.	Observing and analysing motion (slow or fast) of common objects on land, in air, water and space. Measuring the distance covered by objects moving on a road in a given time and calculating their speeds. Plotting distance vs. time graphs for uniform motion. Measuring the time taken by moving objects to cover a given distance and calculating their speeds. Constancy of time period of a pendulum.
5. How Things Work ***Electric current and circuits*** How can we conveniently represent an electric circuit? Why does a bulb get hot? How does a fuse work? How does the current in a wire affect the direction of a compass needle? What is an electromagnet? How does an electric bell work?	Electric circuit symbols for different elements of circuit. Heating effect of current. Principle of fuse. A current-carrying wire has an effect on a magnet. A current-carrying coil behaves like a magnet. Working of an electric bell	Recollection of earlier activities. Pencil and paper. Cells, wire, bulb. Cells, wire, bulb or LED, aluminium foil. Wire, compass, battery. Coil, battery, iron nail. Electric bell.	Drawing circuit diagrams. Activities to show the heating effect of electric current. Making a fuse. Activity to show that a current-carrying wire has an effect on a magnet. Making a simple electro-magnet. Identifying situations in daily life where electromagnets are used. Demonstration of working of an electric bell.

Questions	Key Concepts	Resources	Activities/ Processes
6. Natural Phenomena ***Rain, thunder and lightning*** What causes storms? What are the effects of storms? Why are roofs blown off?	High-speed winds and heavy rainfall have disastrous consequences for human and other life.	Experience; newspaper reports. Narratives/stories.	Making wind speed and wind direction indicators. Activity to show "lift" due to moving air. Discussion on effects of storms and possible safety measures.
Light Can we see a source of light through a bent tube?	Rectilinear propagation of light.	Rubber/plastic tube/ straw, any source of light.	Observation of the source of light through a straight tube, a bent tube.
How can we throw sunlight on a wall?	Reflection, certain surfaces reflect light.	Glass/metal sheet/metal foil, white paper.	Observing reflection of light on wall or white paper screen.
What things give images that are magnified or diminished in size?	Real and virtual images.	Convex/concave lenses and mirrors.	Open ended activities allowing children to explore images made by different objects, and recording observations. Focused discussions on real and virtual images.
How can we make a coloured disc appear white?	White light is composed of many colours.	Newton's disc.	Making the disc and rotating it. Discussions.
7. Natural Resources ***Scarcity of water*** Where and how do you get water for yourdomestic needs? Is it enough? Is there enough water for agricultural needs? What happens to plants when there is not enough water for plants? Where does a plant go when it dies?	Water exists in various forms in nature. Scarcity of water and its effect on life.	Experience; media reports; case material.	Case study of people living in conditions of extreme scarcity of water, how they use water in a judicious way. Projects exploring various kinds of water resources that exist in nature in different regions in India; variations of water availability in different regions.
Forest products What are the products we get from forests? Do other animals also benefit from forests? What will happen if forests disappear?	Interdependence of plants and animals in forests. Forests contribute to purification of air and water.	Case material on forests.	Case study of forests. Survey of the neighbourhood, identifying locations with open drains, stagnant water, and possible contamination of ground water by sewage.
Waste Management Where does dirty water from your house go? Have you seen a drain? Does the water stand in it sometimes? Does this have any harmful effect?	Sewage; need for drainage/sewer systems that are closed.	Observation and experience; photographs.	Tracing the route of sewage in your building, and trying to understand whether there are any problems in sewage disposal.

Social Science 7

Themes	Objectives
Where, When and How (a) Terms used to describe the subcontinent and its regions with a map. (b) An outlining of the time frame and major developments. (c) A brief discussion on sources.	(a) Familiarize the student with the changing names of the land. (b) Discuss broad historical trends. (c) Give examples of the kinds of sources that historians use for studying this period. E.g., buildings, chronicles, paintings, coins, inscriptions, documents, music, literature.
New Kings and Kingdoms (a) An outline of political developments c. 700-1200 (b) A case study of the Cholas, including agrarian expansion in the Tamil region.	(a) Trace the patterns of political developments and military conquests – Gurjara Pratiharas, Rashtrakutas, Palas, Chahamanas, Ghaznavids. (b) Develop an understanding of the connections between political and economic processes through the exploration of one specific example. (c) Illustrate how inscriptions are used to reconstruct history.
The Sultans of Delhi (a) An overview. (b) The significance of the court, nobility and land control. (c) A case study of the Tughlaqs.	(a) Outline the development of political institutions, and relationships amongst rulers. (b) Understand strategies of military control and resource mobilisation. (c) Illustrate how travelers accounts, court chronicles and historic buildings are used to write history.
The Creation of An Empire (a) An outline of the growth of the Mughal Empire. (b) Relations with other rulers, administration, and the court. (c) Agrarian relations. (d) A case study of Akbar.	(a) Trace the political history of the 16th and 17th centuries. (b) Understand the impact of an imperial administration at the local and regional levels. (c) Illustrate how the *Akbarnama* and the *Ain-i-Akbari* are used to reconstruct history.
Architecture as Power: Forts and Sacred Places (a) Varieties of monumental architecture in different parts of the country. (b) A case study of Shah Jahan's patronage of architecture.	(a) Convey a sense of the range of materials, skills and styles used to build: waterworks, places of worship, palaces and havelis, forts, gardens. (b) Understand the engineering and construction skills, artisanal organisation and resources required for building works. (c) Illustrate how contemporary documents, inscriptions, and the actual buildings can beused to reconstruct history.
Towns, Traders and Craftsmen (a) Varieties of urban centres—court towns, pilgrimage centres, ports and trading towns. (b) Case studies: Hampi, Masulipatam, Surat.	(a) Trace the origins and histories of towns, many of which survive today. (b) Demonstrate the differences between founded towns and those that grow as a result of trade. (c) Illustrate how travellers' accounts, contemporary maps and official documents are used to reconstruct history.

Themes	Objectives
Social Change: Mobile and settled communities (a) A discussion on tribes, nomads and itinerant groups. (b) Changes in the caste structure. (c) Case studies of state formation: Gonds, Ahoms	(a) Convey an idea of long-term social change and movements of people in the subcontinent. (b) Understand political developments in specific regions. (c) Illustrate how anthropological studies, inscriptions and chronicles are used to write history.
Popular Beliefs and Religious Debates (a) An overview of belief-systems, rituals, pilgrimages, and syncretic cults. (b) Case Study: Kabir.	(a) Indicate the major religious ideas and practices that began during this period. (b) Understand how Kabir challenged formal religions. (c) Illustrate how traditions preserved in texts and oral traditions are used to reconstruct history.
The Flowering of Regional Cultures (a) An overview of the regional languages, literatures, painting, music. (b) Case study: Bengal.	(a) Provide a sense of the development of regional cultural forms including 'classical' forms of dance and music. (b) Illustrate how texts in a regional language can be used to reconstruct history.
New Political Formations in the Eighteenth Century (a) An overview of the independent and autonomous states in the subcontinent. (b) Case study: Marathas	(a) Delineate developments related to the Sikhs, Rajputs Marathas, later Mughals, Nawabs of Awadh and Bengal and Nizam of Hyderabad. (b) Understand how the Marathas expanded their area of control. (c) Illustrate how travellers' accounts and state archives can be used to reconstruct history.
Environment in its totality: natural and human environment. Natural Environment: land – interior of the earth, rocks and minerals; earth movements and major land forms. (One case study related with earthquake to be introduced) Air – composition, structure of the atmosphere, elements of weather and climate – temperature, pressure, moisture and wind. (One case study related with cyclones to be introduced) Water – fresh and saline, distribution of major water bodies, ocean waters and their circulation. (One case study related with tsunami to be introduced) Natural vegetation and wild life. Human Environment: settlement, transport and communication.	To understand the environment in its totality including various components both natural and human; **(Periods-6)** To explain the components of natural environment; To appreciate the interdependence of these components and their importance in our life; To appreciate and develop sensitivity towards environments; **(Periods-12)** To understand about atmosphere and its elements; **(Periods-10)** To know about distribution of water on the earth; **(Periods-10)** To find out the nature of diverse flora and fauna. **(Periods-5)** To explain the relationship between natural environment and human habitation; To aappreciate the need of transportt and communication for development of the community; To be familiar with the new developments making today's world a global society; **(Periods-7)**

Themes	Objectives
Human – Environment Interaction: Case Studies – life in desert regions – Sahara and Ladakh; life in tropical and sub-tropical regions – Amazon and Ganga-Brahmaputra; life in temperate regions – Prairies and Veldt.	To understand the complex inter relationship of human and natural environment; To compare life in one's own surrounding with life of other environmental settings; To appreciate the cultural differences existing in the world which is an outcome of interaction, between human beings and their environment; **(Periods-15)**

Project/Activity

- Collect stories / find out about changes that took place in their areas (identify how things/ surroundings change overnight and why).
- Discuss the topic "How weather forecast helps us" in your class after assigning the role of a farmer, a hawker, a pilot of an aeroplane, a captain of ship, a fisherman and an engineer of a river dam to different students.
- Write observations about local area house types, settlements, transport, communication and vegetation.

Note: Any similar activities may be taken up.

UNIT 1: Democracy This unit will focus on the historical as well as the key elements that structure a democracy. The structures in place to make people's representation a reality will be discussed with reference to its actual functioning. ***Section 1*** Why Democracy Two main thrusts • **Historical** What were some of the key junctures and transformations in the emergence of democracy in modern societies. • **Key Features** – The different systems of power that exist in the world today. – Significant Elements that continue to make Democracy popular in the contemporary world: • Formal Equality. • Decision Making mechanisms. • Accommodation of differences. • Enhancing human dignity. ***Section 2*** **Institutional Representation of Democracy** • Universal Adult Franchise. • Elections. • Political parties. • Coalition Governments.	To enable students to: • develop an understanding of the rule of Law and our involvement with the law, • understand the Constitution as the primary source of all laws, • develop the ability to distinguish between different systems of power, • understand the importance of the idea of equality and dignity in democracy, • develop links between the values/ideas of democracy and the institutional forms and processes associated with it, • understand democracy as representative government, • understand the vision and the values of the Constitution.

Themes	Objectives
Unit 2: State Government This unit will focus on the legislative, executive and administrative aspects of state government. It will discuss processes involved in choosing MLAs, passing a bill and discuss how state governments function through taking up one issue. This unit might also contain a section on the nation-state. ***Section 1:* Its working** • Main functionaries-broad outline of the role of the Chief minister and the council of ministers ***Section 2:* Its functioning** Through one example: land reform/irrigation/education/water/health discuss • The nature of the role played by the government – regarding resources and services. • Factors involved in distribution of resources/ services. • Access of localities and communities to resources/ services.	To enable students to: • gain a sense of the nature of decision-making within State government. • understand the domain of power and authority exercised by the state government over people's lives. • gain a critical sense of the politics underlying the provision of services or the distribution of resources.
Unit 3: Understanding Media In this unit the various aspects of the role of a media in a democracy will be highlighted. This unit will also include a discussion on advertising as well as on the right to information bill. ***Section 1*: Media and Democracy** Media's role in providing the following: • providing information, • providing forum for discussion/debate creating public opinion. Media ethics and accountability. Relationship between Government and Information A case-study of the popular struggle that brought about the enactment of this legislation. ***Section 2*: On Advertising** • Commercial Advertising and consumerism, • Social advertising.	To enable students to: • understand the role of the media in facilitating interaction between the government and citizens, • gain a sense that government is accountable to its citizens, • understand the link between information and power, • gain a critical sense of the impact of media on people's lives and choices, • appreciate the significance of people's movements in gaining this right.

Themes	Objectives
UNIT 4: Unpacking Gender This unit is to understand the role gender plays in ordering our social and economic lives. ***Section 1*** : **Social Aspects** Norms, values that determine roles expected from boys and girls in the: • family, • community, • schools, • public spaces, • understanding Inequality: The role of gender in creating unequal and hierarchical relations in society. ***Section 2*** : **Economic Aspects** • gender division of labour within family, • value placed on women's work within and outside the home, • the invisibilisation of women's labour.	To enable students to: • understand that gender is a social construct and not determined by biological difference, • learn to interrogate gender constructions in different social and economic contexts, • to link everyday practices with the creation of inequality and question it.
UNIT 5: Markets Around Us This unit is focused on discussing various types of markets, how people access these and to examine the workings of an actual market. ***Section 1*** • On retail markets and our everyday needs • On role and impact of wholesale markets how are these linked to the above • People's access to markets depends upon many factors such as availability , convenience , credit, quality , price, income cycle etc. ***Secton 2*** Examine the role of an observable wholesale market such as grain, fruit, or vegetable to understand the chain of activities , the role of intermediaries and its impact on farmer -producers.	To enable students to: • understand markets and their relation to everyday life, • understand markets and their function to link scattered producers and consumers, • gain a sense of inequity in market operations.

English - 7

Objectives The general objectives at this stage are:

• to negotiate their own learning goals and evaluate their own progress, edit, revise, review their own work

• to understand, enjoy and appreciate a wide range of texts representing different cultures, ways of living

• to be able to articulate individual/personal responses effectively

• to use language and vocabulary appropriately in different contexts and social encounters

• to be able to organise and structure thoughts in writing/speech

• to develop production skills (fluency and accuracy in speaking and writing)

• to use dictionary suitable to their needs

• to understand and enjoy jokes, skits, children's films, anecdotes and riddles At the end of this stage learners will be able to do the following:

• understand the central idea and locate details in the text (prescribed and non-prescribed)

• use his/her critical/thinking faculty to read between the lines and go beyond the text

• narrate simple experiences, describe objects and people, report events to peers

• speak accurately with appropriate pauses and clear word/sentence stress to be intelligible in familiar social contexts

• write simple messages, invitations, short paragraphs, letters (formal and informal) applications, simple narrative and descriptive pieces, etc.

• use his/ her proficiency in English to explore and study other areas of knowledge through print and non-print media

• to undertake small projects on a regular basis

In addition to consolidating the items learnt earlier, the following will be introduced and recycled through the upper primary stage.

• determiners

• passivisation

• linking words

• adjectives (comparative and superlative forms)

• adverbs (place and types)

• modal auxiliaries

• tense forms

• word order in sentence types

• clauses

• reported speech

Methods and Techniques Classroom interaction would be such as to promote optimal learner participation leading to an urge to use language both in speech and writing. The selection of actual classroom procedures is left to the discretion of the teacher. However, the following are recommended:

• Role play

• Dramatisation

• Reading aloud

• Recitation of rhymes, poems and making observations on a given topic/theme

• Telling and retelling stories, anecdotes, and jokes

• Discussion, debate

• Simple projects

• Interpreting pictures, sketches, cartoons

• Activities, tasks, and language games

• Pair work, group work, and short assignments both individual and group

• Exploring the electronic media

Syllabus Distribution _ 2020-21 (Class 7th)

SUBJECTS		October 1 – 25	November 1 – 25	December 1 – 25
ENGLISH	B	L-9 – Maryam Mirzakhani – Leading the way L-10 – Teacher	L-11 – Goodbye, Pasha Begum! L-12 – Lochinvar	L-13 – The diary of a space traveler L-14 – Mission to Saturn: A spacecraft's L-15 – Star trek – the voyage home
	G	L-13 L-14 L-15	L-16 L-17 L-18 L-19 L-20 L-21	L-22 L-23 L-24 L-25 L-26
HINDI	B	पाठ – 10 पाठ – 11 पाठ – 12 पाठ – 13 पाठ – 14 पाठ – 15	पाठ – 16 पाठ – 17 पाठ – 18	पाठ – 19 पाठ – 20
	G	पाठ – 14 पाठ – 15 पाठ – 16 पाठ – 17	पाठ – 18 पाठ – 19 पाठ – 20 पाठ – 21	पाठ – 22 पाठ – 23
MATHS		L-13 – Lines & Angles L-14 – Properties of parallel lines L-15 – Properties of triangles	L-16 – Congruence L-17 – Constructions L-18 – Reflection & rotational symmetry L-19 – Three dimension shapes L-20 – Mensuration	L-21 – Collection & Organisation of data (mean, mediam & mode) L-22 – Bar graphs L-23 – Probability L-24 - Activities
Science		L-11 – Transportation in Animals & Plants L-12 – Reproduction in plants	L-13 – Motion & time L-14 – Electric current & its effects L-15 – Light	L-16 – Water – A precious resource L-17 – Forests : our lifeline L-18 – Wastewater story
Social Science	H	L-6 – Town, Traders & craftspersons	L-7 – Tribes, Nomads & Settled communities L-8 – Devotional paths to the divine	L-9 – The making of regional cultures L-10 – Eighteenth-century political formations
	G	L-7 – Human environment settlement, transport & communication	L-8 – – Human environment interactions – the tropical and the subtropical region	L-9 – Life in the deserts
	C	L-6 – Understanding media	L-7 – Markets around us L-8 – A shirt in the market	L-9 – Struggles for equality References
	Map Exp.	L-4 – Conditional statements in small Basic L-5 – Introduction to HTML	L-6 – HTML – lists & tables L-7 – Introduction to Python	L-8 – Cyber safety L-9 – Internet services
Computer		L-13 – Lines & Angles L-14 – Properties of parallel lines L-15 – Properties of triangles	L-16 – Congruence L-17 – Constructions L-18 – Reflection & rotational symmetry L-19 – Three dimension shapes L-20 – Menstruation	L-21 – Collection & Organization of data (mean, median & mode) L-22 – Bar graphs L-23 – Probability L-24 - Activities

Important Dates

Monthly Evaluation Test	26th to 30th of Every Month
First Term Exams	1st September onwards
Second Term Exams	26th November onwards

Syllabus Distribution _ 2020-21 (Class 7th)

SUBJECTS		January 1 – 25	February 1-25	March
ENGLISH	B	Revision	Revision	Revision
	G	L-29 L-33	Revision	Revision
HINDI	B	Revision	Revision	Revision
	G	कहानी लेखन पत्र लेखन निबंध लेखन समाचार लेखन	Revision	Revision
MATHS		Revision	Revision	Revision
Science		Revision	Revision	Revision
Social Science	H	Revision	Revision	Revision
	G	Revision	Revision	Revision
	C	Revision	Revision	Revision
Computer		Revision	Revision	Revision

Important Dates

Monthly Evaluation Test	26th to 30th of Every Month
First Term Exams	1st September onwards
Second Term Exams	26th November onwards

ACTIVITY 7.1 What are the conditions necessary for photosynthesis?

What is required?

Freshly plucked coleus leaves, beakers, testtubes, tripod , water, rectified spirit,kerosene burner, petri dish, iodine solution,

What have you learnt?

Plants manufacture their food **(starch)** with the help of water and carbon dioxide. This process **(photosynthesis)** occurs in the chlorophyll containing cells of the leaves and takes place in the presence of sunlight.

How will you proceed?

To test a leaf for starch (Iodine test).

1. Dip the leaf in boiling water for a minute to rupture the cells.
2. 2. Boil the leaf in methylated spirit over a water bath (beaker filled with water) till it becomes pale-white due to the removal of chlorophyll. The leaf now becomes hard and brittle.
3. 3. Place it again in hot water to soften it
4. 4. Spread the leaf in a petridish and put 5 - 8 drops of iodine solution on it. Presence of starch will be indicated by a blue-black colour. A part of the leaf without starch will show brown coloration.

A To show that chlorophyll is necessary for photosynthesis:

1. Take a plant with (coloured) leaves having some green and some coloured areas. Example: Coleus and Croton.
2. Destarch the leaves bykeeping the plant in a dark room for a few days.
3. Place the plant in the sun for a few hours.
4. Afterwards, pluck one leaf.
5. Make its outline on paper and mark inside the outline the green and coloured areas.
5. 6. Test the leaf for starch .Only the green parts of the leaf turn blue-black, showing the presence of starch.

ACTIVITY 7.2 How can we measure our body temperature

What is required?

Clinical thermometer having both Celcius and Farenheit scales of temperature.

What have you learnt?

We can measure the body temperature by clinical thermometer.

How will you proceed?

1. Wash the thermometer with clean water and then with antiseptic solution.
2. Note the reading of thermometer. It should be below 35^{O} C.
3. If it is not below 35^{O} C, then hold the thermometer firmly and shake it till the thread of the thermometer falls below 35^{O} C
4. Place the bulb of the thermometer under your tongue and keep it there for about one minute.
5. Now take out the thermometer from your mouth.
6. Note the reading of the thermometer in degrees Celcius by keeping the level of mercury along the line of sight

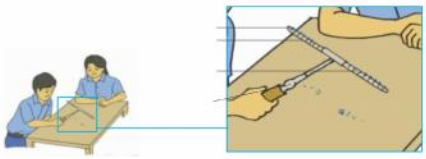
ACTIVITY 7.3 How can we show that the rate of heat conducted by different substances is different?

What is required?

T-shape holder, two rods of same dimensions made of different materials(such as iron and aluminium) , kerosene burner, match box and candle wax, clamp, iron rod, boss head, G-clamp.

How will you proceed?

1. Take two identical rods of same dimension, one of aluminium and the other of iron.
2. 2. Fix them in T-shape holder. Fix the holder in the clamp.
3. 3. Fix small pieces of candle wax on each rod at equal distances
4. 4. Now heat the middle part of the T-shape holder.
5. 5. What happens to the small pieces of wax fixed on the rods?



What have you learnt?

1. The rate at which heat is conducted by different substances is different.
2. Aluminium rod conducts heat more easily than an iron rod of the same dimensions.

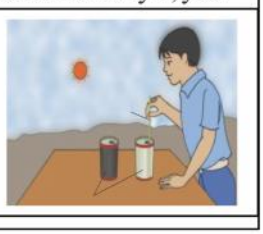
ACTIVITY 7.4 Which of the two identical bodies (one dark-coloured and the other light-coloured) will absorb more amount of heat

What is required?

Two laboratory thermometers, black sheet of paper, white sheet of paper, two identical tin cans, cellotape and water.

How will you proceed?

1. Paste a black sheet of paper on one can and a white sheet of paper on another can. Ensure that there is no gap in between paper and the tin can.
2. 2. Pour equal amount of water in both the cans.
3. 3. In the beginning the temperature of water in both the cans must be same. To verify it, you can use laboratory thermometer.
4. Cover the cans from the top and leave both the cans in Sun for about two hours. Ensure that the two cans must be covered by two pieces of small cardboard so that it will not obstruct in heating the cans.
5. Measure the temperature of water in both the cans.
4. 6. Do you observe any difference in temperature of water in two cans?



What have you learnt?

Dark coloured bodies are good absorbers of heat.

ACTIVITY 7.5 Is your shampoo acidic or basic?

What is required?

Shampoo, blue and red litmus papers, turmeric paper, extract of china rose flowers, test tube, dropper.

How will you proceed?

1. Dilute one drop of shampoo with 10 drops of water.

2.Take red and blue litmus papers and turmeric paper.

3.Using a dropper, put one drop of shampoo solution on each of these indicator papers

4.Record your observations in the table.

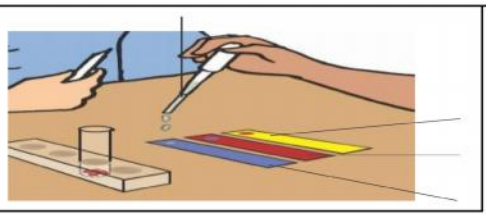
5.Put 5 drops of shampoo solution into a test tube containing some china rose extract

What change in colour do you observe

6.Record your observations

What have you learnt?

Shampoo is basic in nature because it turns Red litmus blue Turmeric paper red. China rose indicator green



ACTIVITY 7.6 How will you get water from ice and ice from water? How will you get water from water vapour?

What is required?

Ice, beaker, kerosene burner, watch glass.

How will you proceed?

1. Take some ice in a beaker and place it on the tripod stand and heat it with the help of kerosene burner.
2. What do you see? Ice melts to form water.
3. Can we use this water to get back ice?
4. Suggest a method for it. Can you say that it is a physical change?
5. Take some water in a beaker. Heat the beaker over the kerosene burner. What do you see?
6. Keep a watch glass inverted above the beaker.
7. Do you see some water droplets on the inner surface of the watch glass?
8. You will see the droplets falling back into the beaker.
9. What is this phenomenon called as?

Conclusion

Ice melts to water and water can be frozen back to ice. Water gets evaporated to form water vapours which can condense to form water.

ACTIVITY 7.7 To study the nature of change when zinc is added to copper sulphate solution

What is required?

Copper sulphate, test tube, zinc granules, spatula

How will you proceed?

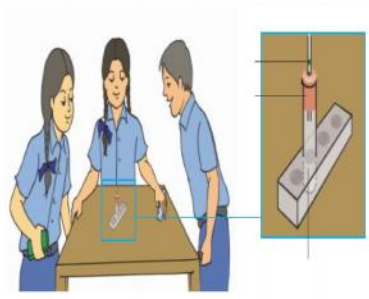
1. Dissolve a spatula full of copper sulphate in 2 mL of water in a test tube.
2. Add 1 or 2 zinc granules into it and keep it for some time.
3. Do you observe any change in colour of the solution and zinc granules?
4. You will observe that the zinc granules turn brown and after sometime, the solution turns colourless.
5. What may be the possible reason for change in colour?
6. The change in colour of zinc granules is due to the deposition of copper on it. The change in colour of the solution is due to the formation of a new substance, zinc sulphate which is colourless

What have you learnt?

The reaction between zinc granules and copper sulphate involves formation of two new substances, i.e., zinc sulphate and copper (brown). Thus, this process is a chemical change.

Activity 7.8 How can we show that air expands on heating and contracts on cooling?

A test tube, a rubber cork with one hole, a long fine glass tube, a rubber tube, some coloured water, a wax candle , match box, beaker and water.



How will you proceed?

1. Take a test tube .
2. Fit a one-holed cork on its mouth.
3. Insert tightly a fine glass tube through this hole. Put a little molten wax through the gap in between the cork and glass tube to make the assembly air tight.
4. Insert a drop of coloured water ink, $KMnO_4$ through the glass tube.
5. Now hold the test tube in the bright Sun or heat it gently at the end using a candle flame.
6. Observe the motion of the water drop in the glass tube. What happens to it?
7. Now keep the test tube in shade.
8. Observe the motion of water drop in the glass tube again.
9. What happens to the water drop if the test tube is placed in ice cold water?

What have you learnt?

Air expands on heating and contracts on cooling.

ACTIVITY 7.9 How will you show that the soil collected from different places differ in composition?

Soil samples (from garden, fields), watch glass, glass rod and tumblers(50 mL beaker.

How will you proceed?

1. Take two tumblers, each filled 2/3rd with water.
2. Add about 10 spoons of soil samples separately in each of them
3. Stir them well with a glass rod.

   Leave these tumblers undisturbed for sometime.
4. Do you see different layers
5. Are the layers similar in the tumblers?

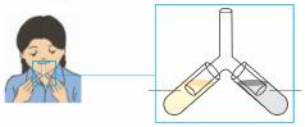
What have you learnt?

Soils from different places contain different amounts of gravel, sand, clay and humus.

ACTIVITY 7.10 How to demonstrate the presence of CO_2 in the air we breathe out?

What is required?

Two test tubes, a Y-shaped tube, two rubber corks each with a hole, lime water and tap water.



How will you proceed?

1. Take two test tubes.
2. Take some freshly prepared lime water, in one test tube.
3. Take the same quantity of tap water in second test tube
4. Insert the two ends of the Y-shaped tube into the test tubes so as to dip the ends the limbs in the liquids.

Now, blow out gently through the median limb of

5. Y-shaped tube a few times.
6. Do you observe any change in the colour of lime water and tap water in the two test tubes?

What have you learnt?

When we blow into the lime water, it turns milky. Can you give reasons?

ACTIVITY 7.11 How can you listen to your own heart beat?

What is required?

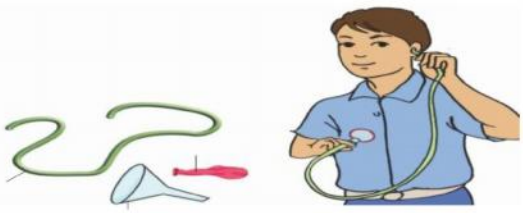
Funnel (6-7 cm in diameter), rubber tube (50cm), rubber sheet or balloon

How will you proceed

1. Take a small funnel and fix the rubber tube tightly on the stem of the funnel.
2. Stretch a rubber sheet or a balloon on the mouth of the funnel and fix it tightly.
3. Put the open end of the tube on one of your ears and place the mouth of the funnel on your chest over the heart. Do you hear any sound?

What have you learnt?

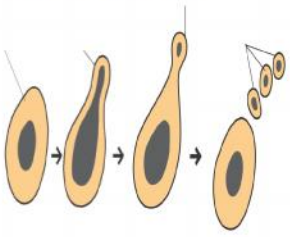
The regular thumping sound that you hear is the heart beat . Normally the heart beats 72 times a minute in an adult.



ACTIVITY 7.12 How does asexual reproduction occur in the plant

What is required?

Yeast powder, 10 per cent sugar (10 gms sugar in 100mL of water) solution, glass beaker, glass rod, slide, cover slips, microscope.



How will you proceed?

1. Fill one-fourth of a beaker with 10 per cent sugar solution and add a pinch of yeast powder or one half powdered yeast tablet to it.
2. Keep it in the warm place of the room for an hour.
3. Now put a drop of this liquid on a glass slide and put a coverslip. Observe under the microscope under high power.
4. You will observe small bulb-like projections coming out of the yeast cells. These are called buds.
5. The buds gradually grow and may get detached from the parent cell or result in a chain of buds.
6. The new yeast cell grow, mature and produce more yeast cells.

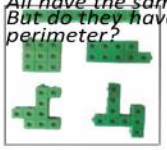
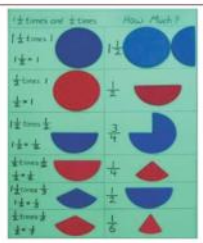
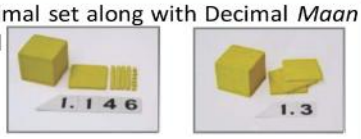
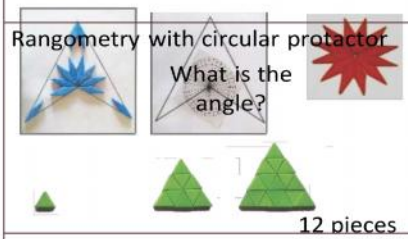
What have you learnt?

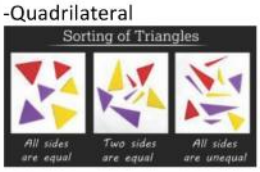
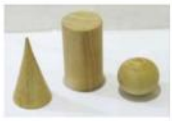
1. The process you observed is called **budding.**
2. Budding is a kind of asexual reproduction. In this process single parent is involved and new plants are produced without seeds.

Multiplication Table - 25x25

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1	**1**	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
2	2	**4**	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50
3	3	6	**9**	12	15	18	21	24	27	30	33	36	39	42	45	48	51	54	57	60	63	66	69	72	75
4	4	8	12	**16**	20	24	28	32	36	40	44	48	52	56	60	64	68	72	76	80	84	88	92	96	100
5	5	10	15	20	**25**	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125
6	6	12	18	24	30	**36**	42	48	54	60	66	72	78	84	90	96	102	108	114	120	126	132	138	144	150
7	7	14	21	28	35	42	**49**	56	63	70	77	84	91	98	105	112	119	126	133	140	147	154	161	168	175
8	8	16	24	32	40	48	56	**64**	72	80	88	96	104	112	120	128	136	144	152	160	168	176	184	192	200
9	9	18	27	36	45	54	63	72	**81**	90	99	108	117	126	135	144	153	162	171	180	189	198	207	216	225
10	10	20	30	40	50	60	70	80	90	**100**	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250
11	11	22	33	44	55	66	77	88	99	110	**121**	132	143	154	165	176	187	198	209	220	231	242	253	264	275
12	12	24	36	48	60	72	84	96	108	120	132	**144**	156	168	180	192	204	216	228	240	252	264	276	288	300
13	13	26	39	52	65	78	91	104	117	130	143	156	**169**	182	195	208	221	234	247	260	273	286	299	312	325
14	14	28	42	56	70	84	98	112	126	140	154	168	182	**196**	210	224	238	252	266	280	294	308	322	336	350
15	15	30	45	60	75	90	105	120	135	150	165	180	195	210	**225**	240	255	270	285	300	315	330	345	360	375
16	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240	**256**	272	288	304	320	336	352	368	384	400
17	17	34	51	68	85	102	119	136	153	170	187	204	221	238	255	272	**289**	306	323	340	357	374	391	408	425
18	18	36	54	72	90	108	126	144	162	180	198	216	234	252	270	288	306	**324**	342	360	378	396	414	432	450
19	19	38	57	76	95	114	133	152	171	190	209	228	247	266	285	304	323	342	**361**	380	399	418	437	456	475
20	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320	340	360	380	**400**	420	440	460	480	500
21	21	42	63	84	105	126	147	168	189	210	231	252	273	294	315	336	357	378	399	420	**441**	462	483	504	525
22	22	44	66	88	110	132	154	176	198	220	242	264	286	308	330	352	374	396	418	440	462	**484**	506	528	550
23	23	46	69	92	115	138	161	184	207	230	253	276	299	322	345	368	391	414	437	460	483	506	**529**	552	575
24	24	48	72	96	120	144	168	192	216	240	264	288	312	336	360	384	408	432	456	480	504	528	552	**576**	600
25	25	50	75	100	125	150	175	200	225	250	275	300	325	350	375	400	425	450	475	500	525	550	575	600	**625**

Math learning tools 6, 7, 8

Teaching Learning Material	Concepts	Description	Grades
Integer Ganitmala set 	Negative Numbers: Ÿ Addition, subtraction, multiplication and division of integers. Ÿ Understanding sign rules including 'minus times minus'.	Visualise the extended number line including negative numbers by doing activities on the integer Ganitmala. Addition and subtraction of integers is consolidated through games using a set of specially designed dice. Integer Ganitmala used along with the context of loan and cash can help children to grasp the sign rules.	6, 7, 8
Tessellations 	Ÿ Space-filling patterns Ÿ Spatial reasoning Ÿ Properties of regular and irregular polygons. Ÿ Symmetry	Exploring which shapes come together to fill up space i.e. tessellate, is not only a fun, creative activity, but also involves understanding angles in shapes. Children can explore homogeneous and non-homogeneous tessellations. Explore rotational and other forms of symmetry in tessellations.	6, 7, 8
Jodo Blocks Visualising $(a+b)^3$ *All have the same area! But do they have the same perimeter?* 	Ÿ Area, perimeter, volume Ÿ Commutativity, distributivity Ÿ Understanding squares and cubes geometrically and in terms of numbers. Ÿ Algebraic identities Ÿ Factors, prime numbers, HCF, LCM Ÿ Patterns	"What are the different (flat or 2-D) shapes than can be made with a given number of blocks and what is the perimeter of each of these shapes?" In this way, children see that even when the area is the same, the perimeter can change which helps clear the confusion between area and perimeter. Jodo blocks can also be used to investigate various algebraic identities. By exploring which numbers of blocks make rectangles, children can develop an idea of prime numbers.	6, 7, 8
Fractions set 	Fractions Ÿ Quantity sense equivalence Ÿ Addition and subtraction Ÿ Multiplication Ÿ Division	Fraction kit can help develop quantity sense for fractions and connect it to symbols. This can prevent the development of common misconceptions like 1/8 being bigger than ½. Equivalence of fractions like ¼ = 2/8 = 3/12...becomes intuitively obvious through activities and games with the fraction kit. By understanding 1 ½ times a fraction children can understand ½ times, 1/3 times etc. With the kit this helps to visualize how multiplication by fractions can lead to reduction of quantity.	6, 7, 8
Decimal set along with Decimal *Maan* card  *Which is bigger?*	Ÿ Decimals- Notation, addition, subtraction Ÿ Connecting with fractions Ÿ Place value	Children have a tendency to confuse decimals with whole numbers. The decimal kit with an appropriate context can help children understand the decimal notation and the related place value. The material can be used for representing decimals using Decimal Maan cards and for doing addition and subtraction.	6, 7, 8
Dienes Block (plastic)  Rubber based Dienes block is also available for place value and algebra related activities	Ÿ Algebraic Identities and factorization Ÿ Measurement Ÿ Area Ÿ Volume Ÿ Weight Ÿ Place Value	Algebraic multiplications of the form $(ax+b)\times(cx+d)$ can be done using Dienes Block, by taking the length of a rod of ten as x, the plate as x^2 and the smaller dimension as of length. Children can start discovering the rectangles hidden in algebraic expressions of degrees 1 and 2 and the cuboids hidden in algebraic expressions of degree 3 in x. Looking at the dimensions of the figures they get they can find the factors of the given expression. These blocks can also be used in activities on length, area, volume and weight measurement since it is of length 1 cm, area $1cm^2$ and weight 1g.	6, 7, 8
Rangometry with circular protractor  12 pieces	Ÿ Angles Ÿ Shapes Ÿ Patterns Ÿ Geometrical problem solving	Activities like fitting together pieces to cover a point, seriating shapes according to angles and making shapes from shapes (triangle from triangles, hexagons from hexagons) are some possibilities. Can be used for determining angles of shapes and can also lead to discussions on patterns in numbers!	6, 7, 8
Jodo Straws  *5 Platonic solids*	Ÿ Polyhedra Ÿ Polygons Ÿ Congruency and similarity Ÿ Problem solving in 2D-3D geometry Ÿ Archimedean and Platonic solids	Activities for exploring different (types of) triangles, quadrilaterals and polygons. Seeing how shapes change when angles or lengths of edges are changed. Understanding notions like congruency and similarity. Activities for exploring 3-D geometry, for instance Euler's formula for polyhedra.	6, 7, 8

Balance  1 tomato + 1 plum = 6 blocks + 4 small cubes	Ÿ Understanding equations Ÿ Measurement (weight)	Activities with a balance can help in seeing the "=" sign as denoting the relationship between two quantities and a linear equation as balancing different quantities. This can help understand what happens when a term in an equation 'goes from one side to the other'.	6, 7, 8
Volume Measuring Set 	Ÿ Cubic centimeter Ÿ Milliliter, liter Ÿ Estimation and problem solving with volume	Children can develop an understanding of volume measurement by first working with informal units and then introducing litre as a formal unit using the measuring cylinder and beaker. Similarly, children can compare volumes of boxes using Dienes cubes and then come to an understanding of cubic centimeter. Later, they can explore the relationship between litre and cubic centimeter.	6, 7, 8
Geo Board 	Ÿ Circles, triangles, quadrilaterals Ÿ Parallel lines Ÿ Properties of quadrilaterals Ÿ Linear equations Ÿ Problem solving	Can be used to further develop understanding of angles, lengths, congruency, similarity etc. What happens to the area and perimeter when a vertex of a shape is changed? Finding areas of different shapes can help understand their formulae. The circular frame at the back can be used to investigate various circle theorems, like angles of inscribed polygons.	6, 7, 8
Sorting Kits -Triangle -Quadrilateral 	Ÿ Properties and classification of triangles Ÿ Properties and classification of Quadrilaterals Ÿ Angle sum properties Ÿ Congruence and similarity	Classifying the 13 different triangles and making different shapes with them help to explore the relationships between the angles and develop an intuitive sense. When tessellations are made using the same triangle it helps to discover relationships of alternate angles corresponding and so on. Similarly exploratory activities with quadrilaterals leads to understanding intuitively its properties.	6, 7, 8
Solid shapes  with flat surfaces  with curved surfaces	Ÿ Cube, Cuboid, Sphere, Cone, Cylinder, Prism and Pyramid Ÿ Polyhedra Ÿ Vertices, edges and faces Ÿ Surface area, height and slant height	Exploring and understanding solid shapes in terms of type of surface (flat or curved), tracing flat surfaces to connect the 3-d and 2-d figures. Children can analyse them according to their faces, edges or vertices. Understanding can be extended by working with Jodo Straws, for example to distinguish between slant height and height.	6, 7, 8

Tangram 	Ÿ Geometrical problem solving Ÿ Exploring shapes	Solving puzzles, spatial reasoning, Geometrical problem solving, exploring angles and shapes	6, 7, 8
Factors set: 200 Ganitmala (big beads) and Number catchers 	For numbers up to 200: Ÿ Factors, common factors, HCF, LCM Ÿ Prime numbers Ÿ Commutative, distributive properties of operations	Children can see 112 as 14 times 8 on the Ganitmala by using number catcher of 8. By asking (with an appropriate context) which of the number catchers can be used to reach, say 135, the notion of factors (3, 5, 9 and 15) can be introduced with visual support. Similarly, the concept of common factors and highest common factors can be introduced.	6, 7, 8
1000 Ganitmala with Maan card  	Ÿ Consolidating number sense up to 1000 Ÿ Extending notions of factors, common factors, prime numbers etc. for numbers up to 1000. Ÿ Expanded form of numbers (up to 10 lakhs), place value system Ÿ Mental arithmetic	Visualising numbers up to 1000 laying a basis for larger numbers. Children can understand 743 as having not only 7 hundreds, but also as 74 tens. It can be used along with Maan cards to connect quantity sense and place value. Numbers in lakhs can be shown in their expanded notation. Maan cards can also be used for exercises in mental arithmetic, for instance making jumps of 10, 25, 100, 1000 and multiples of these numbers in a meaningful manner.	6, 7, 8

बच्चों के अधिकार

एक बच्चा 18 वष से कम आयु के सभी व्यक्ति हं। बच्चे के पालन-पोषण और विकास के लिए माता-पिता की प्राथमिक जिम्मेदारी है । सूरज स्कूल बच्चे के अधिकारों का सम्मान करेगा।

गौरव और अभिव्यक्ति

- मुझे अपने अधिकारों के बारे म जानने का अधिकार है I
- मेरे पास बच्चे होने के अधिकार ह और कोई फक नहीं पड़ता कि म कौन हूं, म कहाँ हूँ, मेरे माता-पिता क्या करते हं, म किस भाषा बोलता हूं, म किस धम का अनुसरण करता हूं, चाहे म लड़का या लड़की हूं, म किस संस्कृति का हूं, चाहे म हूं विकलांग, चाहे म अमीर हो या गरीब मुझे किसी भी आधार पर गलत तरीके से इलाज नहीं करना चाहिए। यह जानने के लिए हर किसी की ज़िम्मेदारी है
- मुझे अपने विचारों को स्वतंत्र रूप से व्यक्त करने का अधिकार है, जिसे गंभीरता से लिया जाना चाहिए, और दूसरों की सुनने के लिए सभी की जिम्मेदारी है।
- मेरे पास गलती करने का अधिकार है, और सभी को स्वीकार करने की जिम्मेदारी है कि हम अपनी गलतियों से सीख सकते हं।
- मेरे पास जो कुछ भी मेरी क्षमताओं को शामिल करने का अधिकार है और अपने मतभेदों के लिए दूसरों का सम्मान करने की जिम्मेदारी सभी के पास है

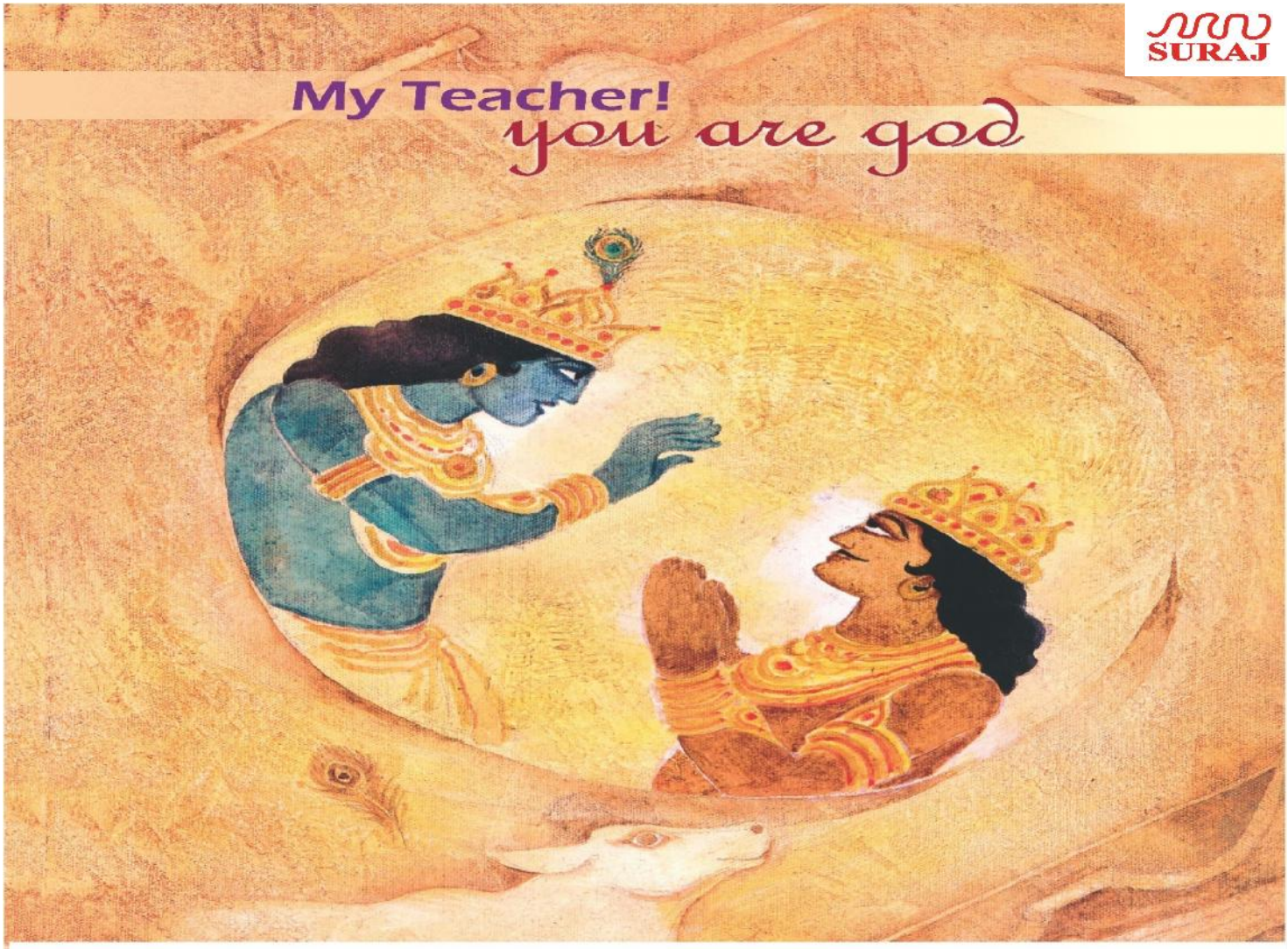
विकास

- मेरे पास एक अच्छी शिक्षा का अधिकार है, और हर किसी के पास सभी बच्चों को स्कूल जाने के लिए प्रोत्साहित करने की जिम्मेदारी है।
- मेरे पास अच्छे स्वास्थ्य देखभाल का अधिकार है और हर किसी के पास बुनियादी स्वास्थ्य देखभाल और सुरक्षित पानी पाने म मदद करने की जिम्मेदारी है।
- मुझे अच्छी तरह से खिलाया जाने का अधिकार है और सभी लोगों को भूख से मरने से रोकने के लिए उत्तरदायित्व है।
- मेरे पास स्वच्छ वातावरण का अधिकार है, और हर किसी की जिम्मेदारी है कि इसे प्रदूषित न करं।
- मेरे पास खेलने का अधिकार है, और आराम करने का अधिकार है।

देखभाल और संरक्षण

- मेरे पास प्यार और हानि और दुर्व्यवहार से सुरक्षित होने का अधिकार है, और हर किसी के पास प्यार और दूसरों की देखभाल करने की जिम्मेदारी है।
- मेरे पास एक पारिवार का अधिकार है और एक सुरक्षित और आरामदायक घर है और सभी के पास यह सुनिश्चित करने के लिए उत्तरदायित्व है कि सभी बच्चों के पास पारिवार और घर हो ।
- मेरे पास मेरी विरासत और विश्वासों पर गव करने का अधिकार है और सभी के पास दूसरों की संस्कृति का सम्मान करने के लिए उत्तरदायित्व है
- मेरे पास हिंसा और शारीरिक सजा (मौखिक, शारीरिक, भावनात्मक) के बिना रहने का अधिकार है, और हर किसी की जिम्मेदारी दूसरों के लिए हिंसक नहीं है।
- मुझे आथिक शोषण और यौन से संरक्षित करने का अधिकार है और यह सुनिश्चित करने के लिए जिम्मेदारी है कि कोई भी बच्चा काम करने के लिए मजबूर नहीं है और उसे एक नि:शुल्क और सुरक्षित वातावरण दिया गया है। ।
- मेरे पास किसी प्रकार के शोषण से सुरक्षा का अधिकार है और हर किसी की जिम्मेदारी यह सुनिश्चित करने के लिए है कि किसी भी तरीके से मुझे लाभ नहीं लिया जा रहा है।

बच्चों के प्रति ध्यान म रखते हुए सभी कायवाही म बच्चे के सवश्रेष्ठ रुचिकर एक प्राथमिक विचार होंगे।



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