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FREE EBOOK

SCIENCE PROJECTS AND KITS

Easy Science Projects for Class 1 to 5

Simple, safe projects young children can make with a little help

INSIDE THIS BOOK

- How to help without doing it for them
- Plants and seeds
- Water and air
- Light, colours and shadows
- ...and 6 more chapters, practice questions and a glossary

Beginner

Children of class 1 to 5, parents and teachers

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Easy Science Projects for Class 1 to 5

Twenty simple, safe science projects for children of class 1 to 5, made from things found at home. Each one lists what you need, gives easy steps and suggests what to say, so the child understands the science. A first chapter shows parents and teachers how to help without taking over, and the last one shows the child how to present the project with confidence.

WHO IT IS FOR	Children of class 1 to 5, parents and teachers
LEVEL	Beginner
SUBJECT AREA	Science projects and kits
WHAT IS INSIDE	10 chapters, practice questions with answers, and a glossary

HOW TO USE IT

Read one chapter at a time and try the examples as you go: on a computer, at your workbench or in your notebook. The boxes give tips, safety points and short activities. When you finish, test yourself with the practice questions and check your answers at the end. Words you may not know are explained in the glossary.



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How to help without doing it for them

This book is for children of class 1 to 5 and for the grown-ups who help them: parents, grandparents, older brothers and sisters, and teachers. There are twenty projects. Each one uses things found at home or bought cheaply from a stationery shop. Each one has the same parts:

- **You need:** the materials.
- **Steps:** what to do, in order.
- **What to say:** the science in simple words, so you can talk about it together.

Why the child should do the work

A project is not for the wall. It is for the child's mind. When children cut, stick, pour, watch and explain things themselves, they remember the science for years. A teacher can always tell when an adult has made the model, and a child who did not make it cannot explain it. A slightly crooked model that the child made and understands is worth far more than a perfect one bought from a shop.

Who does what

Job	Class 1 and 2	Class 3 to 5
Choosing the project	Child chooses from two or three ideas	Child chooses
Cutting paper and card	Child with safe scissors, adult helping	Child with safe scissors
Cutting bottles, using a knife or cutter	Adult	Adult
Hot glue, needles, poking holes	Adult	Adult
Colouring, sticking, arranging	Child	Child

Job	Class 1 and 2	Class 3 to 5
Watching and recording	Child, with help drawing a table	Child
Writing labels	Child says the words, adult writes lightly, child goes over them	Child
Explaining	Child, in their own words	Child

Ask, don't tell

Your best tool is a good question. Try these:

- "What do you think will happen?"
- "Why do you think that?"
- "What did you notice?"
- "What would happen if we changed this?"
- "How could we find out?"

When the child gets something wrong, do not correct it at once. Ask them to look again. Finding out for themselves is the lesson.

Safety for every project

1. An adult does all cutting with knives or cutters, all poking of holes, and anything hot.
2. Keep small things like beads, seeds, magnets and cells away from babies and toddlers in the house.
3. Burst balloon pieces can choke young children. Pick them up at once.
4. Never look straight at the sun.
5. Use only torch cells for electricity projects. Never use a plug, a socket or a charger.
6. Wash hands after working with soil, plants or bird food.

TIP

Work in short sessions of 20 to 30 minutes spread over a few days. Young children concentrate best in short bursts, and many projects need days to show results anyway.

REMEMBER

Praise the effort and the thinking, not only the finished model. "You noticed that the roots grow down. Well done!" builds a young scientist.

CHAPTER 2

Plants and seeds

Project 1: Seed germination

You need: a handful of moong (green gram) or chana seeds, cotton wool, a small glass jar or steel bowl, water, a notebook.

Steps:

1. Soak the seeds in water overnight.
2. Put a thick layer of cotton wool in the jar and wet it. It should be damp, not swimming in water.
3. Spread the soaked seeds on the cotton.
4. Keep the jar in a warm place. Sprinkle a little water each day so the cotton stays damp.
5. Look at the seeds every day for a week. Draw what you see.

Day	What I see
1	
2	
3	
5	
7	

What to say: "Every seed has a tiny baby plant inside, with food packed around it. When it gets water, air and warmth, it wakes up. This is called **germination**. First a little root comes out and grows down. Then a shoot grows up, and soon green leaves open."

TRY THIS

Put a few dry seeds on dry cotton in a second jar. Do they sprout? Comparing the two jars shows that seeds need water.

DID YOU KNOW

Seeds do not need light to sprout. But once the green leaves open, the young plant needs light to make its food.

Project 2: Parts of a plant

You need: a small whole plant with its roots (a weed from the garden, or a small coriander or methi plant), chart paper, clear tape, sketch pens, old newspaper.

Steps:

1. With an adult, dig up the plant gently so the roots stay whole.
2. Wash the soil off the roots and dry the plant on newspaper.
3. Tape the plant onto the chart paper.
4. Draw arrows and write the names: root, stem, leaf, flower or bud.
5. Under each name, write what that part does.

Part	Its job
Root	Holds the plant in the soil and takes in water
Stem	Holds the plant up and carries water to the leaves
Leaf	Makes food for the plant using sunlight
Flower	Makes the seeds
Fruit	Holds and protects the seeds

What to say: "A plant has parts, just like we do, and each part has its own job. The roots are like straws that drink water from the soil. The leaves are the plant's kitchen, where it makes its food from sunlight, air and water."

TIP

For a flat, neat chart, press the plant between sheets of newspaper under a pile of heavy books for a week before you tape it on.

CHAPTER 3

Water and air

Project 3: Water cycle in a bag

You need: a zip-lock plastic bag, water, a drop of blue food colour, a permanent marker, tape, a sunny window.

Steps:

1. Draw a sun, a cloud and some waves on the bag with the marker.
2. Pour about a quarter cup of water into the bag and add the food colour.
3. Seal the bag tightly.
4. Tape it to a sunny window, with the waves at the bottom.
5. Look at it every few hours. Look for tiny drops near the top and drops running down the sides.

What to say: "The sun warms the water, and some of it turns into a gas we cannot see, called water vapour. That is **evaporation**. At the top, the vapour cools and turns back into tiny drops. That is **condensation**, and it is how clouds form. When the drops get big and heavy, they run down, just like rain falling from the clouds. Then it all happens again. That is the **water cycle**."

DID YOU KNOW

The water you drink today may once have fallen as rain somewhere far away, long before you were born. The Earth keeps using the same water again and again.

Project 4: Floating and sinking

You need: a bucket or tub of water, and small things to test: a coin, a cork, a plastic spoon, a steel spoon, a leaf, a stone, a pencil, a key, an apple, and a lump of modelling clay.

Steps:

1. Before testing each thing, guess: will it float or sink?
2. Put it gently in the water. Write what happened.
3. Roll the clay into a ball and test it.
4. Now press the same clay into a flat bowl shape, like a boat, and test it again.

Thing	I think it will...	It...
Coin		
Cork		
Steel spoon		
Apple		
Clay ball		
Clay boat		

What to say: "Things that are heavy for their size sink. Things that are light for their size float. The clay ball sinks, but the same clay made into a boat floats, because its shape pushes aside lots of water and the water pushes it up. That is why big steel ships float."

TRY THIS

Put coins in the clay boat one at a time. How many can it carry before it sinks?

Project 5: Air takes up space

You need: a clear glass, a tissue, a bowl of water deeper than the glass, a balloon, an empty plastic bottle.

Steps:

1. Push the tissue firmly into the bottom of the glass so it cannot fall out.
2. Turn the glass upside down and push it straight down into the water. Hold it there, then lift it straight up.
3. Feel the tissue. It is dry.

4. Now push a balloon inside the bottle and stretch its mouth over the bottle's neck. Try to blow it up.

What to say: "Air is all around us. We cannot see it, but it takes up space. The glass was full of air, and the air kept the water out, so the tissue stayed dry. In the bottle, the air inside had nowhere to go, so the balloon could hardly grow."

TRY THIS

Tilt the glass under the water. A bubble escapes. What happens to the tissue now?

CHAPTER 4

Light, colours and shadows

Project 6: Make a rainbow

You need: a clear glass full of water, a sunny window sill, a sheet of white paper.

Steps:

1. Place the glass at the edge of the sunny window sill.
2. Put the white paper on the floor where the light through the glass falls.
3. Move the paper and the glass a little until you see a band of colours.
4. Name the colours you can see.

What to say: "Sunlight looks white, but it is really made of many colours mixed together. When light passes through water, each colour bends a different amount, so the colours spread out and we can see them. A rainbow in the sky happens the same way, when sunlight shines through raindrops. The colours are violet, indigo, blue, green, yellow, orange and red. Remember them as VIBGYOR."

SAFETY

Never look straight at the sun, even through the glass.

DID YOU KNOW

You can see a rainbow in the sky only when the sun is behind you and the rain is in front of you. That is why rainbows are seen most often in the morning or late afternoon.

Project 7: Shadow puppets

You need: thick card, a pencil, scissors, ice-cream sticks, tape, a torch, a plain wall or a white bedsheet, a dark room.

Steps:

1. Draw animals or people on the card. Cut them out (an adult can help with tricky shapes).
2. Tape a stick to the back of each puppet.
3. Put the torch on a table, shining on the wall.
4. Hold a puppet between the torch and the wall. Tell a story with your puppets.
5. Move a puppet closer to the torch, then closer to the wall. Watch its shadow.

Where the puppet is	Shadow size	Shadow edges
Close to the torch		
Halfway		
Close to the wall		

What to say: "Light travels in straight lines. The card does not let light through, so it leaves a dark patch behind it. That dark patch is a **shadow**. Close to the torch, the puppet blocks more light, so the shadow is big and fuzzy. Close to the wall, it is small and sharp."

DID YOU KNOW

India has old traditions of shadow puppet plays, such as Tholu Bommalata in Andhra Pradesh, where painted leather puppets tell stories behind a lit screen.

Things that move

Project 8: Balloon rocket

You need: a long piece of string (3 to 4 m), a drinking straw, a balloon, tape, two chairs.

Steps:

1. Thread the string through the straw.
2. Tie the string tightly between two chairs placed far apart.
3. Blow up the balloon and pinch its neck. Do not tie it.
4. Ask a helper to tape the balloon to the straw, with the neck pointing towards one chair.
5. Let go and watch it zoom. Measure how far it went.

What to say: "The air rushes out of the back of the balloon, and that push sends the balloon forward. Every push has a push back the other way. Real rockets work like this too: hot gases rush out of the bottom and push the rocket up."

TRY THIS

Blow the balloon up half as much. Does it go as far? Try a long balloon and a round one.

Project 9: Paper helicopter

You need: a strip of paper about 20 cm long and 5 cm wide, scissors, a paper clip.

Steps:

1. Cut down the middle of the strip from the top, stopping halfway. These are the two blades.
2. Fold one blade forward and the other backward.
3. Fold the bottom half in from both sides to make a thin stem, and fix a paper clip at the bottom.
4. Hold it up high by the stem and drop it. Watch it spin.
5. Time how long it takes to reach the floor.

What to say: "As the helicopter falls, air pushes up against the blades. Because the blades are folded different ways, the air makes them spin. Spinning slows the fall. The push of air on falling things is called **air resistance**."

SAFETY

Drop it while standing on the floor or on a low step with an adult beside you. Never lean out of a window or over a balcony.

Project 10: Magnet fishing game

You need: card, colours, scissors, steel paper clips, a stick or ruler, string, a strong magnet, a box or basket for the "pond".

Steps:

1. Draw and cut out ten fish. Colour them and write a number on the back of each.
2. Slip a paper clip onto the mouth of each fish.
3. Tie the magnet firmly to one end of the string, and the other end to the stick. This is your fishing rod.
4. Put the fish in the box. Take turns to catch them. Add up the numbers to find the winner.

What to say: "A magnet pulls things made of iron or steel. The paper clip is steel, so the magnet catches it. Paper is not pulled by a magnet, so a fish with no clip cannot be caught."

TRY THIS

Fix a bit of foil, plastic or a wooden bead to some fish instead of a clip. Which ones can you catch?

SAFETY

Tie or glue the magnet so it cannot come off. Keep small magnets away from little children. Swallowing magnets is dangerous: get medical help at once if it happens.

The Earth and the sky

Project 11: Solar system model

You need: nine balls of newspaper, clay or thermocol in different sizes, paints, a big piece of card, glue or thread, and a wire hanger if you want a hanging model.

Steps:

1. Make the Sun the biggest ball and paint it yellow.
2. Make eight planets. Use the table to choose sizes: biggest balls for Jupiter and Saturn, smallest for Mercury and Mars.
3. Paint them. Give Saturn a ring of card.
4. Arrange them in order from the Sun, on the card or hanging from the hanger.
5. Label each planet.

Order from the Sun	Planet	Size compared with Earth
1	Mercury	Smallest planet
2	Venus	Nearly the same size as Earth
3	Earth	Our home
4	Mars	About half as wide as Earth
5	Jupiter	The biggest planet
6	Saturn	Second biggest, with bright rings
7	Uranus	About four times as wide as Earth
8	Neptune	A little smaller than Uranus

What to say: "The Sun is a star. Eight planets travel round it, each on its own path called an **orbit**. Earth is the third planet, and the only one where we know living things are found." To remember the order, say: "My Very Educated Mother Just Served Us Noodles."

DID YOU KNOW

Pluto was called a planet until 2006. Now scientists call it a dwarf planet. And the real Sun is so big that over a million Earths could fit inside it, so no school model can be made to the right size.

Project 12: Day and night with a torch

You need: a ball or a globe, a torch, a small sticker or bindi, a dark room.

Steps:

1. Stick the bindi on the ball to show where India is.
2. An adult holds the torch still. The torch is the Sun.
3. Turn the ball slowly from west to east. (If you look down on the top of the ball, turn it anticlockwise.)
4. Watch the bindi move into the light (morning), face the torch (noon), and move into darkness (night).

What to say: "The Earth spins like a top. One full turn takes a day, about 24 hours. The half facing the Sun has day, and the other half has night. When it is daytime in India, it is night-time in much of America, on the other side of the Earth."

REMEMBER

The Sun does not really move across the sky. It only seems to, because the Earth is turning. That is why the Sun seems to rise in the east and set in the west.

Project 13: Seasons with a ball

You need: an orange or a small ball, a pencil or knitting needle pushed through its centre (an adult does this), a marker, and a table lamp with its shade removed, switched on by an adult in the middle of a dark room.

Steps:

1. Draw a line round the middle of the orange. This is the equator. Mark India in the top half.
2. Hold the pencil so it leans a little, always towards the same wall of the room.

3. Walk slowly in a big circle round the lamp, keeping the lean pointing at that same wall.
4. Stop at four places. Each time, see whether India leans towards the lamp or away from it.

What to say: "The Earth is tilted, and it goes round the Sun once a year. For part of the year our half of the Earth leans towards the Sun. The sunlight falls more directly and days are longer, so it is summer. Six months later our half leans away, the sunlight is weaker and days are shorter, so it is winter."

DID YOU KNOW

The Earth is actually closest to the Sun in early January, during India's winter. So seasons are caused by the tilt, not by how near the Sun is.

CHAPTER 7

My body and my food

Project 14: Healthy food plate

You need: a large paper plate, pictures of food cut from old magazines or drawn by hand, glue, sketch pens.

Steps:

1. Draw lines to divide the plate. One simple way: half for vegetables and fruits, a quarter for grains such as roti, rice or millets, and a quarter for dal, beans, paneer, eggs or fish.
2. Stick or draw foods in each part.
3. Draw a glass of water and a small bowl of curd or milk beside the plate.
4. In a corner of the chart, draw foods to eat only now and then: fried snacks, sweets and sugary drinks.

Food group	Examples	Its main job
Energy-giving foods	Roti, rice, millets, potatoes	Give us energy to work and play
Body-building foods	Dal, milk, curd, paneer, eggs	Help us grow and repair the body

Food group	Examples	Its main job
Protective foods	Fruits and green vegetables	Help keep us healthy

What to say: "Different foods do different jobs in our body. A healthy plate has some of each kind. Eating many colours of fruits and vegetables is a good habit."

TIP

Let the child build the plate from the food actually cooked at home this week. It makes the project personal, and it makes dinner a science lesson.

Project 15: Sense organs chart

You need: chart paper, a mirror, a cloth bag, a blindfold, small safe things to feel, and a few foods an adult chooses for smelling and tasting.

Steps:

1. Draw a big face and a hand on the chart. Label the eyes, ears, nose, tongue and skin.
2. **Feely bag:** put things like a spoon, a comb, a cotton ball and a leaf in the bag. With eyes closed, feel and name each one.
3. **Smell test:** with the blindfold on, smell a lemon, a piece of ginger and an orange peel, held by an adult.
4. **Taste test:** taste a little sugar, a little salt and a drop of lemon juice.
5. Fill in the table and stick it on the chart.

Sense	Organ	Things I sensed
Sight	Eyes	
Hearing	Ears	
Smell	Nose	
Taste	Tongue	
Touch	Skin	

What to say: "Our five sense organs collect messages about the world around us and send them to the brain, which tells us what they mean."

SAFETY

Never smell or taste anything unknown. Use only foods an adult gives you, and check for allergies first. Do not sniff spices like chilli powder.

DID YOU KNOW

Much of what we call taste is really smell. Hold your nose while you eat a piece of apple and see how much flavour disappears.

CHAPTER 8

Animals, weather and birds

Project 16: Animal homes

You need: chart paper or a shoebox, pictures or drawings of animals and their homes, glue, twigs, cotton and clay for a 3D model.

Steps:

1. Make two columns on the chart: animals and homes.
2. Stick each animal next to its home, or draw lines to match them.
3. For a 3D version, make one home in a shoebox, such as a bird's nest from twigs and cotton.

Animal	Home
Bird	Nest
Bee	Hive
Spider	Web
Rabbit	Burrow
Lion	Den
Ant	Anthill
Dog	Kennel

Animal	Home
Horse	Stable
Cow	Shed
Fish	Pond, river or sea

What to say: "Animals need homes to stay safe, keep warm or cool, and look after their babies. Some animals build their own homes, like birds, bees, spiders and ants. Others live in homes people make for them, like a dog's kennel or a cow's shed."

SAFETY

Never touch or disturb a real nest, hive or burrow. Watch animals quietly from a distance.

Project 17: My weather chart

You need: chart paper, a ruler, sketch pens, a calendar.

Steps:

1. Draw a table for 14 days.
2. Choose symbols: a sun for sunny, a cloud for cloudy, drops for rainy, wavy lines for windy.
3. Each day at the same time, look outside and draw the symbol.
4. Write whether it feels hot, warm or cool, and what you wore.
5. At the end, count each kind of day and draw a bar graph.

Date	Weather symbol	Hot, warm or cool	What I wore
------	----------------	-------------------	-------------

What to say: "Weather is what the air outside is like: sunny, cloudy, rainy, windy, hot or cold. It changes from day to day. Scientists who study weather are called meteorologists. In India, the India Meteorological Department measures the weather and tells us what to expect."

TRY THIS

Make a rain gauge. An adult cuts the top off a straight-sided clear bottle and turns it upside down inside the bottom part as a funnel. Stick a ruler scale on the side. Measure the rain each morning, then empty it.

Project 18: Recycled bird feeder

You need: a clean 1-litre plastic bottle with its cap, two wooden spoons or sticks, string, bird grain such as bajra or broken rice, a shallow bowl for water.

Steps:

1. An adult makes two small holes straight across from each other near the bottom of the bottle, and pushes a wooden spoon through them so that its bowl sticks out on one side. This is a perch.
2. The adult makes the hole on the bowl side a little bigger, so grain can trickle out onto the spoon, then makes a second perch higher up in the same way. A few tiny holes in the bottom let rainwater drain.
3. Fill the bottle with grain and close the cap.
4. Tie string round the neck and hang it from a branch or balcony grill, out of reach of cats.
5. Put the bowl of clean water nearby.
6. Watch from a distance and record which birds come.

Date	Time	Birds I saw	How many
------	------	-------------	----------

What to say: "Birds need food and water, especially in hot summers. Our feeder helps them, and lets us watch them without disturbing them."

REMEMBER

Change the water every day and clean the feeder every week, because wet grain goes mouldy. Never put out salty, fried or spicy food for birds.

Sound and a simple circuit

Project 19: Sound with strings

You need: an open shoebox or an empty tiffin box, four rubber bands of different thicknesses, a pencil, two paper cups, about 5 m of thread, two paper clips.

Steps for the rubber band guitar:

1. Stretch the rubber bands round the box, across the open side.
2. Slide the pencil under the bands at one end to lift them.
3. Pluck each band. Watch it move and listen.
4. Stretch one band tighter and pluck it again.

Steps for the string telephone:

1. An adult pokes a small hole in the bottom of each cup.
2. Push one end of the thread through each hole and tie it to a paper clip inside, so it cannot pull out.
3. Walk apart until the thread is tight. One person talks into a cup while the other listens.

What to say: "Sound is made when something **vibrates**, which means it shakes to and fro very quickly. You can see the rubber band vibrate. Thick, loose bands make low sounds. Thin, tight bands make high sounds. In the telephone, the vibrations of your voice travel along the tight thread to your friend's cup."

TRY THIS

Let the thread go slack, or pinch it with your fingers. Can your friend still hear you? Why not?

Project 20: A simple circuit, with an adult

You need: two AA cells in a holder, a 2.5 V torch bulb in a holder, three wires with crocodile clips, a paper clip and two drawing pins on a piece of thick card (for a switch), a shoebox.

Steps:

1. The adult shows how to clip the wires on.
2. Join one wire from the + end of the cell holder to the bulb holder.
3. Join a second wire from the other side of the bulb holder to one drawing pin of the switch.
4. Join a third wire from the other drawing pin back to the – end of the cell holder.
5. Swing the paper clip to touch both pins. The bulb lights!
6. Fix the bulb in the lid of a shoebox to make a room with a light.

What to say: "Electricity flows only round a complete loop: from the cells, through the bulb and back to the cells. This loop is called a **circuit**. The switch opens and closes a gap in the loop. When the gap is closed, the bulb lights."

SAFETY

Use only torch cells. Never touch plugs, sockets or chargers. Never join the two ends of the cell holder with a bare wire alone, because it gets hot. Keep button cells away from small children: a swallowed button cell is a medical emergency.

CHAPTER 10

Showing your project

When the project is finished, the last step is to show it and talk about it. This is where all the learning comes together.

Three sentences to say

Help the child prepare three sentences in their own words:

1. **What I made:** "I made a balloon rocket."
2. **How it works:** "The air rushes out of the back and pushes the balloon forward."
3. **What I found out:** "A balloon with more air went further."

Practise at home a few times: to a parent, to a grandparent, to a soft toy. Do not make the child learn a speech by heart. If they understand it, the words will come.

Making the chart

- Write the title in big, clear letters.
- Use a few labels and short sentences that the child can read aloud.
- Stick on photos or drawings of the steps, and the observation table.
- Leave space. A crowded chart is hard to read.

On the day

- Carry spare parts: an extra balloon, extra cells, tape.
- Let the child answer the teacher's questions. If they get stuck, ask them a small question to help, but do not answer for them.
- Afterwards, talk about what went well and what they would change next time.

REMEMBER

"I don't know, but I can find out" is a perfectly good answer for a young scientist.

TIP

Keep a small project diary with the date, what was done and a drawing for each session. Teachers love to see how a project grew, and children love to look back at it.

CHECK YOURSELF

Practice questions

1. What three things does a seed need to germinate?
2. Which part of a plant takes in water from the soil?
3. Which part of a plant makes its food?
4. What is evaporation?
5. What is condensation?
6. Why does a clay ball sink but a clay boat float?
7. Why did the tissue stay dry inside the upside-down glass?

8. What are the seven colours of the rainbow?
9. Why do we get a shadow behind a puppet?
10. What happens to a shadow when the puppet moves closer to the torch?
11. What makes the balloon rocket move forward?
12. Why does the paper helicopter spin as it falls?
13. Why does the magnet catch the paper clip but not the paper?
14. Name the eight planets in order from the Sun.
15. Why do we have day and night?
16. What causes summer and winter?
17. Name the three groups of food on the healthy plate and one food from each.
18. Name the five sense organs.
19. Name four animals and their homes.
20. What is sound made by?
21. What is a circuit?
22. Why must you never use a plug or socket for these projects?

ANSWER KEY

Answers

- | | |
|---|---|
| 1. Water, air and warmth. | 6. The ball is heavy for its size. The boat shape pushes aside much more water, and the water pushes it up. |
| 2. The root. | 7. The glass was full of air, and the air kept the water out. |
| 3. The leaf. | 8. Violet, indigo, blue, green, yellow, orange and red (VIBGYOR). |
| 4. Water turning into an invisible gas called water vapour when it is warmed. | |
| 5. Water vapour cooling and turning back into tiny drops of water. | |

9. Light travels in straight lines and the card does not let it through, so a dark patch forms behind it.
10. It gets bigger and fuzzier.
11. Air rushing out of the back pushes the balloon forward.
12. Air pushes up on the blades, which are folded different ways, so they spin.
13. The paper clip is made of steel, which a magnet pulls. Paper is not pulled by a magnet.
14. Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune.
15. The Earth spins. The half facing the Sun has day and the other half has night.
16. The Earth is tilted. When our half leans towards the Sun it is summer; when it leans away it is winter.
17. Energy-giving foods (roti), body-building foods (dal) and protective foods (fruits or green vegetables).
18. Eyes, ears, nose, tongue and skin.
19. Bird and nest, bee and hive, spider and web, rabbit and burrow (also lion and den, dog and kennel, horse and stable).
20. Something vibrating, which means shaking to and fro very quickly.
21. A complete loop through which electricity flows.
22. Mains electricity from a plug or socket is very dangerous and can kill. Torch cells are safe.

WORD LIST

Glossary

Air resistance

the push of air against something moving through it.

Circuit

a complete loop through which electricity can flow.

Condensation

water vapour cooling and turning back into drops of water.

Equator

an imaginary line round the middle of the Earth.

Evaporation

water turning into an invisible gas when it is warmed.

Float

to stay on top of water.

Germination

a seed waking up and starting to grow into a plant.

Magnet

an object that pulls things made of iron or steel.

Meteorologist

a scientist who studies the weather.

Orbit

the path a planet follows as it goes round the Sun.

Planet

a large, round object that travels round the Sun.

Root

the part of a plant that holds it in the soil and takes in water.

Sense organ

a part of the body that collects messages about the world, such as the eye or the ear.

Shadow

a dark patch formed where an object blocks light.

Shoot

the young stem and leaves of a plant, growing upwards.

Sink

to go down to the bottom of water.

Star

a huge, hot ball of gas that gives out its own light, like the Sun.

Switch

something that opens or closes a gap in a circuit.

Vibrate

to shake to and fro very quickly.

Water cycle

the journey of water from the ground to the sky and back again.

Water vapour

water in the form of an invisible gas.



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