

MAX SCIENCE ENQUIRY BOXES

SAMPLE Activity Cards • STAGES 1– 6



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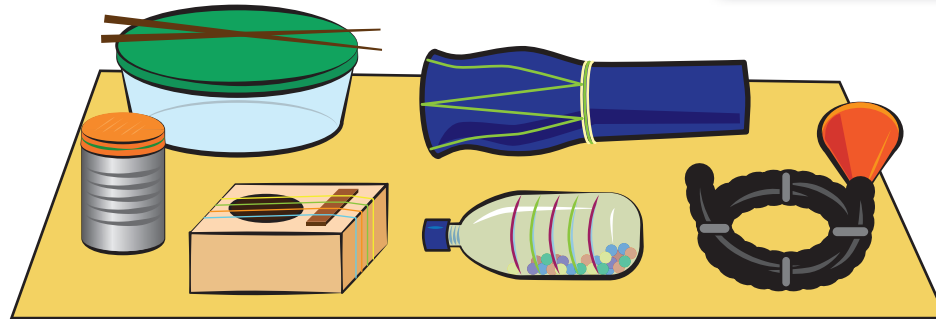


Sound

Objectives

Identify many sources of sound.

14: Making a musical instrument



Your teacher will give you some objects. Work with a partner.

- 1 Design and make a musical instrument.
- 2 Tell your class about your musical instrument.
- 3 Show them how it works.
- 4 Can your class work together to make a song?

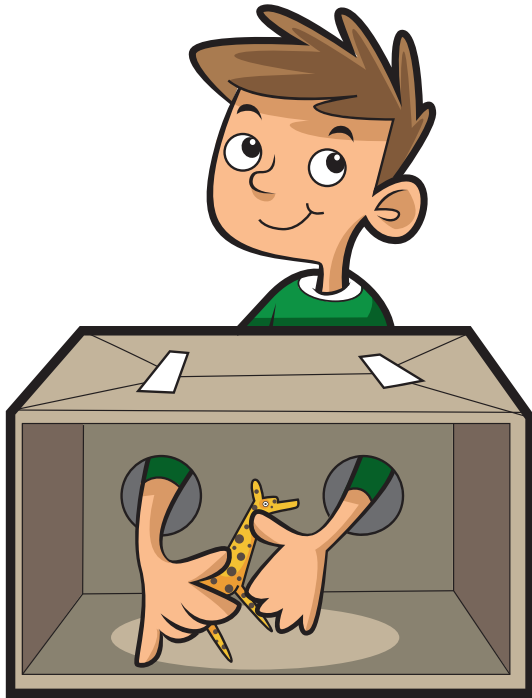


Material properties

1: What does it feel like?

Objectives

Use senses to explore and talk about different materials.



Talk about

- Talk to your partner about the object in the box.
- What does it feel like?
- What do you think the object is?
- Take it in turns to hide an object in the box and ask your partner to describe what the object is.

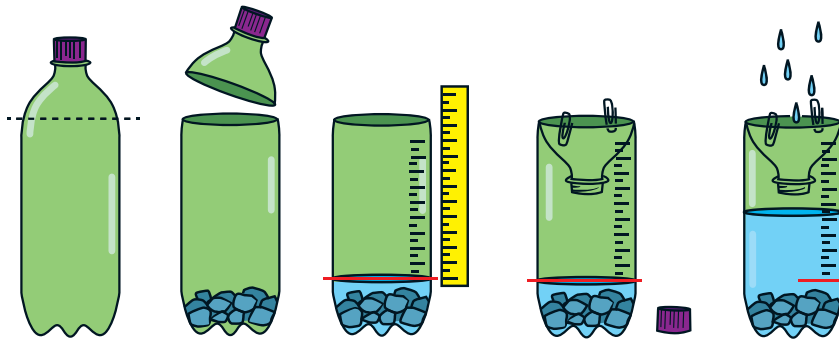


Living things in their environment

11: Making a rain gauge

You are going to make a piece of equipment to measure a type of weather.

You can recycle an old soda bottle to make your rain gauge, as shown here.



Stay safe!

Ask an adult to help you cut the top off the bottle.

Objectives

- Observe and talk about their observation of the weather
- Record reports of weather data.

- 1 Put some pebbles or stones in the bottom of your rain gauge to stop it from blowing over.
- 2 Make sure that the bottom of the ruler is at the top of the pebbles.
- 3 Place your rain gauge in a place where it will not be easily knocked over but where it can collect water.
- 4 Check your rain gauge every day for five days and record the rainfall each day.



Scientific Enquiry

Stage 2

Scientific Enquiry skills		Biology cards	Chemistry cards	Physics cards
Ideas and evidence	Collect evidence by making observations when trying to answer a science question. (2Ep1)	1, 2, 3, 12	7, 10	7, 8, 10, 12, 13, 15
	Use first-hand experience, e.g. observe melting ice. (2Ep2)	4, 5	7, 15, 17, 18	1, 4, 10, 13, 14
	Use simple information sources. (2Ep3)	7, 10	3, 4, 8	3
Plan investigative work	Ask questions and suggest ways to answer them. (2Ep4)	7	16, 20	10, 13, 14
	Predict what will happen before deciding what to do. (2Ep5)	12, 13, 15	9	10, 17, 21
	Recognise that a test or comparison may be unfair.	—	—	10, 20
Obtain and present evidence	Make suggestions for collecting evidence. (2Eo1)	—	5	—
	Talk about risks and how to avoid danger. (2Eo2)	—	5	11, 12, 22
	Make and record observations. (2Eo3)	1, 4, 5, 11	1, 9, 19	1, 9, 10, 14, 17, 20
	Take simple measurements. (2Eo4)	11	9, 11, 14	9, 10, 20, 21
	Use a variety of ways to tell others what happened. (2Eo5)	5, 13, 14	3, 6, 9, 13	3, 5, 10, 14
Consider evidence and approach	Make comparisons. (2Eo6)	7, 15	2, 3, 7, 19	1, 4, 9, 10, 13, 19, 20
	Identify simple patterns and associations. (2Eo7)	5, 8, 10, 11	8, 10	10, 16, 21, 22, 23
	Talk about predictions (orally and in text), the outcome and why this happened. (2Eo8)	2, 3, 13, 15	9	10, 17, 21
	Review and explain what happened. (2Eo9)	13	12	9, 10, 13, 14, 19, 20, 21



Material properties

Objectives

Explore how some materials are magnetic but many are not.

5: Magnetic materials

- 1 Look around the room and find an object that you think will be attracted to a magnet. We say such objects are 'magnetic'.
- 2 Write down the names of the magnetic objects.
- 3 Then find an object that you predict will not be attracted to a magnet. We say these are 'not magnetic'.
- 4 Your teacher will give you a magnet to test the objects.
- 5 Was your prediction correct?
- 6 Now you have practised predicting and testing magnetic materials, find more objects. Try to find six objects that you predict will be attracted to the magnet and six that will not.
- 7 Test your predictions and record your observations.





Forces and motion

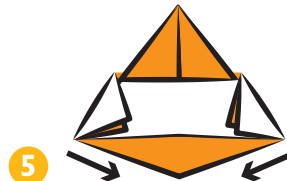
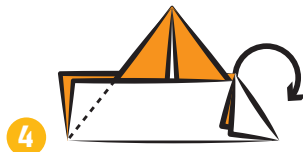
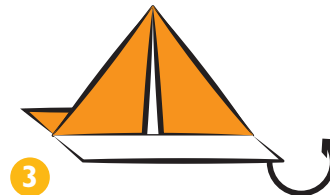
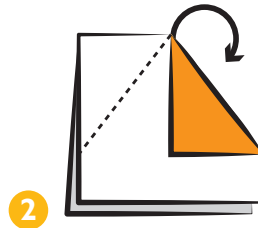
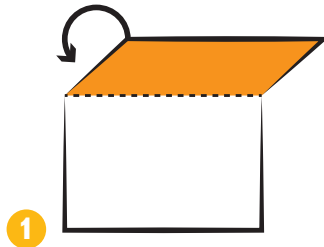
Objectives

Explore how forces can change the shape of objects.

6: Making shapes with paper

Your teacher will give you a sheet of paper.

- 1 Follow the instructions to try to make a paper hat. You could work with a partner to help each other.
- 2 Try to design and make different objects from paper. You could try an aeroplane or a boat, for example.
- 3 Identify the pushes and pulls that you use to make the hat.





Humans and animals

Objectives

Know that humans (and some animals) have bony skeletons inside their bodies.

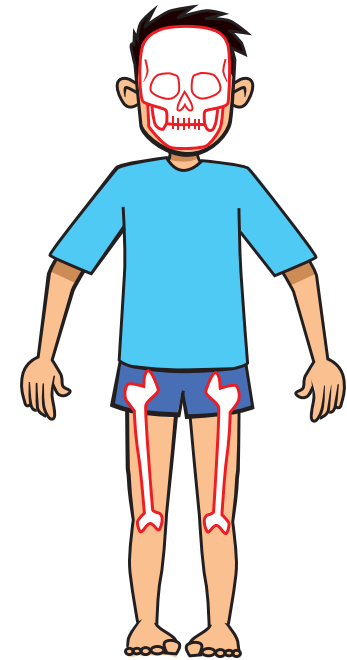
4: Body map

- 1 Work in a team to create a life-size drawing of a student showing the bones and their position in the body.
- 2 Ask a volunteer to lay on paper or the school yard. Carefully draw around the outline of the body with a coloured pen or chalk.
- 3 Draw all of the bones of the human body in the correct position on the body outline.
- 4 Label all of the bones. You can use the key words to make sure you have drawn them all in place.

Key words

skull ribs spine neck shoulders arms elbows wrists
fingers thumbs feet ankles shins knees thighs hips

- 5 Find out how many bones there are in the human skeleton.





Scientific Enquiry

Level 4

Scientific Enquiry skills		Biology cards	Chemistry cards	Physics cards
Ideas and evidence	Collect evidence in a variety of contexts. (4Ep1)	3, 6, 8, 15, 23, 29	1, 2, 3, 4, 6, 9, 13	4, 7, 8, 16, 17, 18, 29
	Test an idea or prediction based on scientific knowledge and understanding. (4Ep2)	19	5, 9	1, 5, 9, 11, 17, 19
Plan investigative work	Suggest questions that can be tested and make predictions; communicate these. (4Ep3)	19	5, 9	1, 5, 9, 11, 17, 19
	Design a fair test and plan how to collect sufficient evidence. (4Ep4)	23	9, 13	11
	Choose apparatus and decide what to measure. (4Ep5)	6, 7, 22, 23, 25	13, 14	3, 17, 22, 26
Obtain and present evidence	Make relevant observations and comparisons in a variety of contexts. (4Eo1)	1, 8, 9, 11, 12, 19, 20, 29	1, 2, 3, 4, 6, 7, 11, 14	1, 3, 4, 11, 16, 22, 26, 30
	Measure temperature, time, force and length. (4Eo2)	6, 7, 8, 22	13	3, 15
	Begin to think about the need for repeated measurements of, for example, length. (4Eo3)	23	13	—
	Present results in drawings, bar charts and tables. (4Eo4)	3, 6, 7, 15, 19, 22, 24, 25	1, 2, 3, 4, 5, 9, 13	1, 3, 4, 11, 17, 28
Consider evidence and approach	Identify simple trends and patterns in results and suggest explanations for some of these. (4Eo5)	6, 7, 8, 23	3, 10, 13	3, 4, 7, 11, 12, 17, 26, 28, 30
	Explain what the evidence shows and whether it supports predictions. Communicate this clearly to others. (4Eo6)	—	6, 9	4, 9, 11
	Link evidence to scientific knowledge and understanding in some contexts. (4Eo7)	3, 6, 28	9, 10, 13, 14	8, 11, 17, 19, 26, 28, 30



States of matter

Objectives

Know that condensation occurs when a gas turns into a liquid and that it is the reverse of evaporation.

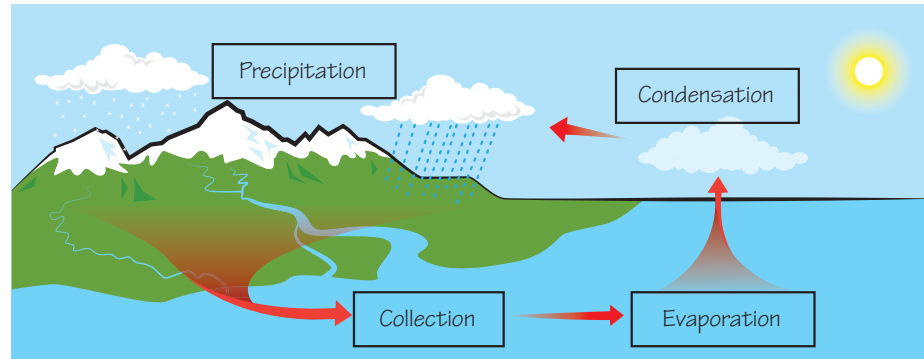
7: The water cycle

1 Look at the picture of the water cycle.

- Why is the water cycle so important?
- List three changes of state you can see in the picture.

2 You are going to make a model of the water cycle. Use the materials your teacher has given to you. Work with a small group of three or four.

- Plan your design and decide how much information you are going to add.
- Will you have labels?
- Construct your model and add the information.
- Present your model to other people in your class.



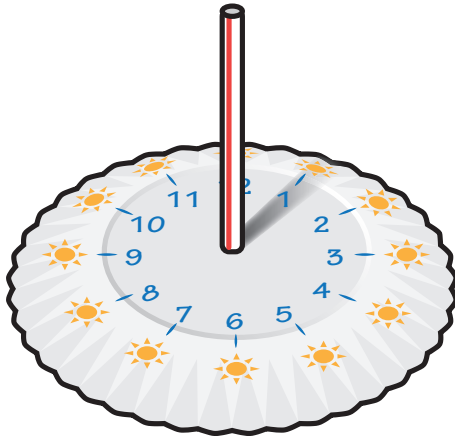


Light

Objectives

Observe that shadows change in length and position throughout the day.

10: Making a sundial



Your teacher will give you a paper plate with a hole in the centre and a drinking straw. You are going to make a sundial.

This is a device that was used in the past to tell the time. As the Sun appears to move across the sky during the day, the position of the shadow cast by the straw will change.

- 1 Place your sundial in a sunny position.
- 2 Start this activity at 12 o'clock (midday).
- 3 Put a ruler along the shadow from the centre to the edge and mark the position.
- 4 Write the number 12 there.
- 5 Every hour, mark the position of the shadow and write the time.
- 6 Test your sundial over the next two days to see how accurate it is.



Forces and motion

5: Walking on the Moon



Objectives

Distinguish between mass measured in kilograms (kg) and weight measured in Newtons, noting that kilograms are used in everyday life.

Astronauts need to know about mass and weight and the force of gravity. On Earth an astronaut weighs about 600 N but on the Moon he will only weigh 100 N. This is why the astronaut can move more easily on the Moon, even with his heavy spacesuit and equipment. His mass will not have changed in the couple of days it takes to travel there from Earth. What must have changed then?

- 1 Use the internet to research how the force of gravity changes on other planets in our solar system. Smaller planets and the Moon have a smaller force of gravity because the greater the mass, the greater the gravity is.
- 2 Measure your mass using scales and calculate what your weight would be on each other planet.

Talk about

- Look at the picture of the astronaut.
- Discuss with your partner the way that the astronaut is walking.



Scientific Enquiry

Level 6

Scientific Enquiry skills		Biology cards	Chemistry cards	Physics cards
Ideas and evidence	Consider how scientists have combined evidence from observation and measurement with creative thinking to suggest new ideas and explanations for phenomena. (6Ep1)	—	—	1
	Collect evidence and data to test ideas including predictions. (6Ep2)	27	8, 18, 19	15, 17, 21, 25, 29, 30
Plan investigative work	Discuss how to turn ideas into a form that can be tested. (6Ep3)	20, 22	8, 15, 16, 18, 19	15, 17, 21, 30
	Make predictions using scientific knowledge and understanding. (6Ep4)	27	8, 18, 19	6, 8, 15, 17, 21, 25, 29, 30
	Choose what evidence to collect to investigate a question, ensuring that the evidence is sufficient. (6Ep5)	8, 20, 27	8, 11, 18, 19	3, 15, 17, 21, 23, 24, 30
	Identify factors that are relevant to a particular situation. (6Ep6)	8	8, 11, 12, 15, 16, 18, 19	3, 10, 15, 17, 21
Obtain and present evidence	Choose which equipment to use. (6Ep7)	8, 22, 27	7, 8, 15, 16, 18, 19, 20	2, 3, 15, 17, 25, 30
	Make a variety of relevant observations and measurements using simple apparatus correctly. (6Eo1)	6, 8, 21, 22, 24, 27	8, 13, 14, 15, 16, 18, 19, 20	2, 3, 5, 15, 16, 17, 20, 26
	Decide when observations and measurements need to be checked by repeating to give more reliable data. (6Eo2)	—	—	15, 30
Consider evidence and approach	Use tables, bar charts and line graphs to present results. (6Eo3)	6, 21, 22, 33	8, 11, 18, 19	3, 4, 5, 6, 15, 19, 20, 27
	Make comparisons. (6Eo4)	6, 20, 21, 22, 23, 24	4, 9, 13	3, 16, 17, 20, 21
	Evaluate repeated results. (6Eo5)	—	—	15, 19, 30
	Identify patterns in results and results that do not appear to fit the pattern. (6Eo6)	6, 20, 21, 27, 33	11, 13, 15, 16, 18, 19	3, 6, 15, 16, 19, 21
	Use results to draw conclusions and to make further predictions. (6Eo7)	6, 21, 27, 33	8, 11, 13, 18, 19	6, 8, 15, 16, 19, 22, 29, 31
	Suggest and evaluate explanations for predictions using scientific knowledge and understanding and communicate these clearly to others. (6Eo8)	—	8, 13, 15, 16, 18, 19	6, 8, 15, 19, 21, 22
Say if and how evidence supports any prediction made. (6Eo9)	6, 21, 27	8, 18, 19	6, 8, 15, 19, 21, 22, 25, 29, 30	