Teacher Notes

The aim of these activities is for Year 6 students to sample a number of different aspects of the Biology curriculum at KS3 during their summer holiday. The worksheets have six short tasks, most of which have some kind of simple activity and research that can be carried out independently.

Students gather data and answer simple questions about the natural world and humans as living organisms.

Issue the worksheets. You could elect to issue just one of the sheets.
For each task there are typically three components:

1. questions to answer
2. research, which may require use of the Internet or a library
3. simple practical or activity (no equipment required).

The tasks should be completed either on the worksheet or additional paper.

Although the tasks are designed to be self-explanatory, you may want to read through some tasks with your students.

Marking guidance

Points to include:

- Recorded data clearly and accurately.
- Drawings detailed with labels.
- Valid points have been found and presented.
- Evidence of research.
- Questions answered with valid points.

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Special features of birds

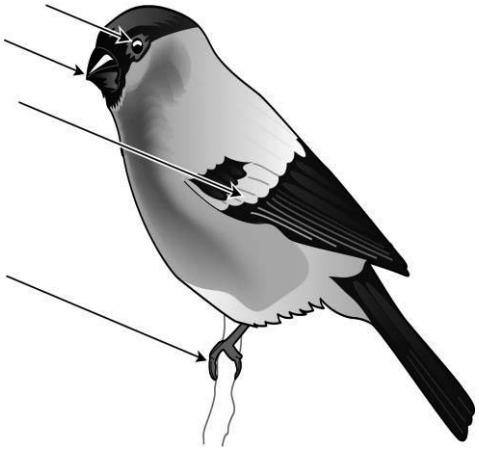
In a local park, choose a bird to watch closely.

- Label the parts of the bird's body on the diagram.
- Why do you think the bird needs wings?

  ……
- Why does it have claws?

  ……
- Why does the bird have feathers?

  ……



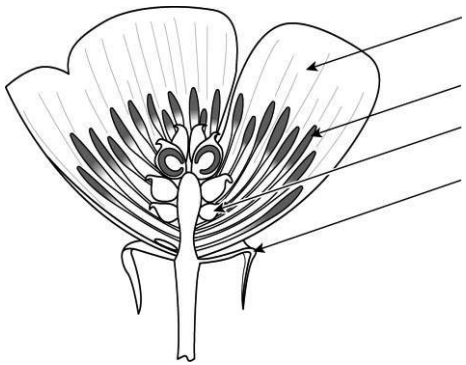
Parts of a leaf

On a visit to a park or on a walk, find a tree and collect a leaf. Use books or the Internet to identify the tree from the leaf.

In the space below, draw the leaf and label as many parts as you can.

Parts of a flower

Label this diagram of a buttercup flower, which has been cut in half.



Local wildlife

Think about the living things that you might find in your garden, or in a local park. List as many organisms from your area as you can.
Divide the list into producers, herbivores, and carnivores.

Producers	Herbivores	Carnivores

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Complete these tasks using what you know about the human body.

Healthy eating

During the summer holiday, find three different chocolate bars of your choice, or three different soft drinks of your choice.

Look for the nutritional on the wrappers or bottles. Fill in the table below with the nutritional information about the bars or drinks.

Name of chocolate bar or soft drink	Carbohydrates (per 100 g)	Fats (per 100 g)	Protein (per 100 g)	Calories

Which of the chocolate bars or drinks is the healthiest? Use your table to help you decide.

……

……

The human heart

Answer these questions using what you know about the human heart.

Where is the heart found in your body? ……..

What does the heart do? ……

Your pulse measures how many times your heart beats in one minute. Your pulse goes up when you exercise.

- Record your pulse when you are resting, and fill in the table.
- Now jog on the spot or do star jumps for two minutes.
- Measure your pulse again and fill in the table.

Resting pulse (beats per minute)	Pulse after exercise (beats per minute)

What is the effect of exercise on your pulse rate? Use your table to help you decide.

……

……

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Teacher notes

This activity pack is designed to remind students about the chemistry they learned at Key Stage 2, and to apply their learning in three situations.

Birthday chemistry

In this activity students use the Royal Society of Chemistry website to find out about chemistry linked to their birthdays.

Students complete a form to report on their findings, and draw or insert a picture linked to their birthday chemistry. The completed forms could be displayed in the classroom.

Some of the dates refer to concepts with which Year 6/7 students will not be familiar, although most dates include something that will be accessible to most students.

Marking guidance

Students should complete the form in their own words, and explain any words that are new to them.

Materials matter

This activity is designed to remind students about the properties of materials, and how these properties make them suitable for their uses.

Marking guidance

Students should identify the properties of materials that make them suitable for the object listed. They should only include properties that are relevant to a particular object.

Sugar or salt?

This activity is an opportunity for students to display their investigative skills in a simple home experiment. It also revises their knowledge of dissolving, which is re-visited at KS3.

Marking guidance
Variables Change – substance; measure – amount that dissolves; keep the same – volume and temperature of water.
Results Sugar (sucrose) is much more soluble in water at 20 ºC than salt (sodium chloride).
What I found out In this section, students should answer the investigation question.

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Birthday chemistry

Every day, scientists do investigations and make observations to answer questions in chemistry. These scientists are called chemists. Chemists work out why materials have certain properties. They find out how materials change in chemical reactions. They create new materials, with perfect properties for particular purposes.

What to do

- Go to this website: http://www.rsc.org/learn-chemistry/collections/chemistry-calendar
- Click on your birthday.
- Fill in the form to show others in your new class why your birthday is important in chemistry.

Hints

- Fill in the form in your own words.
- If there is a word you don't understand, ask someone for help, or look it up in a dictionary or on the Internet.
- You can draw a picture or find one on the Internet, print it out, and stick it on the form.

Why is my birthday important in chemistry?

Name:_____

My birthday is on: _____

The name of my chemist is: _____

My chemist is from this country: _____

This is what my chemist did: _____

_____

_____

Here is a picture of my chemist, or of something my chemist discovered.

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Materials matter

Chemists make materials that are suitable for their purpose. In this activity, you will work out why objects are made from certain materials.

What to do

- Find five objects at home that are made from different materials.
- Fill in the table to show why the objects are made from their materials. The first line is already filled in.

Object	Material the object is made from	Properties of the material that make it suitable for the object
frying pan	metal	• good conductor of heat • rigid

Sugar or salt?

In this activity you will plan and do an investigation to answer this question: **Can you dissolve more sugar, or more salt, in a glass of water?**

My plan

- Complete the table.

Variable	Will I change it or measure it or keep it the same?
substance (sugar or salt)	
amount that dissolves	
volume of water	
temperature of water	

- Write down what you will do.

_____

_____

My results

Substance	
Sugar	
Salt	

What I found out

_____

_____

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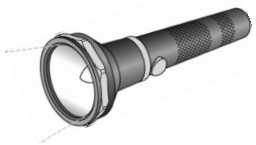
Teacher Notes

Circuits



Students draw a circuit diagram for a torch. This can come from notes, the Internet, or by taking a torch apart. Students should draw a single loop (series circuit) with a battery, a switch, and a bulb in any order. They may use the correct symbols, or draw these parts.

The Sun

Students watch the Sun at different times. They may view the Sun several times in a day, or on different days at different times. They should describe its height and where it is in the sky, its colour, and size change in the evening or at dawn. They must not look directly at the Sun.

The Moon

Students watch the Moon over several nights. They could view the Moon on consecutive nights, or over the holiday. They should describe the shape of the Moon, for example, a full circle, a half-moon, or quarter-moon. More able students may say where they look in the sky (height and position). The important thing is to see changes, rather than particular details.

Forces

Students think about forces that slow them down in different situations. They may say friction slows them down but friction's main effect is to help movement.

- A force that slows me down when I run is air resistance (or drag).
- A force that slows me down when I swim is water resistance.
- A force that slwos me down when I cycle is air resistance (or drag).

Magnets

Students find magnetic and non-magnetic objects. They can use a fridge magnet to test materials. More able students should name the material (e.g., steel).

Magnetic	Non-magnetic
fridge door	wooden spoon
stainless steel spoon	plastic ruler
some coins	glass
nickel earring	

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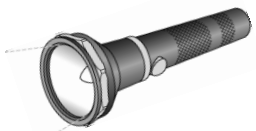
Get Ready For Physics!

Activate

We use physics in lots of areas of our lives. Use what you know about science to help you carry out the tasks below.

Circuits



Can you draw a simple circuit that you would find in a torch? Include these things:

battery bulb switch

The Sun

Check the Sun's position several times in one day and write the changes.
Warning: Never look directly at the Sun!

Time	Height in sky	Position
7 am		
Noon		
4 pm		
9 pm		

The Moon

Watch the moon every night for a week. Write down what it looks like each day. Think about its shape, and brightness.

Day	How the Moon looks
Monday	
Tuesday	
Wednesday	
Thursday	
Friday	
Saturday	
Sunday	

Forces

Some types of force slow us down when we are moving. Fill in the blanks, using the words below:

water resistance air resistance drag

- A force that slows me down when I run is .....
- A force that slows me down when I swim is .....
- A force that slows me down when I cycle is .....

Magnets

List some objects that are magnetic and some that are not.

Magnetic Not magnetic

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