

## Primary Workshops

### Enjoy the new science curriculum, stimulate curiosity and have fun

All our workshops support the overall aim of the Curriculum to “develop understanding of the **nature, processes and methods of science** ... to answer scientific questions about the world around” and cover the statutory requirements to teach “practical scientific methods, processes and skills through the teaching of the programme of study content”.

Our Key Stage 1 workshops:

- ask simple questions that can be answered in different ways
- help pupils observe closely, using simple equipment
- encourage pupils to perform simple tests
- use observations and ideas to suggest answers

Our Y3/4 workshops:

- ask relevant questions and use different types of scientific enquiries to answer them
- set up simple practical enquiries, comparative and fair tests
- help pupils make systematic and careful observations
- allow pupils to report findings
- use results to draw simple conclusions
- use straightforward scientific evidence to answer questions or to support conclusions

Our Y5/6 workshops:

- plan scientific enquiries to answer questions, recognising and controlling variables
- encourage pupils to take measurements with appropriate accuracy and repeated readings, using a range of scientific equipment
- allow pupils to record data and results of increasing complexity

These are our workshops and the curriculum areas they support – they don’t all cover everything!

They are designed, mainly for specific age groups, to develop scientific skills.

We can be flexible.

Please ask for details.

\*These workshops need extra help from adults or older pupils. Please discuss this with the Workshop Leader.

## Air

Forces: *identify the effects of air resistance*

Context: how things move through the air and how their movement can be altered.

These are a set of contrasting investigations making gyrocopters, hoopsters and kites.

Space: hall

Time: 1½ hours

Age group: Y5/Y6

## Boats

Forces: *identify the effects of ... water resistance* Context: how things float (and sink) using different materials and making different boat shapes.

This is a sequence of short investigations making boats and rafts.

Space: classroom with access to a tap

Time: 1½ hours

Age group: Y3/Y4, Y5/Y6

## Buggies

Forces (Y3/4): *compare how things move on different surfaces; notice that some forces need contact between two objects*

Forces (Y5/6): *identify the effects of ... friction, that act between moving surfaces*

Context: how the energy from the release of air in a balloon powers a small car (buggy).

As the pupils make buggies, they investigate the variables affecting how they work.

The class keeps the buggies.

Space: hall or very large classroom

Time: 1½ hours

Age group: Y3/Y4, Y5/Y6

## Candles

Everyday materials: *distinguish between an object and the material from which it is made; describe the simple physical properties of a variety of everyday materials.*

Uses of everyday materials: *find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching*

States of matter: *observe that some materials change state when they are heated or cooled*

Properties and changes of materials: *compare ... everyday materials on the basis of their properties, including ... transparency; demonstrate that ... changes of state are reversible changes ... some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning*

Context: the origins and properties of waxes, changes of state and non-reversible changes.

This is a lively interactive discussion, easily differentiated to focus on specific topics.

Space: classroom or hall with electrical point

Time: 1¼ hours

Age group: Y1/Y2, Y3/Y4, Y5/Y6

## Carousel\*

Everyday materials: *... describe the simple physical properties of a variety of everyday materials. ... use materials with certain physical properties ...*

Uses of everyday materials: *identify and compare the suitability of a variety of everyday materials, ...*

Forces and magnets: *notice that some forces need contact between two objects, but magnetic forces can act at a distance; observe how magnets attract or repel each other and attract some materials and not others*

Context: materials and forces. This is a set of five investigations based around the theme of a circus.

Space: hall or classroom

Time: 1¼ hours

Age group: Y1/Y2

## Citrus

Y6 Animals including humans: *recognise the impact of diet*

Context: how much Vitamin C (relatively) is found in different citrus fruits.

This is an investigation by pupils, discussing fair testing and accurate results.

Space: classroom with at least one sink.

Time: 1½ hours.

Age group: Y5/Y6

## Electricity

Electricity: ... *construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers; identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery; recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit; recognise some common conductors and insulators, and associate metals with being good conductors.*

Electricity: ... *compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches*

Context: this is a series of short circuit investigations some of which might use solar cells; how a simple circuit is affected by a sequence of small changes.

Space: classroom and outdoors (weather permitting). Lamps will be used in bad weather.

Time: 1½ hours.

Age group: Y3/Y4, Y5/Y6

## Fizz!

Properties and changes of materials: *explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with ... the action of acid on bicarbonate of soda.*

Context: the pupils use litmus to identify acids and then design a fair test to investigate the effect of temperature on an acid/carbonate reaction.

Space: classroom with at least one sink.

Time: 1½ hours.

Age group: Y5/Y6

## Light\*

Light: *notice that light is reflected from surfaces; recognise that light from the sun can be dangerous ...; recognise that shadows are formed when the light from a light source is blocked by a solid object; find patterns in the way that the size of shadows change.*

Context: this is a set of five short investigations comprising reflection, casting shadows, how shadows change during the day, light being an energy source.

Space: classroom

Time: 1¼ hours.

Age group: Y3/Y4

## Paper-making

Context: pupils think about recycling in general and then use old sugar paper to produce small pieces of new paper, and examine different combinations of new fibres.

Space: classroom with sink

Time: 1½ hours

Age group: Y3/Y4, Y5/Y6

## Rollers

Forces (Y3/4): *compare how things move on different surfaces; notice that some forces need contact between two objects*

Forces (Y5): *identify the effects of ... friction, that act between moving surfaces*

Context: how the energy from the release of an elastic band powers a small toy (bandroller).

This is an investigation, as the pupils make bandrollers, of the variables affecting how they work.

The class keeps the bandrollers.

Space: hall or classroom

Time: 1¼ hours.  
Age group: Y3/Y4, Y5/Y6

### Separating

Properties and changes of materials (Y5): *know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution; use knowledge of solids, liquids and gases to decide how mixtures might be separated, including ... sieving ...; demonstrate that dissolving, mixing ... are reversible changes*

Context: pupils work through a sequence of activities to separate a dry mixture, look at dissolving gases, and observe an exciting nucleation.

Space: classroom

Time: 1¼ hours.

Age group: Y5/Y6

### Space\*

Earth and space: *describe the movement of the Earth, and other planets, relative to the Sun in the solar system; describe the movement of the Moon relative to the Earth; describe the Sun, Earth and Moon as approximately spherical bodies; use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.*

Context: simple investigations into phases of the moon, the solar system, stars, the night sky, and shadows.

Space: hall

Time: 1½ hours

Age group: Y5/Y6

### Story \*

Simple, accessible science investigations, linked to a story book. Parents and carers can be invited to take part.

Space: classroom

Time: 1 hour

Age group: N/R/Y1 and Y5/Y6

### Studying Substances

Properties and changes of materials: *know that some materials will dissolve in liquid to form a solution; use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering; demonstrate that dissolving, mixing ... are reversible changes; explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible ...*

Context: pupils try ten different experiments to test their ability to follow instructions, observe carefully and record accurately.

Space: hall

Time: 1½ hours

Age group: Y5/Y6

### Wind

Context: pupils design a model wind turbine and investigate variables to improve its efficiency.

Space: hall or large classroom

Time: 1½ hours

Age group: Y5/Y6

We have over twenty years' experience of supporting and inspiring practical and investigative science in thousands of schools.

Tell us what you want.

Ask us what we can do.

To book workshops, please contact us at [email@spherescience.co.uk](mailto:email@spherescience.co.uk)