

# Magical Science Day 1

## Advance preparation

The teachers or adult helpers who are leading groups will need to have received an overview, clear instructions and all necessary materials in advance of the day.

The school should be divided into five (or multiples of five) separate working groups. For example, Y1&2, Y3, Y4, Y5 and Y6. Each group will be allocated one of the Magician's Cards during the launch assembly.

## Resources

Arrange for the week's key question: **How can we use science to entertain, amaze and mystify?** to be prominently displayed in each working base.

### Activity 1. Climb through a piece of A4 paper

For this activity each group will require:

- a sheet of A4 paper.

### Activity 2. Making a flipbook

For this activity each group will require:

- paper to make the pages of the book;
- staples or sticky tape to fix the pages together;
- drawing/colouring materials.

### Activity 3. Optical illusions

For this activity you will need:

- some examples of Escher's drawings;
- enough copies of pupil activity sheet 1 (see pages 66) to go round.

### Activity 4. The magic flower

For this activity you will need:

- enough copies of the template (see page 68) to go round;
- a bowl of water.

### Activity 5. A card that stops water falling out of an up-turned glass

For this activity you will need:

- a piece of card;
- a glass of water.

## Additional materials

- a copy of the Learning Log for each pupil to record their learning on Day 1.

## The activities

Following the assembly, each teacher or adult in charge should return to their classroom or workspace. They should then lead an initial discussion to ascertain what prior knowledge the children have of the relationship

between magic and science. Ask the children whether they really do think that the adults who performed the tricks were magicians. If not, why not? Ask them if they believe that a light bulb works because of magic, or a car is powered by magic. Some of their comments could be recorded on a whiteboard, flipchart or similar.

Next, focus on the Magician's Card you've been allocated. What do the children already know about the topic? What are they keen to discover? These comments should also be recorded and retained for the evaluation exercise on Day 5 when you will be able to congratulate the children on how much they have learned.

Each teacher facilitates a series of activities and experiments that seem magical whilst having a solid basis in science and logic. (These could be organised as a carousel or as a set of whole class activities, depending on the number of teaching assistants and adult helpers available). They are as follows:

### **Activity 1. Climb through a piece of A4 paper**

This is a simple lateral thinking challenge. The children are asked to tear a single hole in an intact piece of A4 paper, sufficiently large for them to climb through. They are not allowed to stick, staple or re-attach any parts of the paper – it must be retained as a single entity. One possible solution is provided (see page 65).

### **Activity 2. Making a flipbook**

This is the basic principle of animation. Show the children how to construct a booklet of paper that can be flicked through. On each sheet draw a slightly changing or developing picture (e.g. the sun rising and dipping over the horizon, or a face breaking into a smile). Ask them to produce one of their own. Ideas might include a person falling over, walking or jumping.

### **Activity 3. Optical illusions**

Introduce the children to some of the pictures by Escher, especially the 'House of Stairs' or the 'Elephant'. (These can be found online using an image search engine.) Ask them to investigate why it would be impossible to make a 3-D version or model of the image. Introduce the children to some well-known optical illusions (see Activity Sheet 1 on page 66) and ask them to investigate and reach conclusions.

### **Activity 4. The magic flower**

Use the template provided (see page 68) to make a folded flower. Place it in water – see what happens. Is it magic?

### **Activity 5. A card that stops water falling out of an up-turned glass**

Demonstrate placing a piece of card over a fully filled glass of water and then inverting it. What do the children think will happen before you do turn the glass upside down? Why doesn't the water fall out? Is it magic?

## **Consolidation of learning on Day 1**

Remind the children that throughout the day they have been learning about how apparently mysterious happenings can be logically explained. They should be starting to realise that science is both magical and also provides rational explanations for why certain things happen.

Distribute a Day 1 Learning Log sheet to each child. This is intended to be a simple and flexible way of encouraging reflection on what has been learned during the day. Teachers will need to use their professional judgement and knowledge of the children in exercising their expectation of what will be recorded and how the recording will take place.

Magical Science

## Day 1 Learning Log

The most magical thing I have  
learned today is...