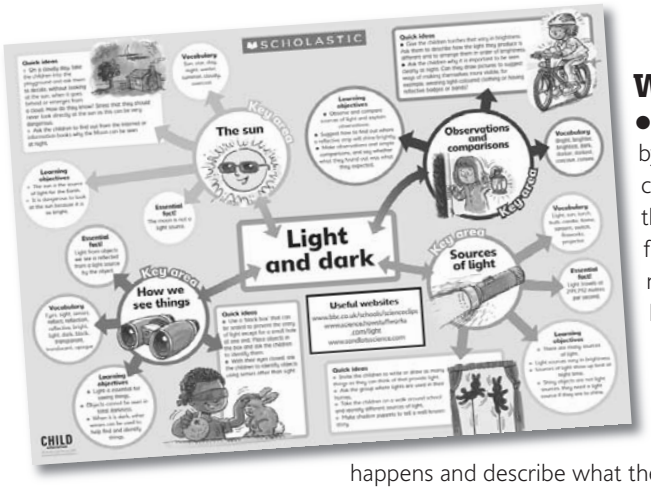
Light and dark

Introduce the QCA topic of 'Light and dark' with these quick and simple activities



Whole class

- Investigate the different effects produced by concave and convex mirrors. Give the children flexible plastic mirrors, and ask them to bend the mirrors towards and away from them. Making the mirror convex will make their image appear upside down. Invite them to record their observations by drawing what they see.
- Explore the effect water has on light. Place a pencil into a clear plastic beaker full of water. Ask the children to observe what happens and describe what they see. The pencil will appear to bend at the surface of the water. Alternatively, fix a coin to the bottom of a plastic bowl and ask the children to look over the rim of the bowl, then move back until the coin is just out of sight. Pour water into the bowl and the coin should return into view.
- Encourage the children to look around the classroom, school or home, and make a list of things that they can see their reflection in.

Group/independent

- Test whether materials are transparent, translucent or opaque. Provide the children with torches and a collection of different materials. Ask them to predict whether they think the light from the torch will pass through each material or not. Working on their own or in pairs, tell them to shine the torch on to a sheet of black paper and place each of the materials, in turn, in front of the torch. They could record their results using a simple chart and compare their predictions with what they observed.
- Show the children how the pupils in their eyes increase and decrease in size to vary the amount of light entering the eye. Using a mirror they should look closely at their eyes, noticing the dark pupil. Turn off the lights so that the room is quite dark - the children need to keep looking into the mirror as you do so. When the lights are turned on again they should be able to see their pupils getting smaller. If they find it difficult to look at their own eyes, they may be able to notice the changes in a friend's eyes.
- Give each child a copy of **Flicker book (see photocopiable sheet 4)** that shows the sun rising and setting. Cut out the pictures, mount them on to card and attach them on top of each other. Encourage the children to flick through the book and watch the pictures move. Explain that this is what happens every day.
- Observe and record the changing lengths of shadows throughout the day. The class can do this by measuring each other's shadows at regular intervals or by setting up a tall, thin cone or metre stick outside and measuring the shadow it produces. They could also mark the direction as well as the length of the shadow. Encourage questions about why the shadow changes size and direction.
- If the weather does not permit working outside, a similar investigation may be undertaken to investigate the length of shadows. Using torches as the light sources and objects such as pencils fixed to a base, shadows can be observed and measured as the light source is moved around the object.
- Demonstrate how white light is made up of the colours of the rainbow using a torch and a prism. Give each child a copy of the **Rainbow fact card (see photocopiable sheet 2)** and ask them to colour in the rainbow using the correct colours.

Activities and poster devised by Mark Longmore.