

CHAPTER 3: Energy Long Ago

Aims

The aims of this chapter are to enable the children to discuss sources of light from past to present day, realise that we need light to see and understand that shiny objects are not sources of light.

Overview of Chapter

Light is a form of energy. In this chapter the children engage with activities that are aimed at developing their understanding of light. They examine changes in sources of domestic lighting from the past to the present and explore the differences between sources and reflectors of light.

Working Scientifically Skills

In this chapter the children will be applying and developing the following working scientifically and design and make skills:

- Observing
- Predicting
- Investigating and experimenting
- Estimating and measuring
- Recording and communicating

Primary Science Curriculum link

Strand unit: Light

Lesson 1 – History of light

Lesson link

Before beginning this lesson you might like to revisit: **Junior and Senior Infants Programme Chapter 3 Lesson 1: The story of cooking**

Resources

IWB 11 / PowerPoint 11: Guzzler and lights through time

Activity type: Discussion

Use **IWB 11** to help the children learn about sources of light that have been used throughout the ages. If you do not have access to the IWB use **PowerPoint 11** to discuss the light sources through time.

Questions to promote discussion

- 1 What is the source of light in each picture?
- 2 What kind of energy does it use?
- 3 Do we use that as a source of light today?
- 4 How do the sources of light change?
- 5 Of the last two (*more modern images*) which light bulb do you think is most energy efficient?
- 6 Why do we need energy efficient light bulbs?

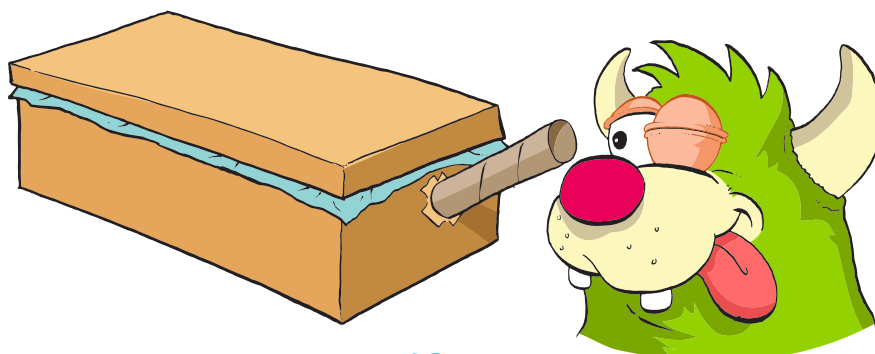
Lesson 2 – Do we need light to see?

Resources

IWB 12 / PowerPoint 12: Guzzler investigates - do we need light to see?

PCM 8: Recording sheet

Dark Box: Shoe box with lid, black sugar paper to line the shoebox and lid, kitchen roll holder, scissors. Selection of objects to test e.g. pencil, coins, small toys, eraser, plastic cubes.



Teacher note: How to make a dark box

- 1 Line a shoe box and shoe box lid with black sugar paper.
- 2 Cut a hole about 10 cm in diameter in the side of the shoe box - the hole should be big enough to fit a kitchen roll.
- 3 The children will use the kitchen roll as a viewfinder to try and see the different objects inside the box.

Before doing the activity with the children look through the viewing hole and ensure that no light is getting into the box. If light is getting in re-line with more black sugar paper.

Place the objects listed in the resource section above on the desk for the children to see.

Activity type: Investigation

The aim of the activity is to help children realise that we need light in order to see.

Ask the children to discuss the objects and their properties and then predict whether or not they will be able to see these objects in complete darkness. Use **IWB 12 / PowerPoint 12 / PCM 8** to assist and record their predictions .

Place the first object inside the shoe box.

Place the lid on the shoe box and ask the children to look inside the viewing hole. Ask them can they see the object (*they should not be able to see the object as there is no light*).

Move the lid across the top of the shoe box to allow some light to get into the box. Ask the children to look in the viewing hole again and see if they can now see the object (*they will be able to see the object this time as there is light*). Repeat this with every object.

Discuss the activity with the children.

Questions to promote discussion

- 1 Could you see any of the objects in the dark box when the lid was on?
- 2 Why do you think you could not see the object when the lid was on?
- 3 Could you see the object when the lid was opened?
- 4 Why do you think you could see the object then?
- 5 What does this tell us about light and vision?

Lesson 3 – Shiny objects

Resources

IWB 13 / Powerpoint 13: Are shiny objects sources of light?

PCM 9: Recording sheet

Selection of 'shiny' objects to test: E.g. coin, pencil (white and yellow), aluminium foil, keys, sparkly jewellery, white paper, gold paper, toy, torch, small mirror

Dark Box (shoe box lined with black sugar paper)

Teacher note: Often children believe that 'shiny' objects such as aluminum foil or sparkly jewellery are sources of light. They are not, they reflect light.

Activity type: Investigation

Show the children the objects they are going to test and ask them to predict whether they think they will be able to see the objects if placed in the dark box. Encourage the children to give reasons for their predictions. They could record their predictions on **PCM 9** or on **IWB 13 / PowerPoint 13**.

Place the first shiny object in the dark box, replace the lid and ask the children to look through the viewing hole to see whether or not they can see the object. Repeat this for the rest of the objects. Finally place a lit torch inside the box and replace the lid. Ask the children to look through the viewing hole again to see whether or not they can see the torch.

Recording

They record their findings on **PCM 9** or **IWB 13**.

Discuss findings with the children.

Questions to promote discussion

- 1 What objects could you see in the dark box?
- 2 Why do you think you could not see these objects?
- 3 Why do you think you saw the torch in the box?

Extension

Resources

Activity from the book **Guzzler Investigates Energy: Energy long ago and energy worldwide (pages 11 - 16)**