Night Rides

...and when the house
is quiet
and everyone sleeps
sometimes I wake up
and breathe in darkness
for so long
I have to get up
open the curtains
and look out over the city
watching the cars do U-turns
that they don't dare do
in the day.
a cat talking to a bin
and a bus full of lovers
sailing down the High Street
lit up like a fairground.

...and I think of my big sister
far away
and I want to ride that bus
all the way
up to her block of flats
up the stairs
and in through the door.

The city winks.
I'm cold
...and the bus sails on.

"Night Rides"

Discussion Points

Note: The language of this poem may be difficult for very young children.

- What time of day do you think it is in the poem?
- How could the city "wink"?
- Have you ever felt that you could "breathe in darkness"? What was it like?
- What can you see from your bedroom if you look out at night?
- Why/how could the person in the poem see the cars, the cat and the bus? What else might he or she be able to see?
- Why is the bus described as "sailing down the High Street" and "lit up like a fairground"?
- What could you use to make the side of a bus light up?
- What do you usually see on the back and sides of buses?
- Why do people pay bus companies to put their adverts on their buses?
- What is the advantage of the advert being illuminated at night?
- Have you ever seen things advertised on buses that are for a charity or campaign?
- Which colours are best for advertising?

Science Background

- Light travels very fast – "at the speed of light".
- It travels in straight lines, radiating in all directions from its source.
- Sources of light can be primary, that is direct, for example, from the Sun or flames from a fire, or secondary, that is indirect, for example, from the Moon or light bulbs.
- There are many sources of light in everyday life but most are indirect, especially in the day-time when nearly all the direct light comes from the sun.
- We need light to see things. Light from an object, usually scattered or reflected, enters the eye through the pupil. It reaches the retina at the back of the eyeball which sends electrical signals to the brain. These electical signals describe to the brain the object that is being "seen".
- Darkness is the absence of light, and shadows are caused when light is completely or, more usually, partially blocked by opaque materials which do not allow light to pass through them; shadows are thus regions of darkness. Transparent and translucent materials, such as glass, transmit light: that is, they allow light to pass through them.

Key Ideas

- Light travels from a source.
- There are different sources of light.
- Dark is the absence of light.
- We see when light enters our eye. The light travels from the object to our eyes.

Science Skills

Children should be able to :

- follow instructions and make a work-plan;
- work with others.

Key Activities

Ask children to imagine looking at a town or city at night. Ask them which are direct/primary sources, that is, they produce their own light, and which are indirect/secondary sources, that is, they scatter or reflect light. Then ask the same questions for the same scene during the day. Be sure to mention the Sun, Moon and stars. Get them to draw a table showing the light source and whether it is primary or secondary.

For younger children start with the classroom or a room at home and tell them to draw a picture of the sources of light. Where is the light and how does it get to us? Ask children what is the difference between light and dark. Try to bring out the idea that dark is the absence of light.

Use a torch to illuminate an object in the classroom, and ask children to explain and/or draw how they see it. What is happening to the light? Then ask the same question about an object which is easy to see and well-lit, but is much further away, say about 500m. This is to establish that light travels and that we see when light travels from an object to our eyes.

Older children can be challenged to design and make an illuminated display to advertise a good cause. Mount it on a frame to attach to a model or picture of a bus. Make a large card cut-out to give the children an idea of scale. The tasks will involve planning, designing, making and evaluating.

The children will have to decide what is going to be made and how.

They will need to:

- generate ideas and to develop a clear idea of what has to be done;
- consider the users and the end-purpose of the article;
- develop criteria for their designs;
- clarify their ideas and suggest ways forward;
- consider appearance, function, safety and reliability;
- propose a sequence of actions, and suggest alternative methods if things go wrong;
- evaluate their design ideas and indicate improvements;
- select materials, tools and techniques;
- plan the steps to be taken to make the article;
- evaluate the finished product, identifying strengths and weaknesses, and carrying out appropriate tests.

Throughout the making procedure encourage the monitoring of ideas and their practicality.

Discuss what they have made in terms of appearance, materials, colour, size or shape and fitness for purpose. Suggest improvements.

Safety : Never look directly at the Sun without protective eyewear. Make sure the appropriate battery and bulb voltage is used. Do not use re-chargeable batteries. Take care when connecting batteries. See ASE publication *Be Safe!* for information on all aspects of safety in school science.

Numeracy Skills

Children should be able to :

- read bus timetables;
- estimate journey times;
- calculate journey times.

Literacy Skills

Children should be able to :

- understand and use verbs;
- understand the use of metaphore and simile;
- understand how to use words to change mood;
- use the appropriate vocabulary for naming and describing equipment, materials, components and processes;
- link clauses.