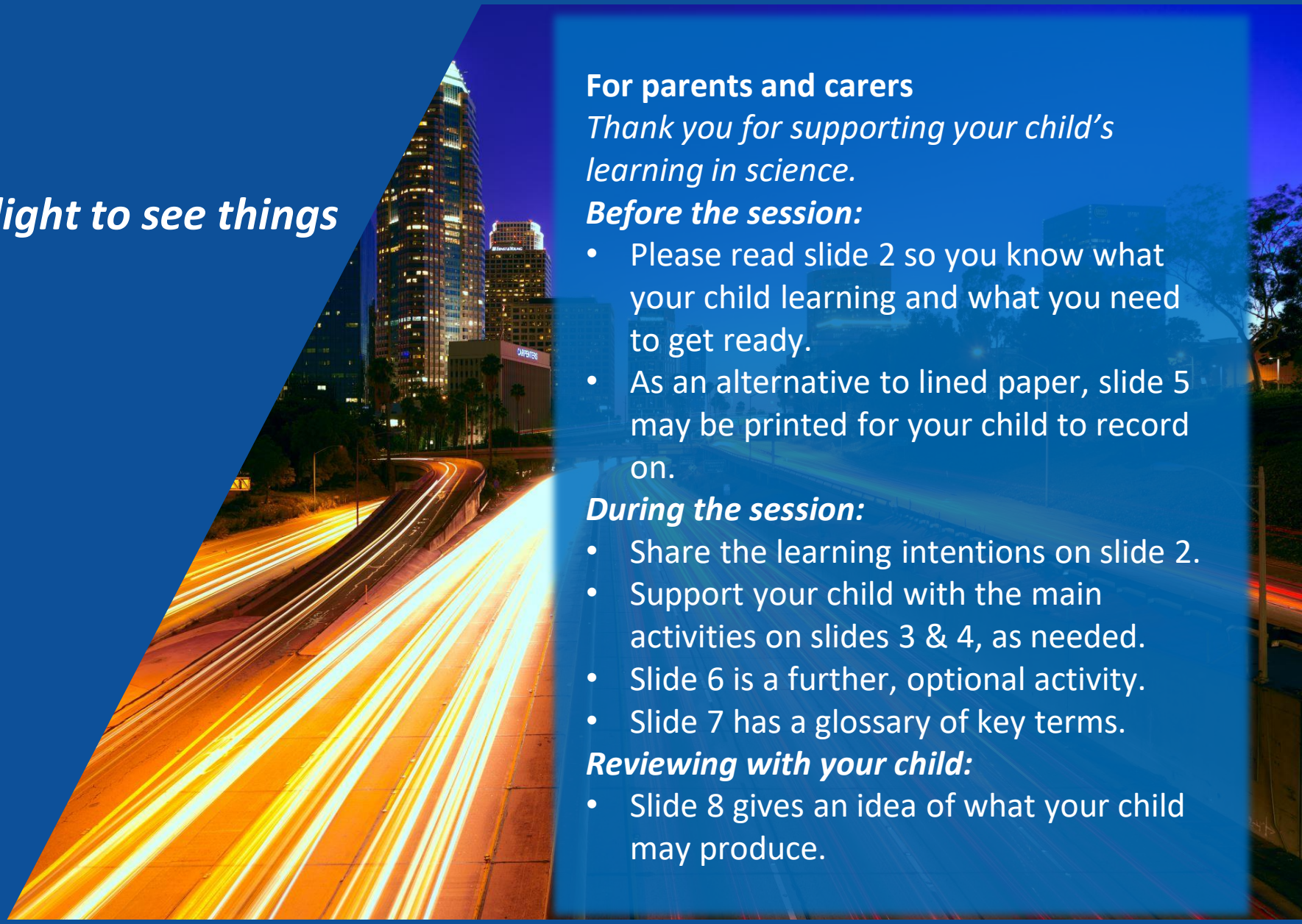
Light

Exploring that we need light to see things



Year 3 / Key Stage 2
Age 7-8

For parents and carers

Thank you for supporting your child's learning in science.

Before the session:

- Please read slide 2 so you know what your child learning and what you need to get ready.
- As an alternative to lined paper, slide 5 may be printed for your child to record on.

During the session:

- Share the learning intentions on slide 2.
- Support your child with the main activities on slides 3 & 4, as needed.
- Slide 6 is a further, optional activity.
- Slide 7 has a glossary of key terms.

Reviewing with your child:

- Slide 8 gives an idea of what your child may produce.

Light

Exploring that we need light to see things

Key Learning:

- We see objects because our eyes can sense light.
- Dark is the absence of light.
- We cannot see anything in complete darkness.
- Some surfaces reflect light.

I can…

- recognise that you need light to see things.

Activities (pages 4-6): approx. 30 – 40 mins

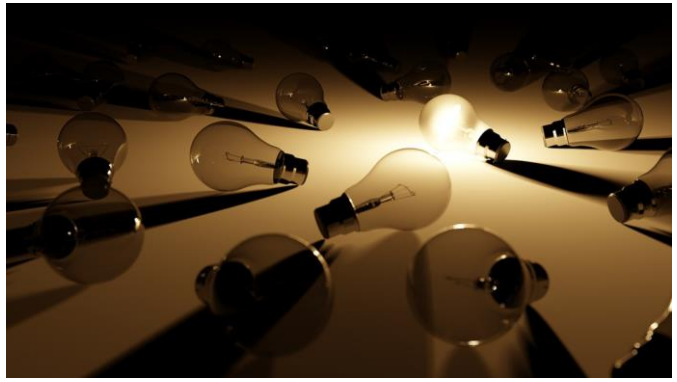
- Use lined paper, ruler and pencil.
- Alternatively, print page 6 as a worksheet.

Find out more… (page 7): approx. 10 mins

- Explore how people use lights in the dark to help others

Explore, review, think, talk....

What do you already know about light?
(5 minutes)



Talk or think about what happens when you turn the lights off at home when it is dark.

- What can you see?
- What can't you see?
- Why do you think this is?

Watch this clip about light.

- https://www.bbc.co.uk/bitesize/topics/zbssgk7/articles/z2s4xfr

- Why do you think we can't see light 'move'?
- What does it mean if something is a 'source of light'?

Watch, read, listen...

Seeing in the dark
(10 minutes)

Watch this clip about a torch as a light source:

- https://www.bbc.co.uk/bitesize/clips/zb3s34j

- What did you manage to see in the dark?

- A light source is required to see objects in the dark.
- If you shine a torch around a dark room, when you turn the torch off, you cannot see anything.
- Some surfaces, such as the cat's eyes reflect light from the torch.

Instructions for Activity:

Use a shoe box, or any other cardboard box with a lid/opening. e.g. cereal box.

With an adult's help, make one small eye hole at the end of the box and another at the other (to let in light).

Ask an adult, or someone else to put an object in the box and close the lid, so that it is as dark as possible.

Use your hand to cover the light hole and look through the small eye hole.

- Can you identify the object?
- What happens when you let different amounts of light in?

Children could control the amount of light that is entering, using their hand, paper or leaving it open.

Complete the table opposite to record your observations

Learning outcome: I can explore the need for light to see things

image courtesy of: https://www.dltk-teach.com/alphabuddies/mhabitat.html

Can the object be seen with very little light?	Can the object be seen with more light?	What might the object be?	Were you correct? Why? Why not?

Explain why some objects were easier to see than others.

Try to use these scientific words in your explanation: material, shiny, dull, bright, surface, light, dark

Find out more about using lights in the dark

How do people use lights to help others in the dark?
(10 minutes)

BBC bitesize clip about a cliffside rescue:

- https://www.bbc.co.uk/bitesize/clips/zygvr82
- The use of lights and a rescue dog to assist in a cliffside rescue at night.
- The report shows the preparation before the rescue and the wide variety of torches and lamps used.
- Why do the rescue workers wear brightly coloured jackets?

What colours can we see the best in low-light conditions?

- Put some similarly coloured counters in a box.
- Cover the box with a blanket.
- Go under the blanket and remember the colours you see.
- Afterwards, tip the counters out into the light.
- Is it harder to distinguish colours in low light conditions?

Glossary of terms

bright: If an object is **bright** it gives out or reflects much light.

dark *(scientific)*: **Dark** is the absence of light.

dark *(everyday)*: Very little amount of light.

dull: If an object is **dull** it is not shiny or bright.

light: **Light** is the form of energy that makes it possible for eyes to see.

material: Anything used for building or making something else.

shiny: Reflecting or glowing with light.

surface: The outside limit or top layer of something.

Unless they're reflective, most objects can't be seen in darkness

Depending on the surface of the object, some light may be reflected which will allow us to see them in low-light conditions

Possible learning outcome for reviewing your work: I can explore the need for light to see things

Can the object be seen with very little light?	**Can the object be seen with more light?**	**What might the object be? Can you describe it?**	**Were you correct?**
Yes – I can see something	Yes – it looks shiny	Necklace	I was correct
No – I can't see anything	Yes – I can see something soft	Soft toy. It looks green and yellow	I was correct
No – I can't see anything	Yes – it looks really black	Black Lego	I was correct
No – I can't see anything	Yes – I can see some shiny writing	A black camera with the writing Sony on it.	I was correct
No – I can't see anything	No - I still can't see	Marbles.	I was incorrect – it was tinfoil

Explain why some objects were easier to see than others.
Try to use these scientific words in your explanation: material, shiny, dull, bright, surface, light, dark
Some objects are easier to see because the object is shiny or a bright colour. I. think dull objects are harder to see because there's less light reflected from the surface of the object.

Some colours are easier to see in low-light conditions because of how our eyes receive the light reflected from the object.