Light

Exploring how shadows are formed

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.

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Key Learning

- The size of the shadow depends on the position of the source, object and surface.

I can…

- explain how a shadow is formed.

Activities (pages 3-5): approx. 30-40 mins

- Use different coloured chalk

Find out more… (page 6): approx. 15 mins

- Using sundials
- Exploring how shadows are formed

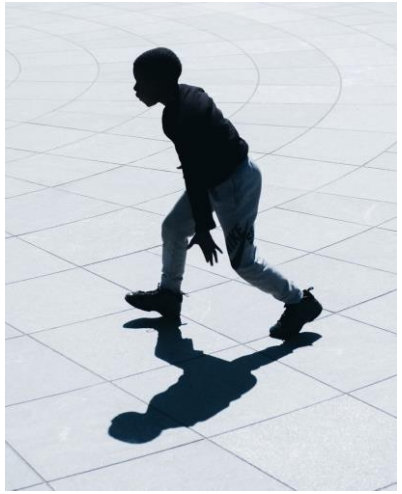
Explore, review, think, talk....

What do you already know about... shadows?
(5 minutes)

Watch this BBC Bitesize clip:

- https://www.bbc.co.uk/bitesize/clips/z8vfb9q
- When something blocks light travelling from a source, a shadow is made.
- What happens to the shadow if we use a translucent or transparent object?

- Read this short article from DK:
- https://www.dkfindout.com/uk/science/light/shadows/



Watch, read, listen...

Exploring shadows
(10 minutes)

Watch this clip from Explorify showing light shining on different opaque and transparent objects:

- https://explorify.wellcome.ac.uk/en/activities/whats-going-on/shadow-shapes

After you've watched the video, think about…

- How are the different shadows made?
- How did the light behave for each object?
- Can you think of any objects that don't have a shadow?
- What did you notice about the size and shape of the shadow as the torch moved?

Instructions for Activity

- Use chalk to trace around your shadow outside.
- Repeat this at different times during the day. (e.g. 10am, 11am, 12pm, 1pm, 2pm)
- What do you notice happen to your shadow?
- Why do you think this happens?

Learning outcome: I can explain how a shadow is formed

Image courtesy of : https://www.raisingdragons.com/shadow-drawing-age-4/

Find out more...

Going further with shadows

(10-15 minutes)

Watch this BBC clip about shadow puppets:

- https://www.bbc.co.uk/bitesize/clips/z87jmp3

Use a range of translucent and opaque materials to create your own shadow puppets.

Other ideas for shadow puppets:

- https://www.stem.org.uk/resources/elibrary/resource/35265/making-shadow-puppets
- https://www.youtube.com/watch?v=pSVd_0AKTKc

Make a sun dial

- https://wowscience.co.uk/why-do-we-move-our-clocks-forward-blog-post-by-kulvinder-johal/

Lighting effects

- https://www.bbc.co.uk/programmes/p0117zll

The Sun and shadows

- https://www.bbc.co.uk/bitesize/clips/z6fnvcw

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.

Possible learning outcome for reviewing your work: I can explain how a shadow is formed.

image courtesy of www.bregder.weebly.com/sun--moon-activities.html