



Cymru
National Day Nurseries Association

Factsheet



Foundation Phase Activity - Light and Shadows

Wales

Foundation Phase – Light, dark and shadows

Children interact with the world around them through their senses; they look at colours, smell scents, feel textures and build mental images of what they are experiencing. As childcare providers, you will have planned a wide range of sensory exploratory activities and experiences for young children to promote their sensory development. These activities create the foundations to support children to further develop their knowledge and understanding of the world, including investigations into light and dark. It is therefore integral that practitioners continue to provide children with a wide range of exciting, age appropriate, varied opportunities that capture their imaginations, whilst fostering their interest to explore, discover and to make sense of the world around them.

Sunny summer days are a great time to experiment with shadows, with darker winter evenings being a great time to explore the dark.

Learning objectives

- To investigate different light sources and explore darkness as being the absence of light
- To conduct investigations into shadows.

Areas of learning - (range and skills)

Knowledge and understanding of the world

Range:

- Understand that light comes from a variety of sources, such as the sun and that darkness is the absence of light.

Skills:

- Exploring and experimenting
- Thinking about what might happen if...
- Making observations, measurements, and keeping records
- Making comparisons by identifying similarities and differences
- Seeing the links between cause and effect
- Describing what they have found and offering simple explanations.

Literacy - e.g. recording, writing shadow labels and signs; describing, stories, viewing reference materials etc.

Numeracy - e.g. counting, measuring, comparing sizes; calculating, length of shadows etc.

Resources

Essential:

- Chalk (or string/markers if you cannot mark with chalk)
- A wide open outdoor space (preferable, however adjustments to activities can be made)
- Torches
- Blocks and shapes
- Blank wall or light coloured fabric to hang.

Desirable:

- Light boxes
- Over-head projector
- Gel pockets, acetate sheets, cellophane
- Opportunity and space to create a dark room / area.

Activity outline

There is much awe and wonder through the exploration of light and dark, as well as an element of risk and challenge and of being scared. Initially, hold discussions with the children around their experiences of dark and light and talk about where you might be able to find a dark place in your setting to investigate. Encourage children to suggest ideas for exploring dark places and provide them with the opportunity to make their own discoveries. Supply them with a range of resources to create / discover dark spaces such as, blinds / blackout materials, low light levels, naturally dark places or a purpose built dark den.

Darkness for some children is associated with anxiety, therefore caution will be needed as to the approach made with some children in your setting. Familiar staff and friends taking part can help them to overcome these concerns. Discuss the idea that the light children are talking about must come from somewhere e.g. the sun, an electric light, a candle, a torch etc.

Following discussions and exploration on light and dark, explain to children that darkness happens when there is no light. Engage with the children by asking "what do you know about shadows?" and use exploration activities. All learning opportunities should be planned with the children's individual needs, interests and learning characteristics in mind.

Continued and enhanced provision

- Begin by introducing torches and light equipment to the children with guidance on how to use them safely
 - Ensure the children understand the danger of looking directly at sunlight / light sources, even when wearing sunglasses.
- Place resources in organised storage areas and encourage the children to retrieve them
 - Marked shelves and containers will also help children to return equipment after use too
- **Shadow screen** - create a shadow screen by hanging up a sheet and shining an overhead projector on it or providing lamps / torches.
 - Provide photographs for children to experiment with making hand puppets
- **Shadow frame** - make a shadow frame on a plain window and place a box of materials and objects of differing shapes, sizes and types next to it for the children to use
 - Children can experiment holding things against the frame and seeing the affect this has on the framed shadows on the floor
 - Extend with translucent and opaque materials to investigate how the colour of the shadow changes
- **Drawing shadows** - place torches and blank paper within the block area
 - Display photographs of building blocks being used to make shape shadows with a torch, which have then been drawn around
 - Question children - how does the shape shadow change if you move / rotate the blocks?
- **Shadow puppet theatre** – provide resources and photographs for children to build people or animals with pipe cleaners to see the shadows that they make
 - You could also try themed / holiday shadow puppets based on children's interests e.g. animals, vehicles etc.
- **Light box** - provide a range of natural and man-made materials with a mixture of colours and levels of transparency for children to explore e.g. gel pockets and bottles of coloured liquids and glitter.

Most of the play should be open-ended for children to explore light, dark and shadows in the setting.

Focused task

- In smaller groups, take the children outside - choose a day when the sun is shining and ideally in the morning
 - **Ensure all sun care procedures have been followed.**
- Encourage children to move around the space
 - What shadows can they find?
 - Can they make their shadows bigger? Or smaller?
- In pairs, encourage them to draw around each other's shadows with chalk
 - They should label the shadows with their names and mark the spot where they are standing
- Go back outdoors at different intervals throughout the day
 - Get children to stand on the same spot and redraw each other's shadows
 - What do they notice about their shadows throughout the day?

Welsh language development

golau - light

haul – sun

tal - tall

tywyll – dark

heulog – sunny

byr – short

cysgod – shadow

torch – tortsh

mawr – big

mae hi'n gymylog – it's
cloudy

pyped - puppet

bach - small

Extension activities

Try making a human sundial:

- Draw a large circle in a large outdoor space using chalk or mark with string
 - Make sure there are no shadows over your circle from nearby trees or buildings
- Mark the centre of the circle
- Ask a child to stand in the centre of the circle at each hour of the day (change the child each time)
- Draw a mark on the circle to show where their shadow is
 - Mark this with the time of day or draw an icon to represent the time of day
- Now you have a human sundial
 - You can use it to tell the time, by standing on the centre spot and seeing where the shadow falls.

You could use the same idea to make a smaller version using a 'Lego' tower / toy / doll on white paper.

Further support and NDNA resources

- [Make a light box](#) – myNDNA tip
- [Investigating in the dark](#) – myNDNA activity
- The FPEN Zone on Hwb - [Light](#)
 - A series of resources from [Techniquest](#), science and discovery centre
- 'Oscar and the Moth' - a book about light and dark (Start with Science) - By Geoff Waring.

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Factsheet

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We are the voice of the 21,000-strong nursery sector, an integral part of the lives of more than a million young children and their families. We provide information, training and advice to support nurseries and the 250,000 people who work in them to deliver world-class early learning and childcare.

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