




Learning Scientific Skills Outside the Classroom

Scientific Skills

Identifying and Classifying		Concluding Specific skill – communicate what they have found out using simple scientific language	
Country of Origin	Suggested Age Range		Suggested Theme
 UK	KS1 specialist unit Activity planned for children with severe learning difficulties.		Light
Location outside the classroom		Benefits of using this location	
Outside on a sunny day		Children need sunlight to test their materials	
Learning Objectives – Scientific Skills		Learning Objectives – Knowledge	
To identify materials which reduce transmission of light To say what they have found out using simple scientific language		To know that sunlight is dangerous for our eyes To know how to protect our eyes from the Sun	

Key Vocabulary

Scientific skills vocabulary – compare, comparing, best, suitable, conclude, communicate, find out
Knowledge vocabulary – Sun, sunlight, light, transparent, opaque

Resources / Equipment

- Materials – transparent materials (for example, coloured and clear plastic sheets) and opaque materials (for example foil, fur or card)
- Equipment to make sunglasses – materials used for exploration, pipe cleaners, sticky tape and scissors

Teaching Activities

Discuss – Take children outside on a sunny day and put on a pair of broken sunglasses where one of the lenses is broken. What is wrong with my sunglasses? What are they supposed to do?

Explain – The light from the Sun is a very strong light and is dangerous. If I look directly at the Sun, it could damage my eyes, so I wear sunglasses to protect my eyes on a sunny day. I need to fix my sunglasses to protect my eyes and have lots of different materials I could use to try and fix them. They are going to make their own pair of sunglasses and use them to find out which material would be the most suitable to fix my sunglasses. Some materials are transparent and let the light pass through them but other materials are opaque and do not let the light pass through them.

Activity – Children explore the different materials provided by handling them and looking through them and begin to think about which material would be best for sunglasses to reduce the amount of light from the Sun. Talk about why they would choose a material.



Demonstrate – Show the children how to make the sunglasses frame using pipe cleaners and how to attach their chosen material to the frame using sticky tape.

Activity – Children make their own pair of sunglasses as independently as possible using their chosen material. Adults to provide support where it is needed.

Discuss – How can we test how good our sunglasses are at protecting our eyes from the Sun? How will we know if they are protecting our eyes? Do we want glasses that block out all the light?



Activity – Children go outside in the sunlight and wear their sunglasses. Children try on each other’s sunglasses and compare how good the materials are at blocking out light from the Sun.

NB: Health and Safety – remind children of the importance of staying safe in the Sun and remind them not to look directly at the Sun.

Record – Adults record the activity using photographs so the children can use them later on to remind them what they did or to help them indicate which material they thought was the best.

Conclude – Children say which material they thought was the most suitable for protecting their eyes from the Sunlight. They can use the photographs taken earlier in the day to help them explain which material they thought was the best or can talk using their voice, signs or symbols. With adult support, complete a sheet showing which material they thought was the most suitable from their observations. Children may group the materials according to whether they are transparent, opaque or translucent.

Examples of children’s work and teacher comments from country of origin



The children loved this lesson and thought it was funny that I had broken my glasses! It was a great way to hook them into the lesson. They enjoyed exploring whether the materials would be good for sunglasses or not. They were very influenced by the colour or shininess of the materials but when they tried to wear them, they realised they could not see. They were all able to choose something that let light through – some found it harder to think about how much they would be able to see e.g., the translucent bubble wrap. Many children used the vocabulary transparent and opaque correctly. Some translucent materials were also included in this activity to broaden the range of materials the children could explore but the term translucent was not introduced to them.