Co-funded by the Erasmus+ Programme of the European Union

Learning Scientific Skills Outside the Classroom

Scientific Skills

Predicting	Observing	Recording
Country of Origin	Suggested Age Range	Suggested Theme
UK	KS1 specialist unit Activity planned for children with severe learning difficulties.	Materials

Location outside the classroom	Benefits of using this location
An area where there is a hard surface such as the playground	Children can clearly see if the ground is wet or dry
Learning Objectives – Scientific Skills	**Learning Objectives – Knowledge**
To predict which material is the most suitable for an umbrella To observe waterproof properties of materials To record their findings	To know what the term waterproof means To know that some materials are waterproof and some are not To recognise whether a material is waterproof

Key Vocabulary

Scientific skills vocabulary – predict, predicting, observe, observing, see, record, recording
Knowledge vocabulary – material, properties, waterproof, wet, dry

Resources / Equipment

- A broken umbrella and a working umbrella – which belong to a familiar toy (e.g., gingerbread man), jug of water
- Equipment to make umbrellas – stick frame, materials, sticky tape, scissors
- Materials – a range of materials, for example foil, cling film cardboard, plastic, fabric, tissue and kitchen roll
- Equipment for recording – results table and an umbrella sheet

Teaching Activities

Demonstrate – Outside using a familiar toy, show children a broken umbrella which belongs to the toy (e.g. a gingerbread man) and pour water on it. Talk about what is wrong with the umbrella? What should it do? Show them a working umbrella and pour water on it to show them what happens. Talk about the words wet and dry.

Explain – An umbrella is made out of a waterproof material. Waterproof means it does not let water go through it. They are going to make a new umbrella for the gingerbread man using a waterproof material. Show the children different materials they could use.

Activity – Children explore the different materials, encourage them to feel the materials and stretch them to see what happens.

Predict – Which material do you think would be waterproof and would therefore be the most suitable for an umbrella.

Demonstrate – Show the children how to make an umbrella using a stick frame and the material. Cut the material using scissors so it is slightly bigger than the frame and then use sticky tape to secure the material to the frame.

Activity – Children work together, with adult support where necessary, to make umbrellas using the stick frames and the different types of material to be tested. Ensure that every child helps to make at least one umbrella.

Discuss – How can we test the materials to see if they are waterproof? Show children the jug of water and the gingerbread man to prompt them.

Explain – They are going to lay the gingerbread man on the floor and hold an umbrella over him. They will then pour water on the umbrella and observe what happens to the gingerbread man and the floor around him.

Discuss – What does it mean if the gingerbread man is wet? What does it mean if the gingerbread man stays dry? Is the material waterproof or not?

Activity – Children work together to test each of the umbrellas. They hold the umbrella over the gingerbread man and, with support if needed, slowly pour water onto the umbrella. Children observe what happens to the gingerbread man and the floor surrounding him.

Record – Adults should record each observation photographically with a camera so that the children can look at these later on and use them as a prompt to remind them what they observed.

Sort – After testing all the materials, can children sort the materials into waterproof and not waterproof based on their observations.

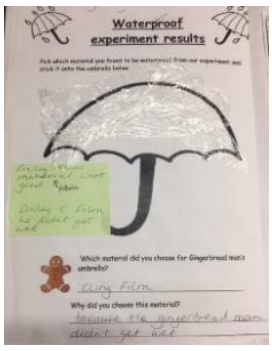
Record – Take the children to an area that is dry and show them the photographs taken earlier. Children use the photographs to help them record their results, with support if required, using a results table which has been prepared for them.

Discuss – What materials are waterproof? What materials are not waterproof? What is the best material to use to make an umbrella for the gingerbread man?

Conclude – Children use talk, signing or symbols to explain what they were doing and what they found out.

Record – Children record the material they think is the most suitable for an umbrella by completing an umbrella sheet with adult support.

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



The children loved this lesson and were quite good at predicting if the materials would be waterproof or not. They were very influenced by the colour or shininess of materials! Some made comments about the ease of using a material like the card being hard to bend or the foil tearing very easily. One child concluded that the material had to be 'good' (explaining that it would not tear - it was 'strong' and bendy) as well as waterproof.