

The great egg drop challenge

Science and Technology/Expressive Arts lesson plan



Area of learning and experience:

Expressive Arts

Statements of what matters

WM1: Exploring the expressive arts is essential to developing artistic skills and knowledge and it enables learners to become curious and creative individuals.

WM3: Creating combines skills and knowledge, drawing on the senses, inspiration and imagination.

Descriptions of learning

Progression step 2:

- I can explore and experiment with and then select appropriate creative techniques, practices, materials, processes, resources, tools and technologies.
- I am beginning to apply techniques in my creative work with guidance and direction.
- I can create my own designs and work collaboratively with others to develop creative ideas.

Progression step 3:

- I can safely choose and use the correct creative tools and materials with some consideration for others.

Area of learning and experience:

Science and Technology

Statements of what matters

WM2: Design thinking and engineering offer technical and creative ways to meet society's needs and wants.

WM6: Computation is the foundation for our digital world.

Descriptions of learning

Progression step 2:

- I can safely use a range of tools, materials and equipment to construct for a variety of reasons.
- I can follow instructions to build and control a physical device.

Key vocabulary

Egg, fragile, protect, cushion, structure, impact, design, engineer, design, material, stable, durable.

Resources needed

- Lesson Presentation
- Egg Drop Challenge Design and Evaluation Sheet
- Eggs
- Cardboard (sheets, boxes, tubes)
- Bubble wrap
- Cotton wool or soft fabric
- Straws
- Rubber bands
- Paper (newspaper, kitchen paper, printer paper)
- Tape (masking tape, parcel tape, Sellotape, duct tape)
- String or wool
- Foil
- Small trays or egg cartons
- Scissors
- Rulers
- Pencils

Prior learning

Children should already have a basic understanding of materials and their properties and experience in building or crafting a simple structure.

Lesson objectives

- Design and make a device to protect an egg from breaking when dropped.
- Explain design choices using appropriate vocabulary.
- Test and evaluate designs and suggest improvements.

Time	Teaching activity	Teacher notes
10 mins	Using the Lesson Presentation , ask the children what they think might happen to an egg if it is dropped. Take children's suggestions and ask them why they think this. Explain to the children that today they are going to take part in the great egg drop challenge. Their mission is to keep their eggs safe when dropped. Talk to the children about the job of an engineer and that they create packaging to protect things like eggs, phones, glass and other electronics.	
20 mins	Discuss with the children the ways in which they could protect their egg from breaking, thinking about the materials they will use and stabilising the egg. Sort children into pairs or small groups and give each an Egg Drop Challenge Design and Evaluation Sheet , explaining that they are now going to plan their designs. Encourage children to think carefully about what materials they will use, how they will cushion the egg and how they will ensure the egg cannot move around too much.	<i>Deepen children's thinking by asking which material they think will protect the egg the best and taking their reasons for why they think this.</i>
25 mins	Now, using their plan, explain that they children will create their egg protector. Highlight that it is important to work carefully and safely and follow their plan. Circulate the classroom as children are creating to check designs are being followed and children are working together.	
20 mins	Tell the children it is time to test. Explain that to ensure a fair test, each pair or group will need to drop their egg from the same height. Following each group's test, children return to their Egg Drop Challenge Design and Evaluation Sheet and complete the evaluation section.	
15 mins	As a closing activity for the lesson, each group can share their design with the class. They should explain how their design worked, what they would change if they were to test again and why they chose the materials they did.	<i>Prompt children to compare their designs to other groups' designs and discuss what worked differently. Ensure that children understand it is not about having a successful design but celebrating their creativity and being able to explain their choices.</i>

Lesson reflections / next steps / teacher notes

Assessment opportunities

- Are children considering material properties and structure in their design reasoning?
- Are children following their design plan when creating?
- Listen for explanations including design and technology vocabulary.
- Assess childrens' ability to suggest improvements for future attempts.

Suggestions for future learning

- You could go on to explore real-life protective designs and how these provide protection (e.g. parachutes, packaging, helmets) and what materials they are made from.

Home learning opportunities

- Children could be encouraged to recreate their own egg protector at home using recycled materials.
- Children could write a short explanation of which materials they have found that protect fragile items best and why.