

Example of a TDTScience Crafted Lesson

Lesson Topic: Seed dispersal

Focus and Principles: Crafting a lesson based on TDTs strategies

Before this lesson/practical pupils could be asked to find out more about the different methods that plants use to disperse their seeds (research using secondary sources).

Possible Learning Objectives:

- The structure of fruits or seeds relates to how they are dispersed from the parent plant. Plants disperse their seeds to increase the chance that they will grow into new plants, with less competition for space, light, water and nutrients.
- The main types of seed dispersal are DIY (drop/roll or 'pop'), wind, water or via animal.
- To predict, test, evaluate and improve
- To take accurate measurements, recording data and reporting findings

Equipment per pair/group:

One thin plastic bag containing:

- Part pack of post-it notes (square)
- Paper e.g. A4 x 3
- Pair of scissors, masking tape
- Small ball of blu-tac or plasticene
- A few paper clips
- 3 art straws
- Light material (e.g. tissue paper sheet)
- Other craft materials (optional)

Timers and measuring tape or meter rulers may also be useful. A simple paper helicopter template (see TDTScience Day 2) may be useful to assist pupils who find open design challenging.

Bright Ideas Time Starter:

Related discussion prompts which encourage Higher Order Thinking include:

- **Big Question:** What is a seed?
- **Odd One Out:** different types of seed (with different dispersal mechanisms)
Can do as a seed sorting exercise instead if you have enough examples of real seeds for pairs or small groups of pupils to sort (using their own criteria).
- **Big Question(s):** Why do plants need to disperse their seeds? Why do wind dispersed seeds need to fall slowly rather than quickly?



Practical Challenge: Design a Wind-Dispersed Seed

Use the materials provided to create the 'best' wind dispersed seed design

Making a 'best' design for a wind dispersed seed and iteratively improving it is modelling the process of evolution because the 'best' designs in nature are the ones most likely to survive and reproduce.

Suggested pupil group size: 2-3

Time: 45 mins (in addition to Bright Ideas Time discussion)

Science: Wind dispersed seeds are typically light so they can float and glide on air currents and travel further away from the parent plant. Some seeds have parachute designs that use air resistance to slow their fall from the tree. Others have 'helicopter' designs that use spinning (autorotation) to slow their fall from the tree.

Practical Tips:

- Additional design criteria could be that the seed is small enough to fit inside a paper cake case. Pupils could also be given a specific bead or bean for the seed core.
- A cheap litter picker could be used to test falling seeds from a greater height.

Focussed Recording:

Link to your chosen learning objectives. One example could be:

- Draw a picture of your seed design (or a photo).
- Label the features of your seed design and explain why they helped it to fall more slowly (so it could travel further from the parent plant).
Could request that this is done using reference to forces (e.g. gravity, air resistance)

Other Links:

- <https://www.woodlandtrust.org.uk/blog/2019/08/seed-dispersal/>
- <https://schoolgardening.rhs.org.uk/Resources/Lesson-Plan/Seed-dispersal>

Health & Safety:

Teachers always need to risk assess practical activities for their children and defer to their health and safety advisor for the most up-to-date source of health and safety guidance.

This training cannot be relied upon as source of health & safety guidance.

