Make your own popping seed pod to discover the wonders of plant powered seed dispersal.

Age: 7 - 11

Time: 15 - 30 min

Topics: Living things and their habitats, Plants, Evolution and Inheritance

Learning objectives:

- Plants produce seeds and disperse them in different ways.
- Different plants have evolved different mechanisms for seed dispersal.

BACKGROUND

Himalayan Balsam is the UK's tallest annual plant – a plant that completes its whole life cycle from seed to flower to seed again in one growing season. It can grow up to 2.5 metres tall! It is found along riverbanks and on wasteland.

Each plant produces around 800 seeds which are contained in special capsules or seed pods which burst open when they are touched. The exploding seed pods can throw the seeds over 7 metres. This special adaptation means that the plant can spread its seeds much further than other plants and because it grows so rapidly, can take over (colonise) an area very quickly.

An interesting fact: The genus to which the Himalayan balsam belongs is '*Impatiens*', which is Latin for 'impatient'. This name was given to this species due to the tendency of the plant's seed pod to burst instantly upon contact.

Himalayan Balsam is a non-native plant. This means it has been introduced into the UK, usually by people growing it in their gardens and the plant then spreading past the garden boundaries into the wild. It is now so successful that it is a "problem plant", outcompeting other native UK plants, stopping them from growing in these areas.

The Himalayan balsam is one of the species having its DNA sequenced by the Wellcome Sanger Institute as part of the 25 Genomes Project. Studying its DNA may reveal why it has been so successful in the UK.

This activity will enable participants to find out more about an invasive plant species in the UK, explore the concept of seed dispersal and how different plants use different methods to spread their seeds.

Find out more

Use BBC Bitesize to find out more about seed dispersal: www.bbc.com/education/clips/znvfb9q

Read this article about Himalayan Balsam and why it is a problem plant: www.telegraph.co.uk/science/2017/06/27/himalayan-balsam-now-widespread-needs-tackling/

Read this article to find out more about the 25 genomes project: www.sanger.ac.uk/news/view/25-species-revealed-25-genomes-project

ACTIVITY PREPARATION

Materials

- ☐ PowerPoint slides
- ☐ Toilet rolls
- ☐ Ballons
- ☐ Sticky tape
- ☐ Bowls
- ☐ Different items to represent seeds such as mini pasta shells or orzo pasta, rolled up paper, small balls of playdough, polystyrene balls.
- ☐ Scissors
- ☐ Tape measure
- ☐ Instruction sheet

Set up

To set up for this activity carry out the steps below:

1. Follow the instruction sheet supplied to make a Popping Seed Pod in advance. You can use this as a working example later in the activity.

2. Set up tables with:
   - Instruction sheets
   - Toilet rolls
   - Balloons
   - Sticky tape
   - Scissors

3. Set up a seed table where students can choose seeds to put in their pods. Set out containers with different options for seeds such as rice, baby pasta shells, paper to make balls, playdough, polystyrene balls, etc.

ACTIVITY GUIDANCE

Warm up

Start with a quick discussion:

1. Using the PowerPoint slides provided show the students examples of different seeds. Ask the group if they know what plants they come from. Ask them to describe their shape and appearance.

2. Using slide 3 explain that some plants need their seeds to spread far and wide. But how can they do that? Can the students think of any examples? What about the seeds they just looked at are there any there that could travel distances?

3. Use the final slide to show a Himalayan balsam seed pod exploding. What did they think? Is this a good way to spread seeds? Why do they think the plant has evolved this way of spreading its seeds?

Run the activity

Get going with the activity by following these steps:

1. Show everyone the popping seed pod you made earlier. Explain that they are going to make one and test how far their seeds will travel. But what will make the best seed?

2. Ask students to discuss what they will use for seeds and to choose some from the seed table.

3. Give the group about 15 minutes to make their popping seed pods.

4. When everyone has made a seed pod, test out the seed pods and see how far the seeds travel. Use a tape measure to record the distance. Some seeds can travel quite far – make sure you have enough space.

5. Encourage them to make observations on which seeds travelled the furthest. What shape were they? Were they heavy or light seeds?

TAKE IT FURTHER

Why not try making other types of seeds. How far can they travel? Have a competition to see whose seed travels the furthest.

Try making this spinning Sycamore seed: www.planet-science.com/categories/under-11s/our-world/2011/09/make-a-spinning-seed!.aspx

SHARE IT

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engage@wellcomegenomecampus.org

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