Seed dispersal

Biology | Plant Physiology / Botany | Reproduction in plants

Difficulty level	Group size	Preparation time	Execution time
easy	2	10 minutes	20 minutes

This content can also be found online at:

http://localhost:1337/c/612799fa870bca000351fbaa

PHYWE

Teacher information

Application

PHYWE

Pine Cone

The seeds of pine or spruce studied in this experiment are dispersed by the wind (anemochory). In addition to this mechanism for seed dispersal, however, there are others; in total, the dispersal mechanisms of plants are divided into 4 to 6 groups. In addition to wind dispersal, these are: animal dispersal (zoochory), human dispersal (hemerochory), wind and animal dispersal (semachory), water dispersal (hydrochory), and self-dispersal (allochory).

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Other teacher information (1/2)

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Previous

Students should be familiar with the different structure and function of seed plants and already know some ways of seed dispersal from class.

Principle

In addition to the formation of numerous seeds, the widest possible distribution of seeds is also of great importance for the preservation of a species of seed plant. Many plants have developed different mechanisms that ensure a wide distribution of their seeds.

Due to waiting times, at least 3 days are required to carry out the entire process.

Other teacher information (2/2)

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Learning

Students will identify and understand different ways trees disperse seeds.

Tasks

Students should investigate where the seeds are located on a pine or spruce cone and the devices and processes used in their dispersal.

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Safety instructions

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- The general instructions for safe experimentation in science lessons apply to this experiment.
- For the H- and P-phrases please refer to the corresponding safety data sheets.

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Student Information

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Motivation (1/2)

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Pine Cone

The seeds of pine or spruce studied in this experiment are dispersed by the wind (anemochory). However, in addition to this mechanism for the dispersal of seeds, there are others; in total, the dispersal mechanisms of plants are divided into 4 to 6 groups.

Motivation (2/2)

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Spruce cone

In addition to wind dispersal, these are: animal dispersal (zoochory), human dispersal (hemerochory), wind and animal dispersal (semachory), water dispersal (hydrochory), and self-dispersal (allochory).

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Tasks

How are seeds spread?

Investigate where the seeds are located in a pine or spruce cone and what devices and processes serve to disperse them.

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Equipment

Position	Material	Item No.	Quantity
1	Beaker, Borosilicate, tall form, 600 ml	46029-00	1

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Procedure

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- Examine a dry pine or spruce cone with open (splayed) top scales to see where the seeds are located. Examine the structure of the seed.
- Place the cone in a beaker filled with water (Fig. left) and let it stand for one day. How has the cone changed after this time?
- Take the cone out of the water and put it in a warm place (e.g. in the sun or on a heater) and leave it there for a day. How has the cone changed after this time?

Report

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Task 1

Drag the words to the right place.

For the _____ of a seed plant, in addition to the formation of numerous seeds, their widest possible distribution is of _____ importance. Many plants have developed different _____ that ensure a wide distribution of their seeds. The seeds of pine and spruce are dispersed by the wind. This mechanism is also called "_____". Overall, the dispersal mechanisms of plants are divided into _____ groups.

anemochory
mechanisms
great
4 to 6
species preservation

Check

Task 2

PHYWE

What other plant seed dispersal mechanisms are there?

- [ ] Propagation by self-propagation (allochory).
- [ ] Human dispersal (hemerochory).
- [ ] Dispersal by animals (zoochory).
- [ ] Dispersal by water (hydrochory).
- [ ] Dispersal by wind and animal dispersal (semachory).

Check

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Task 3

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What is the position of the involucre required for seed dispersal?

- ○ The cover scales must be close fitting so that the seed cannot be caught by the wind.
- ○ The position of the covering scales does not play a role in the dispersal of the seeds.
- ○ The top scales must be splayed to allow the seed to be picked up by the wind.
- ○ The cover scales must be turned so that the seeds can fall out.

Check

Additional task

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Why are the cones of the fir not suitable for this experiment?

- ☐ You can't find pine cones on the ground because the scales fall off the spindle of the cone one by one while still on the tree.
- ☐ The pine cones are too long and do not fit into the experimental vessel.
- ☐ You can not find pine cones on the ground, because they are very tasty and immediately eaten by the animals of the forest.
- ☐ Unlike pine and spruce cones, fir cones do not fall from the tree as a whole.

Check

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Slide	Score / Total
Slide 13: Drag the Words	0/5
Slide 14: Dissemination mechanisms	0/5
Slide 15: Position of the deck sheds	0/1
Slide 16: Untitled Multiple Choice	0/2

Total 0 / 13

Solutions Repeat

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