

Seed dispersal



Biology

Plant Physiology / Botany

Reproduction in plants



Difficulty level

easy



Group size

2



Preparation time

10 minutes



Execution time

20 minutes

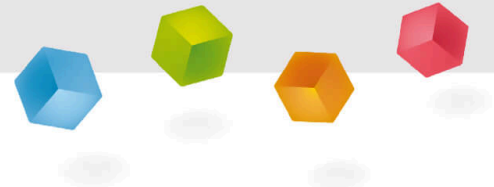
This content can also be found online at:



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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).

Other teacher information (1/2)

PHYWE

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)

PHYWE

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.

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



Motivation (1/2)

PHYWE



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)

PHYWE



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).

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.

Equipment

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

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

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

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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

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

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