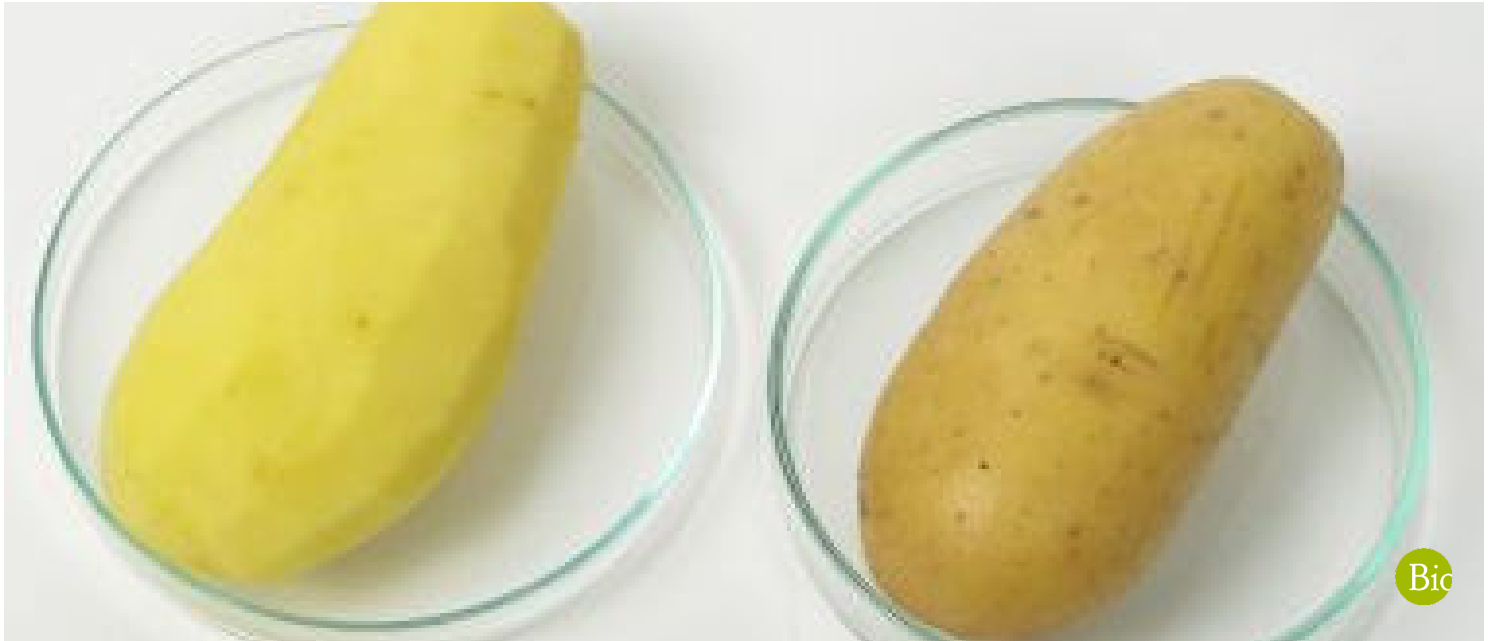


Evaporation protection of the plants



Biology

Ecology & environment

Carbon/oxygen, water cycle



Difficulty level

medium



Group size

2



Preparation time

10 minutes



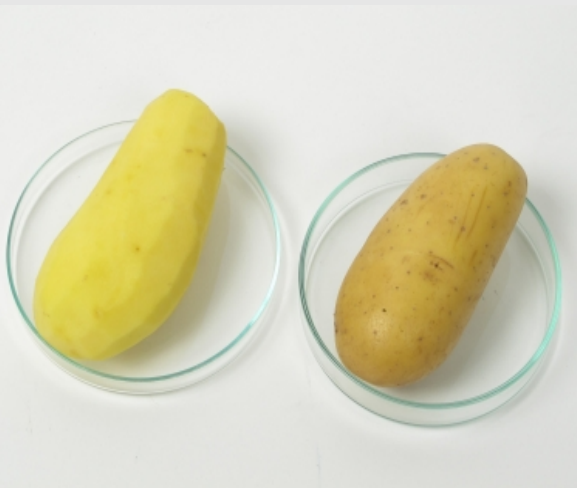
Execution time

40 minutes



Teacher information

Application



The bark as evaporation protection

Plants constantly evaporate water on their surface. This process is called transpiration. It causes the plants to lose considerable amounts of water, which must be replaced by water uptake. If this is not possible to a sufficient extent, the plants wither.

In order to reduce transpiration, some plants or plant components have special protective devices.

Other teacher information (1/2)

PHYWE
excellence in science

Prior knowledge



Students should be familiar with water and nutrient balance and the functions and pathways of water within the plums.

Scientific principle



If the plant loses too much water through transpiration, it wilts. To prevent this, many plants form an evaporation protection.

Other teacher information (2/2)

PHYWE
excellence in science

Learning objective



In this experiment, the students learn about the skin of the potato as a protection against evaporation and should understand that the plant dries out much faster without this protection.

Tasks



Have students weigh a peeled potato and an unpeeled potato daily and compare the changes in weight.

Safety instructions

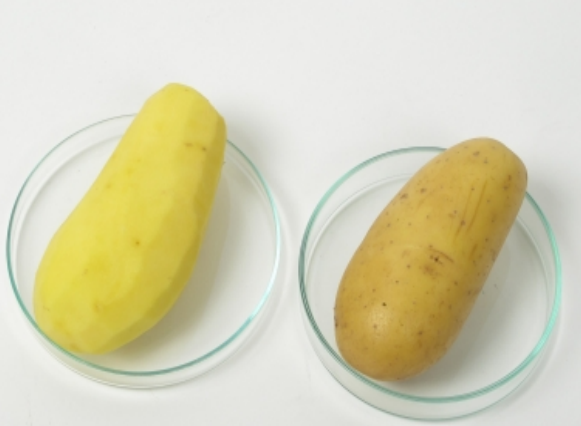
PHYWE
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- The general instructions for safe experimentation in science lessons to be applied to this experiment.

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Student Information

Motivation

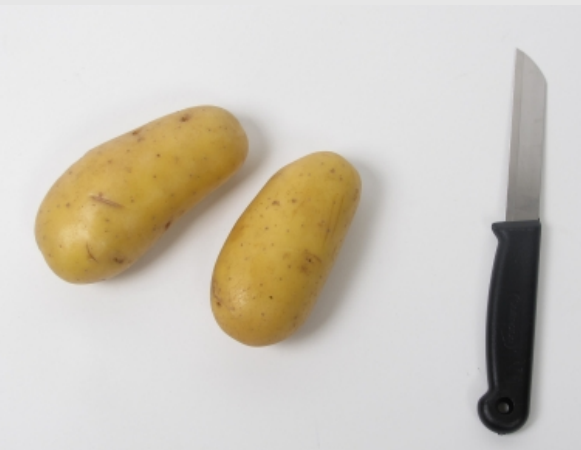
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The bark as evaporation protection

Plants constantly evaporate water on their surface. This process is called transpiration. It causes the plants to lose considerable amounts of water, which must be replaced by water uptake. If this is not possible to a sufficient extent, the plants wither.

In order to reduce transpiration, some plants or plant components have special protective devices.

Tasks

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Experiment preparation

Can plants protect themselves against the evaporation of water?

Compare the water release of an unpeeled and a peeled potato.

Equipment

Position	Material	Item No.	Quantity
1	Knife, stainless	33476-00	1
2	Petri dish, d 100 mm	64705-00	1
3	Portable Balance, OHAUS JE120	48895-00	1

Set-up

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- Peel the larger of two potatoes of different sizes. Weigh it afterwards. It should still be heavier than the unpeeled potato even after peeling. Therefore, weigh them as well and compare.
- Under constant control by means of a scale, cut off in small pieces as much of the peeled potato as is necessary until both potatoes are equally heavy.



Procedure

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- Place each potato in half a 100 mm diameter Petri dish and leave at room temperature.
- Weigh both potatoes daily over a period of at least 3-4 days and record the respective mass of each potato.



Weigh the potatoes daily.



Report

Task 1

Drag the words to the right place.

Plants constantly evaporate on their surface. This process is called . Through it, the plants considerable amounts of water, which must be replaced by water uptake. If this is not possible to a sufficient extent, the plants .

In addition, the shell may also contain poisonous or bitter substances or have spines to deter .

Task 2

Choose the correct statements.

- The skin slows down the evaporation of the potato and thus protects it from drying out quickly.
- The weight loss of the potato with skin is less than that of the potato without skin.
- The weight loss of the potato without skin is less than that of the potato with skin.
- The weight loss is the same for both potatoes.

✓ Check

Task 3

There is the statement *Cook it, peel it or leave it alone* (original: "Cook it, peel it or leave it"). What reference to the function of the dish can be derived from this?

- The peel not only protects against water loss. It also protects the flesh from external contamination.
- Without a shell, everything is completely inedible and should be left alone.
- The skin tastes best when cooked. A jacket potato is therefore much tastier than a peeled potato.

Slide	Score/Total
Slide 13: Transpiration	0/5
Slide 14: Weight loss	0/1
Slide 15: Tray	0/1

Total  0/7

 Solutions

 Repeat