

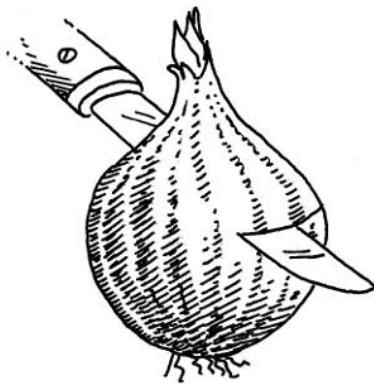


Experiment: Observe how cells absorb and release water

1. Prepare red onion cells like this:

Material (per group)

- | | |
|------------------------------------------------|-----------------------------------------------------|
| <input type="checkbox"/> Red onion, knife | <input type="checkbox"/> slides, cover glass /slips |
| <input type="checkbox"/> Razor blade, tweezers | <input type="checkbox"/> filter paper |
| <input type="checkbox"/> Pasteur pipette | <input type="checkbox"/> Beaker with water |
| <input type="checkbox"/> Microscope | <input type="checkbox"/> Beaker with salt |

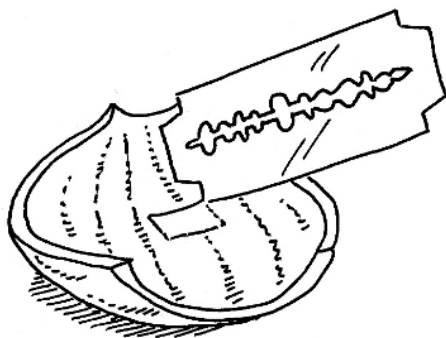


Picture 1

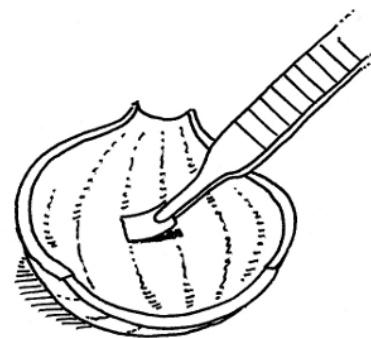


Picture 2

1. Halve an onion with a knife (Picture 1). Cut one of the halves lengthwise once more (Picture 2).



Picture 3

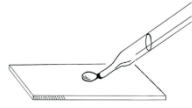


Picture 4

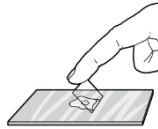
2. Scratch the inner skin of an onion scale vertically and crosswise with a razor blade. Pick a red spot for it.

3. Carefully remove a small piece of the inner skin with the tweezers. Prepare a moist preparation from the piece of thin onion skin.

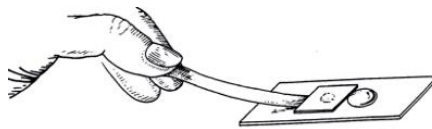
- Place the thin onion skin in the middle of the slide. Then add a drop of water with a pipette.



- Now place a cover glass at the edge of the water droplet so that it touches it. Then let it fall carefully, without air bubbles, onto the onion skin in the drop.



- Water leaking out is sucked up at the edge of the cover glass with filter paper or piece of blotting paper.



- Microscope the onion cells (epidermal cells) and take a photo.

- Place a drop of saline solution next to the cover glass of your specimen and carefully suck water off the other side of the cover glass with the filter paper strip. The salt solution is thus sucked under the cover glass.



- Observe with the microscope how the cells change. If necessary you can refill the salt and water on the salt water side. Photograph the altered cells.

- Now wipe off the rest of the salt water with a paper handkerchief and apply a drop of pure water instead. Sucks it into the preparation with new filter paper.



- Observe the cells again under the microscope and document your observations with a photo.

Evaluation:

- Explain your observations. The sketch of the structure of a plant cell will help you, too.
- Consider the role which the observed processes could play in the uptake of water by the plant roots.

