Rate of osmosis

Teacher and technician sheet

Equipment and materials

Each student or pair of students will require:

- Potatoes
- Sharp knife
- Cutting board or white tile
- Test tubes x 5
- Test tube rack
- 1 mol dm^3 sucrose solution
- 100 cm^3 beaker
- 10 cm^3 graduated syringes or pipettes
- Filter paper
- Balance (to 0.01 g)
- Marker pen
- Paper towels

Make sure that students take care when using the sharp knife and that they use a cutting board to protect the bench top.

Reagents and solution preparations

1 mol dm^{-3} sucrose solution

Dissolve 34.2 g in deionised water and make up to 100 cm^3 of solution.

To speed up the activity the other sucrose solutions could be prepared in advance so that students can omit this step.

0.8 mol dm^{-3}	40 cm^3 of 1 mol dm^{-3} sucrose solution + 10 cm^3 deionised water
0.4 mol dm^{-3}	25 cm^3 of 1 mol dm^{-3} sucrose solution + 25 cm^3 deionised water
0.2 mol dm^{-3}	25 cm^3 of 0.4 mol dm^{-3} sucrose solution + 25 cm^3 deionised water
0.1 mol dm^{-3}	25 cm^3 of 0.2 mol dm^{-3} sucrose solution + 25 cm^3 deionised water
0.05 mol dm^{-3}	25 cm^3 of 0.1 mol dm^{-3} sucrose solution + 25 cm^3 deionised water

Extension suggestions

Find out about the Chardokov method and try it out.

Investigate other potato samples, e.g. different potato varieties or potatoes that have been stored for different lengths of time.