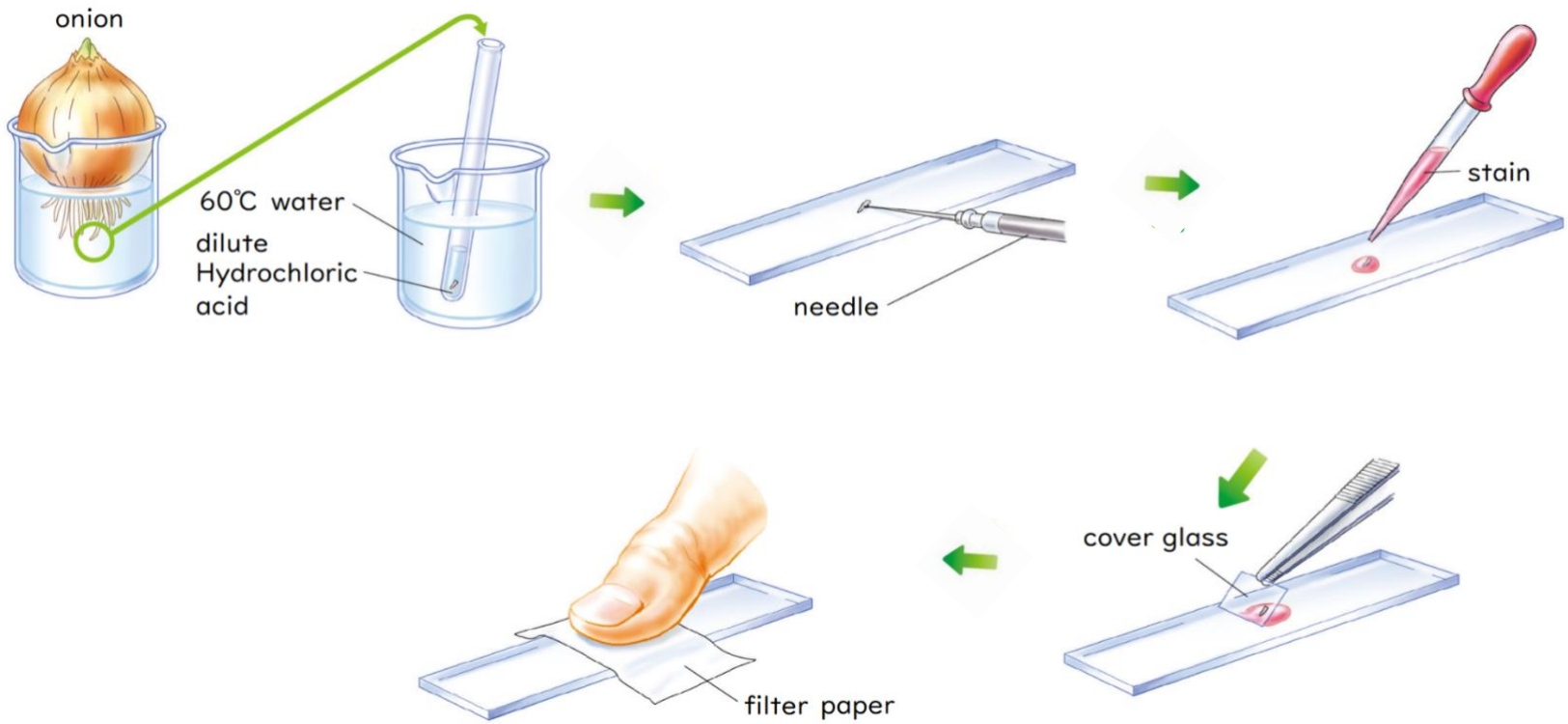
1-1 cells and growth of organisms

【 Experiment ① 】



1. Cut a tip of onion root(5mm). Put it into a test tube filled with dilute Hydrochloric acid .

2. Put the test tube into a beaker and incubate in 60℃ water for a while.

3. Pick up the tip of the root and wash with water. **Caution : Don't touch Hydrochloric acid!**

4. Put the root onto a slide glass and ___paste___ with a needle.

5. Add a drop of stain(_Orcein_ _acetate_). After a few minutes, put a cover glass and a filter paper on it.

6. Push and squash the root.

7. Observe the cells at 10×10 magnification. Search for a part which contains many dyed nuclei.

8. Observe the cells at 10×40 magnification. Search for cells in which the nucleus is changing shape.

Results

Take a picture

Discussions

Why do we put the root tip into Hydrochloric acid?

To make it easier for cells to separate from each other

Which root cells are smaller, cells at the base or the tip? Why they are small?

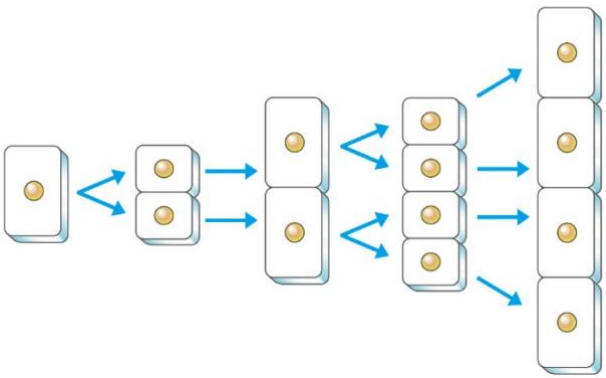
Tip. They are just after the division.

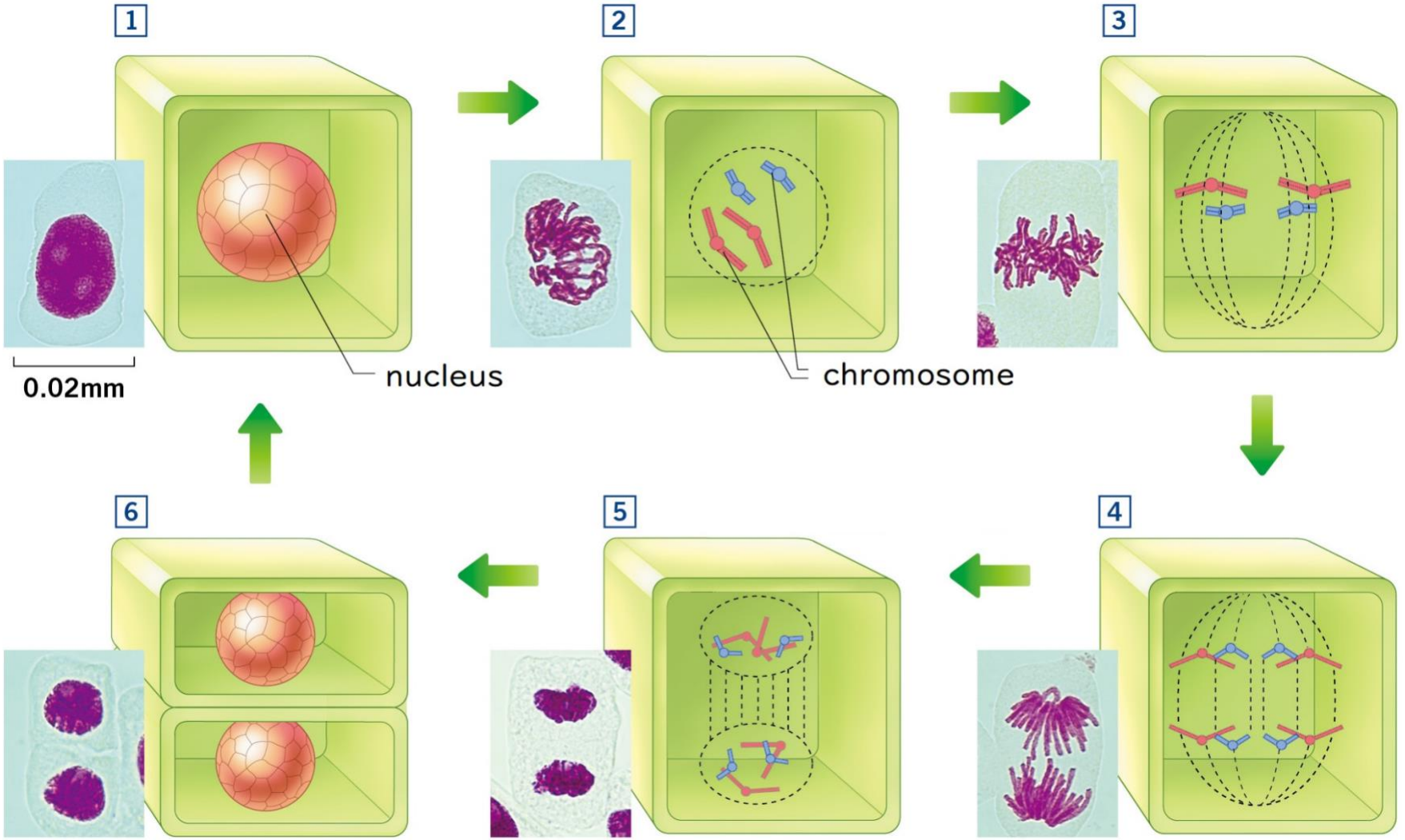
Which nuclei change shape, nuclei at the base or the tip?

Tip.

Cell division

The division of a cell into two daughter cells with the same genetic materials. When body cells divide, we call it somatic cell division（mitosis）.




1
2
3
4
5
6
0.02mm
nucleus
chromosome

1. Each chromosome is copied before dividing. We cannot see them.

2. Many pairs of chromosomes become visible. They seem to be thick strings.

3. Chromosomes line up in pairs.

4. Chromosomes pull apart and move to both ends of the cell.

5. Chromosomes disappear. (In plant cell, a cell plate appears in the middle of the cell.)

6. Parent cell divides, two daughter cells form.

Challenge!

What is a chromosome?

A chromosome contains genes which are made of DNA. Before dividing, we cannot see it, but while dividing we can see it using Orcein acetate stain.