

Asexual Reproduction : Notes/W.S.-50

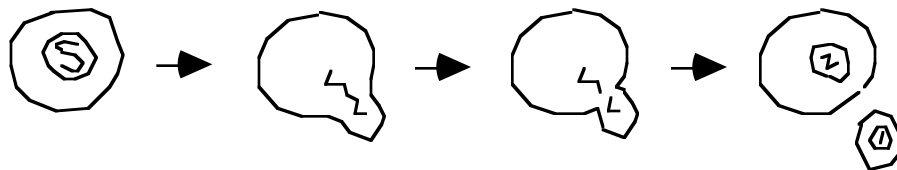
Asexual reproduction is reproduction which requires only one parent. Simpler forms of life such as bacteria, amoebas, and yeast cells reproduce asexually.

In all types of asexual reproduction, the offspring are exactly like the parent because the offspring have the same DNA as the parent.

Two methods of asexual reproduction are **fission** and **budding**. Bacteria and amoebas reproduce by fission. Yeast cells reproduce by budding.



Fission in a bacterium

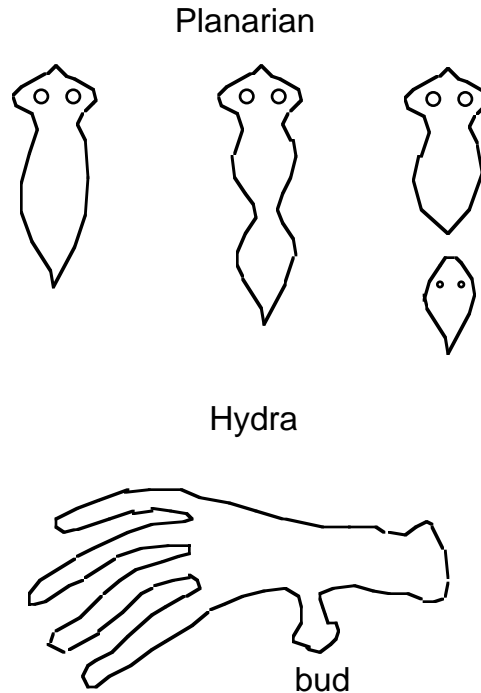


Budding in a yeast cell

In fission, the cell divides into two equal daughter cells. In budding, a small growth on the parent becomes a daughter cell.

In both cases, the DNA of the daughter cell is exactly the same as that of the parent.

Multi-celled organisms can also reproduce asexually. The planarian, a type of flatworm, reproduces by pinching itself in two. The hydra, which is related to the jellyfish, reproduces by budding.



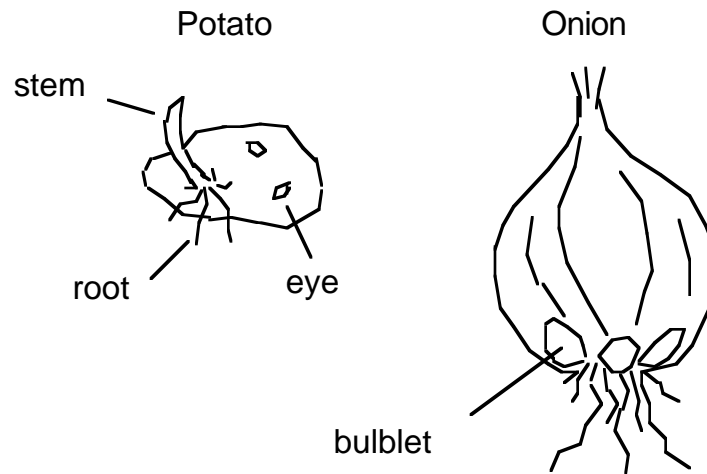
Another kind of asexual reproduction is called **regeneration**. This is the ability of some animals to grow back lost body parts. If a starfish loses an arm, a new one grows back. Lizards and salamanders can also grow back new limbs or tails.

Vegetative Reproduction

An important type of asexual reproduction for farmers and flower growers is called vegetative reproduction. In this method of reproduction, flowering plants produce new plants from their roots, stems, or leaves.

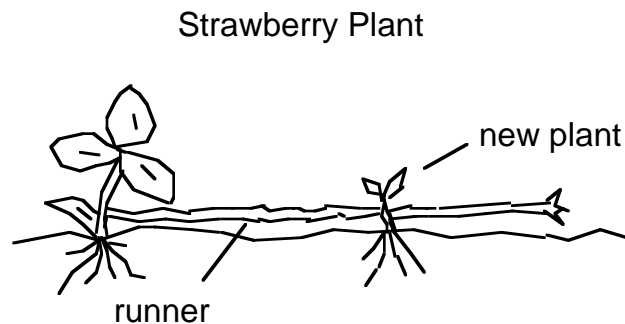
One example is the **tuber**. The potato is a tuber. It is really part of an underground stem of the plant. Each potato has several **buds** on it called eyes. Each bud can grow into a new potato plant.

Bulbs, such as onions, are also underground stems. Small **bulblets** form at the bottom of the bulb. These can be broken off and planted. Some flowers such as tulips and daffodils also reproduce in this way.



If the stems from some plants (like geraniums) are cut off, they will form roots and grow into new plants when placed in soil. These stems are called **cuttings**.

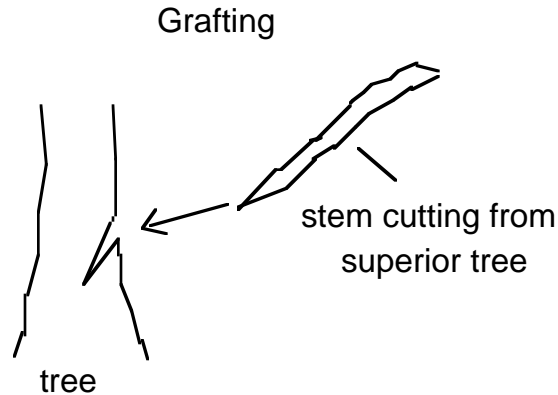
The strawberry plant produces **runners**. Runners are stems that grow horizontally near the ground which will take root and produce a new plant.



Some plants such as raspberries or blackberries have long stems which bend over and touch the ground. The stem can then take root to form a new plant. These branches are called **layers**.

Grafting

Trees can be propagated by **grafting**. In this process a cutting (stem) from one tree is inserted into a cut in the bark of another tree. In this way, the cutting from a superior tree can grow and produce good fruit on another inferior tree.



Questions:

- 1) What is asexual reproduction?
- 2) Why are the offspring produced by asexual reproduction identical to the parent?
- 3) What is regeneration?
- 4) There are many methods of asexual reproduction; (fission, budding, buds, bulblets, cuttings, runners, layers, pinching in two, grafting). Name the method of asexual reproduction for each of the following organisms.

a) strawberry	b) bacteria	c) potato	d) yeast
e) geraniums	f) planarian	g) raspberries	h) onions
- 5) If a branch from an apple tree is grafted onto a pear tree, the branch will produce apples. Explain how this happens.
- 6) Explain why asexual reproduction is so important to farmers, fruit growers, and flower growers.

Answers: 1) It is reproduction by one parent., 2) The offspring have the same DNA as the parent., 3) It is the ability of some animals to grow lost body parts., 4)a) runners, b) fission, c) buds, d) budding, e) cuttings, f) pinches in two, g) layering, h) bulblets., 5) Cells in the branch contain the DNA of the original apple tree., 6) The offspring of a superior plant are desirable. In asexual reproduction, the offspring (vegetables, fruit, flowers) are like the parent.