

SCIENCE 9
UNIT 4:REPRODUCTION
WORKSHEET 5 : ASEXUAL REPRODUCTION



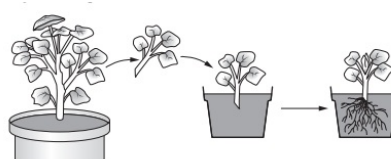
Asexual Reproduction refers to an organism capable of asexual reproduction is able to produce offspring in the absence of a mate. There is only one parent

New organisms made this way are exactly the same as the parent. This is because the genetic message is from just one parent. It is different from sexual reproduction where the new organisms have a genetic message from two parents.

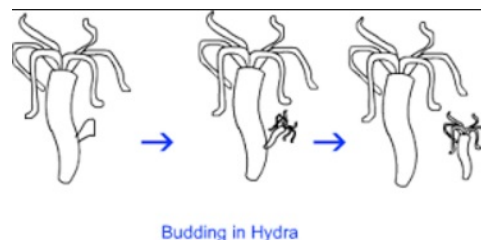
Types of asexual reproduction in plants and animals

There are many different types of asexual reproduction in plants. Some of them are:

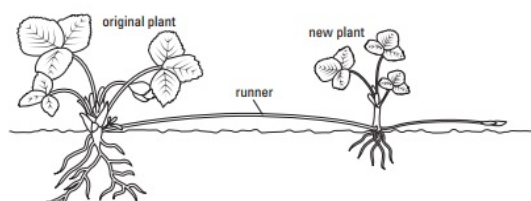
1. Fragmentation(Cuttings): This is simply taking a small piece of a plant, putting it in some potting mix and waiting for it to grow. You might like to try this at home with a small piece of geranium plant.



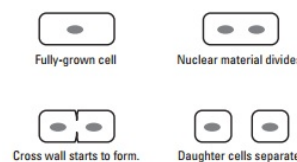
2. Budding occurs when part of the cell pushes outward to form a growth or bud. Pinches off from the parent cell to form a new organism identical to the parent. Example: yeast, hydra, sponges



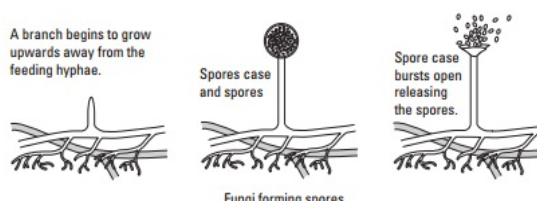
3. Vegetative Reproduction (Runners) are long thin stems that run underground and new plants form at the end of these. Strawberries reproduce like this.



4. Binary fission: A single parent cell reproduces itself and divides into two equal parts. Some bacteria can do this every 20 minutes and so can grow very quickly. This is one of the reasons why some bacteria can cause disease.



5. Spore Formation . A spore is a reproductive cell that grows into a new individual by mitosis. Fungi reproduce by making spores that grow into new hyphae.



The advantages and disadvantages of asexual reproduction:

| Advantages Of Sexual Reproduction | Disadvantages Of Sexual Reproductions |
|---|---|
| Large numbers of offspring are reproduced quickly | Offspring are genetic clones. A negative mutation can make asexual reproduced organisms more apt to disease and can destroy a large number of offspring |
| Does not require a lot of Energy is not required to find a mate | extreme temperatures can wipe out entire colonies |
| Very little or no Parental care needed for offspring | offspring compete for food and space |
| Able to reproduce from one offspring organism | |

1. Asexual reproduction requires
 - (A) only one parent to produce offspring
 - (B) two parents to produce offspring
 - (C) a combination of parents to produce offspring
 - (D) two clones to produce offspring

2. Which of the following is definitely not an example of a asexual reproduction?
 - (A) Breeders cross different dogs to develop a new breed of dog
 - (B) Geneticists grow a field of blight-resistant wheat using the cells of a single plant
 - (C) Bread mould spreads on a slice of bread at the back of the fridge
 - (D) new raspberry shoot sprouts in the lawn near the raspberry patch

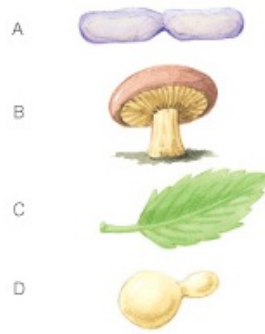
3. A horticulturalist takes small pieces of tissue from a prized orchid and grows them into one hundred new orchid plants. These new plants
 - (A) will be immortal.
 - (B) will be at the same stage of maturity as the identical plant.
 - (C) will likely mature to be twice the size of the original plant.
 - (D) will exhibit identical flowers to the original plant.

4. Some bacteria that do not have a nucleus and cannot undergo mitosis use which reproductive method?
 - (A) Binary fission
 - (B) Budding
 - (C) Sexual reproduction
 - (D) Fragmentation

5. If an organism breaks apart as a result of injury and each fragment develops into a new individual, this is called
 - (A) binary fission.
 - (B) budding.
 - (C) spore formation.
 - (D) fragmentation.

6. Which of the following is an example of vegetative reproduction?
 - (A) A single lily bulb once planted becomes a large colony of identical lilies in three summers
 - (B) A new baby fern shows up your back yard, just like the fern your neighbours have next door
 - (C) A new starfish grows from the severed tip of a tentacle
 - (D) Strep throat bacteria quickly colonize in your body and make you sick

Use the following diagram to label the different forms of asexual reproduction for question 7 to 11.



7. Which form of asexual reproduction does A represent?
- (A) vegetative reproduction
 - (B) budding
 - (C) spore formation
 - (D) binary fission
8. Which form of asexual reproduction does B represent?
- (A) vegetative reproduction
 - (B) budding
 - (C) spore formation
 - (D) binary fission
9. Which form of asexual reproduction does C represent?
- (A) vegetative reproduction
 - (B) budding
 - (C) spore formation
 - (D) binary fission
10. Which form of asexual reproduction does D represent?
- (A) vegetative reproduction
 - (B) budding
 - (C) spore formation
 - (D) binary fission
11. Bacteria reproduce asexually by
- (A) budding
 - (B) fragmentation
 - (C) binary fission
 - (D) cloning
12. One of the key advantages of asexual reproduction is
- (A) offspring compete for food and space
 - (B) large numbers of offspring reproduce quickly
 - (C) extreme temperatures can wipe out entire colonies
 - (D) offspring are genetic clones
13. One of the disadvantages of asexual reproduction is
- (A) species cannot survive when predators increase
 - (B) large colonies can out-compete other organisms for nutrients and water
 - (C) large numbers of offspring reproduce very slowly
 - (D) extreme temperatures can wipe out entire colonies

PART B: FILL IN THE BLANK

Use the terms in the vocabulary box to fill in the blanks. You can use each term more than once. You will not need to use every term.

- | | | |
|-------------------------|----------------|-----------------|
| asexual reproduction | binary fission | budding |
| clone | cuttings | spore formation |
| DNA | fragmentation | |
| vegetative reproduction | | |

- In _____ only one parent is required to produce offspring.
- _____ is a method of reproduction for some types of bacteria.
- Some simple organisms, such as hydras and sponges, are able to reproduce asexually by _____.
- Certain species of sea stars, corals, and mosses can reproduce asexually by _____.
- _____ occurs when special cells in the stems and roots divide repeatedly to form structures that eventually develop into a plant identical to the parent.
- Some bacteria can reproduce asexually when their single cells split in two, forming new individuals in a process called _____.

PART C: MATCHING

Match each Term on the left with the best Descriptor on the right. Each Descriptor may be used only once.

| | |
|----------------------------------|---|
| 1. _____ asexual reproduction | A. reproductive cells that develop into new individuals by repeated mitosis |
| 2. _____ binary fission | B. a group of rapidly dividing cells develops on an organism and breaks away to become a new organism |
| 3. _____ budding | C. a form of asexual reproduction in which each fragment of an organism develops into a clone of its parent |
| 4. _____ fragmentation | D. single parent cell splits into two equal parts that have the same copies of genetic material |
| 5. _____ spores | E. reproduction that requires only one parent |
| 6. _____ vegetative reproduction | H. root cells divide repeatedly to form structures that develop into a plant that is identical to the parent |

PART D: WebQuest

What are the five different types of asexual reproduction?

List the five types of asexual reproduction in the blanks below. Make a drawing to illustrate each type of asexual reproduction. You may use your phone to research this.

| | |
|--|--|
| 1. _____ | 2. _____ |
| 3. _____ | 4. _____ |
| 5. _____ | |