

Name: _____ Date: _____ Class: _____

One Goal, Many Ways: Investigating Reproductive Strategies

Learner Outcomes:

Compare sexual and asexual reproduction in terms of the advantages and disadvantages (e.g., recognize that asexual reproduction provides an efficient means of transmitting characteristics and that sexual reproduction provides an opportunity for recombination of characteristics)

Key Terms:

Sexual reproduction

Binary fission

Zygote

Asexual reproduction

Budding

Embryo

Spores

Fertilization

Background Information: You are an Ecologist who wants to find out. To answer these questions you decide to compare 5 aspects of organisms that reproduce sexually with organisms that reproduce asexually. You will begin your study by looking at **four** different organisms. Once your comparisons have been made, you will share your information with all of the other ecologists in your class to draw general conclusions about each method of reproduction.

Research Question: What are the advantages and disadvantages of sexual and asexual reproduction? Is one "better" than the other?

Hypothesis:

Materials:

Microscope slides of binary fission, spores, ova, etc.

Samples of flowering and non-flowering plants

Samples of fungi, mosses and lichens

Fresh flowers

Microscope slides and coverslips

Microscope

Procedure:

1. Select 4 organisms to investigate and record aspects relating to the reproductive strategies of each organism. You will consider: complexity and size of the organism, habitat, access to mates, the number of parents who contribute genetic information to the offspring, the reproductive mechanism, the amount of parental care, genetic variation in the offspring. To aid in your investigation, you may use print resources, microscope slides, and observe specimens. You may also prepare your own slides of a living flower or other plant portions.

Observations:

4. What is the difference between spores and binary fission?

5. Why wouldn't binary fission work in complex organisms such as humans or other animals?

6. What is the advantage of reproducing using spores?

Extension:

1. When we see a stand of Poplar trees, we are seeing trees that are essentially all clones of the original tree. Explain this in terms of the poplar reproductive strategy.
2. Investigate different ways that humans manipulate the natural reproductive strategies of strawberries to get bigger or tastier crops.