

Name: _____ Period: _____ Date: _____

Asexual Reproduction Lab

Purpose: Why do most multicellular organisms perform sexual reproduction?

Research: Answer the following questions.

- 1) Do unicellular organisms reproduce using sexual or asexual reproduction? _____
- 2) What are the four types of asexual reproduction?
 - i) _____
 - ii) _____
 - iii) _____
 - iv) _____
- 3) Circle the type of asexual reproduction above that bacteria most commonly use.
- 4) Fill in the following table to compare asexual and sexual reproduction:

Type of Reproduction	# of Parents Required	Are the offspring identical or different?
Asexual		
Sexual		

Hypothesis: If I simulate harmful environments on a population of *Paramecium* that reproduce asexually, then _____.

Procedure:

- 1) Retrieve bags of colored “paramecium” for your group.
- 2) Separate the circles into four colors: **purple, pink, white, and brown.** Each circle represents one *Paramecium* (a unicellular organism). The different colors represent different types of *Paramecia* with different genes.
- 3) Count 3 of each color and place the circles on your desk. The desk will represent the pond the *Paramecia* live in. The twelve circles will be the original population (Generation 0). Record how many of each color you have in the data table below.
- 4) Follow the population of *Paramecia* through five generations by reading the Events. Be sure to record the number of each color after each event.

Perform the Experiment to Collect Data:

	# Purple	# Pink	# White	# Brown	Events
Generation 0					Original population. Record what you have on your desk when you start.
Generation 1					Each paramecium reproduces once except the white paramecium because a chemical in the pond water kills all of them.
					A disease strikes, killing all pink <i>Paramecia</i>
Generation 2					Each surviving <i>Paramecium</i> reproduces once.

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	# Purple	# Pink	# White	# Brown	Events
					A predator strikes, killing all brown and $\frac{1}{2}$ purple <i>Paramecia</i>
Generation 3					Each paramecium reproduces once.
					There is not enough food so $\frac{3}{4}$ of the remaining <i>Paramecia</i> die.
Generation 4					Each Paramecium reproduces once.

Analyze the Data:

- 1) How many offspring did purple have at the end? _____
- 2) How many offspring did pink have at the end? _____
- 3) How many offspring did white have at the end? _____
- 4) How many offspring did brown have at the end? _____

Draw Conclusions:

- 1) What type of *Paramecium* had the best “genes”? _____ How do you know?
- 2) If something happens to kill off a specific type of organism (ex. all red *Paramecia*), will that type of organism ever appear again? _____ Why or why not?
- 3) Based on your results of this lab, why do you think most multicellular organisms perform sexual reproduction?
- 4) You just learned why asexual reproduction is bad for organisms, but many unicellular organisms like bacteria perform binary fission. Why is this?
- 5) What would happen if humans reproduced asexually? Explain what humans would look like and think about what would happen to society. (Hint: Would all of the jobs we need in society be taken care of? Would humans survive if a deadly bacterium infected people?)