Yeast Budding Lab

7th Grade PSI

Name: ______________________

Purpose: To gain a better understanding of the differences between asexual and sexual reproduction. By using yeast, students will learn that budding is an example of asexual reproduction. Students should also compare budding to other types of asexual reproduction, such as, cloning, cell division (binary fission) or plant generation / runners (vegetative propagation).

Background: Reproduction is the process by which living things produce new organisms of their own kind. Two types exist; sexual and asexual reproduction. In asexual reproduction, a single individual reproduces offspring that are identical to the parent. Each offspring has the same genetic makeup as the parent. Budding is a process in which a small new organism grows directly out from the parent’s body. Cloning is a term that refers to all asexual reproduction, but science has found a way for this process to occur artificially. In sexual reproduction the offspring are not identical to the parent. They receive half of their genes from each parent. Asexual reproduction is typically much more rapid, but very little variation among offspring occurs. Asexual reproduction potentially leaves this organism susceptible to mass extinctions. Sometimes populations grow so rapidly and could become too large for the environment and may run out of nutrients.

Materials:
- Yeast packet
- Sugar
- Microscopes
- Slide covers
- 50 ml beaker
- 1000-milliliter beaker
- Pipettes

- Slides
- Thermometer
- Culture sample provided by teacher (Note: this must be prepared in advance, see teacher notes)

Procedure:

1. Each group will need a microscope, slide, slide cover, pipette and a culture sample
2. Each group will prepare a wet mount on the slide of the culture.
   a. Use a pipette to place two drops of the culture on a slide
   b. Place a slide cover over the culture
3. Place the slide under the microscope to observe the yeast buds. You will see many yeast cells. You must look for the buds.
Questions / Analysis:

1. Draw the yeast budding that you observe under the microscope.

2. Describe the difference between asexual and sexual reproduction.

3. Explain why all asexual reproduction results in an organism that has the same genetic makeup of the parent organism. How was this observed in the lab?

4. Explain why this type of reproduction is not as advantageous to the species as sexual reproduction is.