



Genetics/Cells: Teacher Tips & Helpful Hints

N.C.S.S: LS.7.1 Understand the processes, structures and functions of living organisms that enable them to survive, reproduce and carry out the basic functions of life.

LS.7.2 Understand the relationship of the mechanisms of reproduction, patterns of inheritance, and potential variation among offspring.

- The Student Activity Pack is broken up into three different activities:
 - **Activity 1: Mitosis/Meiosis** (LS.7.2.2)
 - **Activity 2: Looking at Traits** (LS.7.2.3)
 - **Activity 3: Cellular Respiration** (LS.7.1.1)

Activity 1: Mitosis/Meiosis

- The puzzle activity makes for a great hook into visualizing both mitosis and meiosis.
- Have students share their initial photos with you.
- There is a *Mitosis/Meiosis: Student Activity Sheet* available.

Activity 2: Looking at Traits

- Collecting and analyzing the data from **What Traits Do I Have** can make for a great class discussion.
- There is a Punnett Square extension that allows students to infer patterns of heredity.
- There is a *Looking at Traits: Student Activity Sheet* available.

Activity 3: Cellular Respiration

- Inform students that the bag with the tan granules is yeast.
- There are two different size spoons. It is important that students only use one size spoon for yeast and the other size for sugar.
- If possible, demonstrate how to carefully place the balloon on the plastic vial.
- It is ok if students can not check the vials every 20 minutes, but students should make at least 3-4 observations of the balloon.
- Students are only to use the hot water from the tap.
- When doing **Part 4** have students share which liquids they would like to use.
- There is a *Cellular Respiration: Student Activity Sheet* available.

N.C.S.S Clarifying Objectives

- LS.7.1.1 Construct an explanation to conclude how the structures of single-celled organisms carry out all of the basic functions of life including: Euglena, Amoeba, Paramecium, Volvox.
- LS.7.2.2 Use models to explain how asexual reproduction results in offspring with identical genetic information while sexual reproduction results in offspring with genetic variation (not to include specific phases of mitosis and meiosis).

- LS.7.2.3 Use models (Punnett squares) to infer and predict patterns of the inheritance of single genetic traits from parent to offspring (including dominant and recessive traits).