



## Genetics/Cells: Teacher Tips & Helpful Hints

**N.C.S.S:** 7.L.1 Understand the processes, structures and functions of living organisms that enable them to survive, reproduce and carry out the basic functions of life.

7.L.2 Understand the relationship of the mechanisms of cellular reproduction, patterns of inheritance and external factors to potential variation and survival among offspring.

- The activity is broken up into three different parts:
  - **Part 1: Mitosis/Meiosis** (7.L.2.1)
  - **Part 2: Looking at Traits** (7.L.2.2)
  - **Part 3: Cellular Respiration** (7.L.1.1)

### Part 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.

### Part 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 *Looking at Traits: Student Activity Sheet* available. This activity sheet allows for students to infer patterns of heredity using information from Punnett squares

### Part 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: Predict and Test** 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

- 7.L.1.1 Compare the structures and life functions of single-celled organisms that carry out all of the basic functions of life
- 7.L.2.1 Explain why offspring that result from sexual reproduction (fertilization and meiosis) have greater variation than offspring that result from asexual reproduction (budding and mitosis).
- 7.L.2.2 Infer patterns of heredity using information from Punnett squares and pedigree analysis.