



## Adventure Description:

In this adventure, students will think like an Egyptologist and learn about how mummies are formed.

## Activity

Teacher Note: This lesson requires about 5 minutes of teacher prep. See [Handout: Teacher Prep](#).

Teacher Note: This lesson must be completed across 2 days. On Day 1, students will set up the experiment. On day 2, students will make observations. There should be 5-7 days between set up and observation.

### Step One: Background Information on Egyptologists and Mummies (5 minutes)

- Ask students if they have ever heard of an Egyptologist.
- Explain to students that Egyptologists study ancient Egypt. They study ancient Egypt so they can learn about what life was like in Egypt a long time ago. Many Egyptologists study the burial rituals of the people of ancient Egypt.
- Next, show [Handout: Egyptian Tombs](#). Explain to students that when kings, queens, and other important people died in ancient Egypt, their bodies were put in a fancy tomb.
- Next, explain that Egyptologists and other scientists are curious about what happens to the human body when it is in a tomb for thousands of years! Explain to students that mummification is a process where a body is preserved and all of the moisture is removed. In Ancient Egypt, people used different substances to preserve the body.
- Teacher note: if students want more information on how mummification in ancient Egypt, go to: <https://www.natgeokids.com/au/discover/history/egypt/how-to-make-a-mummy/>

### Step Two: Experiment Set Up (15 minutes)

- Explain to students that they will be performing an experiment to determine which group of substances would be best to preserve.... an apple! Explain to students that they will investigate which group of substances removes the most moisture from an apple. They will put different chemicals on an apple and wait a week to see what happens. The apple will represent a body from ancient Egypt.
- Provide students with [Handout: Experiment Set-Up](#). As a class, read through Step 1.
- Provide each student with 3 zipper baggies and a permanent marker. Have students label their baggies.
- After students label their baggies, explain that they will be putting an apple slice in each baggie. Each baggie will have different ingredients or no ingredients at all. Baggie 1 (called Just Apple) will have no chemicals in it. Baggie 2 (called Apple with Natron) will have a mixture of three ingredients: soda ash, baking soda, and salt. Baggie 3 (called Apple with Soda Ash) will have just soda ash.

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- Next, read through Steps 2-6 as a class.
- Provide each student with the following:
  - 3 apple slices
  - 3/8 cup soda ash (split into 1/4 cup and 1/8 cup measurements for use in 2 bags)
  - 1/8 cup baking soda
  - 1/8 cup salt
- Have students complete the steps.
- As students are working, ask the following:
  - Why do we have a bag labeled “just apple” that doesn’t have any chemicals in it? (This bag is called a control. We want to see what happens to the apple when there aren’t any chemicals. That way, we can compare this apple to the apples with chemicals. We can see what the differences are.)

### Step Three: Making Observations (10 minutes)

Teacher note: Students should complete this step between 5-7 days after they finish the previous step.

Teacher Note: see [Handout: Teacher Key](#) to see results of the experiment.

- Explain to students that they will now make observations of their apples!
- Provide students with [Handout: Making Observations](#). Read the handout as a class.
- Instruct students to collect their bags from their safe spot in the classroom.
- Have students place their bags in front of them on a table or desk.
- Provide students with pairs of disposable gloves and 3 paper plates.
- Have students label the paper plates with the following: “Just Apple,” “Apple with Natron,” and “Apple with Soda Ash.”
- Instruct students to put on a pair of gloves.
- Have students remove the apple slices from the bags and place them on the plates that correspond with the baggies they were in.
- Remind students that the goal of mummification is to remove all of the moisture from the apple. If moisture is removed from the apple, it will turn brown and shrink in size. Students should make observations to figure out which bag causes the apple to turn the most brown and shrink the most.
- Have students fill out their handout and make observations.
- When students have finished making observations, ask the following questions:
  - Which bag had the most mummified apple and had the most amount of moisture removed?
  - Why did this happen? (Because we didn’t add any chemicals to this apple.)

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# Egyptologist: Mummifying an Apple

## Materials List

### Provided online:

- Handout: Teacher Prep
- Handout: Egyptian Tombs
- Handout: Experiment Set-Up
- Handout: Teacher Key
- Handout: Making Observations

### Not provided (each student or group needs):

- 3 apple slices
- $\frac{3}{8}$  cup soda ash (split into  $\frac{1}{4}$  cup and  $\frac{1}{8}$  cup measurements for use in 2 bags)
- $\frac{1}{8}$  cup baking soda
- $\frac{1}{8}$  cup salt
- 3 plastic baggies
- Permanent Marker

### Not provided (for teacher prep):

- Sharp Knife
- Cutting Board

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