

---

## The Challenges – Teacher Resources

---

### Percentage of Water – Teacher Information Sheet

Prepare to bring these food items to class as you begin the study of water and its importance to the human body. Assign or allow students to form groups of three or four. Students will estimate, then weigh various fresh food items, slice them, and then estimate dried weight. After allowing sliced items to dry out, students will weigh the dried items and find the difference from fresh weight and then find the percentage of water contained in each. All data is to be recorded on the Data Recording Sheet.

#### Materials (per group of three or four students)

- Slice of bread
- Carrot
- Apple
- Popped popcorn
- Potato
- Celery
- Orange
- Banana
- Scale (kitchen or other)
- Plastic knife
- Student calculator\* (teacher option)

#### Directions

1. Working in small groups, have students estimate the weight of each fresh food item and record the data on their group chart (see Data Recording Sheet).
  2. Students will then weigh each of the food items and record the actual weight in the appropriate column on the chart.
  3. Instruct students to slice each of the food items (except the bread or popped popcorn). They are to estimate the dry weight of each of the food items and record the estimates on the chart. (You will need to prepare a place to leave the sliced food items to dry for a week or two. The length of time will depend on the climate in your classroom environment). You can speed up this process by using an oven or a food dehydrator.
  4. After items are completely dried out, students will weigh each dried food item (for example, all the apple slices together) and record the weight on the chart.
  5. Students will then determine the difference between the actual fresh weight and the actual dried weight of each food and record the differences in weight in the appropriate column of the chart.
  6. In the final column of the chart, students are to record the percentage of water for each food item.  
\*After finding the difference in the two weights (fresh minus dried), divide this number by the fresh weight of the item. Change the decimal to a percentage.
  7. Have each group create either a bar or line graph to graph the fresh and dried weights of each item.
  8. Instruct each group to write a summary of its findings.
-

# The Challenges – Teacher Resources

---

Name \_\_\_\_\_

## Percentage of Water

### Student Instruction Sheet

Working in small groups, you will estimate and then weigh various fresh food items. Afterward, you will estimate what you think the items will weigh after they dry out. Next, you will slice the food items and leave them a few days to dry. After allowing sliced items to dry out, you will weigh them to find the difference between the fresh weight and the dried weight. You will then be able to determine the percentage of water contained in each food item. Read the procedures carefully and follow each of the steps below. Record all data on your group's Data Recording Sheet.

### Materials (per group of three or four students)

- Slice of bread
- Carrot
- Apple
- Popped popcorn
- Potato
- Celery
- Orange
- Banana
- Scale (kitchen or other)
- Plastic knife
- Student calculator\* (teacher option)

### Directions

1. Working with your group, **estimate the weight** of each of the fresh foods and record the data in the appropriate column on your Data Recording Sheet.
  2. Next, **weigh** each of the food items on the scale and record the **actual weight** of each item in the appropriate column.
  3. Now, **estimate what you think the dry weight** of each food item will be once they have dried out. **Record your group's estimate** in the correct column.
  4. Carefully use the plastic knife to slice each of the food items (except the bread or popped popcorn). Leave the sliced food items out to dry for a week or two. (The length of time depends on the climate in your classroom environment. Your teacher will help you decide this.)
  5. After all items are completely dried out, **weigh each dried food item** (for example, all the apple slices together) and **record the answer** on your Data Recording Sheet.
  6. **Find the difference** between the actual weight of the fresh food and the actual weight of the dried food and **record the difference** in the appropriate column on your chart.
  7. In the final column of your chart, you will **record the percentage of water** found in each food item.  
\*After finding the difference in the two weights (fresh minus dried), divide this number by the fresh weight of the item. Change the decimal to percentage.
  8. Your group will create either a bar graph or line graph and **graph the fresh and dried weights** of each food item. Be sure to include a title, labels, and an appropriate scale.
  9. As a group, **write a summary** of your findings.
-

# The Challenges – Teacher Resources

---

Name \_\_\_\_\_

## Percentage of Water

### Data Recording Sheet

Food Item	Estimate of Fresh Weight	Actual Fresh Weight	Estimate of Dried Weight	Actual Dried Weight	Difference in Fresh and Dried Weight	Percentage of Water in Food Item
Bread						
Carrot						
Apple						
Popped popcorn						
Potato						
Celery						
Orange						
Banana						

---