

Objectives (Letter People & Common Core)

Students will be able to...

- Describe physical properties (size, shape, color, etc.). (LP: S, PS)
- Describe changes in size/color/position. (LP: S, PS)
- Use the five senses to observe, and discuss observations. (LP: S, SAI)
- Conduct safe, simple investigations to test observations/draw conclusions/form generalizations. (LP: S, SAI)
- Describe/discuss predictions, explanations, and generalizations. (LP: S, SAI)
- Understand that plants need air, water, food, and light. (LP: S, LS)
- ❖ Use senses to gather, explore, and interpret information. {CC.S.1ST.a}
- ❖ Make predictions based on background knowledge, previous scientific experiences, and observations of objects and events in the world. {CC.S.1ST.f}
- ❖ Record and organize data using graphs, crafts, science journals, or other means of recording. {CC.S.2ST.d}
- ❖ Make age appropriate, logical conclusions about investigations. {CC.S.3ST.d}
- ❖ Explain why plants and animals need water and food. {CC.S.5LT.c}

Materials

- ✓ Celery Stalk with Leaves (1 bag can be shared with 2–3 classrooms)
 - If sharing, please indicate, on the Curriculum Supply List, what other classroom(s) you will be sharing with.
- ✓ Cups or Long Plastic Vases (2 per student; if students are coloring their own celery)
- ✓ Water
- ✓ Food Coloring
- ✓ Markers
- ✓ Color Cards (for modifications) (*materials are below*)
- ✓ Material Cards (for modifications) (*materials are below*)
- ✓ Celery Stick Science Observation Worksheet (*materials are below*)
 - For higher students only.

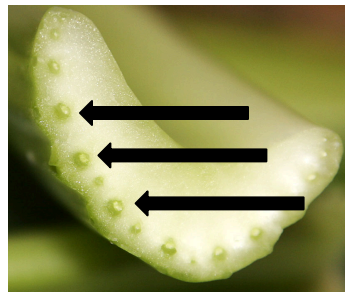
***Please test this experiment out *before* center time. This will give you time to make adjustments to the experiment to ensure it works properly during centers.**

*Before the activity, cut the celery into individual stalks. The teacher can decide if they would like each student to have their own piece of celery or if groups will share the celery.

Optional: Teachers may wish to complete the activity a day or two before doing the lesson with the students. The teacher can use his/her examples of the colored celery to show students what happens to the celery when it is left in colored water over night.

Anticipatory Set

1. Show students the celery. Ask:
 - a. **What kind of food is this?** (Celery.)
 - b. **Is celery a fruit or vegetable?** (Vegetable.)
2. Point to different parts of the celery and ask students to identify them (i.e., the stalk and the leaves).
3. Ask: **Celery is a plant. It grows in the ground. What does it need to grow?** Have students share their answers.
 - a. Plants need soil, sun, water, and food.
4. Point to the bottom of the celery and explain that water goes up through tiny tubes in the bottom of the plant and brings it to the leaves. It is like a straw.
 - a. Teachers could have students use magnifying glasses to look at the bottom of the celery to see the tiny tubes.



Xylem (tiny tubes)

- b. *Facts for teachers: The xylems are the tiny tubes of a plant that carries water and nutrients from the roots to the stem and leaves.*

Activity

1. Explain to the students that they are going to help you do an experiment called Colorful Celery.
2. Show students several pieces of celery.
 - a. Ask: **What color is the celery?** (Green.)
 - b. Say: **You're right; this celery is green. But I want colorful celery. I want the celery to be the colors of the rainbow. What should we do? How can we make the celery colorful?**
 - c. Ask students "silly" questions of ways that you could make the celery colorful, such as:
 - i. **Can we paint them?** (No.)
 - ii. **Can we color them with crayons or markers?** (No.)
3. Ask again: **What do you think we should do to make the celery colorful?** Accept all student responses.
 - a. Tell students that they are going to use food coloring and water to change the color of the celery.
4. Show students the food coloring choices and have them identify the colors.
5. If completing the activity as a whole group, decide on 2–3 that students would like to make the celery. If students are dying their own celery, have them choose a color that they would like their celery to be (see modifications).

- a. If students choose a non-primary color (e.g., purple, orange, green), ask: **How can we make the color < >?** Remind students that to make some colors, you have to mix 2 primary colors together.
 - i. Red + Blue = Purple
 - ii. Red + Yellow = Orange
 - iii. Blue + Yellow = Green
6. If completing the activity as a whole group, place a cup on the table for each celery stalk. If students are dying their own celery, provide each student with 1 cup and a piece of celery.
7. Have students can pour water into the cups about ½ full.
8. Have students add about 5 drops of food coloring to the cups.
9. Have students add the celery to the cups.
10. Ask: **Where does the water go when a plant is watered?** Have students share their answers.
 - a. Explain to the students that the roots and stems of a plant absorb (take in) the water.
 - b. The water travels from the bottom of the celery, up the stem of the plant, and into the leaves where it makes food. That way water gets to every part of the plant that needs it.
 - c. When the celery is cut, it no longer has its roots, but the stem of the celery still “drinks” up the water and provides it to the leaves.
11. Ask: **How do you think the celery are going to change color?** Have students share their answers.
 - a. Explain that plants need water to grow. As the celery “drinks” the water, the leaves of the celery will change color. This is showing that the water is traveling up the stalk of the celery and reaching the leaves.
12. Explain to the students that this experiment will take a few hours or even overnight to complete. Ask students to make a prediction about the celery (or their individual celery).
 - a. Ask: **Do you think the celery will change colors or stay green?**
 - b. Discuss student predictions.
13. Leave one celery stalk in a plain cup of water.
 - a. Ask : **What do you think will happen to the celery in plain water? Will it stay green or will it change color?**
 - i. Have students share their predictions.

Extension: (This is a good experiment, but is not required. Optional.)

1. The teacher can cut up the center of the celery. Start at the bottom and go about halfway up the celery so it has two “legs.”
 - a. **(Please do this part outside of the classroom, as knives are not allowed in the classroom.)**
2. Fill each cup about half way. Put several drops of <blue> food coloring in one cup. Put <red> food coloring in the other cup.
 - a. Teachers can choose to do any of color combination; red + yellow or blue + yellow.
3. Put each “leg” of the celery into a cup of different colored water.
4. Let the celery sit overnight.
5. Have students make predictions. Ask:
 - a. **What do you think will happen if we put one stalk in one color and the other stalk in a different color? Remember both pieces of the stalk are from the same celery.**

- b. **Which color will be soaked up? Will both colors get soaked up into the leaves or only one color?**
- c. **Will the colors mix to make a new color? OR Will the color of the celery be half blue and half red?**

Note: Using darker colors (blue & green) work the fastest and produce the best colors. You should see changes in the celery within a few hours. You will definitely see results overnight.

Differentiation

- Higher:
 - When choosing a color to add to their cup, students will be encouraged to use primary colors to make new colors.
 - Students can pour the water and add food coloring without assistance.
 - Optional: Teachers can have students complete the Celery Stick Science Observation Worksheet. They will draw pictures about what the celery looks like before and after the experiment. They will also write a sentence about the experiment.
- Lower:
 - Teachers may need to provide physical assistance as students pour water and add food coloring to their cups.

Possible Modifications

- ❖ When choosing a color to add to their cup, students can choose a color from the color cards. Limit the choices to 2–4 colors, based on the colors that the student is familiar with.
- ❖ Provide pictures of materials (water, cup, food coloring, celery) so students are able to request what they want (*see Material Cards*).

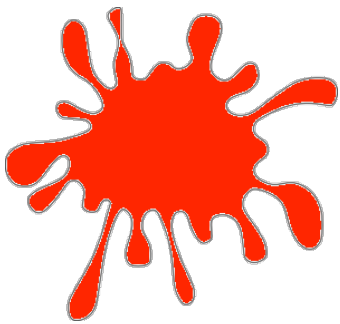
Assessment

- Informal observation of where each student is in his or her development of listening skills.
- Informal observation of students' ability to participate in and/or listen to conversations about the experiment.
- Informal observation of students' ability to make predictions about the experiment.
- Informal observation of students' ability to follow directions to conduct an experiment.
- Informal observation of students' ability to identify colors and color changes.

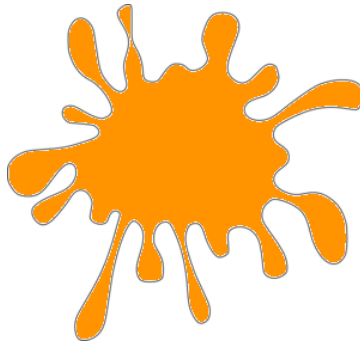


Color Cards for modifications

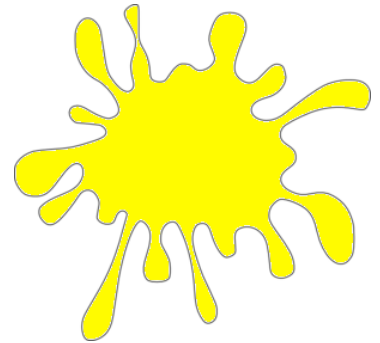
RED



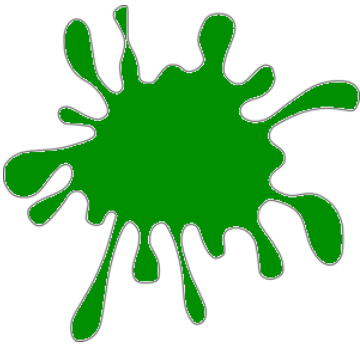
ORANGE



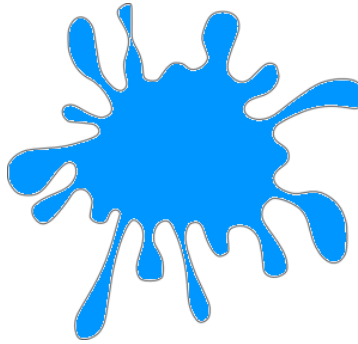
YELLOW



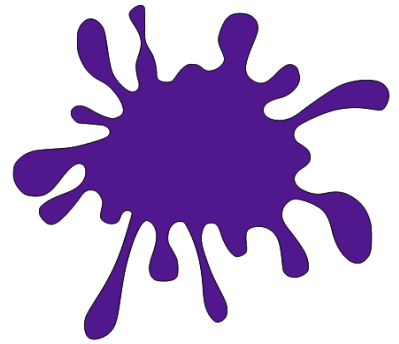
GREEN



BLUE



PURPLE



Material Cards for modifications

WATER



CELERY



FOOD COLORING



CUPS



Celery Stick Science



+



+



=?

Before

Draw a picture and describe what you see.

A large, empty rectangular box for drawing.

After

Draw a picture and describe what you see.

A large, empty rectangular box for drawing.

What's Happening?

The water has been absorbed into the celery stalk, tinting the stem and leaves.

Conclusion

Write your thoughts and draw a picture about this experiment.

A large, empty rectangular box for drawing.