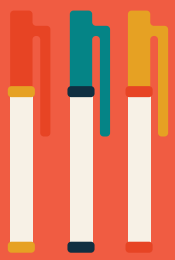
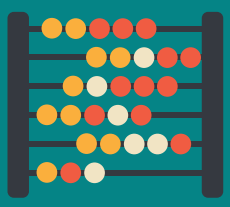









KITCHEN FIELD TRIP LESSON PLAN

Grade 2

Science

Unit 7

Grade 2 Science (Unit 7)

UNIT ESSENTIAL QUESTION:

What physical changes occur in solids and liquids when you apply heat? For example cooking.

BENCHMARK DESCRIPTION:

SC.2.P.8.4 Observe and describe water in its solid, liquid, and gaseous states.

SC.2.P.8.3 Recognize that solids have a definite shape and that liquids and gases take the shape of their container.

VOCABULARY DEVELOPMENT:

Properties	Evaporation	Celsius
Solid	Volume	Mixture
Liquid	Temperature	Investigate
Gas	Thermometer	
Measure	Fahrenheit	

ASSESSMENT:

Can students identify the effects of applying heat / cooking to different objects?

Can students identify the meaning of the vocabulary words?

Are students able to answer probing questions during discussion?

Follow up worksheet and observation sheet

INSTRUCTIONAL:

Read through the lesson plan. Take note of prep instructions in each exercise labeled “Before the students arrive.”

Introduce yourself and staff to students. Describe the lesson and what they will be doing. Review behavior expectation and safety rules. Stress NO TOUCHING of equipment because it may be HOT or SHARP.

KITCHEN TOUR:

Give students hairnets. Take students on a tour of the kitchen taking time to look at different forms of solids, liquids, and gases. When tour is complete give each student an observation sheet and pencil.

Exercise I – Muffin mix to muffin when cooked

Before the students arrive:

- Gather the following items from around your kitchen
    - Mixing bowl
    - Muffin pan and liners
    - Measuring scoop
    - Muffin mix
    - Measuring cups
    - Spatula
    - Pull allergy list for class and check for allergens against muffins

After the students arrive:

- Give students gloves
- Explain the properties of each ingredient liquid and solid
- Using measuring cups measure out the amount of water needed
- Allow the students to mix the dry ingredients into the wet ingredients to investigate how the solids change to a liquid
- Show the shape of the cup cake liners and let the students touch them
- Explain how the liquid form of the muffin mix will take on the shape if the cupcake liners
- Fill each muffin about ¾ of the way full, note for the students the measurement and volume of the mix placed into each cupcake pan
- Have students draw how the muffin looks before baked on their observation sheet
- Place the pans into the oven and continue on with the next lesson
- Return to the muffins after they have cooked. Show the students how the new solid muffins look
- Remind the students of the amount that was placed into the muffin pan and how much is there now
- Have students draw how the muffins look after they are baked on the observation sheet
- Give each student a muffin or pack them up to go back to their classroom

Exercise II – Water from solid to liquid to gas

Before the students arrive:

- Gather the following items from around your kitchen
    - Pitcher of ice water
    - Pan with ice
    - 2 cups of water
    - 3 pots

After the students arrive:

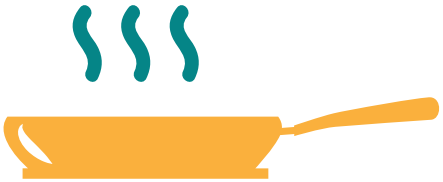
- Place a scoop or two of ice from the ice machine in a small pan
- Explain how water takes on 3 different properties: a solid when it's frozen, a liquid, and a gas
- Let the students handle a few of the ice cubes from the pan of ice
- Talk about the temperature of the ice as 32° F or 0° C
- Take the temperature of the ice water in the pitcher and have students record it on their observation sheet
- Place some of the ice into a pot and put on the stove over high heat

Exercise II – continued

- Remove the pan to allow the students see the ice as it melts
- Talk about how the water is turning from a solid to a liquid and taking the shape if the pan
- Measure out 2 cups of water and let students see amount and record on observation sheet
- Put the 2 cups of water into a new pot and place on high heat
- Point out the steam as the gaseous form of water
- Talk about the temperature of steam and that it could burn you 212° F or 100° C
- Remove pot from heat and take temperature of boiling water and have students record on their observation sheet
- Place pot back on heat and continue boiling
- After water has boiled from 5 - 10 minutes remove pot from heat and measure volume of remaining water
- Have students record remaining volume on their observation sheet
- Talk about how the gaseous form of water will evaporate, thus reducing the volume
- Talk or show students how you can also melt cheese and butter. They do not become gaseous but return to a solid form once they have cooled

RESOURCES:

- Observation sheet
- Pencils
- Stove, Oven
- Water
- Cheese
- Butter
- Muffin Mix
- Thermometer
- Ice
- Large clear measuring cup or pitcher
- Pots
- Pitcher
- Follow up worksheet



TAKE AWAYS:

- Worksheet
- Teacher aid
- Muffin

TOPICS:

- Talk about how cooking affects your food by making it into a liquid or into a solid
- Talk about how cooking affects the way we eat our foods using a fork, spoon or straw
- Talk about different ways to cook - dry heat, wet heat

Observation Sheet

Exercise I –

A. Temperature of ice water _____ °F

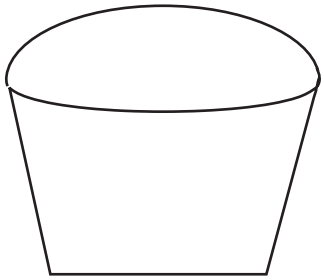
Temperature of boiling water _____ °F

Starting amount of water _____

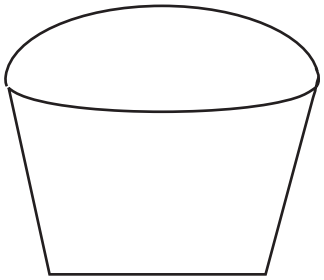
Ending amount of water _____

Exercise II –

Muffin before baking



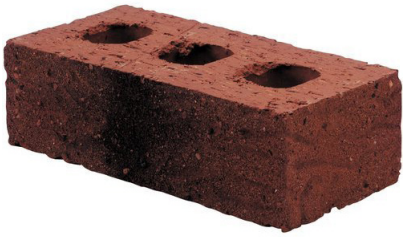
Muffin after baking



Worksheet

1. Explain what happens to water as you boil it:

2. Circle the picture of the solid that can become a liquid:



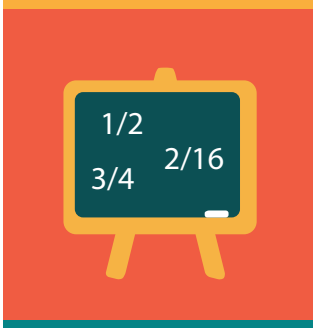
3. Select the temperature of boiling water:

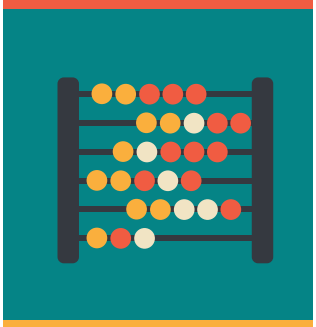
   A. 0°F

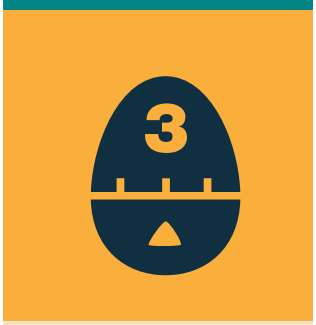
   B. 212°F

   C. 32°F

4. Explain how the muffins changed in appearance after they have baked:







Teacher's Aid

Quiz Questions:

1. True or False? After 1 cup of water is boiled for 10 minutes there will be more water in the pan then when you started.
2. True or False? Solids that become liquids can not become solids again.
3. What temperature is the freezing point of water?

Writing Questions:

1. Describe a time you saw a solid melt into a liquid.
2. Think about a time when you have seen snow, rain and steam in person, in a movie or in a book. Describe how they were different and how they were alike.