

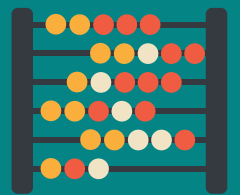
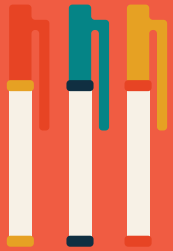


KITCHEN FIELD TRIP LESSON PLAN

Grade 4

Mathematics

Unit 8



Grade 4 Mathematics (Unit 8)

UNIT ESSENTIAL QUESTION:

How can you use models to compare customary units of length?

How can you use models to compare customary units of liquid volume?

How can you make and interpret line plots with fractional data?

BENCHMARK DESCRIPTION:

MAFS.4.MD.1.1

Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36)

MAFS.4.MD.1.2

Use the four operations to solve word problems 1.involving distances, intervals of time, and money, including problems involving simple fractions or decimals 2. Represent fractional quantities of distance and intervals of time using linear models. (1See glossary Table 1 and Table 2) (2Computational fluency with fractions and decimals is not the goal for students at this grade level.)

MAFS.4.MD.2.4

Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Solve problems involving addition and subtraction of fractions by using information presented in line plots. For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.

VOCABULARY DEVELOPMENT:

Cup	Half-Gallon	Centimeters
Fluid Ounce	Pint	Feet
Gallon	Quart	Inches

ASSESSMENT:

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.

Give students a tour of the kitchen.

KITCHEN TOUR:

Give students hairnets. Take students on a tour of the kitchen taking time to introduce fractions and how they are used in the kitchen. Show all the different tools we use to measure with and their related fractions such as 1/2 cup spoodle. When tour is complete give each student an observation sheet and pencil.

Exercise I – Measuring Different Objects

Before the students arrive:

- Pull allergy list for the class and check for allergens against Rice Krispies Treat and chocolate milk
- Gather the following items and have them laid out at a station in your kitchen
 - o Scoops
 - o Ladles
 - o Spatulas
 - o Whisks
 - o Pastry blender
 - o Pot holders
 - o PC packets
 - o Silverware
 - o Paper boats
 - o Other random kid safe items of different lengths



After the students arrive:

- Have the above items laid out on 2 or 3 tables
- Break students into 2-3 groups and assign them a table
- Give each student an observation sheet, a measuring tape, and a ruler
- Ask the group to try and select an object that is close to 1 foot in length
- Have them write the object they selected and then measure it and record the actual length on their observation sheet. Think about a part of your arm or leg that is close to a foot
- Discuss how close they got and why they thought the object was close to a foot
- Repeat asking them to select an object they think close is 20cm, 6 inches, and 300 millimeters. Have students measure the objects after they have selected them and record on their observation sheet
- Ask how they did? Ask how knowing measurements of everyday objects can be helpful?
- Review the kitchen items that were used with the students and explain what they are used for and if they help you measure
- Give each student a Rice Krispies treat and tell them not to open it.
- Have them measure it in feet, inches, centimeter, and millimeters. Have them record on their observation sheet
- Have them keep the Rice Krispies Treat with them, but do not eat it

Exercise II - Ordering Fractions

Before the students arrive:

- Gather two to three sets of measuring spoons or cups

After the students arrive:

- Give each group a set of measuring spoons, not in order
- Have each group arrange the measuring spoons in order from smallest to largest
- Have them draw on their observation sheet a line plot of the spoons

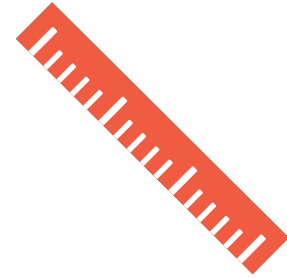
Exercise III - Volume Measures

Before the students arrive:

- Gather 16 chocolate milk cartons
- Large clear measuring pitcher

After the students arrive:

- Bring students together into one large group
- Let students look at the milk carton and try to figure out what the volume is
- Ask students what the volume of the milk is? If they say 8 fluid ounces or $\frac{1}{2}$ pint, ask how many cups that is
- Open 1 carton and pour into a measuring cup to demonstrate that it is one cup
- Have the students record the volume of the milk carton on their observation sheet
- Pass a large gallon measuring cup around so students see the different measurements and what a gallon is
- Ask students how many cartons of chocolate milk it will take to make 1 gallon
- Pour milk cartons 1 at a time into gallon measuring cup. Stop at a pint and talk about how many cups it took to get to a pint. So is a carton a half pint?
- Stop at a quart and talk about how many cartons or cups it took
- Stop at $\frac{1}{2}$ gallon and talk about how many cups it took to make a $\frac{1}{2}$ gallon
- When you get to a gallon, review the measurements and talk about them in terms of cups
- Pour chocolate milk into small serving cups and give each student 1. Have students go out into cafeteria to eat their Rice Krispies Treat and drink their milk



RESOURCES:

- Observation Sheets
- Pencils
- Tape Measures
- Rulers

TAKE AWAYS:

- Worksheet
- Teacher aid
- Rice Krispies Treat
- Chocolate Milk

TOPICS:

- Talk about different measures and how we measure different objects
- Talk about how the fractions add up to make wholes and different measures add up to new measures

Observation Sheet

Exercise I – Measuring Different Objects

1. 1 ft object:
2. 20 cm object:
3. 6 in object:
4. 300 mm object:
5. Rice Krispies treat measurements:

Exercise II – Ordering Fractions



Exercise III – Volume Measures

Volume of milk carton _____ fluid ounces
_____ pints
_____ cups

Worksheet



- 6 cups (3 pint)
- 5 cups (2.5 pint)
- 4 cups (2 pint)
- 3 cups (1.5 pint)
- 2 cups (1 pint)
- 1 cup (1/2 pint)

1. How many cups of water are in the measuring cup?

2. How many pints of water are in the measuring cup?

3. What would be the best way to measure the following?
Circle the best answer

- | | | | |
|----------------|--------|--------|--------|
| a. Water: | Pounds | Cups | Inches |
| b. Flour: | Inches | Meters | Cups |
| c. Gound beef: | Feet | Pounds | Cups |

4. Use a ruler to measure the following:



Inches: _____

Centimeters: _____



Inches: _____

Centimeters: _____

Teacher's Aid

Quiz Questions:

1. True or False: 1 cup is equal to $\frac{1}{16}$ of a gallon?
2. What would you use to measure the weight of 4 cups of flour?
3. Which item is closest to 1 foot in length: paper clip; broom; spatula?

Writing Questions:

1. Describe a time where you had to guess the length of an item. Where you close to being correct?
2. Discuss the proper steps to measuring the length of a football field.

