

Learning Experience:

Measurement Fiesta

When planning, include the following:

Models (Concrete—Semi-Concrete—Semi-Abstract—Abstract)

Problems/Situations

Questions



AKS:

AKS 34: Compare one unit to another within a single system of capacity measurement and record measurement equivalents in a two column table, including l, ml, pt, qt, gal

AKS 35: compare one unit to another within a single system of weight measurement and record measurement equivalents in a two-column table including g, kg, lb, oz

AKS 36: solve word problems by applying the four operations to problems involving whole number, decimal and fractional distances, intervals of time, liquid volumes, masses of objects, and money.

AKS 39: Create a line plot to display a data set of measurements.

Vertical Alignment:

3 rd Grade	5 th Grade
<p>27.MD.2 Estimate and measure liquid volumes and masses of objects to include the metric units grams, kilograms, liters and the customary units ounces, cups, pints, quarts, and gallons. <i>Excludes compound units such as cm^3 and finding the geometric volume of a container.</i></p> <p>28.MD.2 Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units. <i>Excludes multiplicative comparison problems (problems involving notions of “times as much”; see Glossary, Table 2).</i></p>	<p>28.MD.1 Convert among different-sized measurement units within a given measurement system and use these conversions in solving multi-step, real world problems (e.g., convert 5 cm to 0.05 m, 3 ft to 36 in, 120 minutes to 2 hours)</p> <p>29.MD.2 Make a line plot to display a data set of measurements in fractions of a unit ($1/2$, $1/4$, $1/8$) and solve problems using the line plot data</p> <p>52.T.NF.4 Solve word problems involving multiplication of a fraction by a whole number (e.g., by using visual fraction models and equations to represent the problem.</p>

Standards for Mathematical Practice:

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.

Materials:

“Pigs in the Pantry”

Weight Game Cards

Chart paper

Recipes

Cooking materials: measuring cups, balances, spoons, measuring bowls, ingredients needed for Selected recipes, and serving utensils

Access to websites or circulars of local grocery stores

Graphic Organizer

Vocabulary:

Add, budget, capacity, compare, cup, customary system, difference, divide, equal, equivalent fractions, fraction, gallon, multiply, ounce, pound, quart, sum, and total

Essential Question:

How do we use the four operations to solve problems involving different measurements in the real world?

Activating Strategy:

Day 1:

Read the book, “Pigs in the Pantry” by Amy Axelrod. As the students listen to the story, they make a word web of measurement vocabulary heard throughout the book.

Day 2:

Give each team 3 Weight game cards and have them solve.

Instructional Activity: This is a summative activity.

Day 1:

- Teacher should ask the students what type of measurement vocabulary words they heard throughout the book.
- Discuss how measurement is used in real world scenarios.

- Pass out the recipes to each team and have students determine how much of each ingredient is needed to feed the entire class (the recipes can be differentiated based on students' abilities).

Suggested Recipes:

1. Trail Mix (snack) – for lower level learners
 2. Dip (appetizer)
 3. Pasta salad (appetizer)
 4. Banana pudding (dessert)
 5. No bake oatmeal cookies (dessert)
 6. Punch (drink)
- Students need to access either local grocery store websites or local circulars to research the cost of ingredients. They then need to create a budget for their items. The teacher needs to make the decision of how the ingredients will be provided the next day (teacher provided or parent provided).
 - Day 1 Questions:
 1. What vocabulary did you come across today?
 2. When do we use measurement in our daily lives?
 3. How do we use measurement in our daily lives?
 4. What was the most/ least expensive item in your recipe? What was the difference in their price?
 5. What mathematical strategies did you use today?

Day 2:

- Review the vocabulary from Day 1 and add any new vocabulary to the class list.
- Students will first need to determine how much time will be needed to complete their recipe. They will need to write the time at which they begin the recipe. When they finish, they will need to find the elapsed time.
- Pass out the needed ingredients for each team. If a recipe calls for chopping or cutting, the teacher might want to either have parents or the teacher do this before the activity begins.
- Students will need to create their dish for the class.
- When all students have finished creating their dishes, invite the class to taste the product from each group.
- Day 2 questions: Refer to summarizing activity (graphic organizer). Review as a class.

1. Expanding the experience

Answer the following question on chart paper:

If your team decides to create enough food for two classes, how much of each ingredient will you need? Please explain in words and with an illustration how you will determine the ingredients needed for two classes.

2. Extending the experience

Have the students create a cookbook of an entire meal. They need to include the budget for each recipe, the ingredients and measurements, as well as the time needed to create each recipe.

Summarizing:

Day 1:

Create a class line plot of the total budget needed for each recipe. Discuss any trends or observations.

Day 2:

Complete graphic organizer individually and discuss with your team.

Did your plans you include the following?

Models (Concrete—Semi-Concrete—Semi-Abstract—Abstract)

Problems/Situations

Questions

A



How many ounces in 1 pound?

B



How many ounces in 2 pounds?

C



How many ounces in 3 pounds?

D



How many grams in 1 kilogram?

E



How many kilograms in 1,000 grams?

F



How many ounces in 4 pounds?

G



How many grams in 2 kilograms?

H



How many kilograms in 2,000 grams?

I



How many ounces in 5 pounds?

J



How many ounces in 8 pounds?

K



How many ounces in 7 pounds?

L



Which is greater:
1 pound or 14
ounces?

M



Which is greater:
100 grams or 1
kilogram?

N



Which is less:
1 pound or 8
ounces?

O



Which is greater:
1 kilogram or 999
grams?

P



One ounce is about
_____ grams.

Q



One kilogram is a little
more than _____
pounds.

R



28 grams is about
_____ ounce(s).

S



Which is greater:
28 grams or 2
ounces?

T



Which is less:
100 grams or 1
kilogram?

Answer Key

CARD	ANSWER
A	16 ounces
B	32 ounces
C	48 ounces
D	1,000 grams
E	1 kilogram
F	64 ounces
G	2,000 grams
H	2 kilograms
I	80 ounces
J	128 ounces
K	112 ounces
L	1 pound
M	1 kilogram
N	8 ounces
O	1 kilogram
P	28 grams
Q	2 pounds
R	1 ounce
S	2 ounces
T	100 kilograms

