CULMINATING TASK: FIELD TRIP TO THE ZOO!

APPROXIMATE TIME: 3 days

STANDARDS FOR MATHEMATICAL CONTENT

MCC. 3.MD.1 Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.

MCC.3.MD.2 Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.

MCC.3.MD.7 Relate area to the operations of multiplication and addition.

MCC.3.MD.8 Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.

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.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

ESSENTIAL QUESTIONS

- How is elapsed time used in the world around me?
- What does it mean to determine time to the minute?
- How is perimeter measured?
- Why is it important to know how to figure out the area of a figure?
- How do we use weight measurement?
- Why is it important to be able to measure liquid volume?
- What strategies can I use to help figure out elapsed time, area, perimeter, weight, and liquid volume?

MATERIALS

- "Field Trip to the Zoo" student recording sheet
- Blank Paper
- Model materials (if needed)
- Clocks (if needed)
- Geoboards, grid paper, area models (if needed)

GROUPING

Small Group/Partner Task

TASK DESCRIPTION, DEVELOPMENT AND DISCUSSION

This task has three parts. In this task, students will use thinking and problem solving skills to plan a field trip to the zoo that includes a class picnic. For part 1, students must use elapsed time to plan the field trip schedule. While at the zoo (part 2), students will go on a "scavenger hunt" where they will determine the perimeter of the animals' home, and how much mulch and grass it takes to cover certain living areas. At the picnic (part 3), students will determine how much food each student will get by weight and how much picnic punch each classmate will receive.

Comments
This task is appropriate for small group or partner work. While this task may serve as a summative assessment, it also may be used for teaching and learning. It is important that all elements of the task be addressed throughout the learning process so that students understand what is expected of them. Uses for this task include but are not limited to:

- Peer Review
- Display for parent night
- Placement in student portfolio

Because the focus of this task is on measurement, it would be appropriate to allow students to use manipulatives and math tools for this task.

Background Knowledge
Students should understand and have had experience with elapsed time, area, perimeter, basic units of weight measurement (gram, kilogram), liquid volume (liters) and their relationships. Also, students should be able to solve problems in multiple ways and justify their thinking.

NOTE: Keep in mind that students will not have to write everything out. However, they should give enough information to justify their answers.

Task Directions
Students will follow the directions below from the "Fieldtrip to the Zoo" student recording sheet.

> Your class wants to take a trip to the zoo. Your teacher has agreed to
> take the class. However, your teacher insists that you must apply what

you have learned in this math unit to your trip. So, he/she has assigned
three tasks for this trip. They are:

Part I: Trip Schedule (Small Groups)

You must create a trip schedule for everyone to follow while on the trip. Here are the
guidelines:
- Your schedule should begin at 8:00 AM
- Your schedule should end when your class returns to the school at 2:30 PM.
- Be sure to include 33 minutes of travel time to and from the zoo.
- Include time for a one hour picnic.
- You may select all other activities of your choice (visit reptile house, play at
  the petting zoo, watch the animal stunt show, meet the zookeepers, watch
  lions, souvenir shop, etc).

Part II: Exploring the Zoo…a Scavenger Hunt! (Partner Groups)
While at the zoo, your team will participate in a scavenger hunt! Your goal is stop
by different habitats where the animals live. Your team will either determine the
distance around the animals' living spaces, or how much material (mulch, grass,
woodchips) it takes to cover their zoo habitat.   Use the models and clues below to
help you! (see student recording sheet)

Part III: The Class Picnic! (Small Groups)
Now, it's time to take a break! Let's have a class picnic! Our school cafeteria sent a
big cooler with everything we need to have our picnic. **There are 20 students in our
class.** We just need to decide how much of each food item and picnic punch each
person gets! (see student recording sheet)

FORMATIVE ASSESSMENT QUESTIONS

- Why is understanding time to the minute and elapsed time important in completing
  this task? (part 1)
- What strategies are you using to organize your thinking about this task?
- How did you know when it is appropriate to determine perimeter?
- How do you know when it is appropriate to determine the area?
- What strategies are you using to figure out how much food and picnic punch each student
  gets?

DIFFERENTIATION
Extension
- Part 1: Have students create more than 1 schedule with different sets of activities on
  them.
- Part 2:
  o Have students create their own scavenger hunt.

- o Increase dimensions.
- Part 3:
  - o Change the portion sizes and have students figure out new amounts.
  - o Increase the class size (i.e. 35 students)

Intervention
- Part 1:
  - o Give students clocks and number lines as aides.
  - o Choose and fill in the activities for the students
  - o Fill in other parts of the schedule
- Part 2:
  - o Allow students to use geoboards, grid paper, or area models for help.
  - o Decrease the dimensions.
  - o Give students tactile models
- Part 3:
  - o Use tactile models to help students.
  - o Decrease the class size (i.e. 10 students)
  - o Facilitate a teacher-guided group.

TECHNOLOGY CONNECTION

http://www.thefutureschannel.com/dockets/realworld/teaching_zoo/ This FUTURES video is a great introduction to this task. Students see how important accurate measurements using both metric and standard weights are important in a zoo.

Field Trip to the Zoo!
Part I

Name _____Date_____

Your class wants to take a trip to the zoo. Your teacher has agreed to take the class. However, your teacher insists that you must apply what you have learned in this math unit to your trip. For your trip, you must complete this task and answer the questions that follow. Good luck!

Field Trip Schedule

You must create a trip schedule for everyone to follow while on the trip. You may use the table below to help you with your plan. Here are the guidelines:

- Your schedule should begin at 8:00 AM
- Your schedule should end when your class returns to the school at 2:30 PM.
- Be sure to include 33 minutes of travel time to and from the zoo.
- Include time for a one hour picnic.
- You may select all other activities of your choice (visit reptile house, play at the petting zoo, watch the animal stunt show, meet the zookeepers, watch lions, souvenir shop, etc).

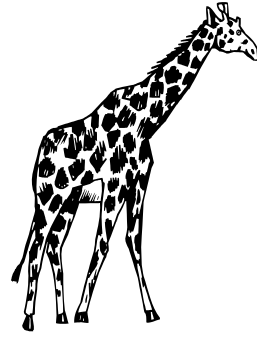| Name of Activity	Start Time	End Time	Elapsed Time
Leave our school, ride to the zoo	8:00		33 minutes
Leave the zoo, ride back to our school		2:30	33 minutes

Questions for Reflection

1. Which activity took the most time?
2. Which activity took the least amount of time?
3. Choose two activities and combine them. How much time do they take altogether?
4. How much time did the field trip take?
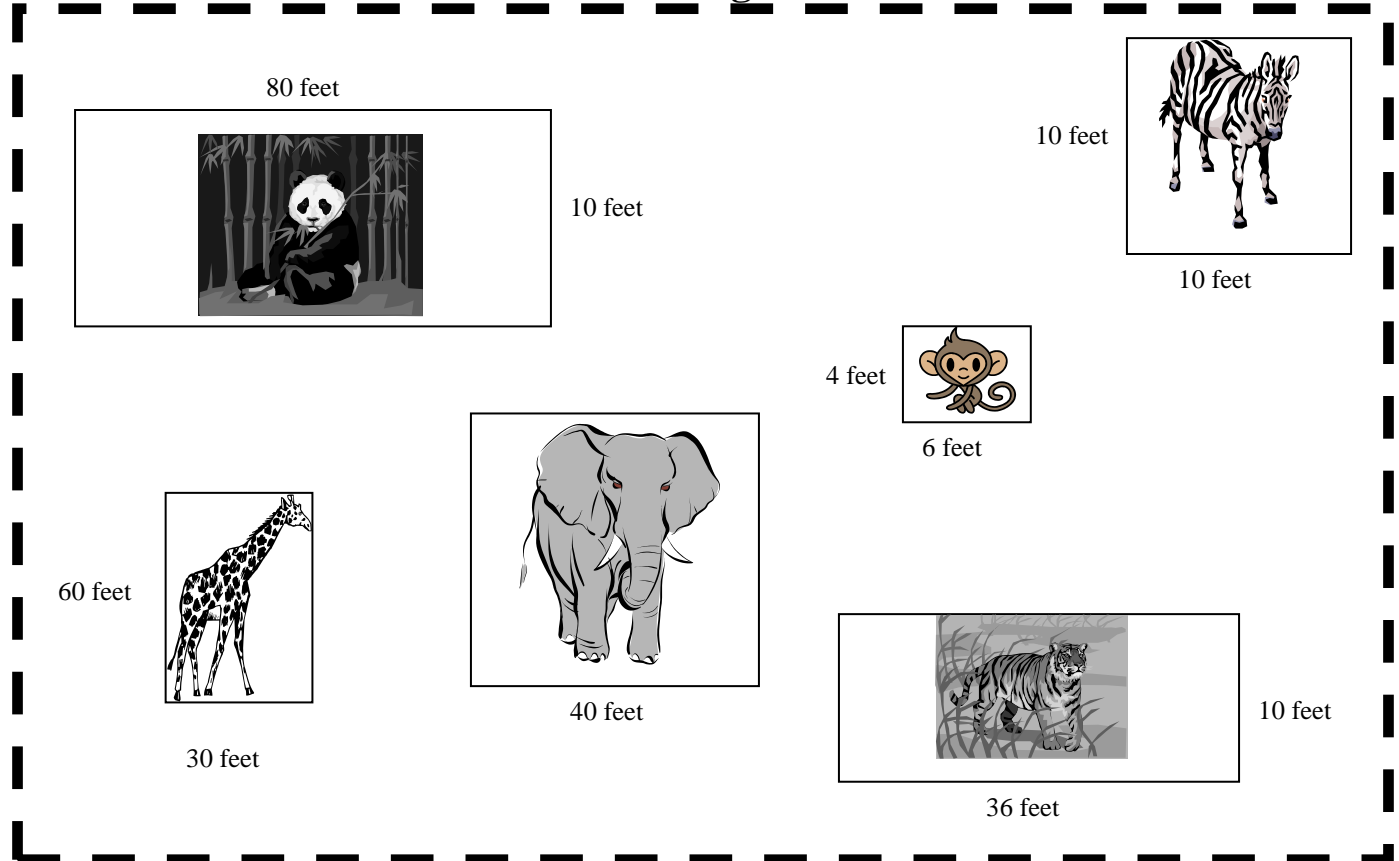5. Why is understanding time to the minute and elapsed time important in completing this task?

Exploring the Zoo…The Scavenger Hunt!
Part II

Name _____Date _____

While at the zoo, your team will participate in a scavenger hunt! Your goal is stop by different habitats where the animals live. Your team will either determine the distance around the animals' living space, or how much material (mulch, grass, woodchips) it takes to cover their zoo habitat.   Use the models and clues below to help you.

The Zoo of Georgia

80 feet

10 feet

10 feet

10 feet

10 feet

4 feet

6 feet

60 feet

30 feet

40 feet

10 feet

36 feet

1. The zoo keeper needs to take fresh food and water to a herd of animals that live in a cage that has an area of 160 feet. Where should he take it?

2. The grounds crew needs to cover a certain animal pen with 100 square feet of fresh sod. Where should they go?

3. Take a visit to the animals that live in an area that is 180 feet around. Where will you go?

4.   Certain animals like to graze in an area that's covered with 800 square feet of grass. Where is this place?

5. A certain animal pen is 40 feet in perimeter. Where is this pen located?

6. Certain animals live in their habitat that has an area of 360 square feet. Which animals live in this habitat?

7. Can you find the habitat that's enclosed in 92 feet of fencing?

8. What animals like to play in an enclosed space of 24 feet?
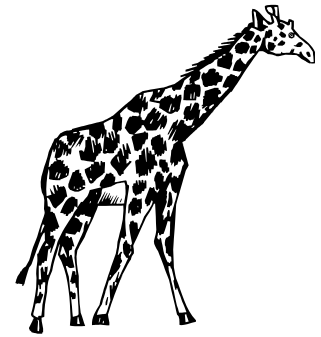
The Class Picnic!
Part III

Name _____ Date _____

Now, it's time to take a break! Let's have a class picnic! Our school cafeteria sent a big cooler with everything we need to have our picnic. **There are 20 students in our class.** We just need to decide how much of each food item and picnic punch each person gets. This is what Miss Sally, the lunch lady, packed for us:

- 10 kilograms of mini sub sandwiches
- 1,000 grams of Baked potato chips
- 2,000 grams of apples
- 400 grams of trail mix
- 10 liters of picnic punch

Using this information, your job is to determine how much of each item every student gets. Every student should get a complete lunch. Show how you figured it out with pictures, numbers, and words below.