

Names:

# Water Project

## Worksheet



**Introduction:** You and your team are going to investigate how much water Cortez Elementary would need during an emergency disaster. In a group of 2-4 you will first research information about water to determine how much water people need to drink daily. Using this information, create a model to determine how much water our school should purchase for an emergency disaster and determine the cost. Once you have a model, you will share it with your class. Your model must consider the various ages, weights, and genders of people at our school, the lengths of the disaster, and the amount of available storage space at our school. Your solution should include an algebraic equation with variables to determine the amount of water and cost of water needed for an emergency.

**Define the Problem:** Before you can start planning your model of how much water our school needs to store for a disaster and the cost of the water, you need to be specific about what you're measuring so that you can justify your design.

1. What kind of information do you need to know to make a model? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
2. What are some important quantities? Are they quantities which are required by the model, or quantities which are provided by the model? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
3. How can you get this information? What kinds of data can you gather? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
4. Does each quantity have only one value, or can it have a range of values? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



5. What mathematical tools could you use in your model? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

6. (Other questions . . .) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Gather Information:** Now that you know what information you're looking for and how you'll use it to help create you model of how much water is needed for our school to prepare for a disaster and how much it will cost, you need to collect that information. Do research, design a survey, or conduct an experiment to gather the information you'll need in your model. Write it down.

**Do the Math:** Take the information you've gathered and use your mathematical tools to create a mathematical model of the amount of water and cost of water needed for school to prepare for an emergency disaster. Justify your numerical values, estimations, and decisions. Show all your work.

**Reflection:** It's almost time to show everybody your model. During your presentation, you should focus on the process you used to create your model. Your finished works, algebraic equation with variables to describe the amount of water and cost, are important, but reflect on these questions before your presentation to help you justify your model. Remember to explain why the decisions you made were reasonable!

1. Is your solution reasonable? Why or why not? \_\_\_\_\_

---

---

---

2. Is your solution useful for answering your question? \_\_\_\_\_

---

---

---

3. Why would you recommend your model to someone? \_\_\_\_\_

---

---

---

4. What mathematical tools did you use, and how did they help solve the problem? \_\_\_\_\_

---

---

---

5. What did you change in your model throughout the modeling process? \_\_\_\_\_

---

---

---

6. Are there situations where your solution wouldn't work or your model wouldn't apply? \_\_\_\_\_

---

---

---

7. How would you need to change your model to apply to more situations? \_\_\_\_\_

---

---

---

8. If you had more time, what else would you do? \_\_\_\_\_

---

---

---

9. Are there any mathematical tools or pieces of information that would have been helpful to have? \_\_\_\_\_

---

---

---

**Presentation:** When it's your turn, show your class your model. If your teacher has a rubric, check to see how to make your presentation better. Don't forget to explain why you did what you did!