

MAKING COMPARISONS

USE YOUR METER TAPE TO FIND OUT WHICH IS LONGER.

	ESTIMATE	MEASUREMENT
1. Your height... or your arm span?		
2. From the inside of your wrist to the inside of your elbow... or the length of your foot?		
3. The circumference of your neck... or the circumference of your upper arm?		
4. The length of your nose... or the length of your ear?		
5. The distance from your knee to the floor... or the distance from your hip to your knee?		
6. The distance from the top of your forehead to the bottom of your chin... or the distance around your ankle?		
7.		
8.		

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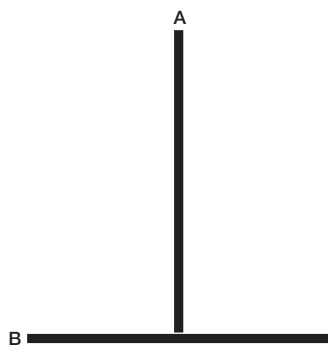
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RESPONSE SHEET—LINEAR MEASUREMENT

A student was out shopping, looking for a desk the family could use at home for homework, paying bills, and so forth. She was at a garage sale and thought she had found the perfect desk, but she wasn't sure it would fit in the space they had planned to put it in. She didn't have anything to measure with, but she remembered that sometimes people measured horses in hands. So she used her hands placed side by side to measure the desk. She called home and told her mother that the desk she had found was 12 hands wide. Her mother used her own hands to measure the space, then told her daughter that the space was only 10 hands wide. They decided not to buy the desk because they thought it would be too big for the space.

Do you think they made a good decision? Why or why not? What advice would you give them?



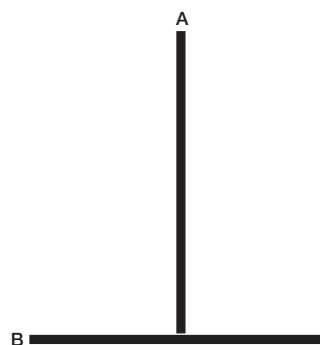
Just for fun!

Do you think line A and line B are the same length? How can you know for sure?

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STEPS FOR WEIGHING AN OBJECT
A SEQUENCING EXERCISE

PLACE THE OBJECT TO BE WEIGHED IN ONE CUP.

SET CUPS IN HOLES AT THE ENDS OF THE BALANCE BEAM.

WRITE THE RESULT ON A STUDENT SHEET OR A PIECE OF PAPER.

ADD UP THE TOTAL NUMBER OF GRAMS THAT THE OBJECT WEIGHS.

PLACE THE BALANCE BEAM ON THE BALANCE BASE.

RETURN THE MASS PIECES TO THE CONTAINER.

MOVE THE SLIDER ON THE BALANCE BEAM TO ZERO THE BALANCE.

PLACE MASS PIECES IN THE OTHER CUP UNTIL THE BALANCE BEAM BALANCES.

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RESPONSE SHEET—WEIGHT WATCHING

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A teacher asked his students to measure the mass of an orange, and then to write a short paragraph to explain how it was done. One student wrote:

The best way to measure the mass of an orange is to use a balance. You put the orange and the mass pieces in the same cup on the balance, and find out how many centimeters it is. The mass of my orange was 145.

Do you think this student has done a good job of weighing the orange? Why or why not?

Rewrite the paragraph the student wrote correcting any errors the student made.

The best way

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The best way

SOAKING SPONGES

1. Weigh the dry sponge.

The mass of the dry sponge is _____ .

2. Make a guess.

I think the mass of the water a sponge can pick up will be _____.

That's _____ times the mass of the sponge.

3. Soak the sponge with water.

4. Weigh the water-soaked sponge.

The mass of the sponge and the water together is _____ .

5. Find the mass of the water.

Mass of water and sponge _____

Subtract the mass of the sponge — _____

Answer: the mass of the water _____

6. How many times the mass of the sponge is the mass of the water?

For example, if the sponge weighed 5 g and the water weighed 30 g, you would ask yourself, $5 \times ? = 30$. Since $5 \times 6 = 30$, you know that the mass of the water is 6 times the mass of the sponge.

Your calculations go here.

7. Were you surprised by the mass of water your sponge could pick up? Why or why not?

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MEASURING VOLUME

OBJECT	ESTIMATED VOLUME OR CAPACITY	MEASURED VOLUME OR CAPACITY	DIFFERENCE
Cup, mark A			
Cup, mark B			
Cup, mark C			
Cup, mark D			

MEASURING VOLUME

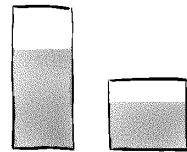
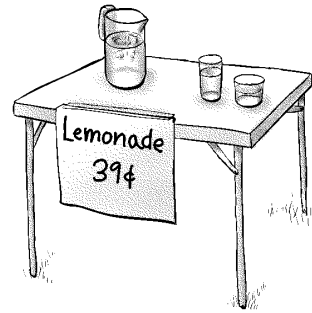
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Cup, mark D			

RESPONSE SHEET—VOLUME AND CAPACITY

Lemonade for sale! 39 cents a glass!

Mario and Sheena were thirsty after a long bike ride, so they stopped to get a glass of lemonade. Their friend Andy was selling the lemonade. He poured the lemonade into the two glasses you see in the picture to the right. Before they started to drink the lemonade, Sheena, who had the shorter glass, complained that she had paid the same amount of money as Mario, but didn't get as much lemonade. Andy insisted that they had the same amount.

Write a paragraph below explaining how Andy could prove his two customers got the same amount of lemonade.



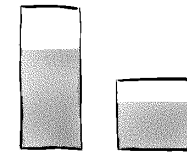
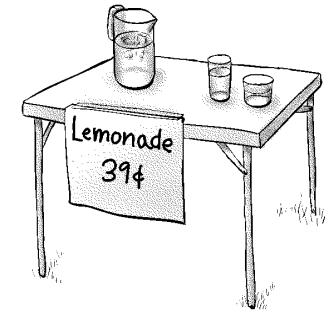
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SODA-CAN VOLUME

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PROBLEM. *When you open a can of soda, it does not appear to be full. The label on the can reads that there is 355 ml of soda in the can. How could you find out if you are getting the amount of soda that is on the label?*

PLAN

DATA

CONCLUSIONS

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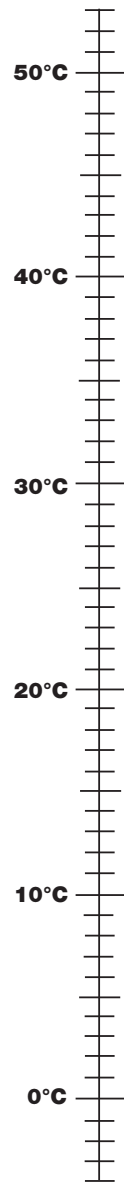
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DATA

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MEASURING TEMPERATURE

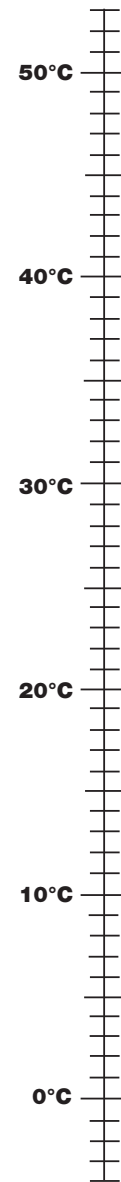
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After you measure the temperature of a liquid, write its name next to the correct number on the number line.

MEASURING TEMPERATURE

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COLD-WATER DATA

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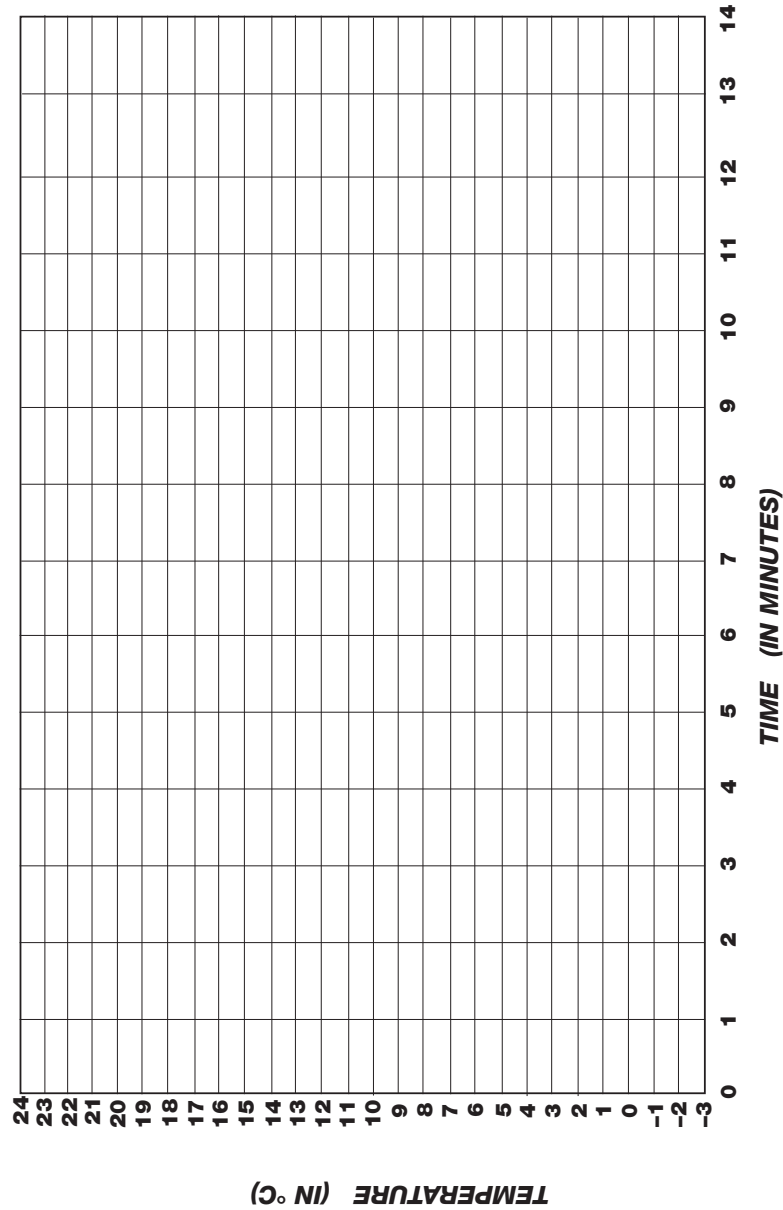
MINUTES	TEMPERATURE °C
0	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

COLD-WATER DATA

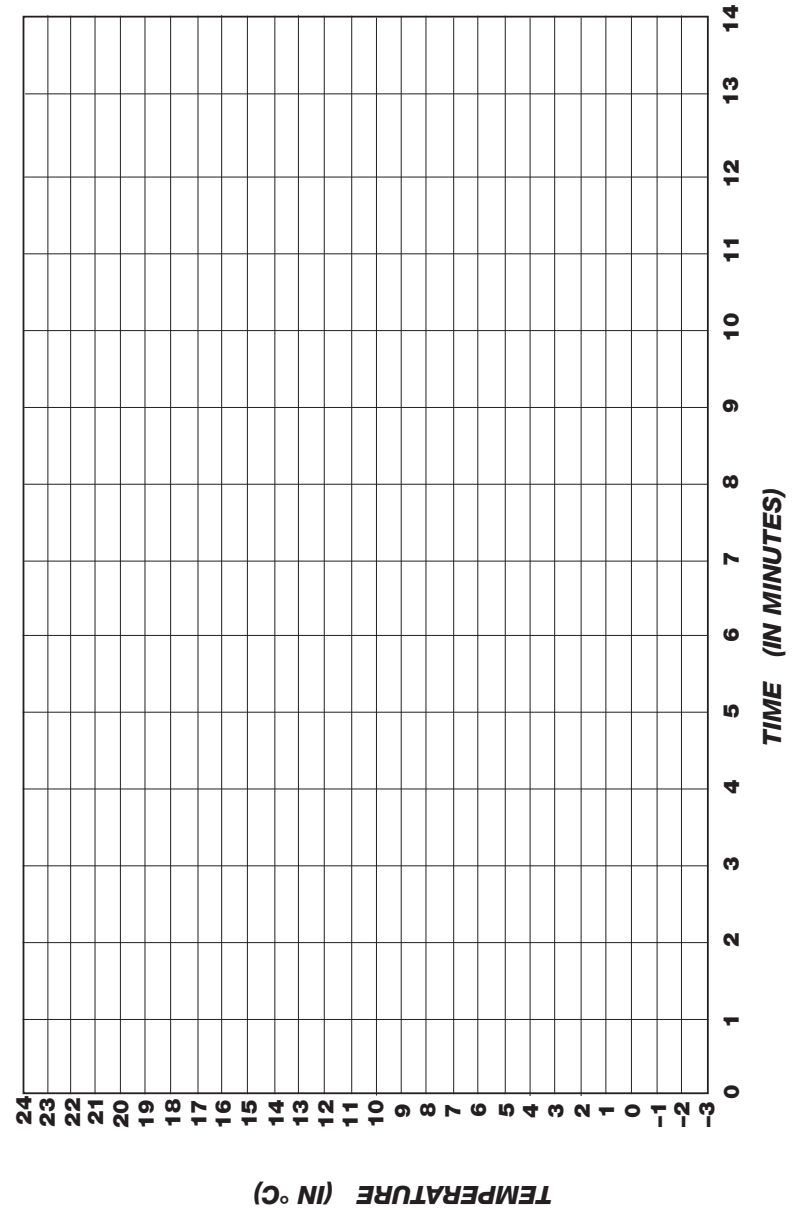
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GRAPHING COLD WATER



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RESPONSE SHEET—TEMPERATURE

Two students set up a project to find out what happens to the temperature when powdered drink mix is combined with water, then put in paper cups and frozen for a treat for a hot summer day. The chart below shows what they observed.

9:00	a.m.	22°C	Powder mixed in drink, temp before placed in freezer
10:00	a.m.	9°C	Still liquid
11:00	a.m.	2°C	Still liquid
12:00	p.m.	-3°C	Had to break through crust of ice
1:00	p.m.	-5°C	Almost frozen
2:00	p.m.	-6°C	Frozen solid

When they showed their data to the teacher, she asked them to tell what the temperature change was from 9:00 a.m. to 2:00 p.m. One of the students said, "Oh, that's easy! You just write a problem like this: $22^{\circ}\text{C} - 6^{\circ}\text{C} = 16^{\circ}\text{C}$. The change in temperature was 16°C ."

Do you agree with this student? Why or why not? (Use the number line shown on this page to help you decide.)



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