

MEASURING MATTER



This science journal belongs to:

WHAT DO YOU KNOW ABOUT MEASUREMENT?



WHAT DO YOU WANT TO KNOW ABOUT MEASUREMENT?





"A Present for the Queen"

Activity 1

After reading the folktale, why was the bed too short for the queen?

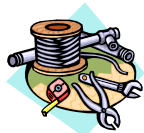
Please explain your answer below:

Vocabulary:

accurate

standard

nonstandard



LET'S MEASURE!

ACTIVITY 2

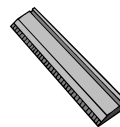


Measure the following items.
First measure with paper clips, then with tongue depressors.

Object	Paper Clips	Tongue Depressors
Pencil		
Math Book		
Table Top		
Crayon		
Doorway		

What else can you measure with? _____

HOW LONG IS YOUR DESK?
Standard vs. Nonstandard
Activity 3



Your partner's name: _____

Both you and your partner need to measure the table with sharpened pencils.

How many pencils long is the table?

Your measurement? _____

Your partner's measurement? _____

Why do you think your measurements are different?

Now, take a handful of unsharpened pencils. Measure your table again with the new pencils.

How many pencils long is your table now?

Your measurement? _____

Your partner's measurement? _____

Are your answers different or the same? _____

Why do you think that is so? _____

METRIC AND ENGLISH UNITS OF MEASUREMENT

Activity 3

What are the two types of standard units of measurement used in the United States?

To measure with the English Unit, we use: (circle one)

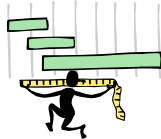
inches or centimeters

To measure with the Metric Unit, we use: (circle one)

inches or centimeters

Measure each of the following objects using both English and Metric standard units of measurement.

Object	inches	centimeters
pencil		
crayon		
eraser		
seat of a chair		
book		
marker		



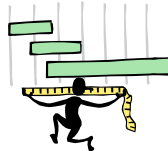
ARE YOU TALLER THAN YOU ARE WIDE?
ACTIVITY 4

Predict:

Are you taller than you are wide? _____

How tall do you think you are? _____

How wide do you think you are? _____



Partners name: _____

Measure your height and width with your partner.

***Remember, your width is how long you are from your longest finger on your left hand to your longest finger on your right hand.**

Your height: _____

Your width: _____

Your partner's height: _____

Your partner's width: _____

Did you predict correctly? _____

What did you learn from doing this? _____

HOW BIG IS YOUR HEAD?

Activity 6

What do you think you would use to measure the circumference of your head with?

Would you use:

a ruler? _____ a paper tape? _____ a tongue depressor? _____

circumference: the distance around.

Let's Predict!

Partner's name: _____

Rip off a piece of paper tape that shows what you predict is the circumference of your head. Write your name on the tape.

Mark your prediction tape with a crayon and write the predicted measurements here:

_____ inches _____ centimeters

Your partner's predictions:

_____ inches _____ centimeters

Now, have your partner measure your head and mark the correct measurement with pencil.

Record the actual measurements.

_____ inches _____ centimeters

Your partner's measurements:

_____ inches _____ centimeters

Are your predictions the same or different from the measurement?

How so? _____

LET'S RACE!
ACTIVITY 7

Who is in your group? _____

Race 1

What is your measuring unit? _____

What is the width of the hallway? _____

Which measuring unit won? _____

Race 2

What is your measuring unit? _____

What is the width of the classroom? _____

Which measuring unit won? _____

Which item measures the fastest? _____

What are the advantages and disadvantages to the different tools?

HOW BIG AM I?

Activity 8

Work with a partner to measure the different parts of your body.

My thumb is _____.

My ear is _____.

My foot is _____.

My arm is _____.

My leg is _____.



How tall are you from head to toe? _____

Who is the tallest student in the class? _____

Who is the shortest? _____

Record your height on the graph.

How old are you? _____

Who is the shortest 6 year old? _____

Who is the tallest 6 year old? _____

Who is the shortest 7 year old? _____

Who is the tallest? _____

Who is the shortest 8 year old? _____

Who is the tallest? _____

WHAT IF YOU WERE ONE INCH TALL?

ACTIVITY 9

Read the poem by Shel Silverstein, then write 3-5 sentences explaining how you would feel if you were one inch tall.

"One Inch Tall"
By Shel Silverstein

If you were only one inch tall, you'd ride a worm to school.
The teardrop of a crying ant would be your swimming pool.
A crumb of cake would be a feast
And last you seven days at least,
A flea would be a frightening beast
If you were one inch tall.

If you were only one inch tall, you'd walk beneath the door,
And it would take about a month to get down to the store.
A bit of fluff would be your bed,
You'd swing upon a spider's thread,
And wear a thimble on your head
If you were one inch tall.

You'd surf across the kitchen sink upon a stick of gum.
You couldn't hug your mama, you'd just have to hug her thumb.
You'd run from people's feet in fright,
To move a pen would take all night,
(This poem took fourteen years to write -
'Cause I'm just one inch tall).

WHAT IS AREA?
ACTIVITY 10

Predict:

How many squares of paper will cover the area of your table?

Large squares? _____ Small squares? _____

Solution:

How many squares did it take to cover the area of your table?

Large squares? _____ Small squares? _____

Were your predictions correct? _____

How were they different or the same? _____

Now choose something else to measure in square units.

What is your object? _____

Predict:

Large squares? _____ Small squares? _____

Measurements:

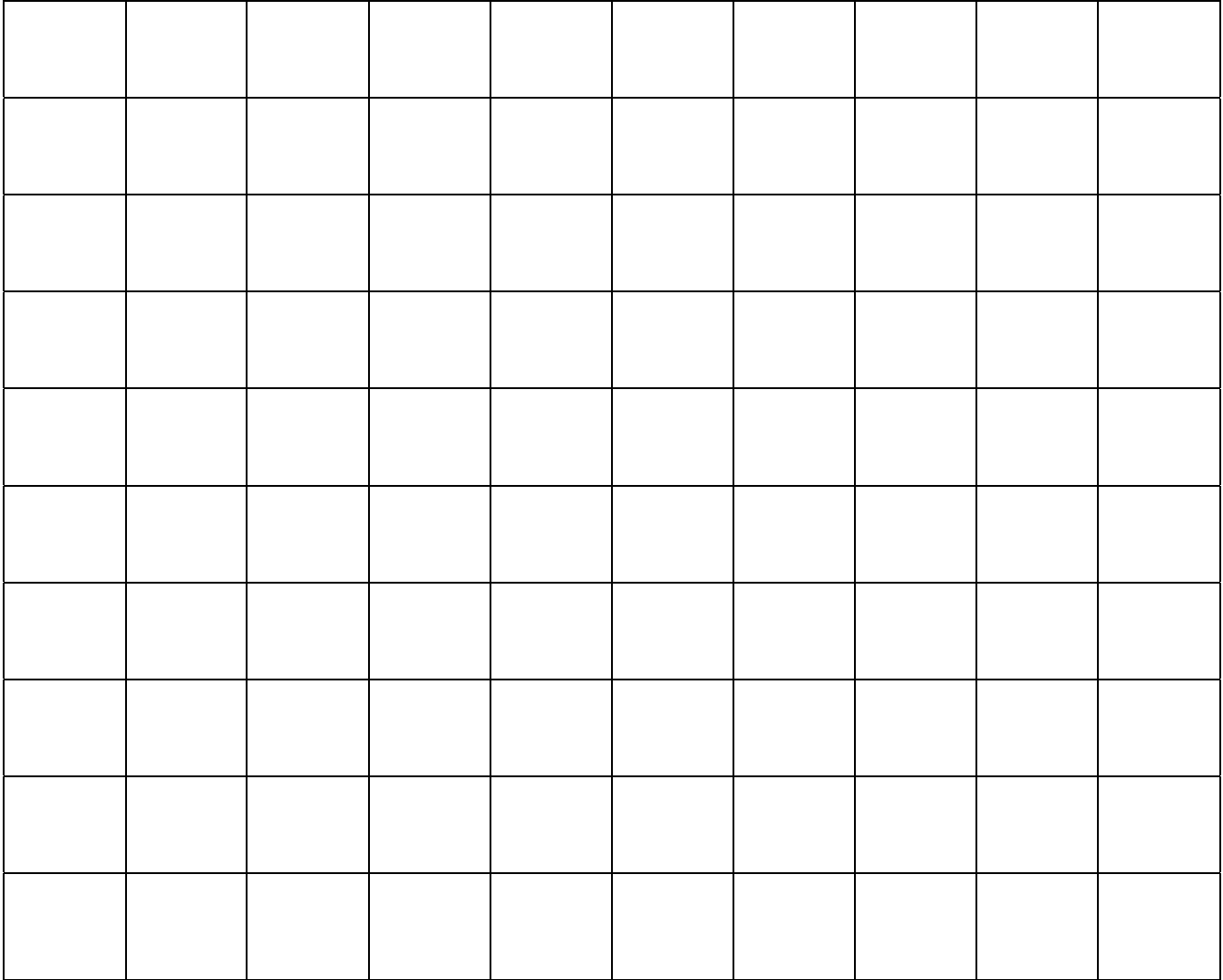
Large squares? _____ Small squares? _____

How are your predictions different or the same? _____

HOW DO YOU DETERMINE AREA?
ACTIVITY II

Choose a partner: _____

Make a shape on your geoboard.
Draw your shape on the graph paper below.

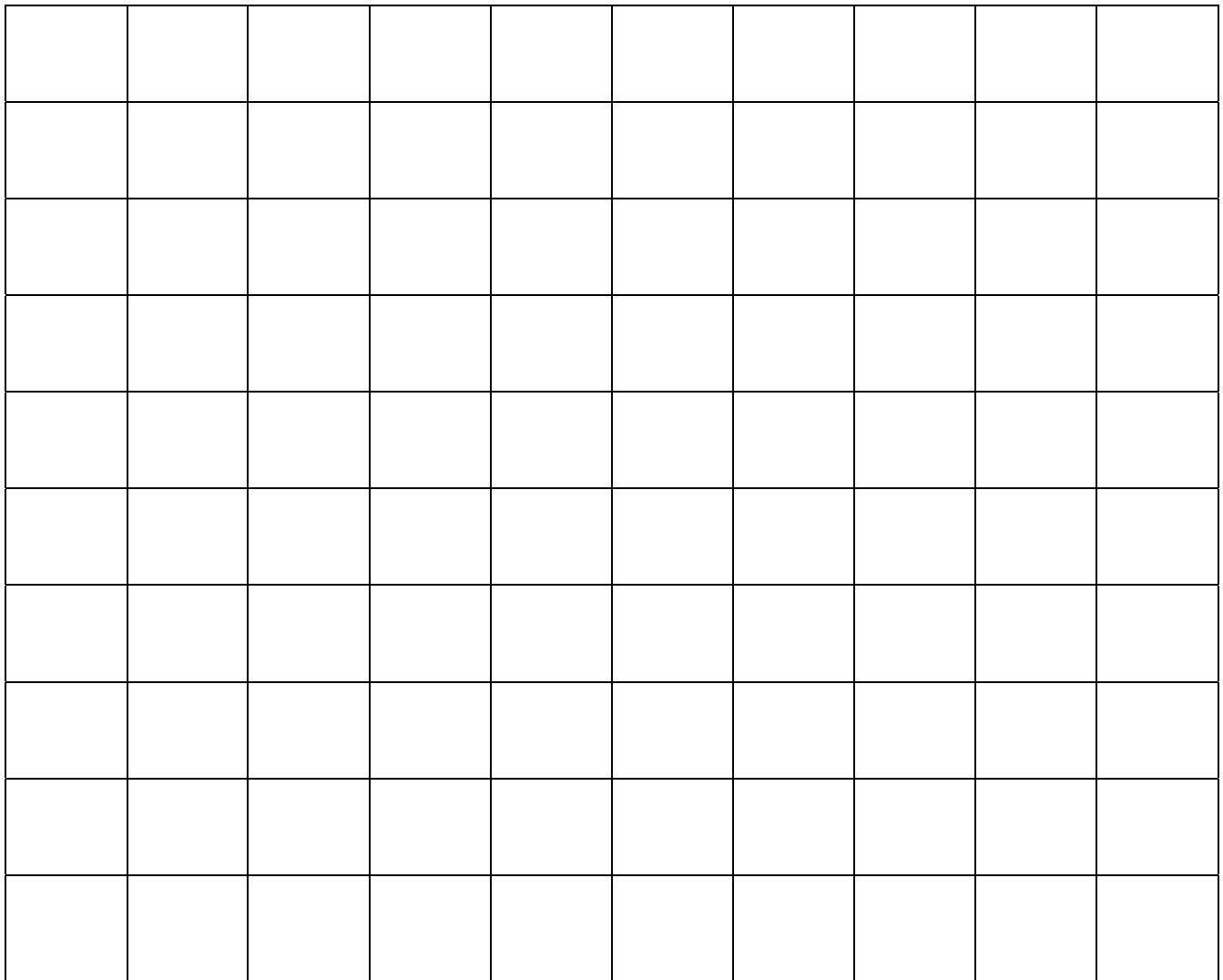


Count each square. The total amount of squares measures the total area of the shape.

What is the area of your shape? _____

Repeat this activity. Your partner will now make the shape.

**Look at your partner's geoboard shape.
Draw your partner's shape on the graph paper below**



Count each square. The total amount of squares measures the total area of the shape.

What is the area of your partner's shape? _____

WHAT IS CAPACITY?
ACTIVITY 12

Look at the different sized containers and substances.

How many containers are there? _____

How many different sizes? _____

Pick four of the different substances.

What are they? _____, _____,
_____, and _____.

Estimate how many small containers of a substance it would take to fill a large container.

Measure and compare your results.

Substance: _____

Estimate:

Small containers: _____ Large containers _____

Actual Amount:

Small containers: _____ Large containers _____

Draw a picture.



Substance: _____

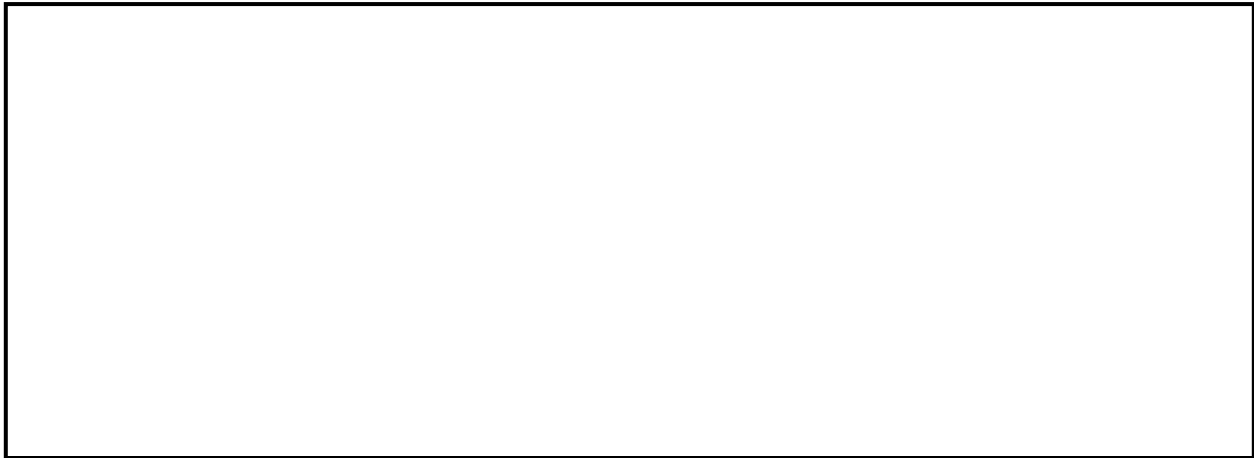
Estimate:

Small containers: _____ Large containers _____

Actual Amount:

Small containers: _____ Large containers _____

Draw a picture.



Substance: _____

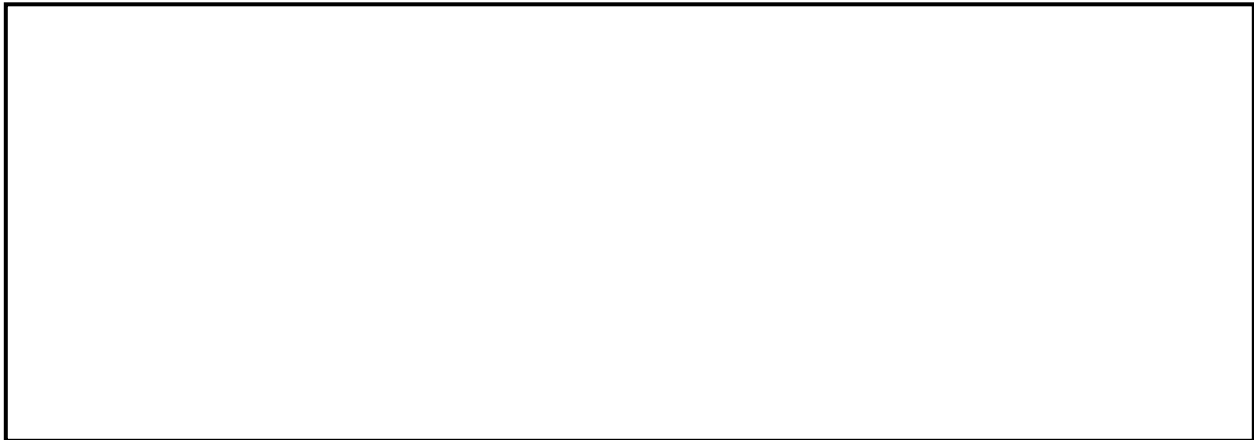
Estimate:

Small containers: _____ Large containers _____

Actual Amount:

Small containers: _____ Large containers _____

Draw a picture.



Substance: _____

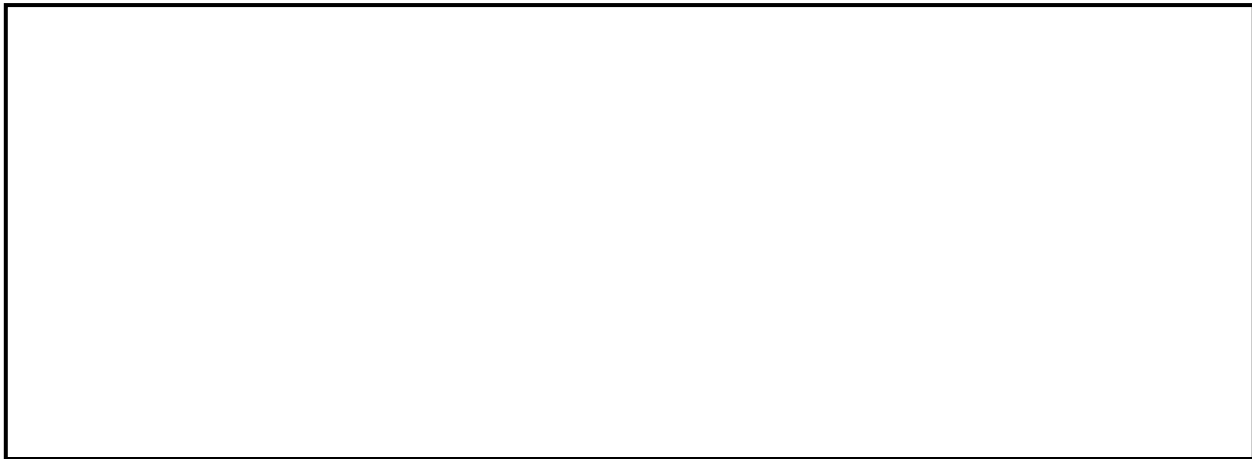
Estimate:

Small containers: _____ Large containers _____

Actual Amount:

Small containers: _____ Large containers _____

Draw a picture.



Which containers hold the greatest amounts of the same substance? _____

Which containers hold the least amount of the same substance?

Which containers hold the equal amounts of the same substance?

What did you learn from this activity? _____

POPCORN CHALLENGE
ACTIVITY 12

**Take a small cup of unpopped popcorn.
Count the kernels.**

How many do you have? _____

Record the amount on the classroom chart.

**Now take a small cup of popped popcorn.
Count the popcorn.**

How many pieces do you have? _____

I used **more or less** popped kernels to fill my cup. **(circle one)**

Why? _____

Repeat the activity using large cups.

Kernels	Estimate	Actual
Unpopped		
Popped		

I used **more or less** popped kernels to fill my cup. **(circle one)**

Why? _____

HOW CAN YOU MAKE A SIMPLE BALANCE?
ACTIVITY 13

Look at the objects on the table.

Put them in order, predicting which will be the heaviest to the lightest.

Heaviest



Lightest

Use the materials together to make a balance. You will have a balance board and a fulcrum.

Draw a picture of your balance board and fulcrum. Label each.

Balance cont.

What does the balance board and fulcrum remind you of?

After you have made your balance board, try balancing blocks.

What have you discovered? _____

What would happen if the fulcrum was moved? _____

Can you move the blocks to different positions and will it still balance?

Why? _____

WHY DO WE BALANCE?
ACTIVITY 13: OPTIONAL ACTIVITY

Try balancing on the see-saw with different partners.

Who did you balance with? _____

Was there anyone who didn't balance with you? _____

Who? _____

Why do you think some pairs balanced and some didn't? _____

WHY DON'T WE BALANCE?

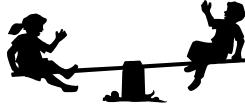
Who is on the see-saw? _____ and _____.

Do they balance? _____

Why or why not? _____

How can we make these children balance? _____

What have you learned from this experiment? _____



MEASURING WITH A DOUBLE PAN BALANCE

ACTIVITY 14

How does the double pan balance resemble the board and fulcrum?

How are they different? _____

What kind of objects could be measured in our double pan balance?

Let's Compare Weight!

Place _____ on one side of the double pan balance.

Place these items on the other side. Fill in the chart.

Item	More	Less	Same
Mystery Substance			

Comparing Weight cont.

Choose items to place on the double pan balance. Fill in the chart.

Partner: _____

Left Side	< , > , =	Right Side
Mystery substance		

What did you learn by experimenting with the double pan balance?

THERMOMETERS AND THEIR USES
ACTIVITY 15

Name two types of temperature:

_____ and _____

Name two different types of thermometers:

1) _____

2) _____

What do we use thermometers for? _____

Look at the different thermometers.

How are they alike? _____

How are they different? _____

Draw pictures of the different thermometers and label them.

MEASURING TEMPERATURE

ACTIVITY 16

Explore

Take your temperature by closing your hand gently around the thermometer.

What is the temperature? _____°F _____°C

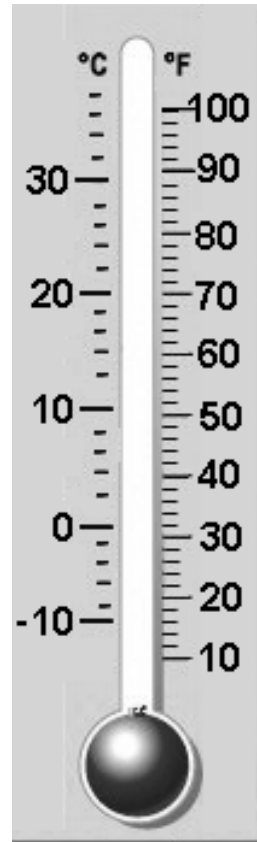
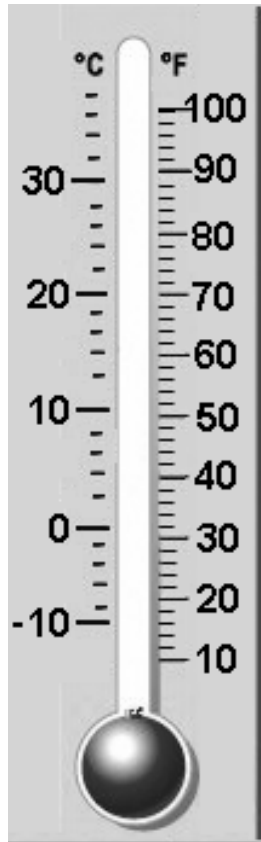
Now measure your temperature by placing the thermometer against your chin.

What is the temperature? _____°F _____°C

Are they the same or different? _____

Why do you think that happened? _____

Mark the temperatures on the thermometers:



Temperature
Activity 16

What time of the day is usually the warmest? _____

What part of the classroom is the warmest? _____

Why? _____

What might happen to these things if they are left out in the sun?

Jello _____

Ice cream _____

Ice cubes _____

Crayons _____

What happens to the mercury (or alcohol) in a thermometer when it gets warm? _____



HOW LONG WILL IT TAKE?
ACTIVITY 17

Question:

How long does it take to:

Read a page in your reading book?



Estimated time: _____

Actual time: _____

Copy your spelling list once?

Estimated time: _____

Actual time: _____

Untie and tie your shoes 3 times?

Estimated time: _____

Actual time: _____

Copy a sentence from the board?

Estimated time: _____

Actual time: _____

Write the alphabet (upper and lower case)?

Estimated time: _____

Actual time: _____

Does a minute always seem to be the same? _____

Is a minute a long or short amount of time?

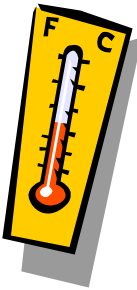
Hold your breath for one minute. Rest.
Now, talk to your friend for one minute.

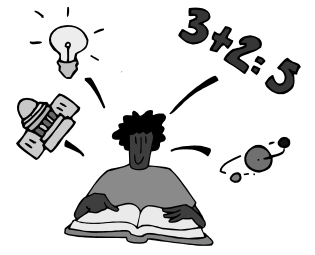
When does a minute seem longer? _____

Shorter? _____

Name the different types of measurement and tools shown below.

capacity	Word Bank	temperature
ruler	double-pan balance	time
	measuring tape	





What did you learn about measurement?

Draw a picture of your favorite experiment.