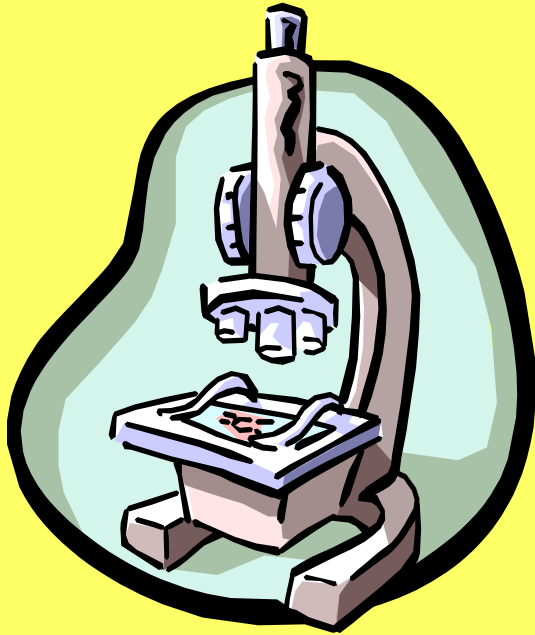# SCIENCE PROCESS SKILLS NOTES S7CS9

Science is more than a collection of facts.

Learning the process skills is preparation for becoming a scientist.

Process skills are the tools scientists use to "know" about the world.
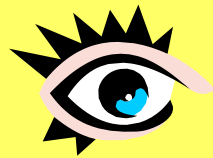
Observing

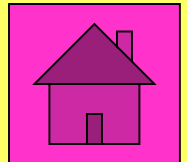Classifying

Measuring

Communicating

Inferring

Predicting

OBSERVING

using the five senses to gather information about objects such as their characteristics, properties, similarities and differences

Click on the pictures.

WHAT DO YOU SEE?
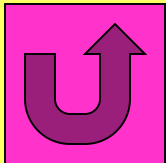
Sample observations using sight:
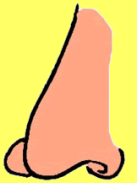
The creature has 5 eyes.

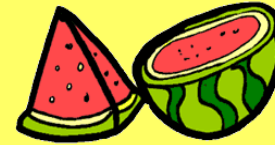The baby is walking.

The car is orange.

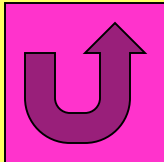# WHAT DO YOU SMELL?

Sample observations using smell:

The fruit smells sweet.

The coffee smells strong.

The flowers are fragrant.

WHAT DO YOU FEEL?

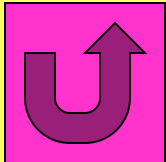Sample observations using touch:

The scissors are sharp.

The cat is soft.

The soap is slippery.

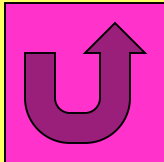# WHAT DO YOU HEAR?

Click the pictures to hear sounds:

The girl is laughing.

The audience is clapping.
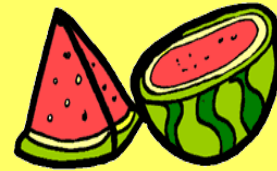
Someone flushed the toilet.
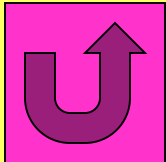
WHAT DO YOU TASTE?
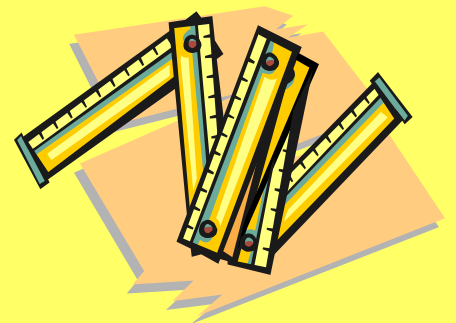
The watermelon is sweet.

The chili is spicy.

The milk is sour.

MEASUREMENT

Comparing an unknown amount with a known unit to determine the length, weight, temperature, quantity, or capacity of an object or event
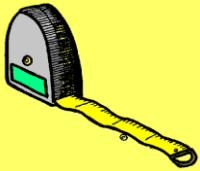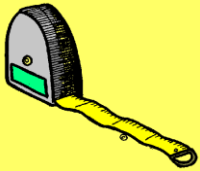
MEASUREMENT

To find the size, amount, or degree of (something) by using an instrument or device marked in standard units or by comparing it with an object of known size.
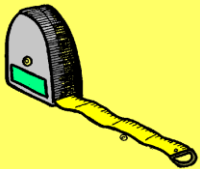
HOW IT'S DONE...

MEASUREMENT

.....using both standard and nonstandard units of measure or estimates to describe the dimensions of an object or event
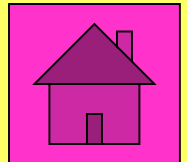
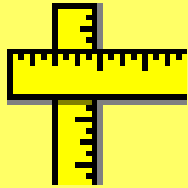.....comparing an unknown quantity with a known quantity

......measurements are to be recorded in an orderly and systemic fashion with labeled units of measure.

A STEP FURTHER...

MEASUREMENT TOOLS

Click each graphic to find out more.

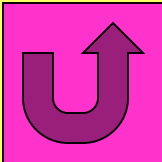**Length** – linear measurement
base unit : meter

Volume – capacity
base unit : liter

Weight – mass
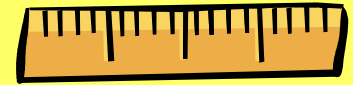base unit : gram

Temperature – hot/cold
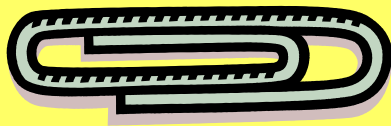base unit : Celsius

In-Class Activity

ACTIVITY

How do they measure up?

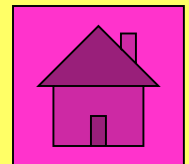Measure each object in the units requested.

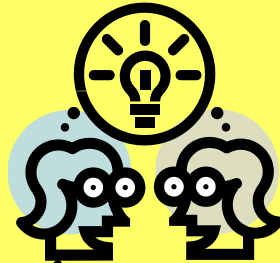Measure the length.　　Measure the length.　　Measure the diameter.　　Measure the length.

Communicating

- Using written or spoken words, graphs, tables, diagrams, models, and video recordings to share information and ideas with others

- Observations and experiments should be able to be duplicated so clear communication is important
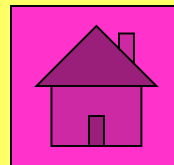
CLASSIFICATION

Grouping or ordering objects, or events into categories based on similarities, differences and interrelationships.

Example:
Place all leaves having a certain vein pattern into a one group.
Classify 10 playing cards into different groups.

INFERENCE

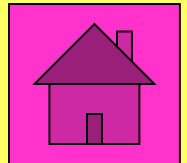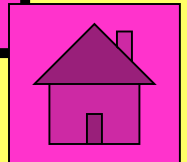Explaining, making interpretations, or drawing conclusions about a specific event based on observations and data
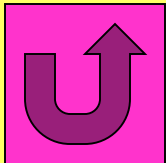
Examples of inference

Your turn to try

INFERENCE EXAMPLES

…..saying a person who used the pencil made a lot of mistakes because the eraser was well worn.

….saying that a train is coming because the cross gate is down.

MAKING INFERENCES

Read the paragraph then answer the questions.

Tommy and Johnny were hot and sweaty as they sat outside the principal's office. Dirt smeared both of their faces. They could hear the teacher's voice as she gave Mr. Jones her account of what happened. Tommy sneered at Johnny and Johnny returned an angry glare. As Miss Green left Mr. Jones' office, the boys hung their heads so they wouldn't have to look her in the eye.

From the paragraph, you can INFER that……
a. The boys are best friends.
b. The boys had disappointed their teacher.
c. The principal was a nice man.

Click to hear the paragraph.
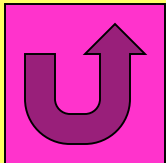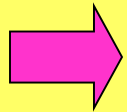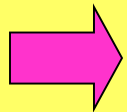
ANSWER

ANSWER: B

What are the clues?
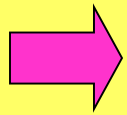
➡️ We know the boys are mad at each other because Tommy sneered at Johnny and he returned an angry glare.

➡️ We can guess they had been fighting because dirt smeared their faces and they were sitting outside the principal's office.

➡️ The BIGGEST CLUE is the last sentence: the boys hung their heads so they didn't have to look her in the eye.

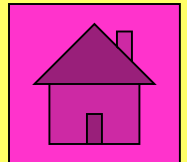# Tommy and Johnny had disappointed their teacher.
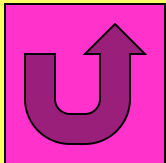
PREDICTING

forming an idea of an expected result—not a guess— but a belief of what will occur based on present knowledge, observations, and inferences

Example: Predicting the height of a plant in two weeks time based on a graph of its growth during the previous four weeks.

bean

Real World Connection

Activity

MEASURING

To find the size, amount, or degree of (something) by using an instrument or device marked in standard units or by comparing it with an object of known size.

Example: Actually using a ruler to measure the height of a plant after a two week time based on a graph of its growth during the previous four weeks.

bean
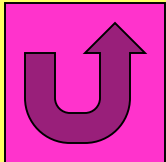
Real World Connection
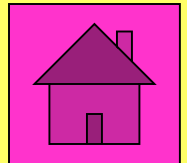
Activity

WHO USES PREDICTIONS?

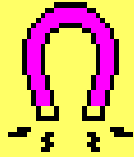**Meteorologist** –uses weather trends of the past to predict today's weather.

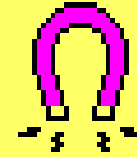**Financial advisor** – predicts which investments will be profitable.

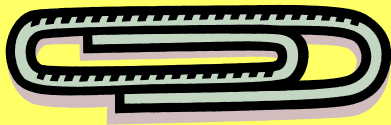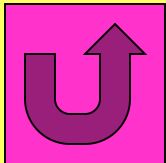**Doctors** – make predictions of a patient's future well being/health.

ACTIVITY
What will a Magnet Attract?

Predict which objects you think the magnet will attract.

Test your predictions with a magnet.

Source:

Author Becky Sons. Retrieved from the Internet, August 2009.

mrsmaineswiki.wikispaces.com/file/view/scienceprocessskills.ppt.

Adapted by Mrs. Baker, August 2010.
Adapted by Ms. King, August 2011
Adapted by Mrs. Rudick, August 2011