Log in (on Note Sheet):

Look at the rock on your table:

- Write your observations (list form) -- What do you see? hear? smell? feel?

Scientists at Work

Observation vs Inference

Observation

- Statement of **FACT** -- based on the 5 senses.
- At the **beginning** of an investigation: using senses to view an event or process
- **During** an investigation: gathering data
- Looking Vs. Seeing
  - Looking = glancing
  - Seeing = details

Let's test your observation skills …

Take a GOOD look at this picture …

Question 1

Are there cars parked on the sides of the road?

Question 2

What color is the pickup truck driving in the road?

Question 3

Any minivans around?

Question 4

What does the greenish blue sign say?

Question 5

What's the speed limit?

Question 6

How many pedestrians in the picture?

Answers

1. Yes -- cars parked on the sides of the road
2. Light Blue -- color of the pickup truck
3. Yes -- minivan
4. Yard Sale! -- blue sign
5. 35 -- speed limit
6. 0 -- no pedestrians

Inference

Making inferences means you have "one foot in the observation and one foot in your brain"

- **LOGICAL** explanation of an observation.
- Not the final explanation.
- May change when new observations are made.

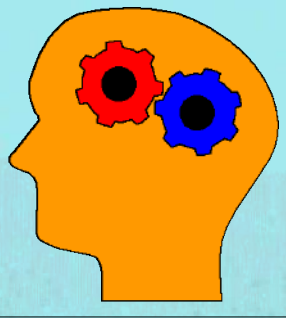
GUESS

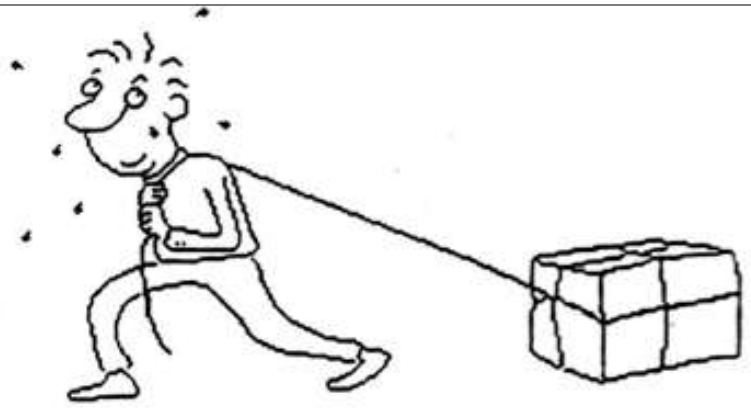
NOT based on observations OR past knowledge

Observation	Inference
That plant is extremely wilted.	That plant is extremely wilted **due** to lack of water.
The car stopped running.	The car stopped running **because** it was out of gas.
The Seahawks won their last game.	The Seahawks won their last game **because** they had a better game plan.

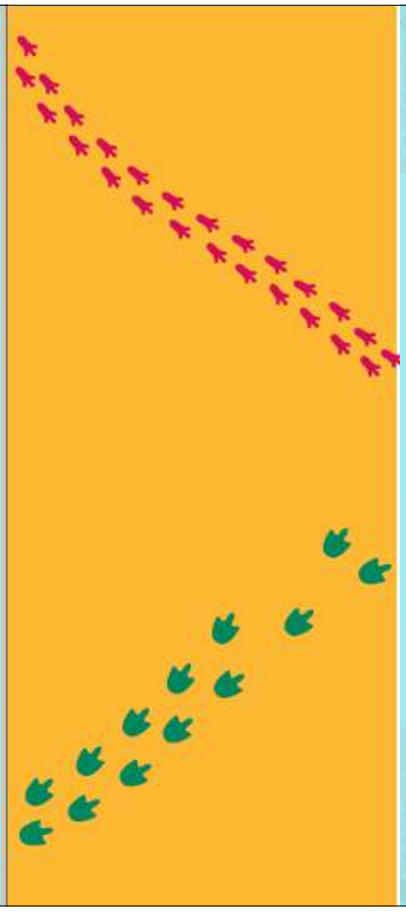
Making Inferences

- You observe that the sky at noon is darkening.
- You leave a movie theater and see that the street is wet.
- The principal interrupts class and calls a student from the room.
- All middle school students are bringing lunch from home.
- The classroom lights are off.





OBSERVATIONS | **INFERENCES**

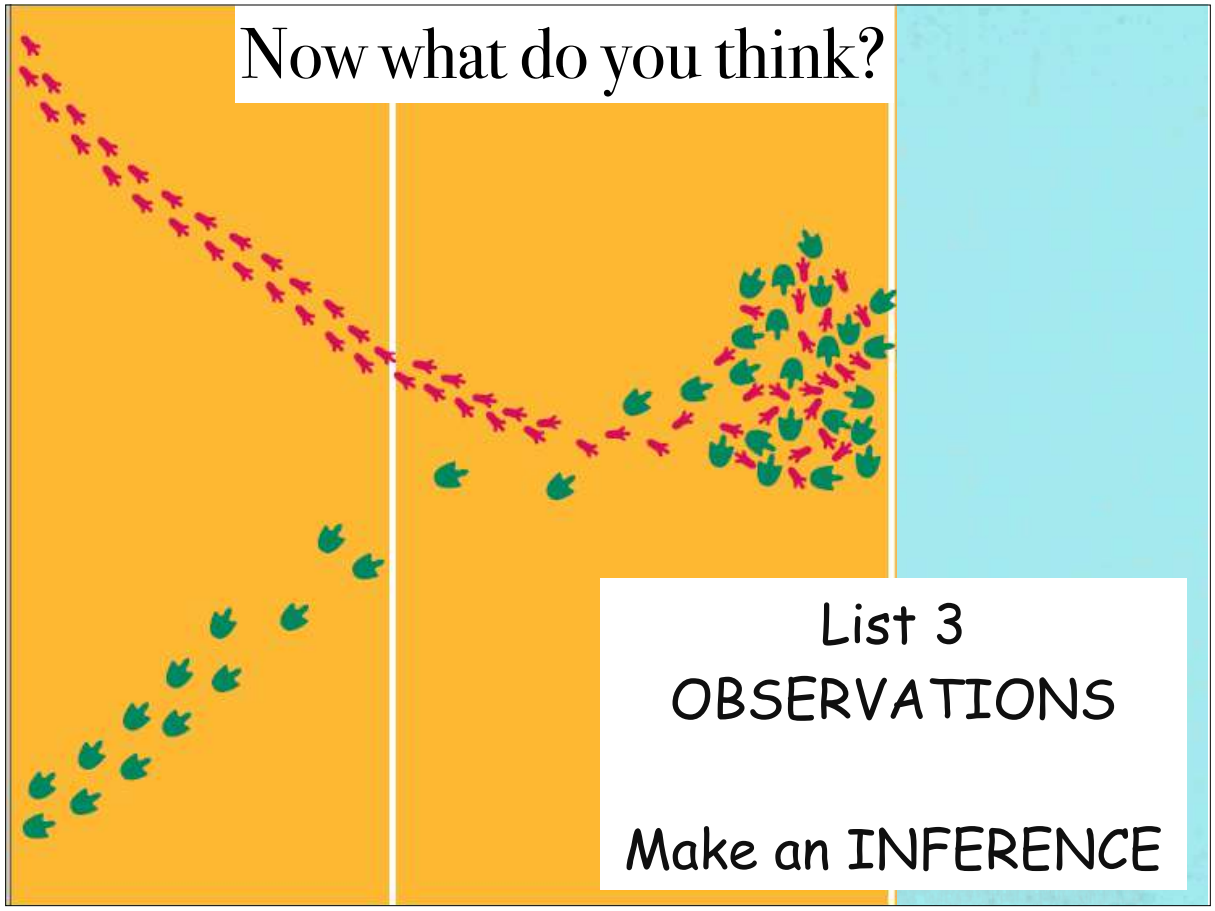


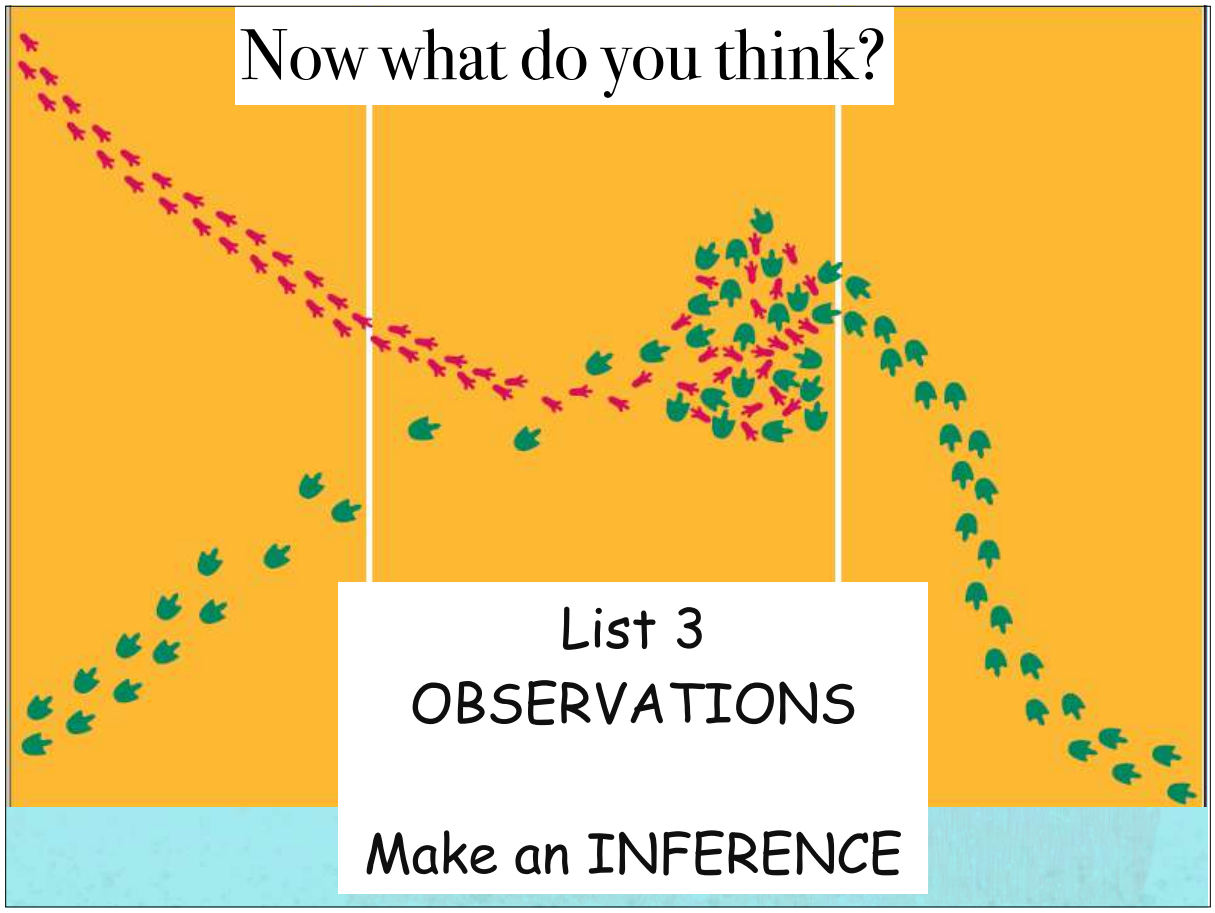
Look at these two sets of animal tracks.

On the back of your notes sheet:

List 3
OBSERVATIONS

Make an INFERENCE


Now what do you think?
List 3
OBSERVATIONS
Make an INFERENCE


Now what do you think?
List 3
OBSERVATIONS
Make an INFERENCE

Scientists at Work

Quantitative vs. Qualitative

Observations

- Statement of fact
- **NO INFERENCES!!**
- Two types of observations

Qualitative Observations

- using your senses (except taste in Science Class)
- descriptive
- describes traits or qualities

Quantitative Observations

- measurable
- made using instruments
- Uses numbers or quantities
- Always in METRIC!!!!!!!!

Qualitative vs. Quantitative

1. The leaf is green in color.
2. The candy tastes sour.
3. One leaf is 9 cm long.
4. The firecracker made a loud pop sound.
5. The mass of the computer is 1.5 kg.
6. The drink smells sweet

Qualitative vs. Quantitative

7. The temperature of the room increased by 8 ^{o}C.
8. The sky gets darker over a period of time.
9. The flower clusters consist of 3 blossoms.
10. The rock feels very rough.
11. The plant is short.
12. The leaves are stiff.
13. The veins of the leaf are 3 mm wide.