

# Making Observations and Inferences



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# What do you observe?



# Do you see...

an old man?



a young man?

- Are you observing the same picture?
- Why are you explaining something different?
- Are you wrong?

# Observation and Inference

Both explanations are based on the same observations but the inferences are different.



Multiple inferences are possible to explain an observation.

An **inference** is an explanation based on observations and prior knowledge.

# Observation and Inference

## Observation

- use of one or more senses to examine an object



## Inference

- explanation of what is observed

# Observations

- Observations:
  - We use our senses to gather information about the world around us.
  - There are two types of observations.
    - Qualitative
    - Quantitative

# Qualitative

- **Qualitative observation:**
  - Quality
  - Usually made with our senses.
  - Color, shape, feel, taste, sound.

## Examples:

- She is wearing a blue sweater.
- The lab tabletop is smooth.
- The dog's hair is shiny.

# Quantitative

- **Quantitative observation:**
  - Quantity
  - How many?
  - Will always have a number.
  - Based on exact measurement.

## Examples:

- The room is 8 meters across.
- Sarah is 141-cm tall.
- Sam weighs 450 Newtons.



# Qualitative or Quantitative?

- 1- The bird has 2 wings. Quantitative
- 2- She has blue eyes. Qualitative
- 3- The flower has 7 petals. Quantitative
- 4- The fish feels slimy. Qualitative
- 5- The sloth weighs 100kg. Quantitative
- 6- The red flower has 2 green leaves on its stem. Both~ Red flower (qualitative, 2 leaves~ quantitative)
- 7- The egg smells. Qualitative
- 8- The road is long. Qualitative (How long?)

# Inferences

- A logical interpretation of an event that is based on observations and prior knowledge.
- Inferences are an explanation for an observation you have made.
- They are based on your past experiences and prior knowledge.
- Inferences are often changed when new observations are made.
- Again, observations are information we gather directly through our five senses....inferences help explain those observations!

# Making Inferences

- You see a student leave the principal's office crying and upset. We could make an inference as to why the student is upset.
  - Could be in trouble (ISS, OSS)
  - Family problems at home (sick, accident)
  - Student not feeling well
  - Student has poor grades (failing, retention)

# Making Inferences

- The grass on the school's front lawn is wet.
  - Possible Inferences
    - It rained
    - The sprinkler was on
    - There is dew on the grass from the morning
    - A dog urinated on the grass
- All of these inferences could possibly explain why the grass is wet. They are all based on prior experiences. We have all seen rain, sprinklers, dew, and the dog going to the bathroom.

# Observation VS Inference

- Observation – Based on the five senses:
  - Sight
  - Smell
  - Touch
  - Taste
  - Hearing
  
- Inference – Based on prior knowledge or opinion

# Qualitative and Quantitative Observations



Glue picture at top center of page 9

Make a T-chart under the picture

Qualitative – left side

Quantitative – right side

10 observations for each column