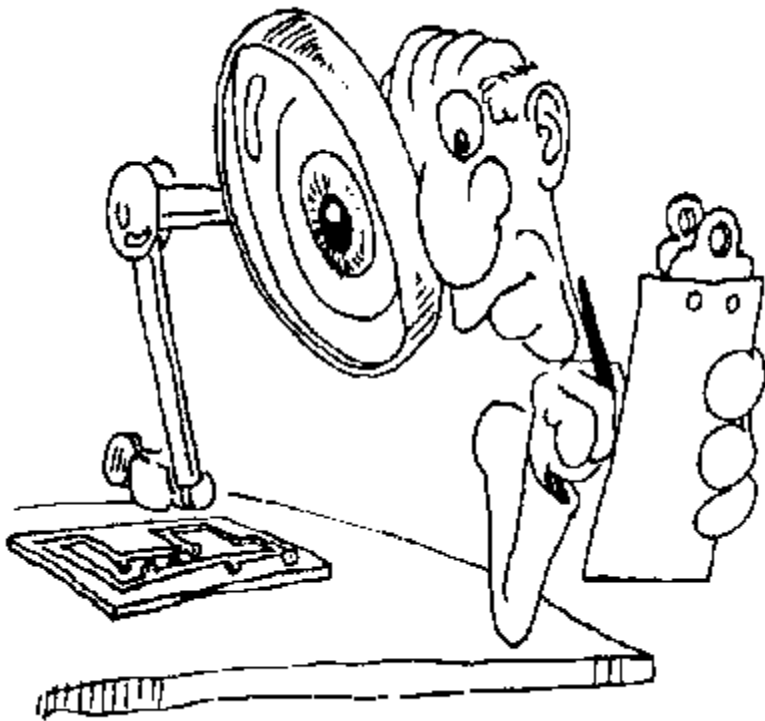


# Observation in Science





# Review Activity - Warm Up

In 1887 a strange nerve disease attacked the people in the Dutch East Indies. The disease was beriberi. Symptoms of the disease included weakness and loss of appetite, victims often died of heart failure. Scientist thought the disease might be caused by bacteria. They injected a group chickens with bacteria from the blood of patients with beriberi. The injected chickens got sick. However, so did a group of chickens that were not injected with bacteria.



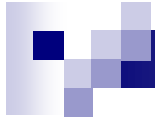
# Warm Up Questions

- State the Problem
- What was the hypothesis?
- How was the hypothesis tested?
- Should the hypothesis be supported or rejected based on the experiment?



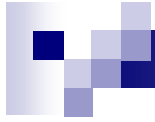
# Warm Up – New Information

One of the scientists, Dr. Eijkman, noticed something. Before the experiment, all the chickens had eaten whole-grain rice, but during the experiment, the chickens were fed polished rice. Dr. Eijkman researched this polished rice and found that polished rice lacked thiamine, a vitamin necessary for good health.



# Warm Up – Additional Question

- Write a revised Hypothesis using the new information you were given.



# Observation/Inference/Prediction


- Observation: The process of obtaining information using the senses.

Ex: The sock is blue, The milk smells bad, The cow went Moooooo!



# Types of Observation


- Quantitative: Involve precise numerical observations. (Hint: Quantity = number)
  - Ex: My hand has 4 fingers and 1 thumb. The alligator is 13.5 feet long.
- Qualitative: Descriptive observations, describes the qualities of something. (Hint: Quality = description)
  - Ex: The color of the liquid is purple. The rock is heavy.

- 
- Inference: Making a logical interpretation based on prior knowledge and experience rather than on the basis of direct observation.

Ex. All my socks are blue. All my socks have holes in them. Therefore all blue socks have holes in them.  
(All A is B. All C is A. Therefore all C is B)

- Prediction: A statement that an event will occur in the future.
  - Ex: I predict if I buy a blue sock it will have a hole in it.





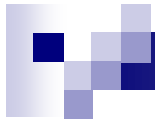
# Observation/Inference/Prediction in Science

- How are each of these used in science?
  - Scientists observe natural phenomena.
  - Scientists make inferences from those observations.
    - There is no way scientists can observe EVERY phenomena, so they have to infer that what they observe applies to other situations.
      - Example: I can not experiment on every single plant in the world to test if it will die without sunlight.
  - Scientists use those inferences to predict future events.



# Plant Example

- I put five plants into a dark room for six months.
  - Observation: All five plants died.
  - Inference: All plants die without sunlight.
  - Prediction: If a plant stops receiving sunlight it will die.



# LOL Cat

