

LET'S REVIEW!

WRITE YOUR ANSWERS TO
THE FOLLOWING QUESTIONS
ON A SHEET OF NOTEBOOK
PAPER.

**1. NAME THE STEPS OF SCIENCE INQUIRY
IN ORDER. (USE THE MNEMONIC YOU MADE UP TO HELP YOU.)**

The following 10 slides are vocabulary definitions. Write the word or phrase for each

2. Any factor that could affect the outcome of an experiment

3. FACTS, FIGURES AND OTHER EVIDENCE COLLECTED IN AN EXPERIMENT. IT CAN BE DISPLAYED IN THE FORM OF DIAGRAMS, TABLES OR GRAPHS

4. A summary of the information gained from testing a hypothesis



5. A logical explanation of observations that is drawn from prior knowledge

6. Using one or more of your senses to gather information & noting what occurs



7. AN EXPERIMENT IN WHICH THERE IS
ONLY ONE INDEPENDENT VARIABLE AND
ALL OTHER VARIABLES ARE KEPT
CONSTANT, OR THE SAME

8. Scientists usually begin an investigation with this.

9. The factor that scientists test, or change



10. The factor that you observe or measure during an experiment

11. This is a possible explanation for the question and observations that can be tested by scientific investigations

A new dog food factory wants to sell the best tasting dog food and needs to find out which flavors dogs will eat the most .

12. WRITE A QUESTION THAT THEY CAN INVESTIGATE TO SOLVE THIS PROBLEM.

The scientist hired by the company observes and measures the amount and kind of dog food the company throws out each week. She has documented that they throw out 5 pounds of chicken flavored, but only 2 pounds of beef flavored each week.

13. FROM THIS OBSERVATION, WRITE AN INFERENCE ABOUT THE DOG FOOD AND/OR THE DOGS.

14. WRITE A HYPOTHESIS FOR THE EXPERIMENT. USE AN “IF...THEN...” STATEMENT.

The scientist conducts an experiment to discover which food the dogs prefer. After serving the same amount of each type of food on a daily basis for one week, the scientists measured the amounts left over.

7 pounds of beef were left

3 pounds of chicken were left

8 pounds of pork were left

7 pounds of fish were left

15. SKETCH A BAR GRAPH TO COMMUNICATE THE ABOVE INFORMATION IN THE SPACE PROVIDED. BE SURE TO INCLUDE ALL THINGS THAT ARE REQUIRED IN A GRAPH.

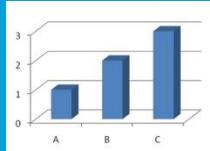
16. PRETEND YOU ARE THE SCIENTIST.
WRITE A CONCLUSION FOR YOUR
EXPERIMENT. LOOK AT THE EXAMPLE
CONCLUSIONS ON PAPERS AND ONES THAT
YOU HAVE FILLED IN. DO YOUR BEST TO
MODEL AND PRACTICE THAT.

17. What is the independent variable in this experiment?

18. What is the dependent variable in this experiment?

19. Label the steps with Q, O, I, H, T/E, A, or C

- _____ A dime is smaller than a nickel.
- _____ A nickel will probably hold more drops of water than a dime.
- _____ In this experiment I was testing to see how many drops of water would fit on a penny compared to a nickel and a dime. My hypothesis was that 33 drops of water would fit on a penny. I tested my hypothesis by dropping drops of water on a dime, nickel, and penny until a bubble formed and then collapsed. My data shows that an average of 37 drops of water fit on a nickel, 30 drops on a dime, and 35 on a penny. My data does not support my hypothesis. In my next experiment, I am going to test to see if rubbing alcohol has the same effect as water does on the coins.
- _____ How many drops of water fit on a penny before the water collapses?
- _____ If 37 drops of water fit on a nickel and 30 fit on a dime, then 33 drops of water will fit on a penny.
- _____ Use an eyedropper to drop water onto a nickel counting as you go. Record your data for each trial. Repeat with a dime and then a penny. The coins will be the independent variable, while the dependent variable is the number of drops.



20. What is the independent variable in the Penny Lab on the previous slide?
21. What are 4 other variables that you need to keep constant in that experiment?

22. If you were given the following data to graph and there are 15 lines after you've numbered 0, what interval would you use to number the y-axis for set A? Set B?
(Look at the star portion on your "Making Graphs paper!")

_____ A. 100 123 300 225 175

_____ B. 200 321 425 252 157

**LET'S
CHECK YOUR
ANSWERS!**

**1. NAME THE STEPS OF SCIENCE INQUIRY
IN ORDER. (USE THE SENTENCE YOU MADE UP TO HELP YOU.)**

Question
Observation
inference
Hypothesis
Experiment/Test
Analyze
Conclusion

The following 10 slides are vocabulary definitions. Write the word or phrase for each

2. Any factor that could affect the outcome of an experiment

variable

3. FACTS, FIGURES AND OTHER EVIDENCE COLLECTED IN AN EXPERIMENT. IT CAN BE DISPLAYED IN THE FORM OF DIAGRAMS, TABLES OR GRAPHS

data

4. A summary of the information gained from testing a hypothesis

conclusion

5. A logical explanation of observations that is drawn from prior knowledge

inference

6. Using one or more of your **senses** to gather information & noting what occurs

observation

7. AN EXPERIMENT IN WHICH THERE IS
ONLY ONE INDEPENDENT VARIABLE AND
ALL OTHER VARIABLES ARE KEPT
CONSTANT, OR THE SAME

Controlled experiment

8. Scientists usually begin an investigation with this.

question

9. The factor that scientists test, or change

Independent variable

10. The factor that you observe or measure during an experiment

Dependent variable

11. This is a possible explanation for the question and observations that can be tested by scientific investigations

hypothesis

A new dog food factory wants to sell the best tasting dog food and needs to find out which flavors dogs will eat the most.

12. WRITE A QUESTION THAT THEY CAN INVESTIGATE TO SOLVE THIS PROBLEM.

Which flavor of dog food will dogs eat most?

The scientist hired by the company observes and measures the amount and kind of dog food the company throws out each week. She has documented that they throw out 5 pounds of chicken flavored, but only 2 pounds of beef flavored each week.

13. FROM THIS OBSERVATION, WRITE AN INFERENCE ABOUT THE DOG FOOD AND/OR THE DOGS.

Possible answers:

- Dogs eat more beef than chicken.
- the company buys more chicken than beef.
- leftover chicken weighs more than leftover beef.

14. WRITE A HYPOTHESIS FOR THE EXPERIMENT. USE AN “IF...THEN...” STATEMENT.

If I offer the dogs more beef flavored food, then they will eat their entire meal.

The scientist conducts an experiment to discover which food the dogs prefer. After serving the same amount of each type of food on a daily basis for one week, the scientists measured the amounts left over.

7 pounds of beef were left

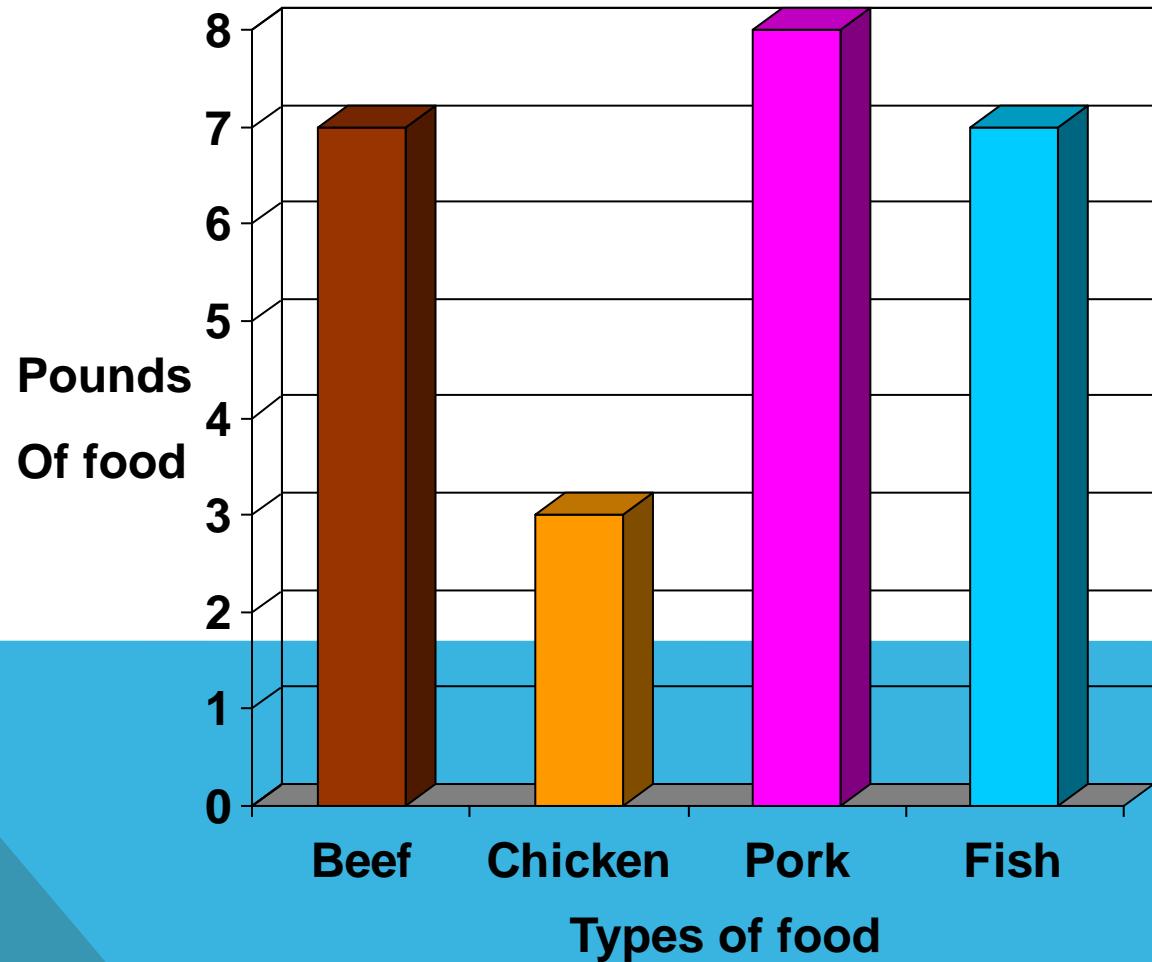
3 pounds of chicken were left

8 pounds of pork were left

7 pounds of fish were left

15.

How Much Dog Food is Thrown Out?



16. In my experiment I tested 4 types of dog food on 25 different dogs to see which flavor of food the dogs liked best. I hypothesized that the dogs would prefer beef flavored food. The dogs' choices of food were beef, chicken, pork and fish. After serving the same amount of each type of food on a daily basis for one week, the scientists measured the amounts left over. The manipulated variable was the kind of dog food. Some other variables that were to be kept constant was the same 25 dogs, food placed in the same area at the same time of day, and the same four flavors of food. 7 pounds of beef were left, 3 pounds of chicken were left, 8 pounds of pork were left, 7 pounds of fish were left. The evidence did not support my hypothesis. I'm wondering if the species of dog has an effect on the dogs' choices, so now I will only test one species of dog at a time.

17. What is the independent variable in this experiment?

Types of dog food

18. What is the dependent variable in this experiment?

Depending on the experiment:

- pounds of food eaten
- pounds of food leftover

19. Label the steps with Q, O, I, H, T/E, A, or C

O A dime is smaller than a nickel.

I A nickel will probably hold more drops of water than a dime.

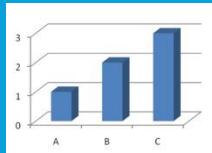
C In this experiment I was testing to see how many drops of water would fit on a penny compared to a nickel and a dime. My hypothesis was that 33 drops of water would fit on a penny. I tested my hypothesis by dropping drops of water on a dime, nickel, and penny until a bubble formed and then collapsed. My data shows that an average of 37 drops of water fit on a nickel, 30 drops on a dime, and 35 on a penny. My data does not support my hypothesis. In my next experiment, I am going to test to see if rubbing alcohol has the same effect as water does on the coins.

q How many drops of water fit on a penny before the water collapses?

h If 37 drops of water fit on a nickel and 30 fit on a dime, then 33 drops of water will fit on a penny.

t/e Use an eyedropper to drop water onto a nickel counting as you go. Record your data for each trial. Repeat with a dime and then a penny. The coins will be the independent variable, while the dependent variable is the number of drops.

a



20. What is the independent variable in the Penny Lab on the previous slide?

Types of coin

21. What are 4 other variables that you need to keep constant in that experiment?

- drop size
- drop height
- speed of drops
- side of coin
- angle of desk

22. If you were given the following data to graph and there are 15 lines after you've numbered 0, what interval would you use to number the y-axis for set A? Set B?

20

A. 100

123

300

225

175

Biggest number to graph is $300 / 15 = 20$

30

B. 200

321

425

252

157

Biggest number to graph is $425 / 15 = 28.4$

round UP to next easy number to count by