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Science Action Labs

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Name _____



Observation Lab



Careful Observations

Scientists must be very careful how they observe things. They may use any of their five senses when they observe. **Observation** to a scientist means looking at a flower's color or listening to a bird's song. It may mean smelling a polluted pond or touching a furry animal.

Observing is not always easy. What you observe often depends on what you are trained to observe. The average person may observe the beauty in a butterfly's wing. An entomologist might observe how the wing shape differs from other kinds of butterflies. An ornithologist would note which birds catch and eat the butterfly. A meteorologist might observe how the wind affects its flight.

The scientific method depends upon careful, accurate observations. This investigation will help you practice and improve your observation skills.

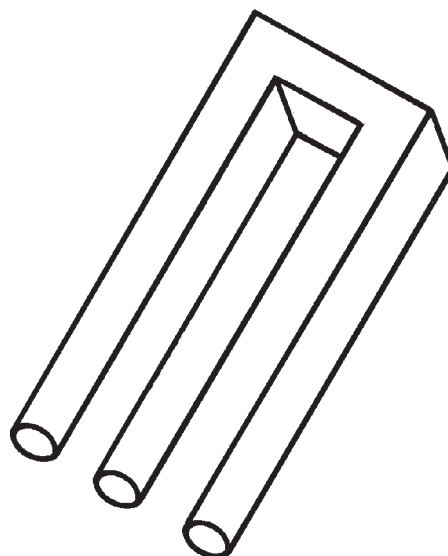


You Can Fool Some of the People

Take a good look at this optical illusion. If you think your eyes are fooling you, you are right. Your eyes, as well as your other four senses, can be fooled easily.

Have each teammate make the best copy of this optical illusion on *their own paper*. Staple the copies to this lab when turned in for bonus points. *No tracing and no rulers.*

Optical illusions are constructed to cause your eye to make faulty observations. The designers of cars, public buildings and even clothing use optical illusions to affect how you observe things. Your eye is your most important observation sense. Yet it can easily be fooled. Scientists must be very careful that their observations are accurate.



Communication Lab

Name _____

Do *only* what you are told to do. When you have finished, turn this paper over and wait quietly for your teacher to communicate with you.

Step 1 Don't do anything until you have read all 10 steps in these instructions.

Step 2 Print your name on the animal's body.

Step 3 Draw an X on each leg.

Step 4 Draw a □ around each eye.

Step 5 Draw 10 dots in the tail. (• • • • • • • • • •)

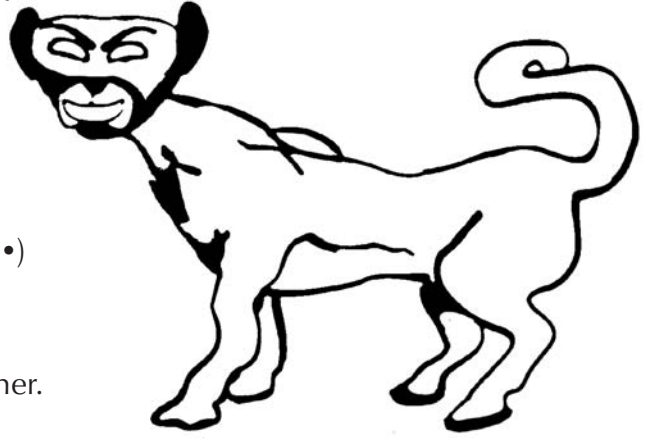
Step 6 Draw teeth in the mouth.

Step 7 Draw a line from the top of one ear to the other.

Step 8 Place 10 small circles inside the neck. (○ ○ ○ ○ ○ ○ ○ ○ ○ ○)

Step 9 Write *I am following orders* under the face.

Step 10 Now that you have finished reading these instructions, do only steps 1 through 4. Turn this paper over and sit quietly until your teacher communicates.



Scientists Don't Use Gobbledegook

Part of a scientist's job is to communicate with others. As a science student, you should also be able to discuss or write your experiments so that they are easily understood.

Writing that uses big words instead of little ones and wanders in circles is called **gobbledegook**. Gobbledegook leaves the reader confused.

On the following page is a list of common sayings that have been twisted into almost meaningless gobbledegook. Try to figure out what they mean. Don't expect any help from your teacher. He or she is more confused than you are.

Example: All elements that sparkle brilliantly don't have to be bullion.

Translation: All that glitters is not gold.

Name _____



The Cool Tools of Science

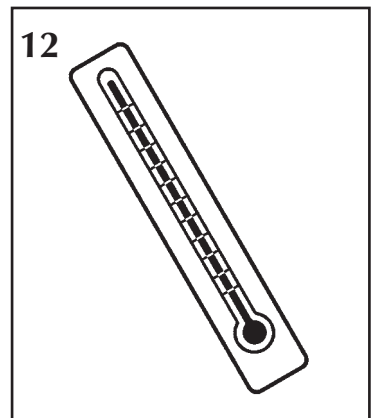
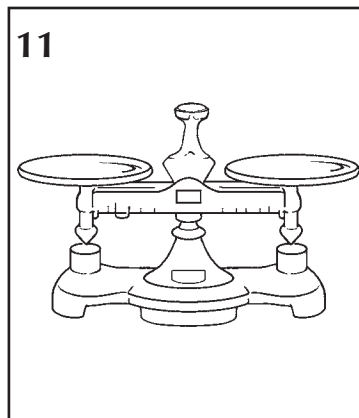
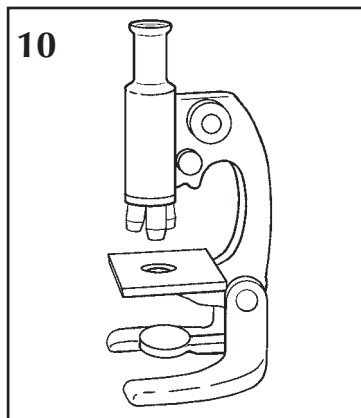
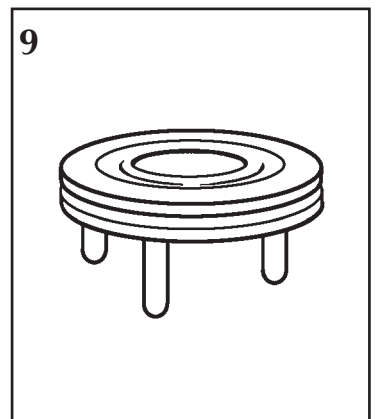
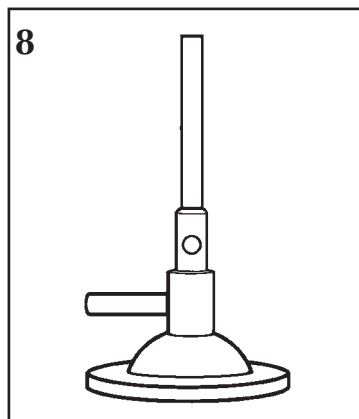
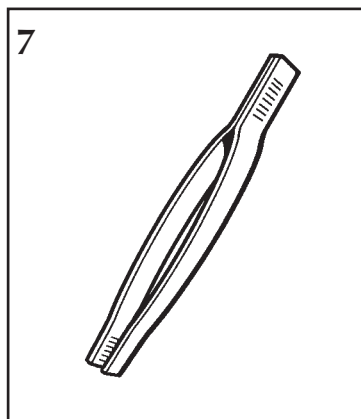
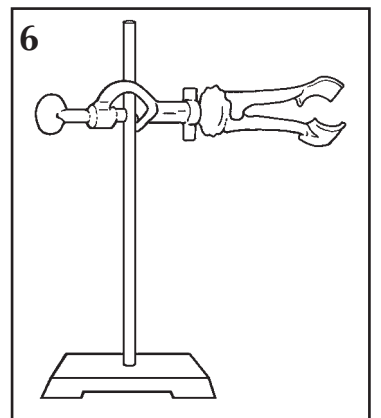
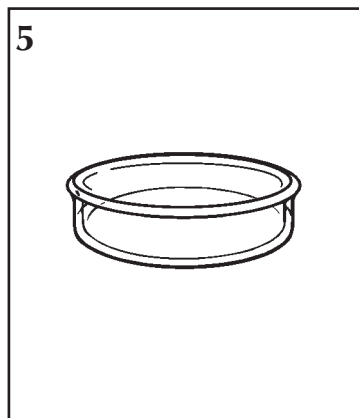
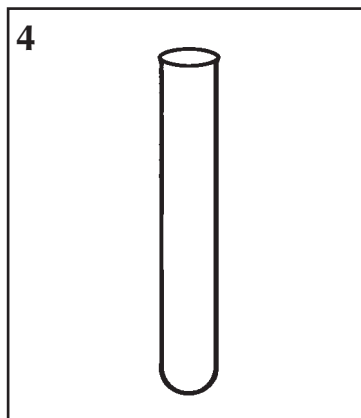
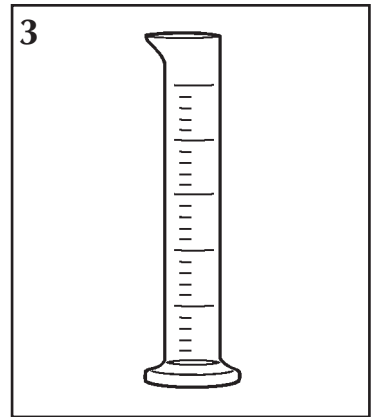
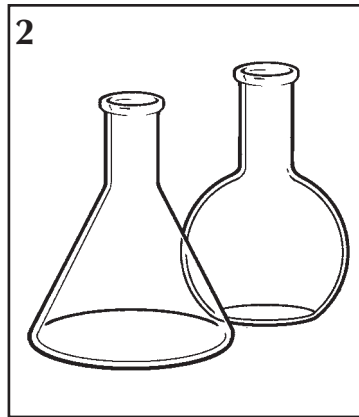
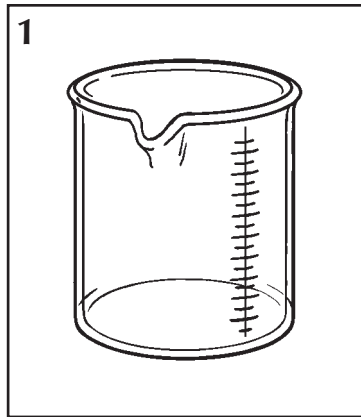
Scientists need tools to observe and experiment. This activity is about some of the simpler scientific tools used in most laboratories.

On the following page are pictures of 12 science tools. Identify them and fill in their number on the Tool Identification Chart.

TOOL IDENTIFICATION CHART		
Name of Tool	How Tool Is Used	Picture Number
Example: Magnifier	To observe objects closely	9
Flasks	To handle and heat liquids	
Balance	To weigh things	
Thermometer	To measure heat	
Test Tube	To hold many experiments	
Microscope	To view very small objects	
Graduate	To measure liquids	
Petri Dish	To grow microbes in	
Tweezers	To handle small things	
Beaker	To hold and pour liquids	
Ring Stand and Clamp	To hold equipment for safe handling	
Burner	To heat things	

Scientists and Their Tools

Name _____





Consumer Lab: Comparing Paper Towels

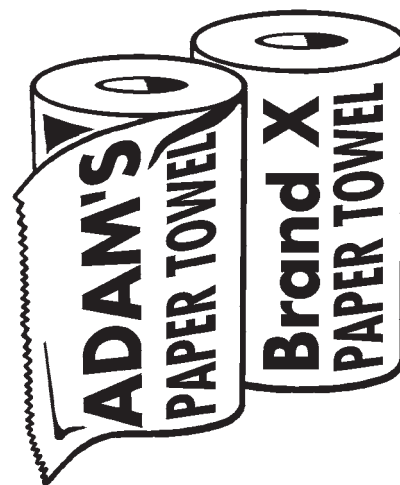


Can You Believe Advertising?

You are constantly being bombarded by ads for medicines, cosmetics, detergents and paper products. Each sponsor tells you how much better their product is compared to the competition. Some of the claims may be misleading or even false.

This lab will give you an opportunity to check claims made for various paper towels. You will be guided through two standard paper tests, and then you will be on your own.

Describe an ad you heard recently that seemed to have exaggerated claims.



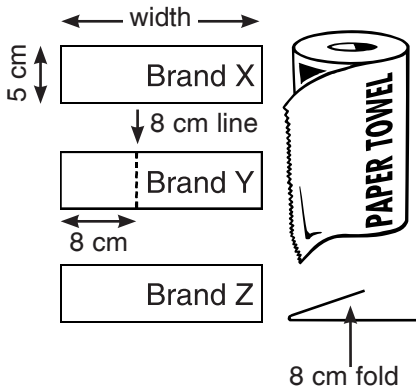
Absorbing Water

Absorbency is an important characteristic of paper towels. It is a measure of how much water a towel can take into its fibers. Let's compare the absorbency of three different kinds of paper towels.

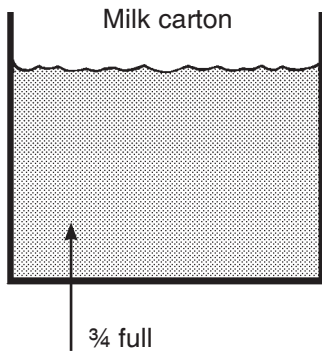
1. Obtain a few sheets of three *different* kinds of paper towels. Mark each individual towel with its brand name.

Consumer Lab: Comparing Paper Towels

Name _____



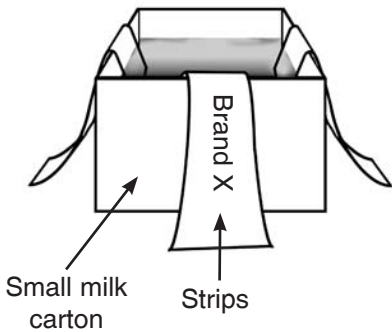
- Cut a 2" (5 cm) strip the full width of the sheet. **Notice:** Use the *width* and *not the length*.
- Write the brand name in the center of each strip.
- Mark a pen line *exactly* 3" (8 cm) from one end of each strip.
- Fold all three brands on the 3" (8 cm) line.
- Fill a small cut-down milk carton three-fourths full of water.
- Place the carton of water in the center of your work table.
- All three brands must be placed in the water at the **same time**.
- Place the 3" (8 cm) folds over the edge of the carton so that they extend into the water. Place the other side of the three strips in *different* directions on the table.
- Observe the absorption of water in each towel. Consider the race over when *one* strip is *completely covered* with water. Clean your area and answer the questions below.



Which brand of paper towel absorbed water the fastest?

Which brand of paper towel absorbed water the slowest?

Give some instances where speed of absorption is useful to the consumer. _____



How Much Water Can They Hold?

A good paper towel should not only absorb liquids fast, it should also be able to absorb a great amount of water. This characteristic is called **saturation capacity**. Do some brands have a greater saturation capacity than others?