

Lesson Four

Experiments

Subject Area

Science

Objectives

- Be able to use the scientific methods of observing and recording during an experiment
- Be able to draw conclusions after the experiment

4-H Life Skills

Learning to Learn, Leading Self and Others, Communicating with Others

Suggested Grade Level

4–5

Background

1. A reliable way to tell the difference between raw and hard-cooked eggs is by spinning; the raw egg is slower because the liquid sloshing inside the egg creates resistance as it hits the walls.
2. The hard-cooked egg spins faster since it's all spinning together.
3. The hard-cooked egg will roll farther and faster than the raw one.

Experiment One

Materials

1. 4 raw eggs
2. 4 hard-cooked eggs
3. Flashlight
4. Worksheet N

Procedure

Label one hard-cooked egg "A" and one raw egg "B." Set up the eggs and the flashlight in a darkened corner of the classroom. Send the students to the corner to complete Experiment One on worksheet N.

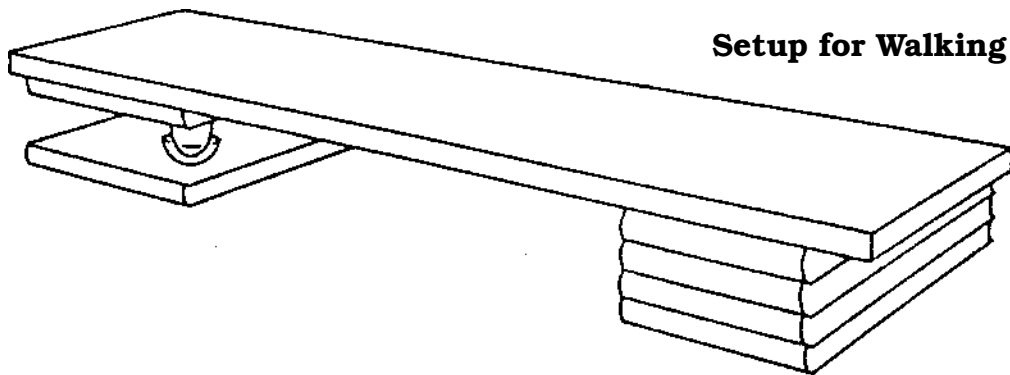
Experiment Two

Materials

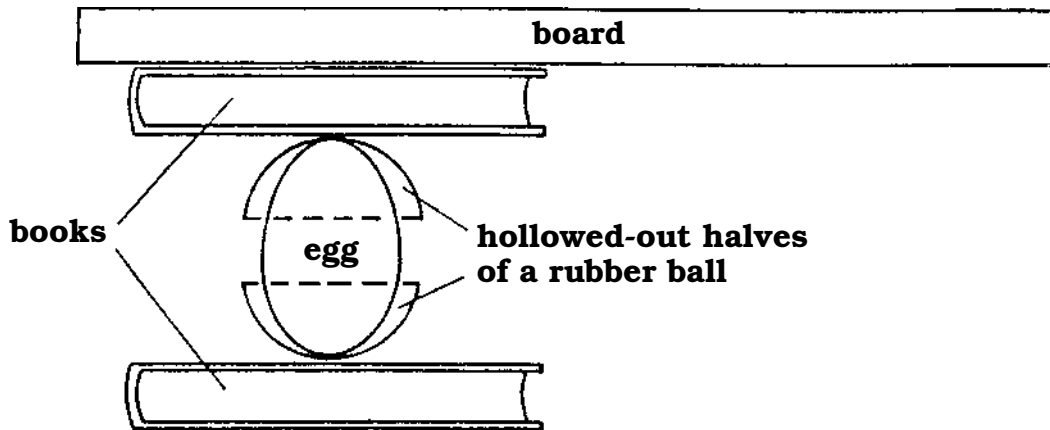
1. Several raw eggs of different grades
2. Six to eight books
3. Foam padding or two halves of a racquetball
4. Long board
5. Worksheet O

Procedure

1. Discuss how easily eggs seem to break. Ask how many students have accidentally broken eggs. Then ask for suggestions on how many pounds a raw egg can hold before cracking. Write these on the chalkboard.
2. Gather the students around the experiment so everyone can see the materials. Keep the room quiet so they can hear the egg crack.
3. For each egg, jot down its size, grade, and shell color on the chalkboard. The students will need the data to fill in the chart for the strongest egg.
4. Next, assemble materials as shown in the illustration below. Support one end of the board with books at a height of about 1 foot. On the opposite end, sandwich an egg end to end (cushioned between two pieces of foam or the halves of a racquetball) between two books. Make sure the ends of the board are level.
5. Once assembled, have a smaller student walk across the board. If the egg does not break, try a larger student. Have students estimate the amount of pressure the egg withstood.
6. Repeat the experiment with the other eggs. Was there much difference? Discuss why. (The size of the egg and the thickness of the shell affects its strength.)
7. Finally, ask the students to fill out the certificate on Worksheet O using the data for the strongest egg.



Setup for Walking on Eggs

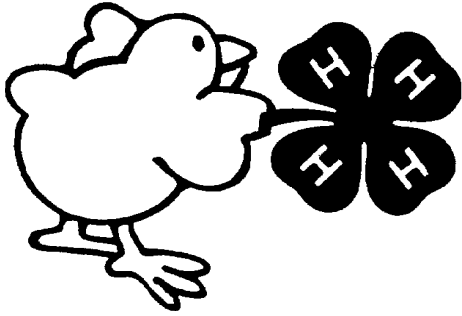


Additional Facts

1. **Cosmetic**—Egg white has long been used as a facial. Egg yolk is used in shampoos and conditioners.
2. **Animal Feed**—Both shells and interiors of eggs are used.
3. **Experimental Uses**—Egg white is used as a protein reference in feeding laboratory animals. Egg yolk and egg products are used in laboratories as a medium for the growth of microorganisms.

Eggstra Activities

- Have the students cut out all clear eggs on Worksheet P. Have them match the blackened eggs to an antonym and the clear eggs to a synonym on Worksheet Q. Check to see that all students have correct matches. Have them fold up the wide end of each egg and paste the eggs at the narrow ends to form a flip-up activity they can practice at home.
- Have students see if they can balance an egg on one end. After several attempts, have them prick the egg at one end with a needle. This will cause the yolk to break and redistribute the weight of the egg. The egg will become bottom-heavy and can be easily stood on its end.



Let's Eggs-periment

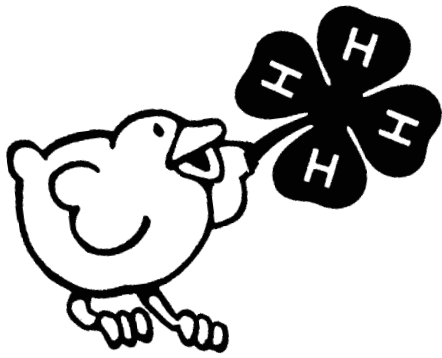
Name _____

How well do you notice details? Can you figure why something happens? These experiments will give you a chance to be a scientist. Watch what happens in each experiment and then answer the questions.

Experiment 1

Raw or Hard-cooked?

1. Look at both eggs closely. Do you see anything that tells you which one is raw?
2. Shake each egg carefully. Can you feel a difference? _____
If you can, which one is raw? _____
3. Hold each egg in front of the flashlight. Does more light show through one of them? _____ If so, which one? _____
4. Spin each egg on the floor away from tables and chairs. Do they both spin the same? _____ If not, which one was slower? _____
Do you think the slower egg is hard-cooked or raw? _____



Super Egg!

Name _____

Official Results

As a scientist and honest reporter, I am officially recording the facts of my experiment. On _____, date a test of strength was given to an egg with these characteristics:

size _____

grade _____

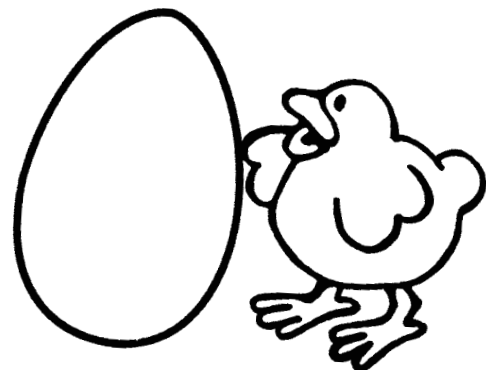
shell color _____

This egg held up until _____ pounds were put on it.

Therefore, this egg has been named "Super Egg of the Day."

Scientist _____ Date _____

Witness _____ Witness _____



Passive

Death

Old

Hen

Firm

Asleep

Cold

Moist

Antonyms are words that have opposite meanings. Example: big—small.

Synonyms are words that have similar (like) meanings. Example: noisy—loud.

Fowl

Weak

Feed

Circulate

Watchfulness

Turn

Break

Permeable

Dry

Chicken

Rooster

Care

Active

Crack

Awake

Rotate

Porous

Soft

Birth

Ventilate

Warm

Food

Young

Feeble