

## Science Skills -7

### Two Types of Variables

As you know, whatever can change or vary in an experiment is called a variable. When a scientist designs an investigation one of the first tasks is to identify the variables in question. The scientist determines which variable she wants to change. Then she determines which variable might respond to the change she made.

**Directions:** Identify the variables in each experiment below.

Victoria wanted to test how the mass of a paper airplane affected the distance it would fly. She folded the paper airplane and tested it. She flew the airplane four more times. Each time she flew it she added a paper clip to the nose. She measured how far the plane flew each time.

1. What was deliberately changed? \_\_\_\_\_
2. What responded to the change? \_\_\_\_\_

Eriberto wanted to test a group of students to see if their speed working math problems would be different with or without calculators. He gave the first group calculators and the other group did not have calculators. He timed how long it took them to work 10 math problems.

3. What was deliberately changed? \_\_\_\_\_
4. What responded to the change? \_\_\_\_\_

Cristina wanted to test students puzzle assembly time to determine if age had any effect on how fast the students could put the puzzles together. She gave them all a 100-piece puzzle. She tests students that were 6, 10, 14 and 18 years old. She then timed how long it took for each student to put the puzzle together.

5. What was deliberately changed? \_\_\_\_\_
6. What responded to the change? \_\_\_\_\_

Derrick wanted to find out if different tire treads affected the braking distance of a car. He used his father's car and got the tire store to let him borrow three different types of tires. Each set of tires has a different tread design. He measured how far it took the car to stop after going 20 mph.

7. What was deliberately changed? \_\_\_\_\_
8. What responded to the change? \_\_\_\_\_

Ana wanted to find out which brand of pizza students liked the most. She let students taste three different pizzas - Domino's, Papa John's and Pizza Hut. She counted the number of votes for each brand of pizza.

9. What was deliberately changed? \_\_\_\_\_

10. What responded to the change? \_\_\_\_\_

Jesse wanted to find out what types of metal objects he could get to float on water. He tried a paper clip, a thumbtack, a penny and a razor blade.

11. What was deliberately changed? \_\_\_\_\_

12. What responded to the change? \_\_\_\_\_

Alicia wanted to find out if goldfish liked a certain type of food. She bought Hart's, Nabisco and Turner's Goldfish food. Every day she put 20 flakes of the food in the fish tank and counted what was left after an hour.

13. What was deliberately changed? \_\_\_\_\_

14. What responded to the change? \_\_\_\_\_

Marcus wanted to find out which type of seed grew the fastest. He placed 3 radish seeds, 3 lima bean seeds and 3 navy bean seeds in a paper towel and kept it moist for a week. At the end of the week he measured the length of each plant.

15. What was deliberately changed? \_\_\_\_\_

16. What responded to the change? \_\_\_\_\_

Laura wanted to find out which brand of pencil lasted the longest. She bought American, Elmer's and Office Depot pencils. She used each pencil for a day and measured how long it was when she got home.

17. What was deliberately changed? \_\_\_\_\_

18. What responded to the change? \_\_\_\_\_

Able wanted to find out what type of chips students liked the best. During lunch he stood by the snack bar and counted the different types of chips students bought.

19. What was deliberately changed? \_\_\_\_\_

20. What responded to the change? \_\_\_\_\_