

**Goal** • Learn about the difference between a manipulated variable and a responding variable.

## Introduction

When doing investigations, scientists refer to a possible cause as a “manipulated variable”. A possible effect is referred to as a “responding variable”.

Cause and effect are closely related. As a result, any change to the manipulated variable results in a corresponding change to the responding variable.

## What to Do

- Fill in the blanks in the chart so that the relationship between the cause and effect (or manipulated and responding variables) is clear.
- Answer the questions following the chart.

Manipulated Variable (possible cause)	Responding Variable (possible effect)	Explanation (reason for relationship)
1. As a student increases the hours spent studying,	_____	because studying prepares students for assignments.
2. As air temperatures decrease in fall,	the water in shallow ponds may _____	because
3. As you increase the shaking of a warm soft drink can,	the soft drink inside may _____	because
4. As you increase the pressure on a tube of toothpaste,	_____	because

5. a. Explain what “responding” means.

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b. How does this definition help you understand the relationship between cause and effect in a science investigation?

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