

## Three Types of Science Investigations

### Descriptive Investigation:

**Involve describing and/or quantifying parts of a natural system. Example – observing cells under a microscope and diagramming what is seen.**

- Has a research question, procedures, and conclusion
- Used when little is known about the topic
- No hypothesis or prediction
- Key words: Observe, describe, list, identify

### Comparative Investigation:

**Involve collecting data on different populations/organisms, under different conditions (ex. Times of year, locations), to make a comparison.**

- Has a research question, possible hypothesis, procedures, and conclusion.
- Can have independent/manipulated and dependent/response variables
- No control / control group
- Key words: Compare/contrast, similarity/difference, categorize

### Experimental Investigation:

**Involve a process in which a “fair test” is designed in which variables are actively manipulated, controlled, and measured in an effort to gather evidence to support or refute a causal relationship. Example- Testing the height of a ramp to determine how far a marble will roll.**

- All known variables have been identified
- Has a research question, hypothesis, procedures, **control**, and conclusion
- Has independent/manipulated and dependent/response variables
- All factors can be held constant except the manipulated

## Vocabulary

**Variable:** factor or condition in an experiment that change or can be changed

**Independent /Manipulated Variable:** factor or condition in an experiment that is changed on purpose by you, the scientist; often called the manipulated variable. This goes on the X axis of a graph (bottom).

**Dependent / Response Variable:** factor or condition in a experiment that changes as a result of the independent variable; often called the responding variable. This is what you measure and goes on the Y axis (side).

**Constant:** factors or conditions in an experiment that are kept the same in ao trials of the experiment.

**Control:** a set up without the variable being tested.