# Worksheet 2 | Lower Secondary Stage (6-8)

1st Semester | 2023-2024

**Name: Key**

**Subject:** Physics

**Class: 6 CS**

**Objectives:**

- Write a proper hypothesis for different investigations.
- Identify the dependent, independent and controlled variables.

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## Question one:

Identify the dependent and the independent variables in each of the following situations:

1- **The higher the temperature of the air in the oven, the faster the cake will bake.**

Independent variable: __The temperature of air in the oven _____.

Dependent variable: ___How fast the cake bakes _____.

2- **The time it takes to run one kilometer depends on your speed.**

Independent variable: ___The speed of running _____.

Dependent variable: _____Time to run _____.

3- **Students measured the temperature of the water at different depths in a lake and found that the temperature varied.**

Independent variable: ____Depth of water in a lake _____.

Dependent variable: _____Temperature _____.

4- **The amount of pollution produced by cars was measured for cars using gasoline containing different amounts of lead.**

Independent variable: ____Amount of lead in gasoline_____.

Dependent variable: _____Amount of pollution _____.

5- **How blood sugar levels are affected by drinking diet soda and regular soda.**

Independent variable: _____Type of soda_____.

Dependent variable: _____Blood sugar level_____.

6- **Lemon trees receiving the most amount of water produced the most lemons.**

Independent variable: ___ Amount of water _____.

Dependent variable: _____Amount of lemons produced _____.

Remember that:

**A hypothesis** is an uncertain statement about the relationship between two or more variables. It is a specific, testable prediction about what you expect to happen in a study. A hypothesis does not have to be correct.

Example:

- Students who eat breakfast will perform better on a math exam than students who do not eat breakfast.

- **Question Two:**

State a proper **hypothesis** for the following investigations and identify the dependent and the independent variables:

1- **What effect does temperature have on plants' growth?**

Hypothesis: _____Plants grow better at high temperature _____.

Independent variable: _____Temperature _____.

Dependent variable: _____Plants growth _____.

**2- How does the color of food affect the amount of food that fish eat?**

Hypothesis: ___The amount of food that fish eat depends on its color __.

Independent variable: _____The color of food _____.

Dependent variable: _____The amount of food that fish eat _____.

**3: How does the amount of electrical energy supplied to an electric motor affect the speed it turns?**

Hypothesis: __The more electrical energy supplied to an electric motor, the faster it turns _____ .

Independent variable: ____the amount of electrical energy supplied __.

Dependent variable: ___the speed the motor turns _____.