

Identifying Variables and Controls

1. Colours and Heat: How Does Color Affect Temperature?

Introduction:

Have you ever noticed that wearing a black shirt on a sunny day feels much hotter than wearing a white one? Colours absorb and reflect heat differently, which is why some colors feel warmer than others. In this experiment, we will test how different colors affect temperature by placing coloured materials under the same light source and measuring how much heat they absorb.

The aim is to investigate how _____ affect the absorption of heat resulting in variations.

It is hypothesised that if a surface has a darker _____, then it will _____ more _____ and become warmer than a _____-coloured _____ because darker colours absorb more light _____ while lighter colours _____ it.

2. The Power of Plants: How Light Affects Growth

Plants need light to grow, but do they grow better in bright sunlight or in the shade? In this experiment, we will place identical plants in different lighting conditions—full sunlight, partial shade, and darkness—and observe how their growth is affected over time. This will help us understand why sunlight is important for plant health.

The aim is to examine how different _____ affect the _____.

It is hypothesised that if a plant receives _____, it will _____ taller and healthier because plants need light for photosynthesis. Plants in darkness will grow weak or not at all.

3. Dissolving Race: What Liquid Dissolves Sugar the Fastest?

Have you ever stirred sugar into tea or hot chocolate and noticed how quickly it disappears? In this experiment, we will test how different liquids—such as water, vinegar, and oil—affect how fast sugar dissolves. By measuring the time it takes for the sugar to fully dissolve, we can learn more about how different substances interact with one another.

_____ is to test the time taken for sugar to dissolve in different liquids.

_____ that if sugar is placed in warm water, vinegar, and oil, then it will dissolve fastest in warm water because heat increases the movement of molecules, helping the sugar break apart more quickly.

Independent Variable

Dependent Variables

Controls

4. Sinking or Floating: How Does Mass Affect How Balls Sink in Oil?

Introduction:

Have you ever dropped different objects into a liquid and noticed that some sink quickly while others float? The ability of an object to sink depends on its mass and density compared to the liquid. In this experiment, we will test how balls of different masses behave when placed in oil. By observing how fast or how deep they sink, we can learn more about the relationship between mass, density, and buoyancy.

Aim:

Hypothesis:

Independent Variable

Dependent Variable

Controls

5. Ramp It Up: How Does the Slope of a Ramp Affect the Speed of a Car?

Introduction:

Have you ever noticed that cars and skateboards move faster down steeper slopes? This is because gravity pulls objects downward, and the steeper the ramp, the stronger the force pushing the object forward. In this experiment, we will test how changing the angle of a ramp affects the speed of a toy car as it rolls down.

Aim:

Hypothesis:

Independent Variable

Dependent Variable

Controls