STEM from Home

Motion and Mechanism

Have you observed a stone falling off a roof, a moving car, water flowing from the tap, the earth's rotation and revolution, a butterfly flying in a garden or the moving hands of a clock? These are examples of objects in motion.

In this STEM Pack, your tasks include using Scratch to create a game using different types of motion; solving a crossword puzzle based on the concepts of motion; using your creativity and conceptual understanding to design an obstacle escaping game.

Main Activity: **Motion Manoeuvres**

Introduction

In this activity, you will create a game to demonstrate different types of motions.

Let's get started! Take a look at the game here.

You can access guidelines for the activity here.

What you will learn

1. How to add a backdrop.

2. Create Sprites using Vector mode.

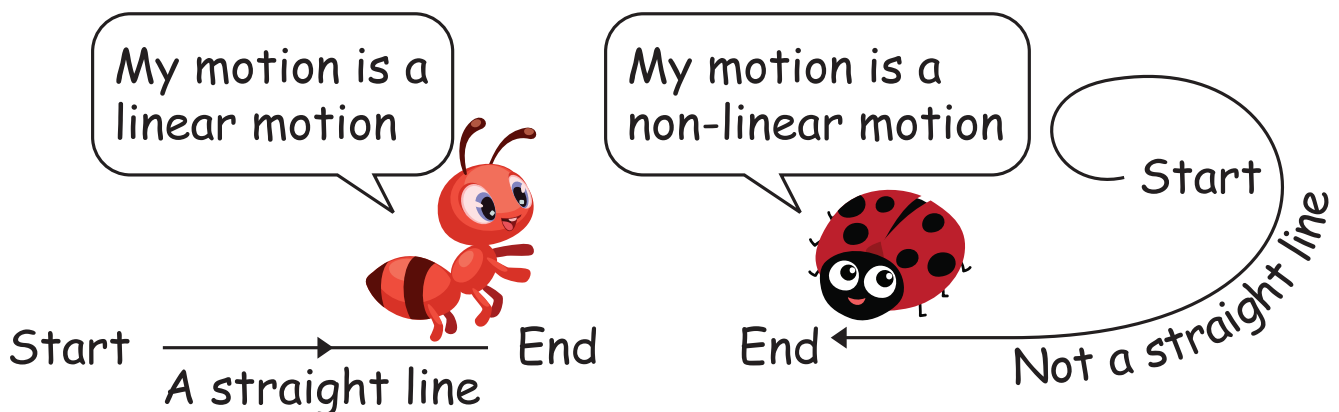3. Control a Sprite using the keyboard.

4. How to add a variable

What You Will Need

Hardware
A computer capable of running Scratch or Scratch 3 software (either online or offline).

Software
Access Scratch 3 either online at https://scratch.mit.edu/ or download from https://scratch.mit.edu/download.

Bonus Activities

Activity 1: Crack The Clues

Introduction

This crossword tests your knowledge about measurement of motion.

Let's see how quickly you can crack the clues!

What is a Crossword?

A crossword is a puzzle which you solve by using the given clues to fill in the missing words across and down a given grid.

In case you get stuck you can use reference books or the internet to help you!

Put on your thinking caps! Access the Crossword activity here.

Check the solutions to the Crossword puzzle here.
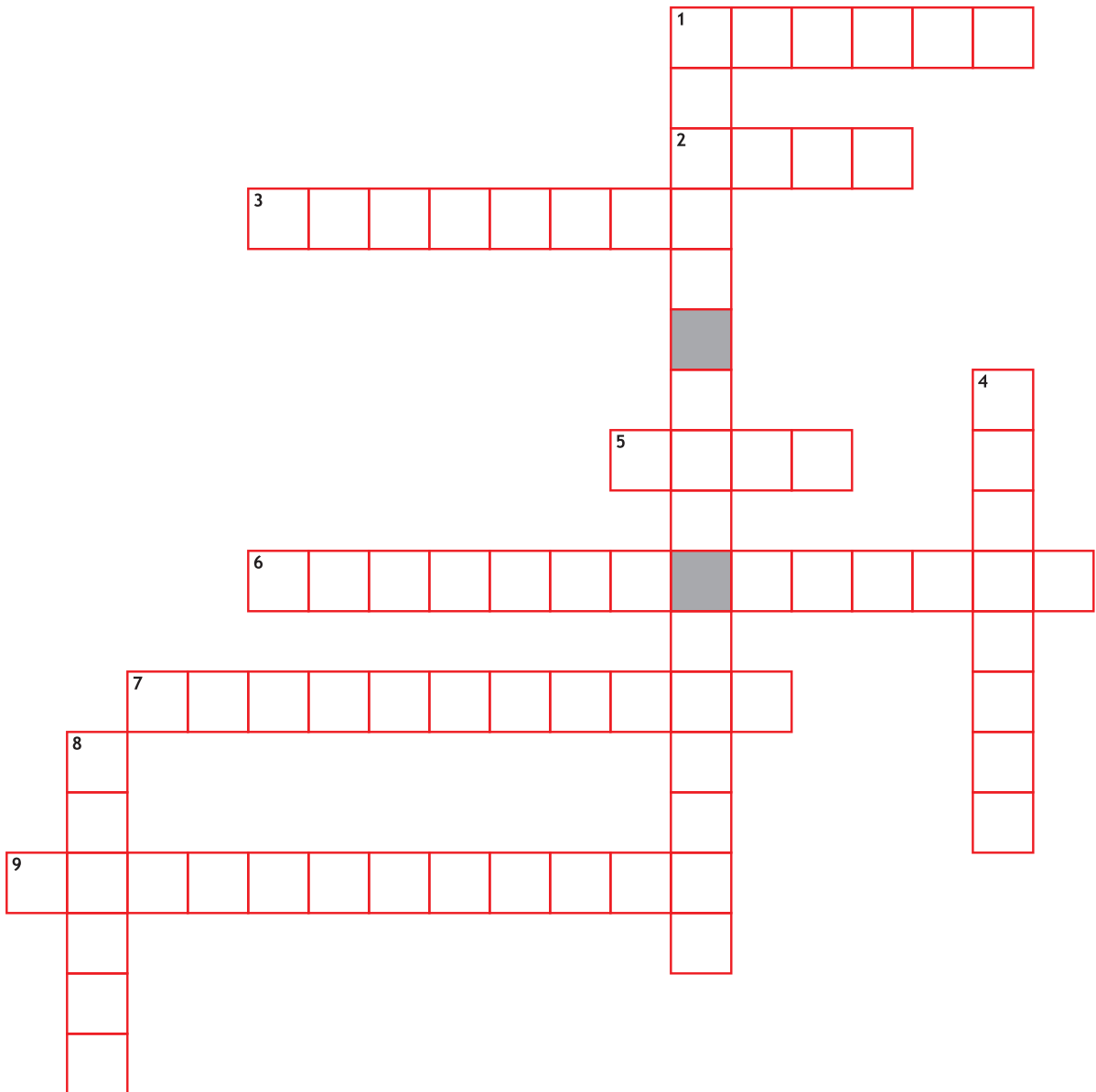
Challenge Activity: Watermelon Rescue!

Game Development has witnessed a surge post COVID, with people staying indoors and affordable fast internet during recent years. Advancement of technology and hardware, has led to spiralling-upwards expectations of gamers across the world. With huge demand for gaming applications, Pixar Games a very prominent gaming company has approached you to develop a very simple obstacle escaping game. However, they have a few requirements which you will have to meet before delivering the game to company.

The requirements are as follows:

1. This should be an obstacle escaping game.

2. The game should have background music and sounds.

3. There should be at least three types of obstacles in different kinds of motions

4. The game should have a score card

5. This game is designed for the younger kids so no offensive images or language allowed.

6. The theme of the game can be of your choice.

You will be working with the following user and need for this challenge:

1. User: Pixar Games

2. Need: Develop a game for younger children (age 6 to 8 years).

Note: You can design the game using Scratch or any non-tech resource too. If you are using Scratch, your final submission can be presented on Scratch digitally. If you are using any other non-tech resource, your final submission can be presented using Docs or Presentation software.