

# MicroBit Test Review

IDC40

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Clock: the regular **interval** that causes each object in the game to move

Variable

- holds a numeric value that can change (vary)
- has a **descriptive name** that can have multiple words, but must have **no spaces**
- Is given a specific value with the **SET** command
- Adjusts its current value with the **CHANGE** command

Coordinate System

- upper left corner is (0,0)
- bottom right corner is (4,4)
- X axis is horizontal
- Y axis is vertical
- The **PLOT** command allows you to display at a particular location
- The **UNPLOT** command erases a particular location

Vector

- the distance and direction that an object moves toward upon each clock tick
- each moving object should have its own separate vector
- each vector requires a horizontal distance and a vertical distance
- a stop vector is 0, 0
- an example of a diagonal vector is 1, 1

On Start

- runs once at the beginning
- Set starting coordinates of each object
- Set starting vector of each object

## On Button Press

- Set vector
- Do not move anything
- Projectiles may need to set the starting coordinate

## Forever Loop

- Starts *after* the “On Start”
- Always runs, and **starts over when complete**
- Order of Commands for a Game are
  1. **Timer**
  2. **Erase** current position (unplot)
  3. **Move** position by vector (change coordinate by vector)
  4. **Check** if there is **collision** (if coordinate > boundary then...)
  5. **Respond** to collision
    1. **to relocate, SET the coordinates**
    2. **to change direction of motion, SET the vector**
  6. **Display** current position (PLOT)

## Collision

- detects if two objects **intersect**
- necessary to keep players within **boundaries**
- necessary to assign **rewards**
- necessary to assign **penalties**
- requires an **IF** statement to ask about the **coordinates**
- requires a **response** inside the **IF** statement