

Magic 8 ball Activity

Objectives of the activity

- Students will learn to work in teams.
- Students will be introduced to the concept of mechatronics and programming.
- Students will learn about sensors.
- Students will be introduced to random numbers and how they can be used.
- Students will learn the concept variables.

Tools and materials you will need

- Computers (laptop/desktop), in which the makecode offline compiler is pre-installed or has an Internet connection to connect to the online compiler.
- One micro:bit for each team. If there are not enough micro:bit's for every team you can you the simulation inside the editor.

Activity description

Introduction

- The theme is introduced to the students with questions such as: “Have you ever wondered about the future?”, “Have you ever asked a question to a magic 8-ball?”.
- Introduce the editor's environment to the students.
- Introduce the concept of random number to the students.
- Introduce the concept of sensors to the students.

Activity

The aim of this activity is to create a magic 8 ball. Using the accelerometer, when micro:bit is shaken an answer such as: “Yes”, “No”, “Maybe”, etc.

- Students create teams of 2-4 people.
- First of all, from the variables menu, students create a variable named Choice.
- From the input menu, student use the when shaken command.
- Inside that command they insert the *set choice to* command from the variables menu.
- They set the choice to *pick random from 0 to 8* (Math menu).
- Then based on the number of the variable, the students need to provide an answer.

The program can be seen below.

```
on shake ▼  
  set choice ▼ to pick random 1 to 8  
  if choice ▼ = 1 or choice ▼ = 5 then  
    show string "Yes!"  
  else if choice ▼ = 2 or choice ▼ = 4 then  
    show string "No!"  
  else if choice ▼ = 3 then  
    show string "Maybe"  
  else if choice ▼ = 6 then  
    show string "Unclear"  
  else if choice ▼ = 7 then  
    show string "Uncertain!"  
  else  
    show string "Ask again!"  
  +
```