

Makey Makey

Time- 2 hours

Age: 12-16

Aims:

This task has got two main aims.

- On the one hand, it helps in developing computational thinking by organizing ideas and executing a set of commands constituting a simple video game using Scratch 3.0
- on the other hand, it helps in developing competences that include manual skills, thanks to the creation of prototypes of joysticks that can be combined with the Makey Makey board.
- DIY and coding are perfectly integrated with the STEM / STEAM methodology, deepen the learning process, as well as:
- encourage creative problem-solving on the one hand, it helps in developing computational thinking by organizing ideas and executing a set of commands constituting a simple video game using Scratch 3.0
- make the learning process based on discovering real products
- enable teamwork in small groups
- provide students with materials and methods to rethink their own project and make it they increase self-confidence and motivation to create and learn.

tasks and roles

- Students are at the heart of the learning process by developing the elements of the video game and preparing the design and materials for the prototype.



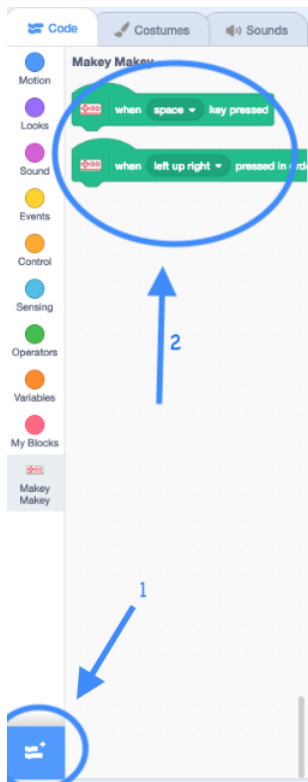
The role of the teacher is to accompany students and guide them on their educational path.

Any solution is possible.

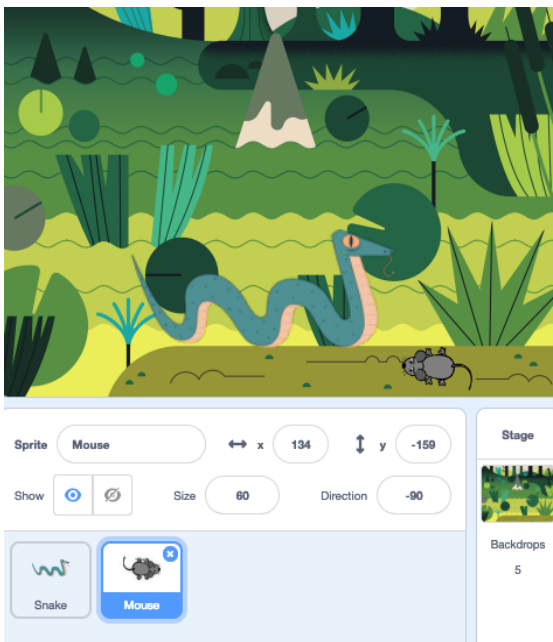
- What will you need?
- Computers
- Scratch 3.0
- Makey Makey set
- Klipsy „motyłki”
- Colorful felt
- Filling material
- Needle
- Thread
- Scissors
- (This is just an example. You can use other items such as document clips, conductive thread, cardboard, copper shielding tape, or glue.

Description of the task

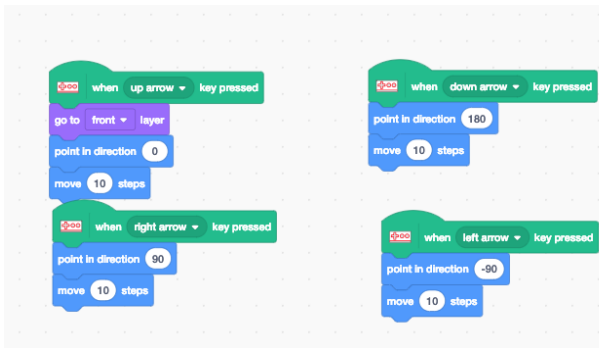
- One part of the group can create a video game and the other can design and make a joystick.
- First, you need to open an account in Scratch 3.0. Students can create their own video game or redesign another. Reconstruction of an already completed project is less time-consuming.
- This design is an example that you can use if you like it. Here are the steps you need to follow to create a simple video game:



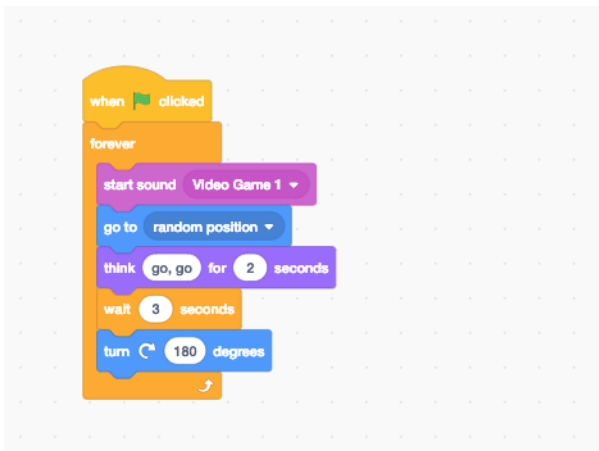
:Remember to use Makey Makey extensions; you can press the icon at the bottom left of the screen.



Choose a background and sprites. In this example, there are two sprites, snake and mouse, as students learn about snakes controlling rodent populations.

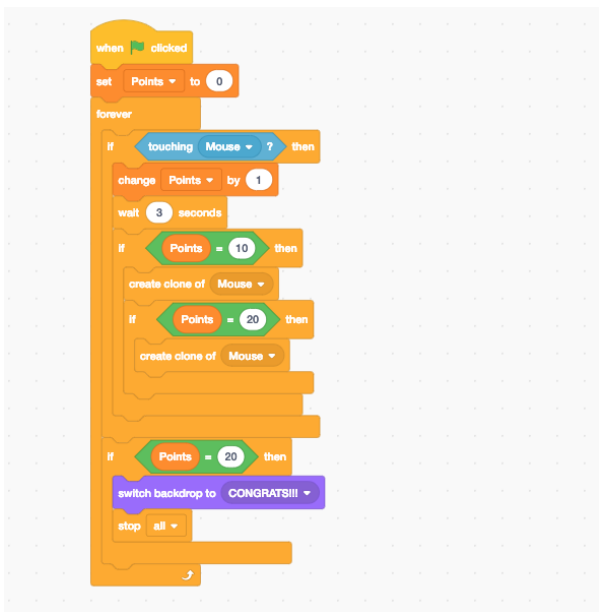


The snake is controlled with a joystick: right, left, up and down.



Program your mouse, select music in the Scratch library, and type in your text.

In this case, the mouse turns 180 degrees after waiting for 3 seconds.



Specify the "points" variable. If the snake catches the mouse, it scores a point. If you want the mouse population to double and the predator to eat more, you can clone the mouse.

Finally, pause the game and show another background.

To make a joystick to control a video game, you can use a simple but creative solution - cut and sew insulation elements and electricity conductors, e.g. recycled ones.



Choose a felt.

You can prepare a template out of paper and trace its outlines.



cut out the parts



make a whole in four places, at the front
Put the clips, fold them so you can see a little
bit of them.



You can cut one of the parts or place it away
from the others so that they do not come into
contact with each other.



Sew it together



Fill the joystick with filler material.



decorate

Connect the crocodile clips, remembering to connect them to ground. Have fun!

