

SAVE THE EARTH!

It's all over the news...

"According to the National Space Agency, an asteroid the size of a football field is heading towards the Earth!" A news reporter says on TV.

This is so scary!

The news reporter continues: "An asteroid is a rocky object smaller than a planet..."

....Asteroids orbit around the Sun, but sometimes they leave their regular orbits and head towards a planet. The impact from an asteroid would be catastrophic!

We faced a similar problem on the Stemmian's Planet," Eolim comments. "That asteroid was huge!

Prepare to hop on Eolim's spaceship and help him to save the Earth!

We decided to destroy that dangerous asteroid and we saved our Planet. I think I can help you save the Earth as well!

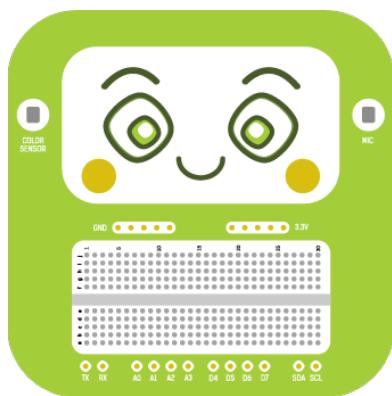
Episode 2

Discovery: Build - Test - Learn

THE MISSION

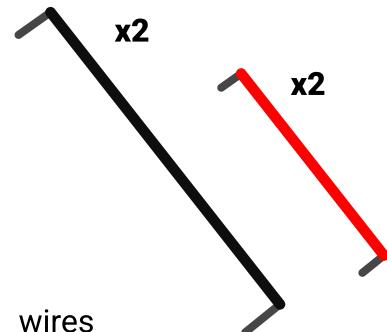
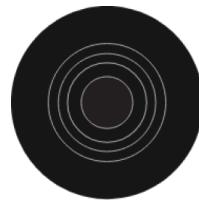
For this rescue mission we need a new electronic component, the OLED display! This is a special screen that will teleport you to space in order to accomplish the operation.

WHAT DO YOU NEED

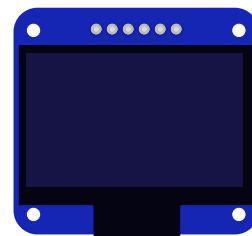


Eolim shield

piezo buzzer



wires



OLED screen



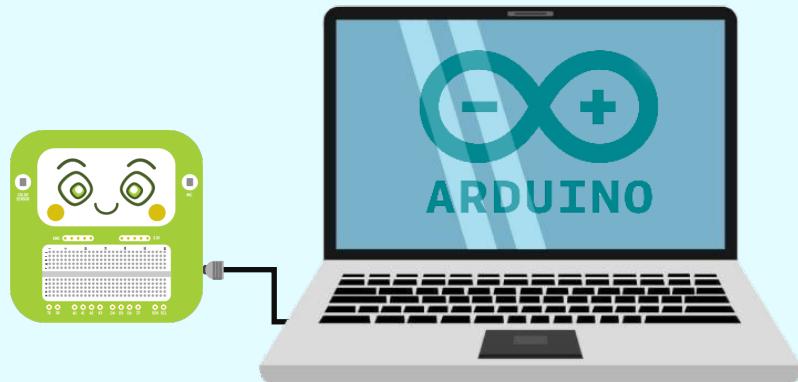
Power bank

USB 3.0 cable

Step-by-Step

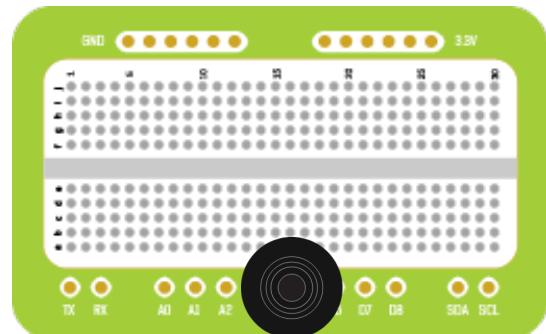
Step 1 - Start the Discovery

Ask your teacher or your parents to upload the program named “Rescue (Discovery)” on your computer or tablet.



Step 2 - Connect the Buzzer

You should remember by now how to do it!

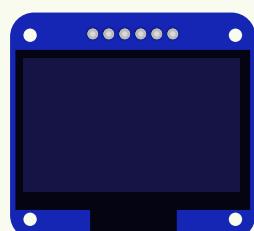


STEP 3 - Connect the OLED Display on the Breadboard:

Look at the four pins on the back of the display: these pins will be inserted into the Breadboard's holes.

Connect the OLED display on the Breadboard as shown in the illustration. Make sure to leave two empty rows above the display. Push the pins all the way in, to ensure the OLED display is correctly connected to the Breadboard.

Focus 2 The Oled screen



There are some labels written on top of the OLED display, from left to right: “GND”, “VCC”, “SCL”, and “SDA”. These are the names of the four pins on the back of the OLED. The OLED is a screen

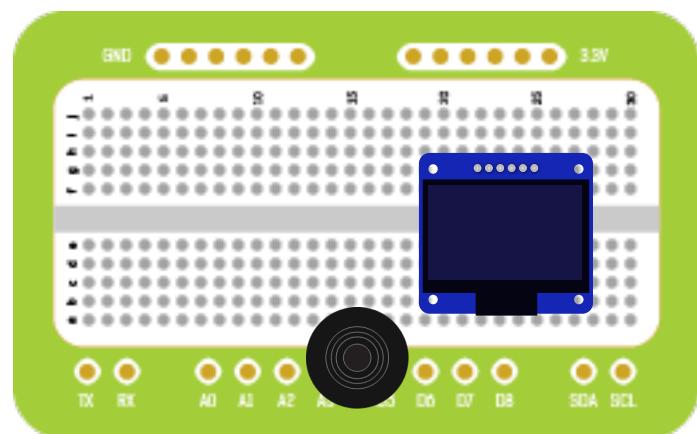
Step 4 - Connect the OLED pins GND, VCC, SCL, and SDA to Eolim's brain using the colored Wires

Connect the GND pin: Use a Long Grey wire and plug one end of the wire into the Breadboard, on the same column where the OLED's GND pin is; then insert the other end into any of the holes labelled GND that you can find above the Breadboard.

Connect the VCC pin: Use a Short Red wire and plug one end into the Breadboard, on the same column where the OLED's VCC pin is; then insert the other end into any of the holes labelled 3.3V that you can find above the Breadboard.

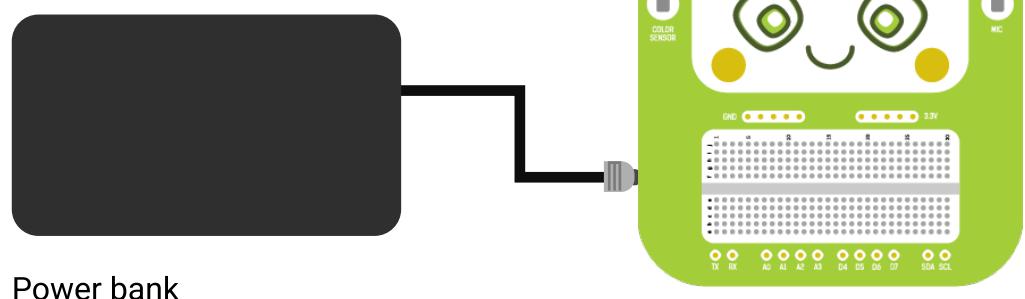
Connect the SCL pin: Use a Long Orange wire and plug one end in the Breadboard, on the same column where the OLED's SCL pin is; then insert the other end into the hole labelled SCL that you can find below the Breadboard.

Connect the SDA pin: Use a Long Red wire and plug one end into the Breadboard, on the same column where the OLED's SDA pin is; then insert the other end into the hole labelled SDA that you can find below the Breadboard.



STEP 6 - Connect the Power bank

Plug it in through the Power Cable.



Power bank

Test

Once you connect the Power Bank, you should see a message flashing on the OLED screen and a beeping sound coming from the Buzzer.

What does the flashing message say? 

Hint: it could be a clue on how to save the Planet

Fix the problem: If you can't see any messages on the OLED display, try these solutions:

Check all the Wires: Make sure that all the Wires are connected according to the instructions. Use the colors to guide you and look carefully at the diagram to make sure that all colors match.

Push the OLED screen and all the Wires into the holes to ensure that they are properly connected.

Make sure that the Wires are plugged into the correct holes: Since the Breadboard's holes are tiny and very close to each other, sometimes you might unintentionally insert the wire into the wrong row.

Check the ends of the wires to make sure that the plastic protection is not covering the metal. When the metal is covered, it won't conduct electricity. If this is the case, replace the wire with another one where the metal is better exposed.

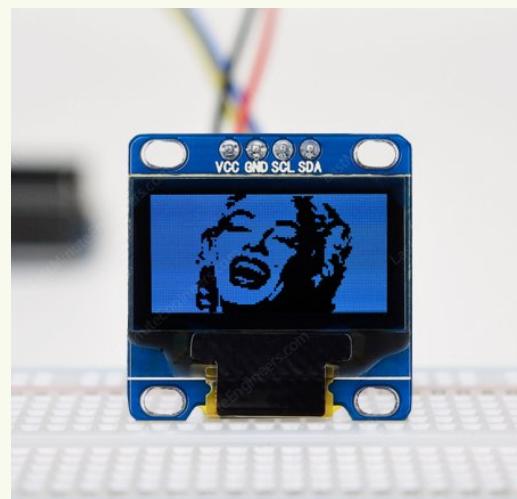
Focus 2

The Oled screen

An OLED display is an electronic device that can be used to show text or graphics.

Eolim doesn't have an OLED screen embedded in him, but thanks to the Breadboard you can connect one externally. When the OLED screen is connected to Eolim's brain through the Wires, the brain sends electrical signals and instructions to the OLED screen. You will see a flashing text message saying: "SAVE THE PLANET!!!". You should also hear an alarm sound along with the flashing message.

OLED screens can be found in many of the devices we have around, such as smartphones, tablets, smart bands and smart watches!



Episode 3

Cheer up Eolim!

THE MISSION

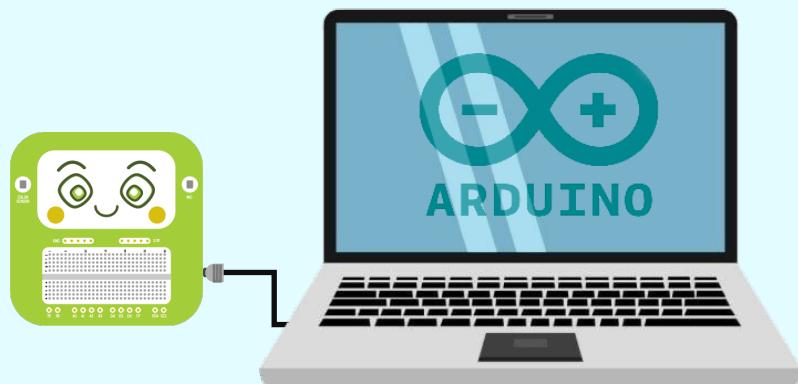
Eolim is generously offering you to be the pilot of his spaceship!

Your mission is to ride the spaceship, shoot the killer asteroids and destroy them! But be very careful and don't get hit by an asteroid.

STEP 1

Start the Quest: Ask your teacher or your parents to upload the program named "Rescue (Quest)" on your computer or tablet.

Connect the Power Bank: Plug it in through the Power Cable.



Step 2 - Ride the Spaceship

After connecting the Power Cable, the game will start after it loads: it will take just a couple of seconds. You will see your spaceship at the bottom of the screen and the asteroids coming from above:

To Move RIGHT: Turn Eolim's face slightly to your right.

To Move LEFT: Turn Eolim's face slightly to your left.

Step 3 - Shoot the Asteroids

Touch tap the left cheek with your thumb to shoot bullets at the asteroids falling from above. Each tap will shoot one single bullet.

Step 4 - Avoid the Asteroids

Don't worry if you miss some asteroids, just make sure they never hit your spaceship when you move around.

Step 5 - Ride away from the Obstacles

As you keep on playing, some horizontal lines will appear on the screen: they are obstacles! Don't panic, they will not damage the spaceship but they will obstruct your bullets, so stay away from them and have a clear path to shoot at the killer asteroids.

Ignore the Dimensional Rings: as you keep on playing, ring-shaped objects will start falling on your spaceship: they are not harmful and shooting at them will not give you any points, so just ignore them and don't let them distract you from saving the Earth!

How to win

Mission successful

Earn Points: For each asteroid you destroy, you will gain 5 points! The score will be displayed at the upper left corner of the screen. You need to earn 200 points in total to accomplish the mission, which means that you need to shoot at 40 killer asteroids, if you want to save the World!



If you earn 200 points, the mission will be accomplished! Now, you can either:

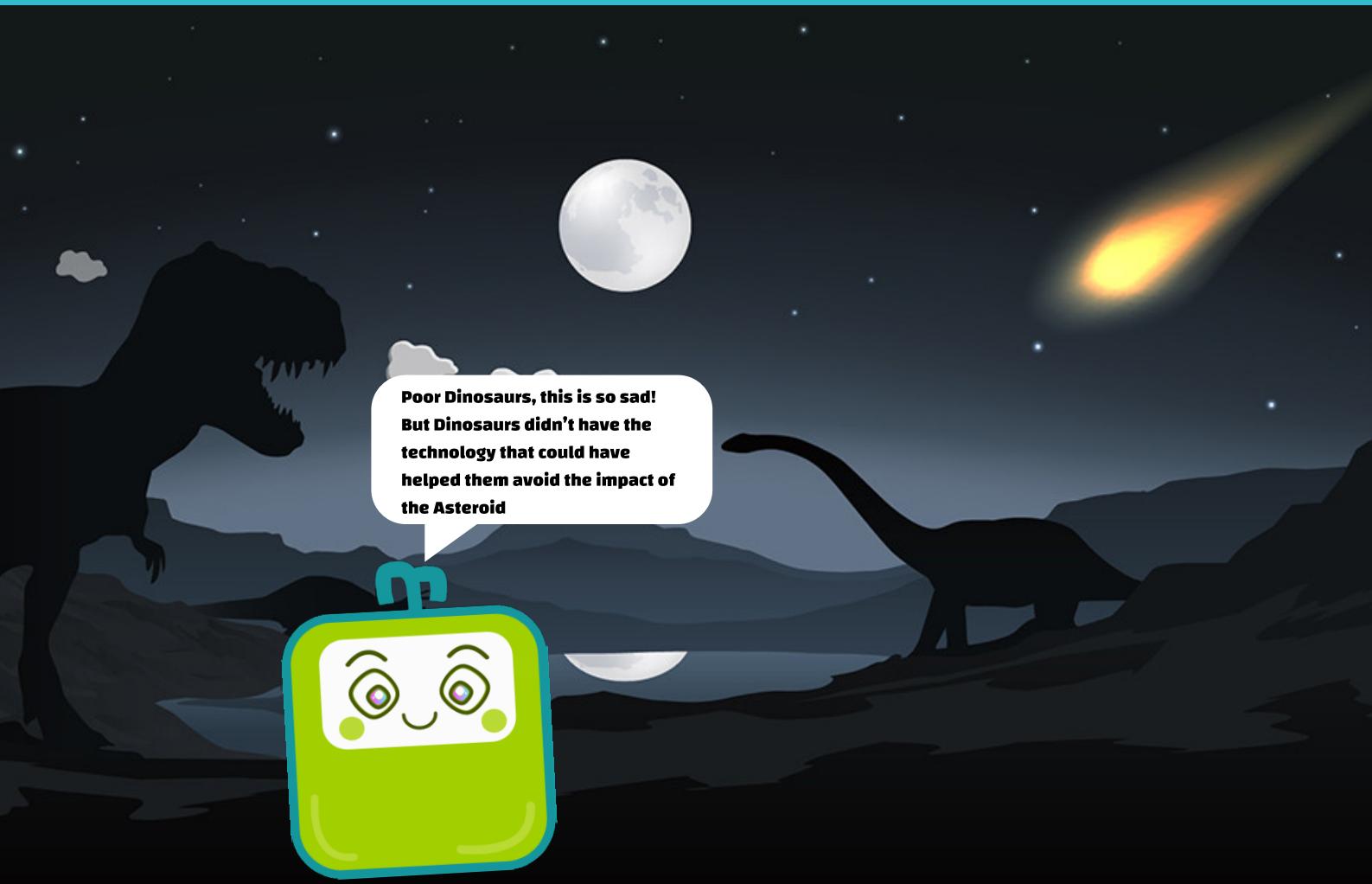
- >Restart the mission: Press the right cheek to start again from the beginning.
- >Play the next level: Press on the Left cheek to move forward in the journey. The more asteroids you destroy, the more powerful your spaceship will be: you will be able to shoot up to 3 bullets at a time! But killer asteroids will become bigger and faster, so you need to be very skilled to destroy them all!

Troubleshooting

Mission failed: If you get hit by an asteroid that you can't avoid, the mission will fail. Whenever you fail, you will see the game score and your highest score on the screen. The highest score refers to the current play session: each play session starts when you plug in your power cable. When you unplug the power cable, the session ends and all the scores will be erased.

Episode 4

Mission accomplished



Asteroids and Comets roam in Space and orbit around the Sun, just like Earth does. Asteroids and Comets are both rocky objects but with a major difference. Comets have plenty of ice in them, so when they come closer to the sun, the ice melts forming a cloudy tail behind them that can be seen as they travel in Space.

These Space rocks are peaceful as long as they stay away from planets. Sometimes it happens that Asteroids or Comets collide with a planet, take Jupiter for example! In 1994, a Comet named "Shoemaker-Levy 9" broke down into 21 pieces before it collided with Jupiter's atmosphere. It's not a remote possibility though, as there is strong scientific evidence that a huge asteroid might have impacted Earth and caused the extinction of the dinosaurs 65 million years ago!

Indeed! Humanity is making great progress in science and technology which could help us facing such dangers. First of all, we could detect the space rocks by using advanced telescopes, with anticipation of months or even years before they could collide with Earth. This should give us plenty of time to plan and prepare well!

Secondly, we can use advanced technology to mitigate the danger, either by deflecting the space rock, which means that we push it away and change its direction in Space, or by destroying it all together, if possible.

Thank you for the great team work! You and Eolim were able to save the Earth with his technology!