

EOLIM IS HOMESICK

It's been a while since Eolim landed on Earth... So far, it has been an incredible adventure.



Thank you for welcoming me and for making me feel at home!



He is having a great time and enjoys spending time with you!

But Eolim is also feeling homesick, which means that he misses his home, the Stemmian's Planet... Eolim misses playing music and singing with his band.

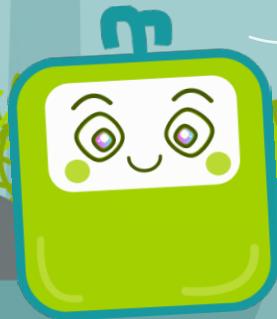


He misses dancing the Wiggle, the most popular dance on Stemmian's Planet. He also misses joking around with his best friends and his family.



It's hard to tell when Eolim is sad because he is always wearing a smiley face, but underneath his smile his "Happiness Battery" is very low and he feels down.

Can you help me recharge my happiness battery?



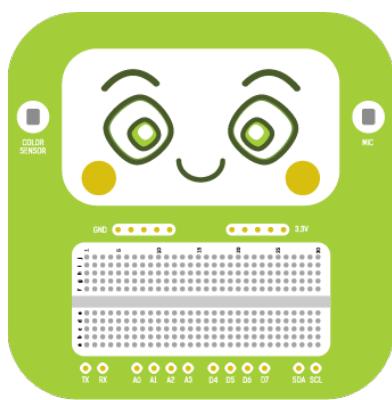
Episode 2

Discovery: Build - Test - Learn

THE CHALLENGE

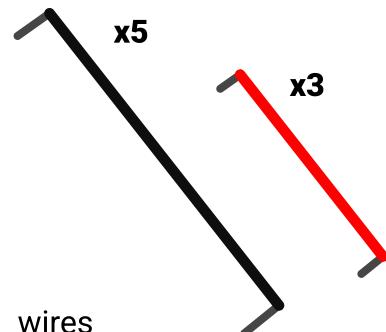
We need to build a “Mood Indicator”, to help us understand what Eolim’s mood is right now.

WHAT DO YOU NEED

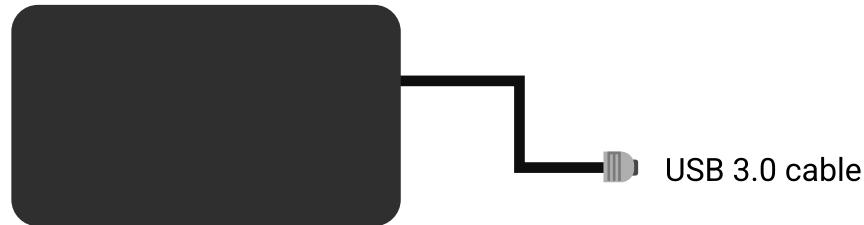
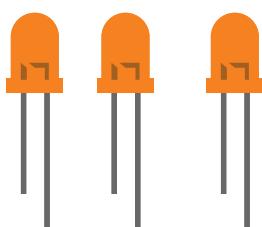


Eolim shield

piezo buzzer



leds x3

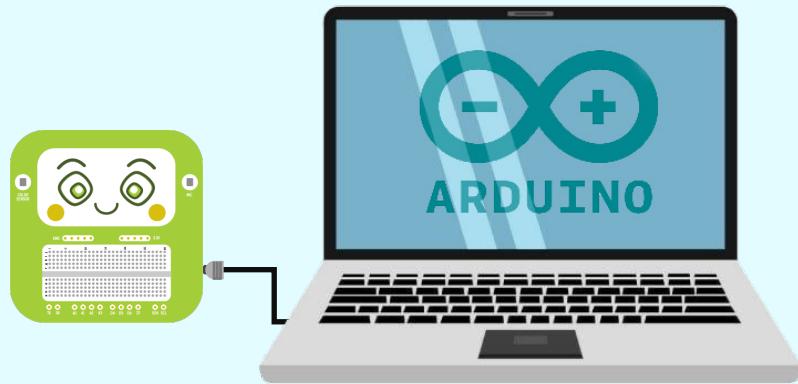


Power bank

Step-by-Step

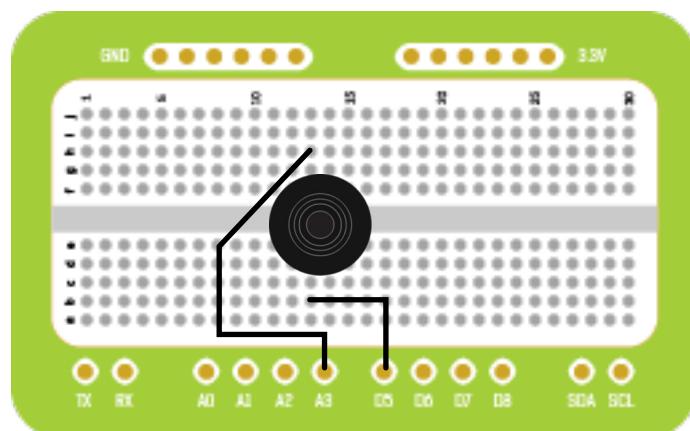
Step 1 - Start the Discovery

Ask your teacher or your parents to upload the program named "Leds (Discovery)" on your computer or tablet.



Step 2 - Connect the Buzzer

Hold the Buzzer and carefully insert the two legs into the Breadboard's holes. The long leg should be connected to the D4 hole, and the short leg should be connected to the A3 hole. Push it in until you cannot see the legs anymore, and you just see the black plastic head of the Buzzer laying down on the surface.



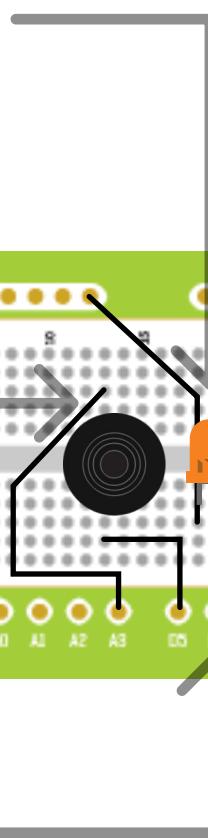
Focus 2 The LED



A LED is a tiny lamp that emits light, like the ones inside Eolim's eyes. It has two metal legs and, just like the Buzzer, the legs have different lengths: there is a short leg and a long leg.

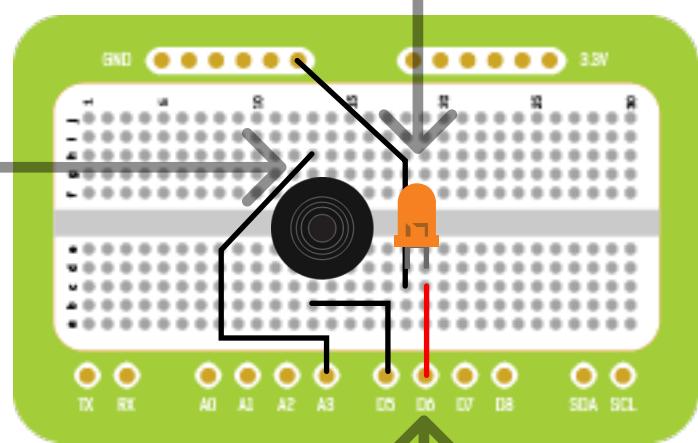
STEP 3 - Connect the first LED

Hold the LED and carefully stick the two legs into the Breadboard as shown in the picture. The short leg can be inserted into any hole above the middle Divider and the long leg should be inserted into any hole on the same column, but below the Divider.



Step 4 - Connect the Gray Wire

Take the two metallic ends of the Gray Wire. Insert one end into the Breadboard, choosing a hole on the same row where the LED's long leg is and the other end in any of the five holes that are named "GND".



Step 5 - Connect the Red Wire

Look at the two metallic ends of the Red Wire. Insert one end into the Breadboard, choosing a hole on the same row where the LED's short leg is, and stick the other end into the D5 hole.

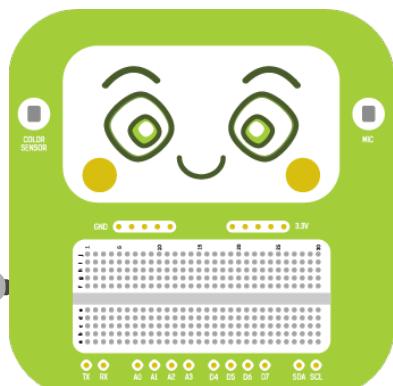


STEP 6 - Connect the Power bank

Plug it in through the Power Cable.



Power bank

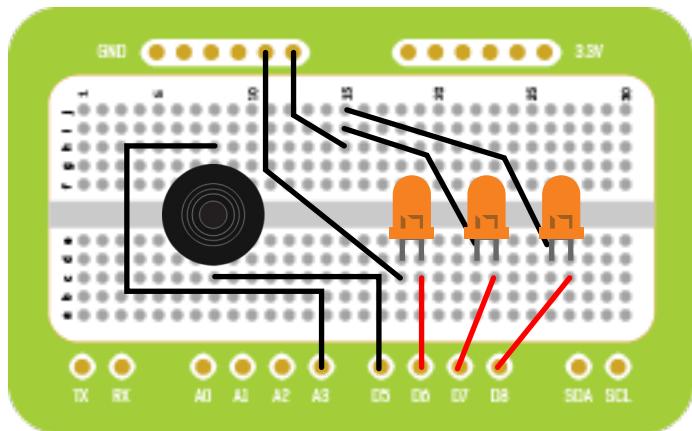


Episode 3

Activity Mood indicator

STEP 1 Connect two more LEDs

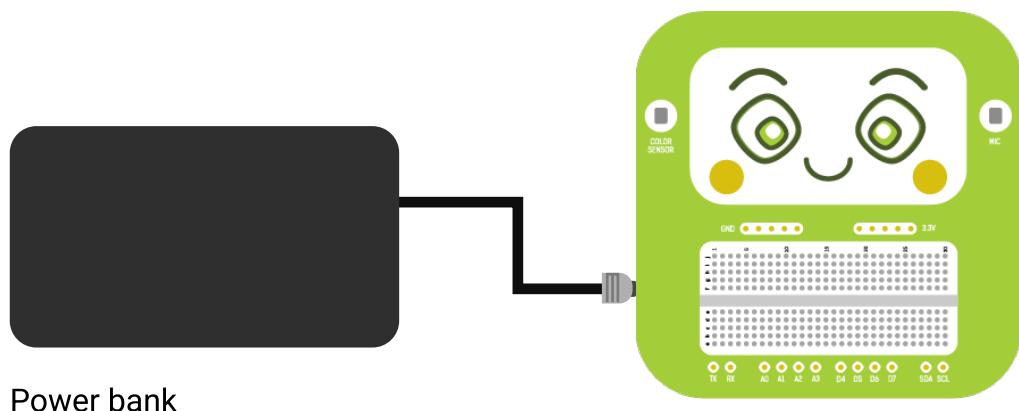
- Let's add two more LEDs as we did with the first one, following the connection diagram. The second LED should be connected to the D6 hole and to a GND hole. The third LED should be connected to the D7 hole and to a GND hole.



STEP 2 Test, connect the power bank

Once you finish connecting the LEDs, the three of them should turn ON!

- If one or more LEDs are still OFF, check the Test section to find a solution.
- Eolim's Mood Indicator is now ready to go!



Test

Once you connect the Power Bank, you should notice a change in the LED. What do you see? 

Write below your findings

Hint: is the LED light ON?

Fix the problem: If the LED light doesn't turn ON, try these solutions:

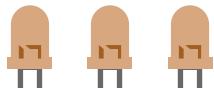
- Check all the connections: make sure that the LED and all the wires are correctly connected according to the instructions above. Since the Breadboard holes are tiny and very close to each other, sometimes you might unintentionally insert the wire in the wrong row.
- Push the LED and all the wires into the holes to ensure that they are properly connected.
- Check the end 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.
- Check the orientation of the LED: the short leg should be inserted in a hole on the column above the middle Divider and the long leg should be inserted on the same column but below the middle Divider.
- If all the connections are ok but the LED light is still OFF, replace the LED with a new one.

Quest: Cheer up, Eolim!

Cheer up, Eolim!

- Eolim looks sad and your mission is to cheer him up.
- You did a great job by building an indicator for his mood using the three LEDs:

EOLIM'S MOOD CHART



SAD



All the LEDs are OFF means that Eolim is Sad!



SATISFIED



One LED is ON means that Eolim is Satisfied!



JOYFUL



Two LEDs are ON means that Eolim is Joyful!



EXUBERANT



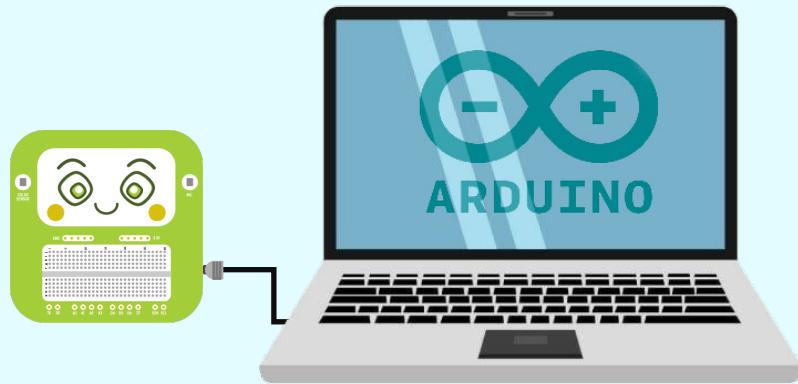
Three LEDs are ON means that Eolim is Exuberant!

At the beginning of the Quest, all the LEDs will be OFF, which means that Eolim is Sad. To make him happy, light up every LED with some fun activities that will remind him of his home: tickling, dancing, and enjoying music!

Play

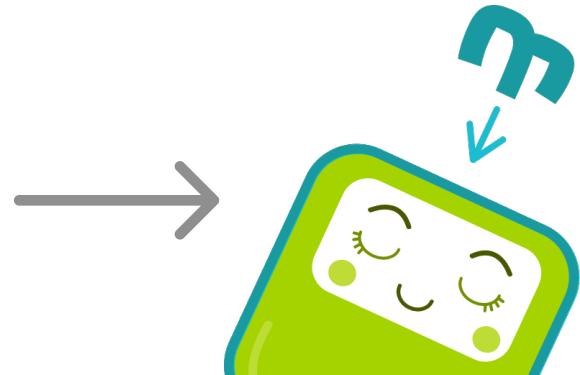
STEP 1

Ask your teacher or your parents to upload the program named "Colors (Quest)" on your computer or tablet. Connect the Power Bank: Plug it in through the Power Cable.



STEP 2 - Attach the Antenna

Look at the instructions for the Antenna in the Build section. Give Eolim some time to get ready: Lay Eolim down on his back, on the table where you will do the Test. Leave him there for about 7 seconds, but be careful! You don't have to touch him or move him at all during this period of time. When he is ready, you should hear and see some happy tunes and lights.



STEP 3 - Scan the color card

Scan one of the cards with the Color Sensor, choosing between Red, Green, and Blue. Hold the card firmly for 3 seconds until Eolim reads it. You should hear a musical note when Eolim finishes reading the color. Now you can remove the color card from the sensor.

STEP 4 - Scan your object

Take the object that has the same color of the card that you just scanned. Hold it on top of the sensor for 3 seconds until Eolim reads it.

Repeat the same steps for each color: First you scan the card, then you scan the matching object and wait for Eolim's reaction.

How complete the Quest

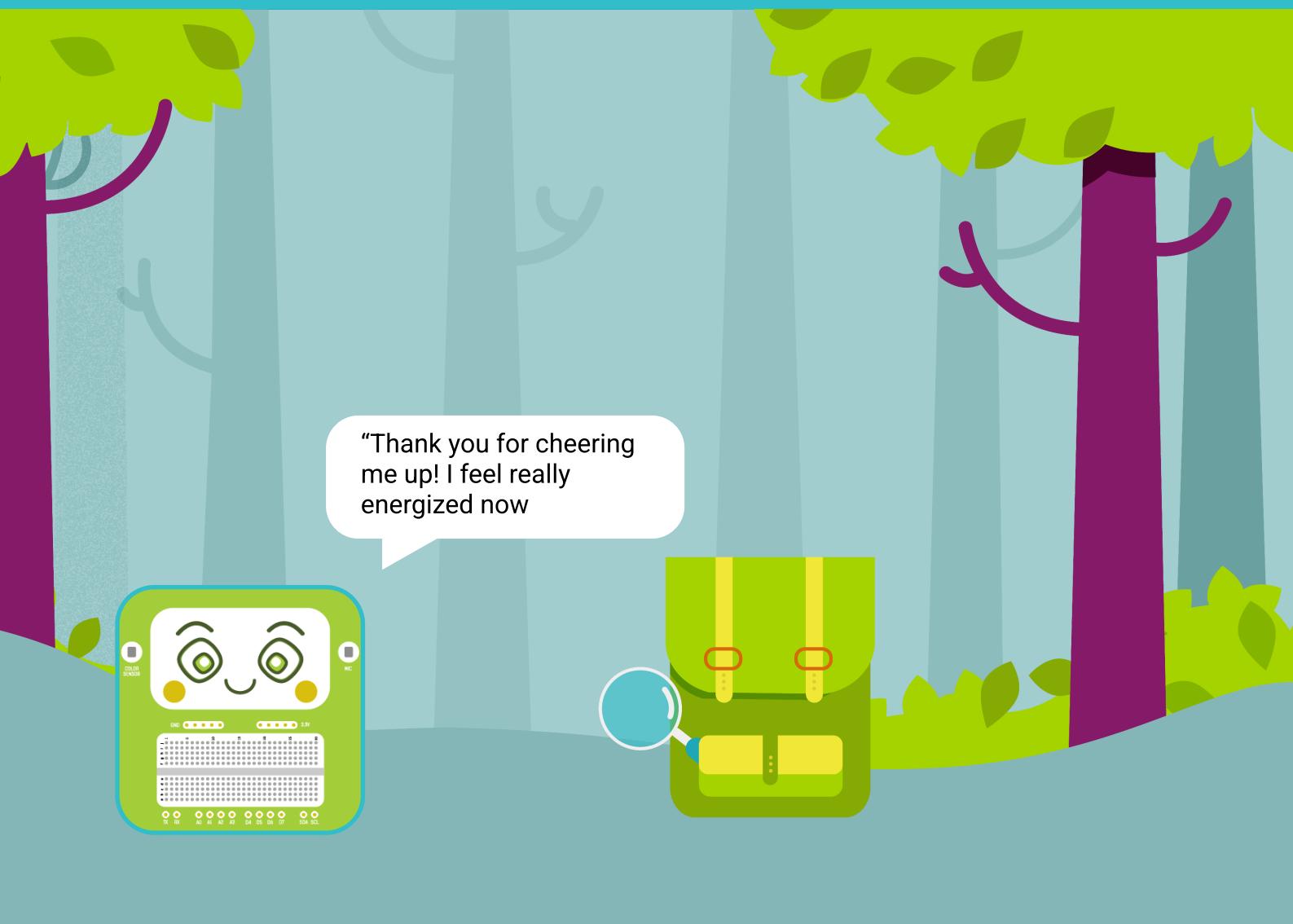
>If the color of the card matches exactly the color of the object, Eolim will be very happy to learn what the object's color is and you will hear some happy tunes.

>If the color of the object doesn't match exactly the color of the card, Eolim will be sad and you will hear some gloomy sad tunes.

>If the color of the card and the color of the object don't match at all, try again: scan the color card, then scan the same object or try with a new object that you think has a better color match.

Episode 4

Mission accomplished



Tickling, dancing, and music are real mood changers, even for humans! Such activities increase what we call the “Happy Hormones” in our human brains. A hormone is a chemical substance that is released inside our bodies. A hormone is like a messenger that gives our organs a specific instruction or order. For example, the hunger hormone is produced in the gut when your stomach is empty, it travels through the bloodstream towards the brain to inform it that we are hungry and we need to eat!

Happy hormones are our trusty messengers that tell our brains it is time to give us some happiness! It is not only one but four main hormones that contribute to our feelings of happiness, which are: Serotonin, Oxytocin, Dopamine, and Endorphin. We can increase these hormones by doing many different activities.

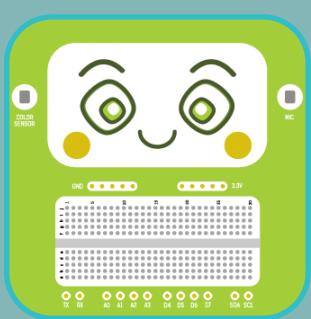
Endorphin is linked to physical activities like exercising or dancing. Scientific studies show that dancing movements and exercise make the body produce endorphins which minimize the pain or discomfort from the activity and maximize our feeling of pleasure. Laughter can also boost the production of endorphins in our body, for example when you tickle fight with your friends, or laugh at a really funny joke!

Dopamine is the "Feel Good" hormone which is linked to achieving goals and personal success. Dopamine is produced in your body when you are the first to finish a game or a sports race, or when you help someone like your parents, your friends or people in need. When you accomplish something, your brain tells you "Well Done!"

Oxytocin, sometimes referred to as the "Love Hormone" is produced in the body when we express love to people around us. For example when we hug our parents, siblings, or close friends to show our love, our bodies produce Oxytocin which gives a feeling of happiness to both.

Serotonin is released in the body when we do pleasant things like listening to our favorite music or eating tasty foods. Chocolate, in particular, is known to reduce stress and boost human memory. And it tastes amazing!

"But we don't have chocolate on our planet! We always eat a sweet root named Cangella and I miss it so much..."



Hurry up! Don't let Eolim be sad again. Now you know all the secrets to make him happy!...

Focus 2

The breadboard

Discover the breadboard

Learn

- A Breadboard is an awesome device that helps us connect more exciting components. But how does it work?
- If we look inside a Breadboard, we see that it's made up of tiny metal clips aligned on metallic strips placed one next to the other (5 clips for each column). It looks much like a comb! The clips is where you connect the components: when you insert a LED's leg into one clip and a wire's end into another clip on the same column, they become connected through the metallic comb!
- Red and black wires connect the LEDs to Eolim's brain. Electrical signals from Eolim's brain run through the wire and light up the LED.
- Thanks to the Breadboard, we can build electrical circuits that produce light, sound or movement. It will also help us connect lots of exciting components to Eolim's head, including more LEDs!



We need to build a “Mood Indicator”, to help us understand what Eolim’s mood is right now. To do so, we will need a Breadboard: this is a part of Eolim’s body that we are using for the first time!

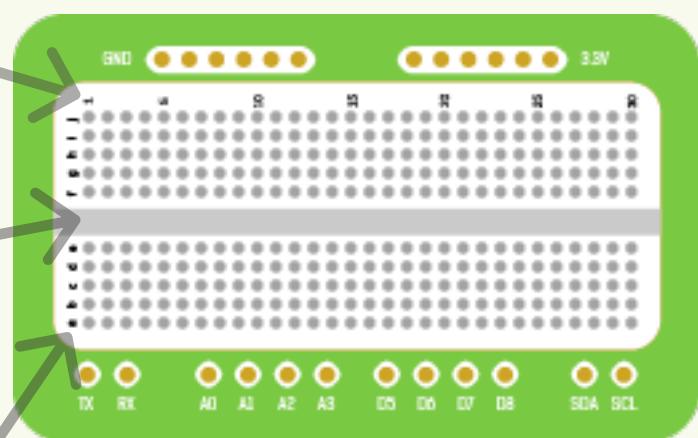
Discover the breadboard

The Breadboard is a white board that is placed below Eolim’s smiley face. It is full of tiny holes where you can connect all sorts of electronic components. When you look at it closely, you will notice that the edges of the Breadboard are full of numbers and letters:

Numbers from 1 to 30: Each number represents a “Row” of holes. Observe row 12 on the Breadboard: it looks like a row of theatre seats where you can sit and watch a movie or a play together with your family and friends.

Notice that the rows are separated by a “Middle Divider” that divides the rows into two groups, just like an aisle in a theater!

Alphabet letters from A to J: Each letter represents one “Column” of holes. Observe column C in the Breadboard: it looks like a straight waiting line in front of the theatre’s box office!



Now we are going to use these fancy columns and rows to build up our first electronic circuit, which will give Eolim some new exciting powers!