

Perform in the spotlight

Let's get the Edison robot to play music or dance when it detects light, just like a performer in the spotlight!

To do this, there are a few things we need to learn:

- What do Edison's light sensors do?
- What is an infinite loop?
- How can you use the sensors to make the robot react?

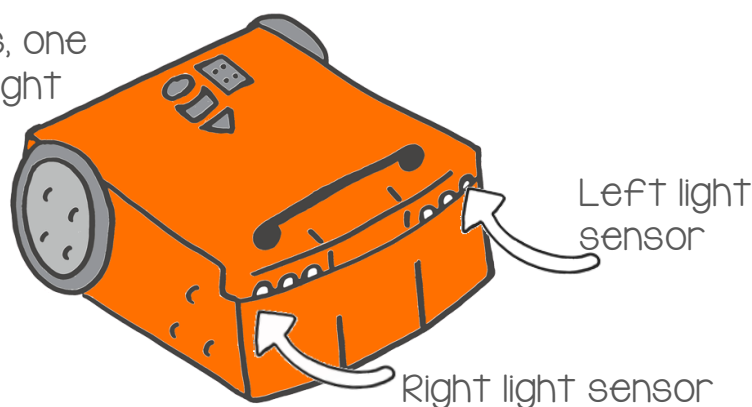
Is this your first time using Edison robots or EdBlocks?
Start with the activity *Getting started with Edison* first!
Ask your teacher for a copy.

What do Edison's light sensors do?

Edison robots have different **sensors** that can detect different things. One type of sensor Edison has is the **light sensors**.

Edison has two light sensors, one on the left and one on the right side of the robot.

These light sensors let Edison detect and measure **visible light**. Visible light is the portion of the light spectrum that people can see.

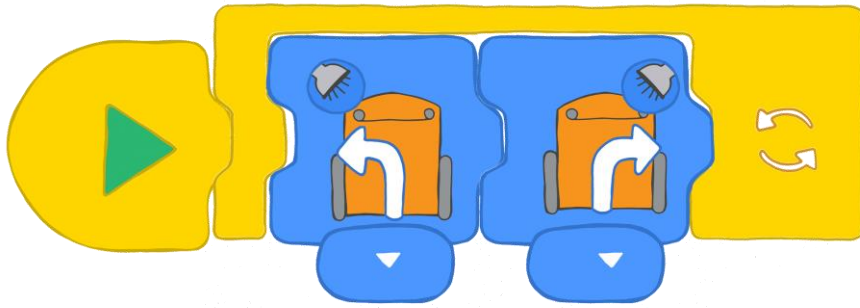


When the sensors detect light, they measure that light to see how bright it is. The measurement gets a number value. The more light that is detected, the bigger the number.

This number value is then stored as a **light reading** in the robot's memory. The more light that is detected, the higher the light reading.

We can write programs for Edison that use the light sensors.

Look at this EdBlocks program:



This program is called 'Follow torch/flashlight'. It is one of the demo programs inside the EdBlocks app.

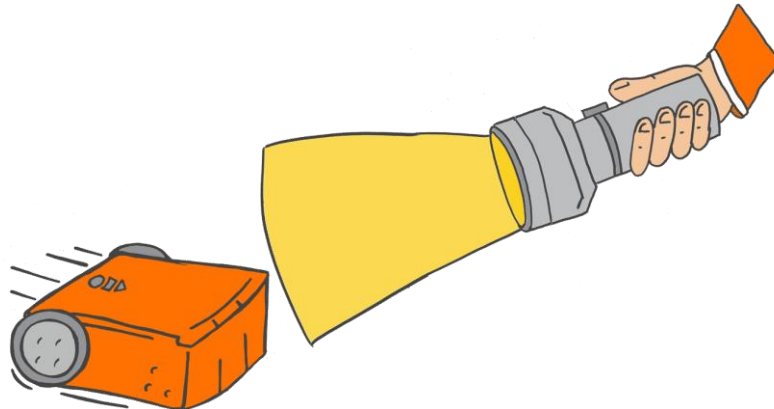
If you run this program in Edison, what happens?

Try it!

Open the EdBlocks app at www.edblocksapp.com and look in the top left corner. Click the **Menu** button. Scroll down to find **Load Demos** in the list, then click it.

Find and click on the program called 'Follow torch/flashlight'.

Download the program to your Edison robot. Put Edison on the floor or a table and press the play button (triangle button) one time. Then shine your light at Edison.



This program makes Edison follow the brightest light it can detect.

If the brightest light is on the left, the robot moves left. But if the brightest light is on the right, the robot moves right instead.

Edison will keep moving, following the brightest light forever. This is because the program uses an **infinite loop**.

What is an infinite loop?

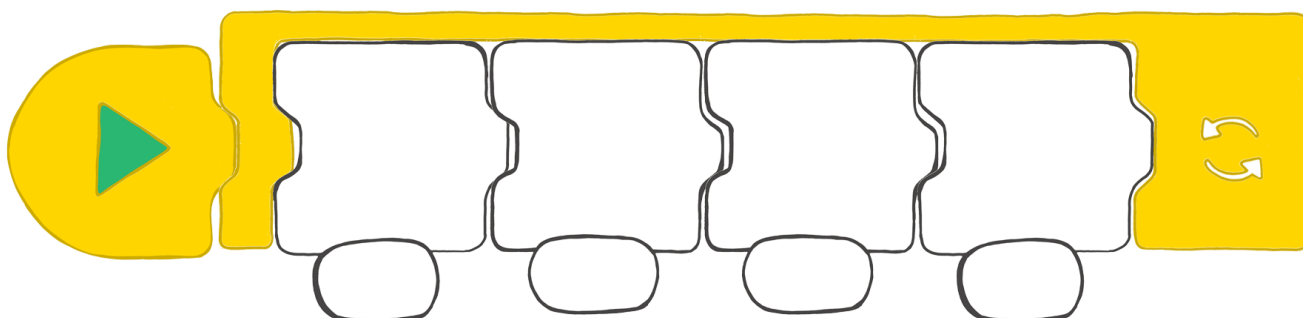
A loop is a special type of code. Loops make any code blocks inside the loop repeat in **sequential order**. The program runs each block one at a time, then repeats them all from the start.

How many times will the code blocks repeat? That depends on the loop! Some loops tell code to repeat a certain number of times. Other loops tell the code to repeat until a specific event happens. The type of loop in the 'Follow torch/flashlight' program is called an **infinite loop**. This loop makes the code blocks repeat forever!

Try making your own program for Edison using the infinite loop block and four other blocks in the EdBlocks app. (**Hint**: try using blue 'drive' blocks!)

Download the program to Edison and run it in the robot.

Write down your program here.



What does your loop program do? What happened when you ran the program in Edison? Describe what happened.

Don't forget! To stop Edison, push the stop button (square button) one time!

How can you use the sensors to make the robot react?

You can write programs for Edison that tell the robot to wait, then react, once the sensors detect something.

Let's make a program that gets Edison to play music or dance when a light is detected, like a performer in a spotlight!

Get performance-ready

For this program, we only want Edison to detect light from one side. You need to cover the opposite side of Edison with dark tape or cardboard.



This will help the robot measure the light on one side better.

Using something like cardboard or tape, block out one of Edison's light sensors on one side of Edison. Be careful not to cover the buttons, the speaker or the wheels!

We want the robot to perform whenever it detects light. We don't want the robot to start too early, however.

That's why the first block in your program should be a block that tells the robot to wait a few seconds. You can use that time to sneak Edison into the shadows, waiting for the right time to shine!

You will need somewhere dark for Edison to sit while waiting, like a desk drawer.

Where is another dark place you can put Edison? Maybe you can try a backpack or a lunch box?

Choose some places to try out when you are ready to run your program.

But first, you need to write your program!



Write a program

Using the EdBlocks app, arrange blocks into a program like the program below.

Your program first needs to tell Edison to **wait** for five seconds. (You will use this time to move Edison somewhere dark.)

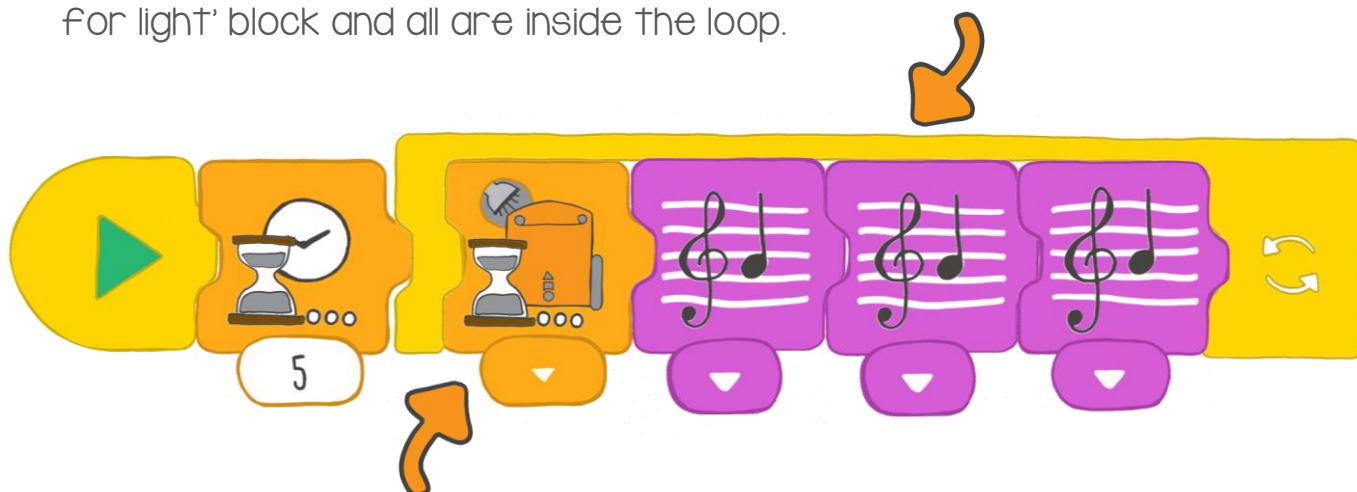
Then, it should use an **infinite loop**. The first block inside the loop should tell Edison to **wait** until it detects light.

The rest of the program is up to you!

What should Edison do when it detects the light? What music should Edison play? Should it move?

Add some blocks to get Edison to play a tune, move or do both!

Make sure all of your music and drive blocks are after the 'wait for light' block and all are inside the loop.



Which side should Edison use to detect the light? You can choose!

If Edison is looking for light on the left side, the right side of your Edison robot needs to be covered.

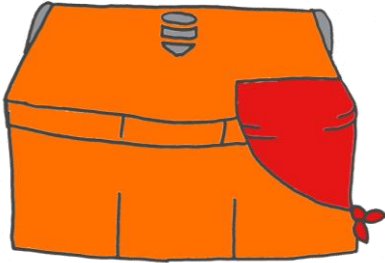
If Edison is looking for light on the right side, the left side of your Edison robot needs to be covered.

When you are ready, download your program to Edison.

Press the play (triangle) button one time, then put Edison in the drawer or another dark spot. When you open the drawer, Edison will detect the light and perform!

Optional: costume time!

Let's dress up Edison for the robot's performance in the spotlight! What do you want to dress up Edison to look like?



Use craft supplies and make your own character costume for Edison.

Remember that your costume needs to cover one side of Edison, but leave the buttons, speaker and wheels uncovered.



What did you make?

What did your program look like? What was your costume?

Write about your program and your costume, then draw your costume on the outline of Edison.

