

# Perform in the spotlight

## Teacher's notes



The *Perform in the spotlight* lesson set by [Kat Kennewell](#) and [Emma Dewar](#) is licensed under a [Creative Commons Attribution-ShareAlike 4.0 International License](#).

## Contents

About this lesson and guide .....	3
Lesson overview .....	4
Section 1 – What do Edison’s light sensors do? .....	5
Section 2 – What is an infinite loop? .....	6
Section 3 – How can you use the sensors to make the robot react?.....	7

### Go ahead – show off!

We love seeing how classrooms use Edison! If you and your students want to share your Hour of Code Edison EdVenture, be sure to tag us into the fun!



@meetedison [twitter.com/meetedison](https://twitter.com/meetedison)



@meet\_edison [instagram.com/meet\\_edison](https://www.instagram.com/meet_edison)



@meetedison [facebook.com/meetedison](https://www.facebook.com/meetedison)

## About this lesson and guide

This guide offers teachers and instructors overview information, facilitation recommendations and other supporting information for the *Perform in the spotlight* lesson available at <https://meet Edison.com/robotics-lesson-plans/perform-in-the-spotlight/>

Do you need to read this whole guide to run the lesson? **Absolutely not!**

As long as the robots and programming devices are set up<sup>1</sup>, you can start learning along with your students! The student sheet for this lesson has been designed to allow students to work through the stages of the lesson independently, learning key computer science concepts and practicing skills along the way. This guide simply offers further information for teachers and instructors to help make using this lesson easy and fun.

Each section of the lesson is included in this guide along with any relevant supporting information for that section. Supporting information is divided into the following sections:

### How it works

Information about the technology and computer science concepts being highlighted in that section.

### Delivery recommendations

Suggestions for how you can cover the lesson section if you want to run the lesson in a more facilitator-led capacity.

### Tips and tricks

Helpful hints and ways to overcome common issues students may encounter.

## Creative Commons licence attribution details

The *Perform in the spotlight* lesson set is comprised of the student sheet and this guide. This set was developed using resources from the [EdBlocks Lesson Activities Collection](#)<sup>2</sup> and is licensed under a [Creative Commons Attribution-ShareAlike 4.0 International License](#)<sup>3</sup>.

Developed and written by: Kat Kennewell

Illustrations by: Emma Dewar

---

<sup>1</sup> The *Getting started with Edison and EdBlocks* set available at <https://meet Edison.com/robotics-lesson-plans/perform-in-the-spotlight/> has step-by-step help for setting up your robots and programming devices. If you are new to Edison or EdBlocks, it is recommended you start with that guide.

<sup>2</sup> <https://meet Edison.com/robot-programming-software/edblocks/#edblocks-resources>

<sup>3</sup> <http://creativecommons.org/licenses/by-sa/4.0/>

## LESSON OVERVIEW

Introduce the key computational concepts of loops and conditionals using Edison robots and the [EdBlocks programming language](#)<sup>4</sup>. This lesson taps into the Edison robot's light sensors, reinforcing the importance of sequence in programming and exploring how robots can sense and react to the world.

Grade levels	Difficulty	Prerequisites	Duration
Year 2 – Year 6	Beginner	None <sup>5</sup>	55 minutes
<b>Computer science and computational thinking topics</b>		<input type="checkbox"/> Sequence and sequential programming <input type="checkbox"/> Loops <input type="checkbox"/> Infinite (endless) loops <input type="checkbox"/> Conditionals (sensor-driven events)	
<b>Tie-ins to other subjects</b>		<input type="checkbox"/> Science: light spectrum and visible light <input type="checkbox"/> Music <input type="checkbox"/> Language arts: storytelling/character development	

### Supplies you need

- Full set of Edison robots and EdComm programming cables
- Full set of prepared programming devices (computers or tablets)
- 4x AAA batteries per robot
- Print-outs or digital copies of the student sheets
- Torches (flashlights)
- Dark tape, cardboard or other supplies for blocking light from one of Edison's light sensors
- **Optional:** various 'maker-space' craft materials [such as coloured construction paper, glue, felt, cardboard, pipe cleaners, recycled materials, and other similar materials] for making costumes

### Some great advice from the Hour of Code team

It's okay not to know! Respond to student questions and struggles with phrases like:

- "I don't know. Let's figure this out together."
- "Technology doesn't always work out the way we want."
- "Learning to program is like learning a new language; you won't be fluent right away."

***And don't forget to have fun! (^\_^)***

<sup>4</sup> <https://meetiedison.com/robot-programming-software/edblocks/>

<sup>5</sup> You and your students should be familiar with Edison and EdBlocks already, however. The *Getting started with Edison and EdBlocks* set available at <https://meetiedison.com/robotics-lesson-plans/perform-in-the-spotlight/> has a step-by-step activity for introducing Edison and EdBlocks. If this is your first-time using Edison or EdBlocks, start with that guide and activity.

## Section 1 – What do Edison’s light sensors do?

Look at the science and technology of Edison’s light sensors as well as the code blocks used in the ‘follow a torch’ demo program. Understanding how this tech works (and how the output students see in their robots connects to the code they see on their programming screens) will help them to use the same technology in their own coding creations.

### How it works

The ‘follow a torch’ demo program uses the Edison robot’s light sensors to detect differences in the levels of light between the robot’s two sensors. Once the pre-set program is downloaded and running in the robot, the Edison robot will drive left or right, towards whichever has the higher light level.

### Delivery recommendations

- Recommended time: 10 minutes

### Tips and tricks

- This section explores the science and logic behind what is happening in the ‘follow a torch’ demo program. This is the demo program used in the *Getting started with Edison and EdBlocks* set available at <https://meetedison.com/robotics-lesson-plans/perform-in-the-spotlight/>. If you are running both the *Getting started with Edison and EdBlocks* and this activity together, you can combine this section into the end of the *Getting started with Edison and EdBlocks* activity.
- Edison’s light detecting programs rely on reading the difference between the light input to the two sensors. If students are struggling with a light detecting program, remind them to point the light at only one of the two sensors, not straight at the front of Edison.
- If there is another very bright source of light in the room, like sunlight coming in from a window, students may find this over powers their light and the robot will head towards the brighter light.

## Section 2 – What is an infinite loop?

Explore the computer science concept of loops with a special look at the infinite loop.

### How it works

This section explains what a loop is and looks at the infinite loop used in the ‘follow a torch’ program. Loops allow users to create iteration (or repetition) in their programs. In EdBlocks, any blocks inside a loop will repeat in left-to-right sequential order for as long as the loop conditions are met.

### Delivery recommendations

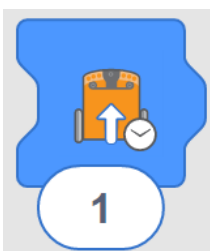
- Recommended time: 15 minutes

### Tips and tricks

- There are several different ‘loop’ blocks in EdBlocks. For this activity, make sure students are selecting the infinite loop:



- You can put many EdBlocks into a single loop. The loop blocks will stretch to fit over several blocks already linked together when you drag the loop over an existing string of blocks. Alternatively, you can put down the loop block first and then drop blocks inside the loop block.
- There are several different ‘drive forward’ blocks in EdBlocks. For this activity, students will have the most success if they are selecting the time-controlled drive blocks:



- Tell students they can change the time by clicking on the number and typing in their desired time, anything from 0.01 to 320. Time is in seconds.

## Section 3 – How can you use the sensors to make the robot react?

Pull everything together and get creative by using the programming and robotics concepts from the lesson into your own coding creation!

### How it works

This section builds on the Edison robot's light sensors ability to detect differences in the light levels detected between the robot's two sensors. By blocking out one sensor completely, students can trigger Edison to react when exposed to any light.

This programming task encourages students to combine different types of blocks together. By using the light sensors, students can see how their programs in EdBlocks tie into the behaviour they see in their Edison robots in the form of inputs and outputs.

### Delivery recommendations

- Recommended time: 30 minutes
- Doing the optional costumes for Edison? Allow additional time for students to create their designs. Also consider tying the costumes into story themes and encourage students to create programs which make sense to their created Edison 'characters'.

### Tips and tricks

- There are several different 'loop' blocks in EdBlocks. For this activity, make sure students are selecting the infinite loop:



- You can put many EdBlocks into a single loop. The loop blocks will stretch to fit over several blocks already linked together when you drag the loop over an existing string of blocks. Alternatively, you can put down the loop block first and then drop blocks inside the loop block.
- There are several different 'drive forward' blocks in EdBlocks. For this activity, students will have the most success if they are selecting the time-controlled drive blocks:



- Remind students they can change the time by clicking on the number and typing in their desired time, anything from 0.01 to 320. Time is in seconds.
- The 'wait until' time block allows for user input to control the amount of time for which Edison will wait. Students can change the time by clicking on the number and typing in their desired time, anything from 0.01 to 320. Time is in seconds.
- With only one light sensor exposed, any light will trigger the program. Including the time-controlled 'wait until' block enables Edison to be placed somewhere dark. If a student is struggling with having the music/performance start too soon, increase the time in the 'wait until' block.

### **What should I do if a student finishes the lesson early?**

- Encourage students to write another program for Edison in EdBlocks. What do the other blocks do? What can they get their Edison robot to do using code in EdBlocks?
- Or, ask students who finish early to help classmates who are having trouble with the activity.