Edison and EdPy: Get started

Edison is a robot you can use to learn about a lot of things, including coding. In this activity you will learn about the Edison robot and one of the programming languages you can use with Edison, called EdPy. To use Edison and EdPy, there are two key questions we need to answer:

> ☐ Part 1: What is an Edison robot?
> ☐ Part 2: How do you use EdPy with Edison?

Once you understand the answers to both of these questions, you will be ready to use Edison and EdPy to do all sorts of activities. So let's get started with Edison and EdPy!

Part 1: What is an Edison robot?

Edison is a small programmable robot. There's a lot we can do with our Edison robots. We can program the robot to do things like drive using its motors, flash its LED lights or make sounds. Edison also has different sensors which we can use to get the robot to behave in different ways.

Edison uses sensors and motors to interact with the world. The robot also has three buttons, a power switch and several removable parts. Knowing where Edison's parts are and what they do will help you use Edison.

Have a look at the top of your Edison robot. Try to find all of the parts labelled in the picture on your Edison robot.

This is the top of Edison.

www.edpyapp.com
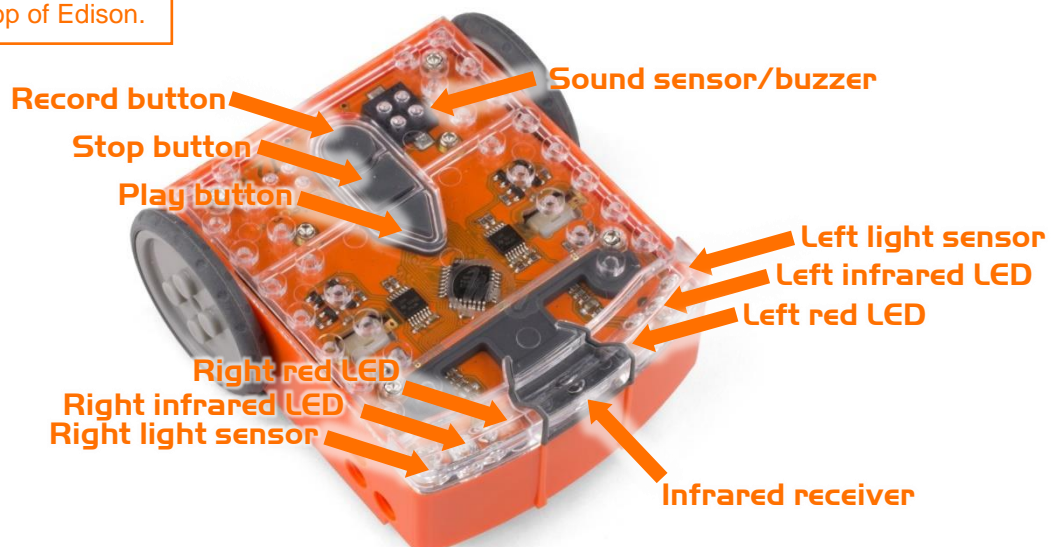
Flip Edison over. Look at the picture and try to find all of the parts labelled in the picture on the bottom of your Edison robot.

This is the bottom of Edison.

Line tracking sensor   **Removable skid**

Power switch

There is one other component which we will use a lot with the Edison robot called the EdComm cable.

You will use the EdComm cable to download your programs to Edison from your computer. The EdComm cable has a connection for Edison on one end, and the other end connects to the headphone socket on your computer.

For practice, try connecting the EdComm cable to Edison.

This is the EdComm programming cable.

Did you know….

The top of Edison is made of clear plastic. This way you can see the electronic components that make Edison work. One of the most important parts is the black-coloured square that sits just above the tip of the 'play' (triangle) button. Can you see it?

This is the robot's microchip. The microchip is basically a tiny computer, which is sometimes called a micro-computer. It contains the central processing unit (CPU). That's basically Edison's brain!

Part 2: How do you use EdPy with Edison?

One of the best things about Edison is that you can make your own programs for your robot! To write a program for Edison, we need to use some special software.

Did you know….

All computers have two main parts: hardware and software.

Hardware is the physical parts of a computer (or robot).

Software is the set of programs and applications that make hardware, like a computer or a robot, run.

The software we will use in this lesson is a robot programming language called EdPy. Go to www.edpyapp.com to open the EdPy app.

Whenever you want to program Edison using EdPy, you will always need to go to the EdPy app. Select the correct Edison version you are using (ask your teacher if you aren't sure) and the programming environment will open.

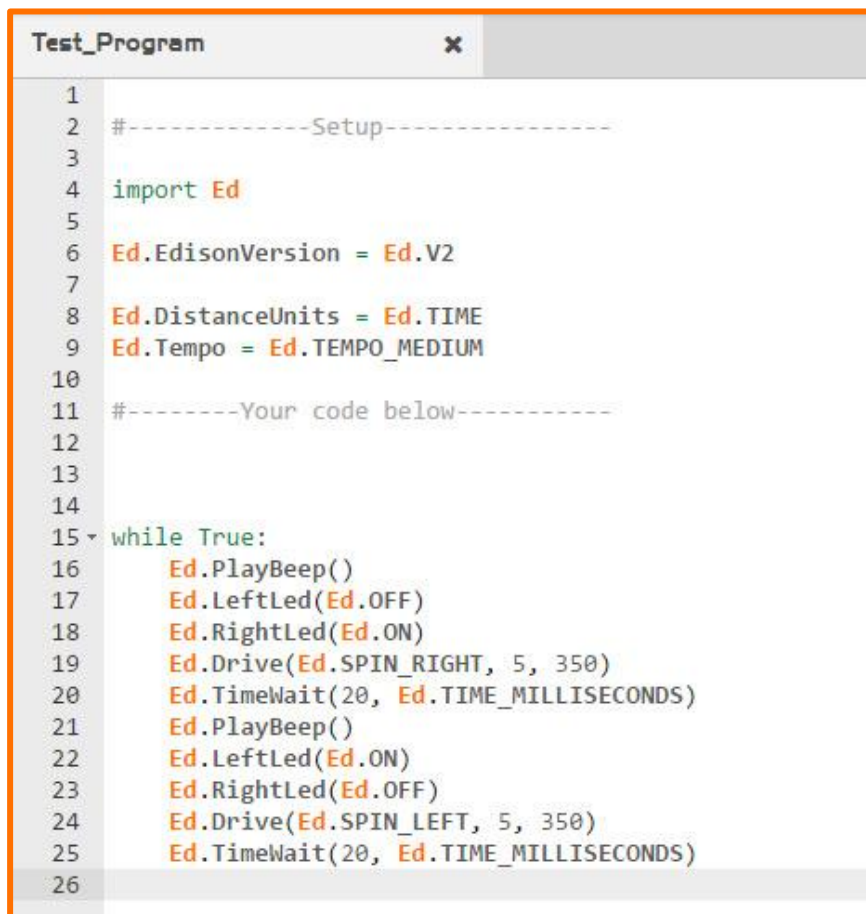Here is what the EdPy environment looks like:
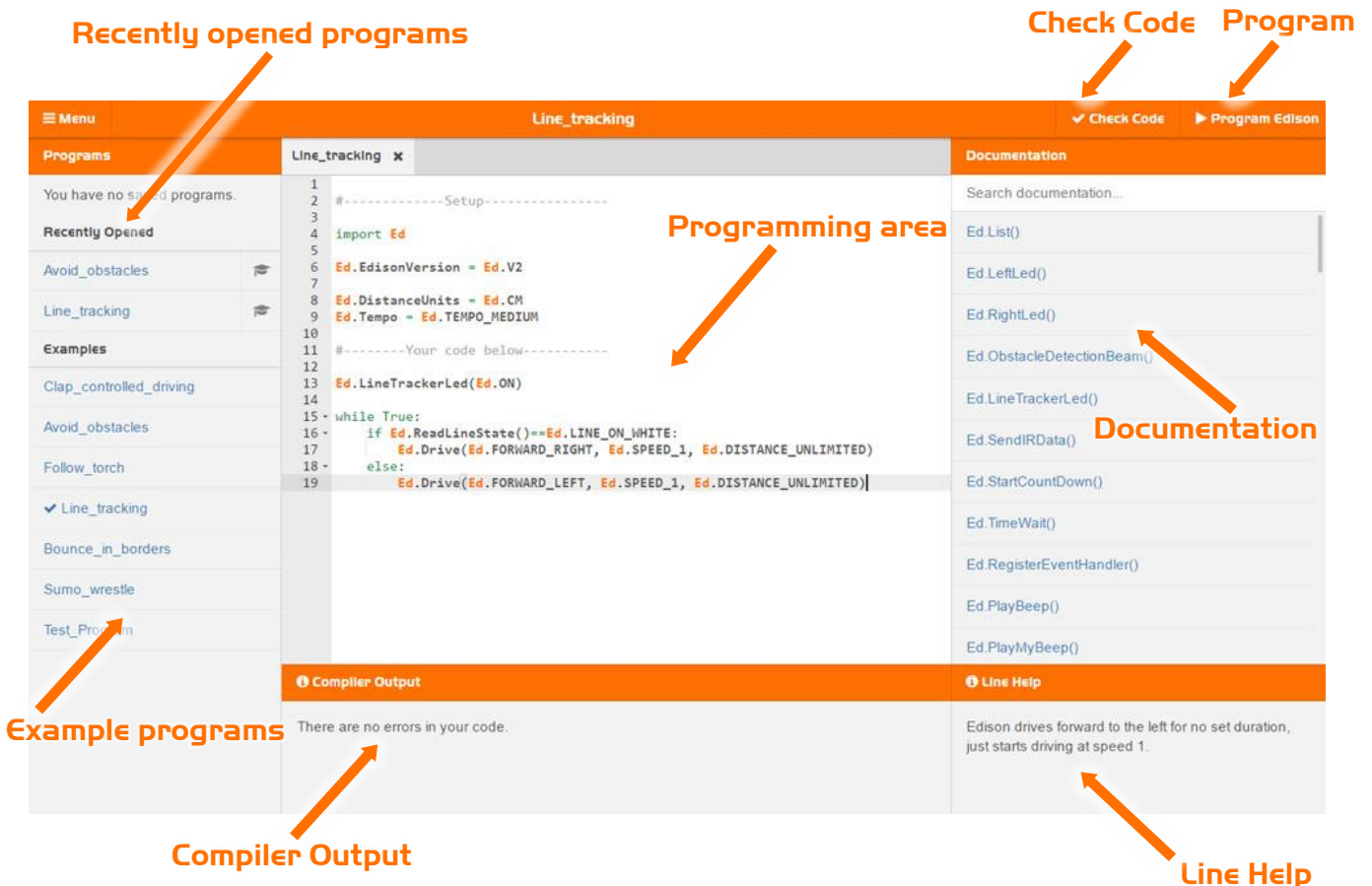
EdPy has some built-in features to help make programming Edison a bit easier.

- The Documentation window contains information about all the different functions you can use in EdPy. You can search for a function in the 'Documentation' window and read the results to learn how that function works.

- When you click on a line in your program in the programming area, the Line Help window gives a description of that line of code as a full English sentence. You can look at this to help make sure your code is communicating what you want correctly.

- The Compiler Output window checks your code when you go to program Edison. If your program cannot be sent to your robot because of a critical error, you will get a warning message in this window.

To get familiar with the EdPy app and programming, let's try opening up an example program. Open the program called 'Test_Program' from the 'Examples' window in EdPy.

This is what the Test Program looks like:

```
Test_Program                    ✖

1
2   #-------------Setup----------------
3
4   import Ed
5
6   Ed.EdisonVersion = Ed.V2
7
8   Ed.DistanceUnits = Ed.TIME
9   Ed.Tempo = Ed.TEMPO_MEDIUM
10
11  #--------Your code below-----------
12
13
14
15 ▾ while True:
16      Ed.PlayBeep()
17      Ed.LeftLed(Ed.OFF)
18      Ed.RightLed(Ed.ON)
19      Ed.Drive(Ed.SPIN_RIGHT, 5, 350)
20      Ed.TimeWait(20, Ed.TIME_MILLISECONDS)
21      Ed.PlayBeep()
22      Ed.LeftLed(Ed.ON)
23      Ed.RightLed(Ed.OFF)
24      Ed.Drive(Ed.SPIN_LEFT, 5, 350)
25      Ed.TimeWait(20, Ed.TIME_MILLISECONDS)
26
```

Try it!

Let's see how the 'Documentation' and 'Line Help' windows work.

With the Test Program open on your screen:

- Click on line 19 in the program. Read what the 'Line Help' window says about this line of code.
- Search for 'Ed.Drive' in the 'Documentation' window. *Hint!* You don't have to read all of the documentation for 'Ed.Drive' right now, but if you need help using this function later, remember you can look it up!

Next, try downloading the Test Program to your Edison robot.

Download the program to Edison

Whenever you want to download a program from EdPy to Edison, you need to follow these steps:

1. Connect Edison to your computer using the EdComm cable.
2. Make sure the volume is turned up all the way on the computer.
3. Press the record (round) button on Edison **one time**.
4. Go to the menu bar in EdPy and click on the Program Edison button.
5. A pop-up window will open. Once the program is ready, a button called Program Edison will appear at the bottom of the pop-up window.
6. Click on the Program Edison button in the pop-up window.

Did you know….

Edison cannot understand the code in EdPy the way it looks on your computer screen. The code needs to be changed into a format that Edison can understand before the program can be downloaded. This can take a bit of time.

That's why it can take a little while for the Program Edison button in the pop-up window to appear.

You will hear the program downloading to Edison. Once it is done downloading, Edison will make the 'success' beep. Don't unplug Edison until you hear the beep!

Once the program finishes downloading, unplug the EdComm cable. Press the play (triangle) button once to run the program. (Remember, to stop Edison, press the square button one time.)

That's it! You are now ready to start programming with Edison and EdPy!

www.edpyapp.com