Name _____

Challenge up: Cheater bot

Using a decider bot is a fair way to choose between two options. The LEDs flash so quickly that it's very hard to 'cheat' and get the robot to answer the way you want. You can build a decider bot with a 'cheat' however... but you need to add a second subroutine to do it!

What to do

Write a program to turn Edison into a decider bot with a secret cheat. Your main program should have Edison flash its LEDs on and off forever. You also need two subroutines: one subroutine that is fair and one that cheats. The 'fair' subroutine needs to interrupt the main program if the robot detects a button being pressed, and tell Edison to wait for a few sounds so that you can see which LED is on to get your answer.

The second subroutine should also interrupt the main program if the robot detects a different button has been pressed. Instead of just waiting, however, you need to design that subroutine to give you a set answer.

Download your program to your Edison robot and test it out. Write your program in text box below or insert a photo of program in image box below.

Challenge up: Pick one

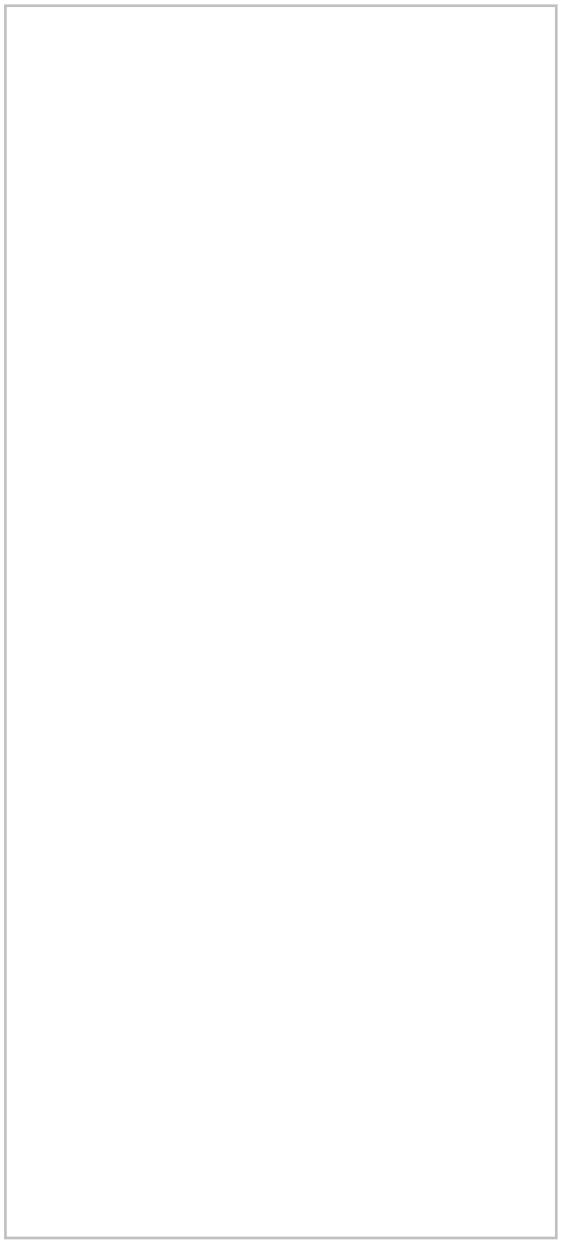
A decider bot selects an answer from two different options. When you use Edison as a decider bot using its LEDs, you have to remember which choice the right LED represents and which choice the left LED represents. Instead of remembering, why not create a way for Edison to light up the answer!

What to do

Write a program to turn Edison into a decider bot. Your main program should have Edison flash its LEDs on and off forever. You also need a subroutine that will interrupt the main program if the robot detects a button being pressed and tells Edison to wait for a few seconds so that you can see which LED is on and get your answer.

You also need to create some sort of physical set-up so that the decider bot's choice lights up the answer. That way you can write down two choices, and Edison will light one up!

Download your program to your Edison robot and test it out using your creation. Write your program in text box below or insert a photo of program in image box below.



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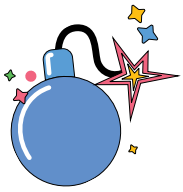
Let's explore comments in coding

Part of learning how to code is learning to speak another language: a computer programming language! The more coding you do in a programming language, the easier it is to understand programs written in that language. You can look at a program, follow each command in order, and start to figure out what the program will do when you run it.

There is also a tool to help make it easier for us to read programs called **comments.**

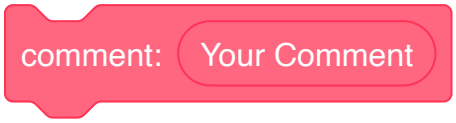


Jargon buster

In programming, **comments** are notes that the programmer adds to help keep track of things. Comments are messages to document what's happening in the program and clarify things so that people can understand the program.

What comments look like depends on the programming language. Sometimes comments can look a bit like code, but comments are not actually code. When a computer runs a program that has comments in it, the computer will ignore the comments. Comments are just for people!

In EdScratch, you can add a comment to your program by using the special block in the Comments category. Here is what the comment block looks like:



The comment block looks similar to other blocks in EdScratch, but it works a bit differently.
See where it says 'Your Comment' in the block? That's where you can write in your note.
Remember, this block isn't code for Edison. When Edison sees a comment block in a program, it simply skips the block and moves on to the next command.

You can think of the message you write in a comment block as that block's input parameter, but instead of being information for Edison, it is a note for a person.

Why is that?

Because comments are just written for people, you don't have to worry about the computer understanding what you mean. That's why comments don't need to be written in the syntax of the programming language.

How do you use comments?

In many ways, how you use comments in your program is up to you. Comments do not need to follow syntax, so there isn't a specific way you must write your comments. You can phrase things in your comments however you think makes the most sense. You can also add comments to your code wherever you think you need a note to help explain what comes next.

Adding comments to a program makes it easier for other people to read your program, but the person that is most likely to read your comments is you in the future! This is because comments are a helpful tool for debugging your programs.

By adding a comment, you can organise your thinking and keep track of what it is you are trying to do. That way, if something in your program doesn't work the way you intended, it is easier to go back and see where the issue might be.

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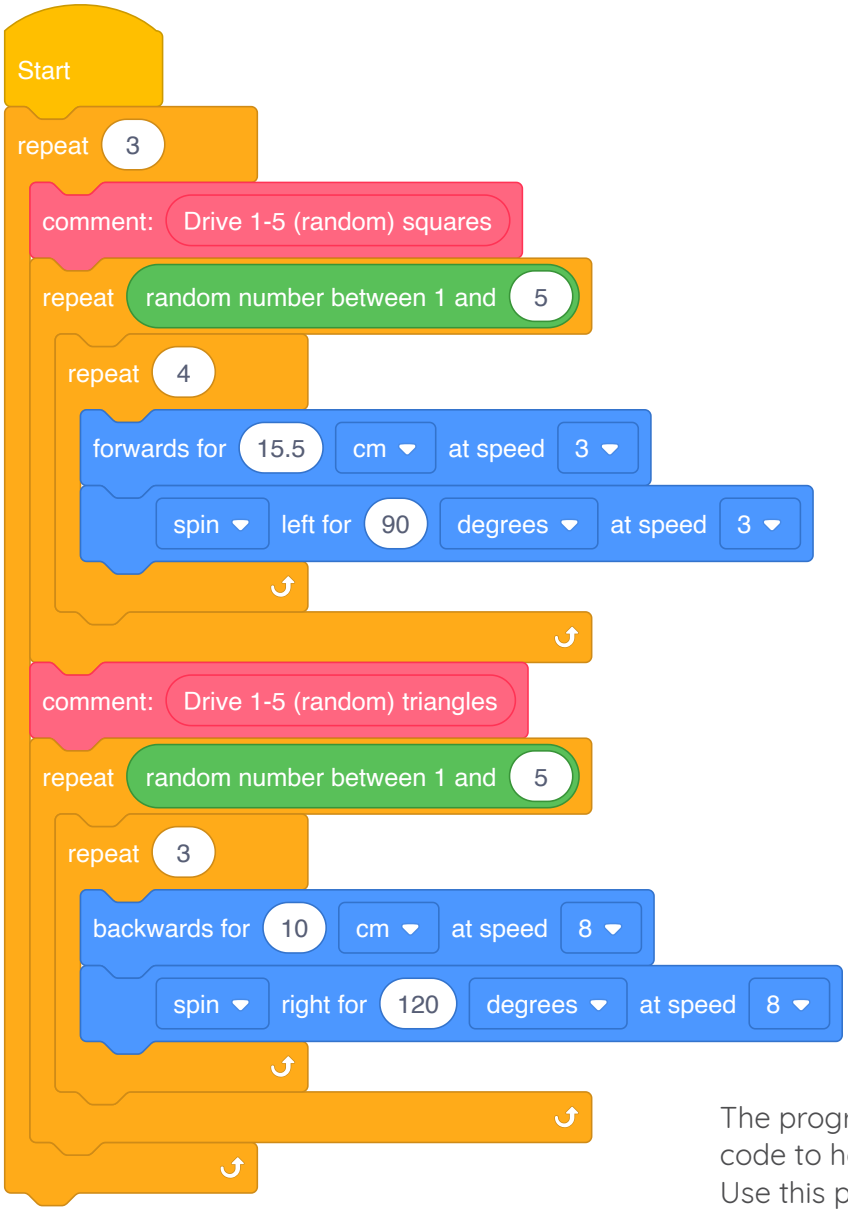
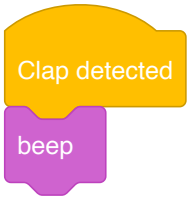
Try it out

Look at the following program:





The programmer has added some comments to the code to help make the program easier to read. Use this picture to answer the following questions.

What do you think Edison will do if you program the robot with the code in the picture?

Do the comments make it easier for you to understand what the programmer wants the program to do? Why or why not?

Now try programming your Edison with the program in the picture.

Did the program work the way you expected? Describe anything that happened that you didn't expect.

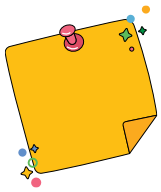
When the programmer ran this program, something unexpected happened:

"I only wanted Edison to beep when I clapped, but the robot keeps beeping repeatedly the whole time the program is running. Why is that?"

Why is Edison beeping? Hint: Is there a clue in the EdScratch environment?

Challenge up: Create and comment

Using comments is a good way to organise your thinking as you write code. Adding comments lets you leave a little message to yourself or someone else about what the code is doing. This is really helpful if you need to come back to a program later on, especially if you need to do some debugging. Reading the comments in a program is a quick way to know what is meant to be going on!



Don't forget

The person that is most likely to read your comments is you in the future!

What to do

In this activity, you need to design a program in EdScratch to run with your Edison robot.
What your program does is up to you, but it needs to include the following things:

1. A main program.
2. At least one subroutine that is triggered by either a button press event or a clap event.
3. At least one loop.
4. At least two types of outputs.

Design and write your program in EdScratch. Add comments as you write your program to help keep track of what you are trying to do and to help someone else read your program.

What do you want your program to do? Describe what your program should do when you run it in Edison.

Where in your program did you include comments? What did you use them to say? Write down at least one example of a comment you included in your program. Explain where you put the comment block, why you put it there, and what the comment says.

Test your program with your Edison robot. Does it work like you expected?

Is there anything happening you don't want to happen? Is your program doing everything you want it to do and is each action happening in the order you want?

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Describe any issue you had when you first tested your program. What did you do to fix the issue?

Once you have your program working just how you want, go back and look at your comments. Do they all still make sense? Do you need to add any new comments or get rid of any of the ones you put in originally? Refine your comments so they work with your final program.

What does your finished program look like? Write your program below. Be sure to include the input parameters you used and your comments.