

U3-1.2 Let's explore loops and sequence

Loops are a very useful control structure in coding. Loops can help make programs more efficient by letting you repeat commands without needing to write the same blocks of code multiple times.

When you use loops in programs, you still need to think carefully about sequence. This is especially true when you make programs which have some code inside of a loop and some code outside of the loop.

Let's try making a program that will let Edison drive a quadrilateral. Your program will need to have some of the code inside of a loop, but some of the code will need to be outside of the loop.



Don't forget

Sequence means going in order, step-by-step.

Try it out!

A quadrilateral is a four-sided shape. Squares are quadrilaterals, but not all quadrilaterals are squares. Look at the quadrilateral on activity sheet U3-5. This quadrilateral has four sides and four angles, but they are not all the same.

You need to write a program for Edison using EdScratch so that your robot can drive the shape of the quadrilateral on activity sheet U3-5. Your program should use blocks from the **Drive** category to generate the motor outputs you need. Your program also needs to use a loop from the **Control** category.

You need to work out the best place to start Edison on the activity sheet. Be sure your program also has Edison end in the exact same spot where it started.



Hint!

Think about the sequence of actions you want Edison to take. Remember, when you make an EdScratch program for Edison, the robot will start with the top block and do each action in order, one-by-one.

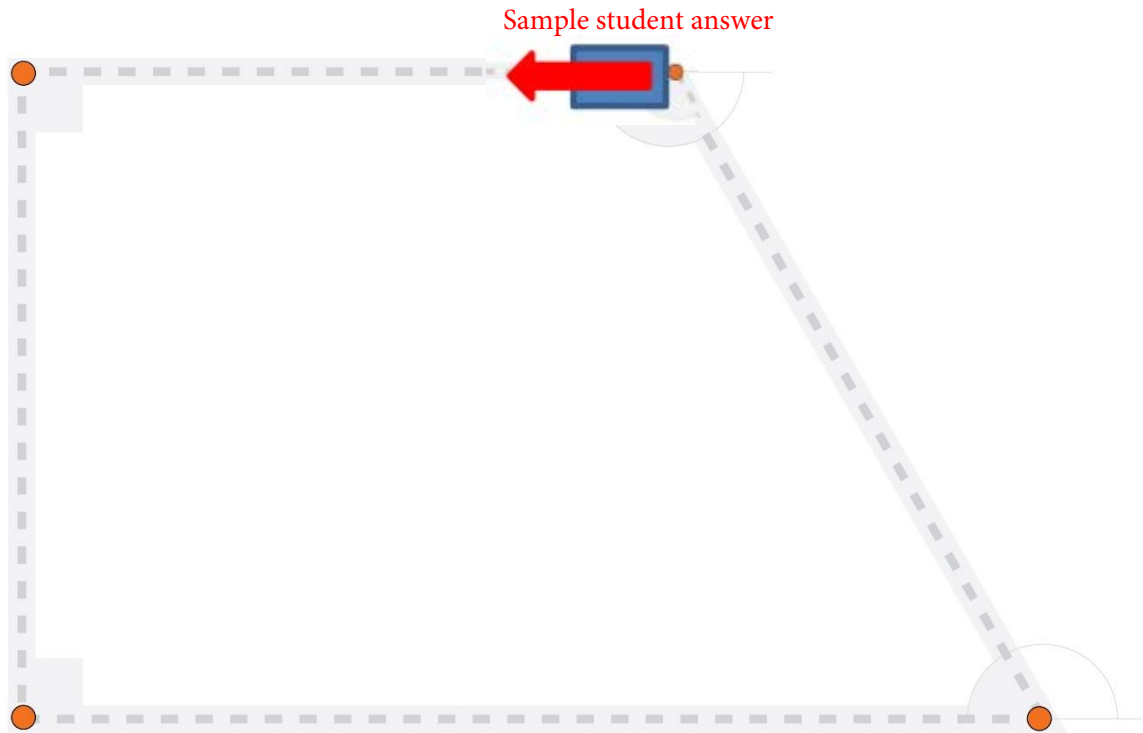
Write your program in EdScratch. Then download your program and use activity sheet U3-5 to test it out.



Hint!

You still want to make your program as efficient as possible, so try to use as few blocks of code as you can.

1. Where on the quadrilateral did you start Edison? Mark where you started Edison, including which direction you had the robot drive.



2. Look at your start point and your program. How did using this start point affect the sequence of your program?

Sample student answer: I started the robot on the corner with the obtuse angle, pointing towards the corner with the right angle. That meant that the first two sides that the robot needed to drive were the same length and the first two turns were both 90 degrees. That is why the first part of my code is a loop that repeats twice. The rest of the program is individual blocks outside of a loop because the other sides and angles do not repeat on the shape, so cannot be used with a loop in the program.

Activity sheet U3-5: Drive a quadrilateral

