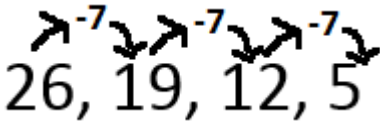


First Lego League Curriculum - Ontario

Activity Sheet	
Gr 5 - Lesson #4	Ultrasonic Sensor – Driving Patterns
Date:	Name(s):

<b>Check That I'm Done</b> <input checked="" type="checkbox"/>		
<input type="checkbox"/> Commented on my code	<input type="checkbox"/> Modify it task	<input type="checkbox"/> Coding Challenge

Learn
<p>Patterns can be powerful tools to predict what will happen in the future.</p> <p>Numbers often form patterns, and by seeing how they are growing or shrinking, you can tell what is going to come next.</p> <p>An example would be: 2, 4, 6, 8..... You can probably see that this pattern is growing by 2 each time, and the next number will be 10.</p> <p>Patterns can shrink also, for example: 26, 19, 12, 5... This pattern may take a bit more thinking, but it is shrinking each time by 7.</p> <p>A good method to figure out either of these patterns out is to find the <b>difference</b> between the <u>first number</u> and <u>second number</u>, and then see if the pattern continues.</p> <p>Looking at the same pattern from before: 26, 19, 12, 5 ... We take 26-19 and find it = <b>7</b>. And then test it for the next number. 19-7=<b>12</b>. Since 12 fits the pattern we're likely on the right track.</p> <div style="text-align: center;">  </div>

### First Lego League Curriculum - Ontario

Use this method to find the pattern, and continue it 2 more times.

26, 20, 14, \_\_, \_\_

3, 7, 11, 15, 19, \_\_, \_\_

Below is a table describing a robot's movement. It first moves towards and then away from a fixed object, each time at smaller and smaller distances (kind of like a bouncing spring slowing down).

Trip	Towards	Away
1	50cm	40cm
2	45cm	35cm
3	40cm	30cm
4		
5		
6		

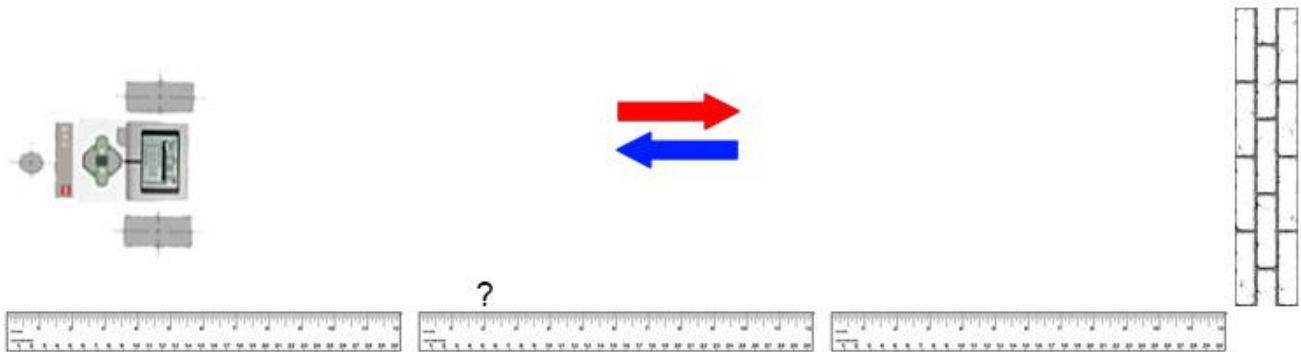
How does the distance towards change each trip?

How does the distance away change each trip?

## First Lego League Curriculum - Ontario

### Predict and Plan

Based on the previous chart. Circle the approximate area where you think the robot will end up (Close to the middle, the wall, or where it started).



### Demonstrate/Design/Discover

- ✓ Program your robot to move in the way described in the table you just completed.
- ✓ Make sure to start your robot off at least 60cm away from a flat object (such as the cuboid, or a wall).
- ✓ Place a small object to mark where you think your robot will end up.

**Tips:** Sometimes programs with lots of blocks can be hard to fix when something goes wrong. Feel free to use lights so you know what part of the code your robot is doing, which can help you locate problems in your code.



**First Lego League Curriculum - Ontario**

--

<b>Record</b>
---------------

How close was your estimate?
------------------------------

How did you make your guess?
------------------------------

--

--