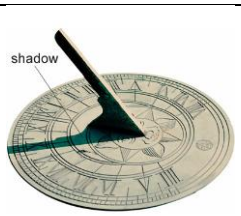
Activity Sheet	
Gr 5 - Lesson #6	Stop at Line – Telling Time
Date:	Name(s):

Check That I'm Done ☑		
☐ Commented on my code	☐ Modify it task	☐ Coding Challenge

Learn

The clock face has been around for thousands of years, and until very recently has been the most common way to tell the time.



Sundials may have been the first clocks, and are a natural effect of the sun casting a shadow as it moves across the sky.

We have used gears to improve the clock, but have kept this circular display.

Other gauges and meters work in much the same way, and understanding how they work helps us understand these readings.

The clock is really two meters in one, the current hour AND the current minute.

Knowing that these hands rotate to the right, if the hour hand reaches and passes a number you know that it is at least that hour. The 10th hour in this

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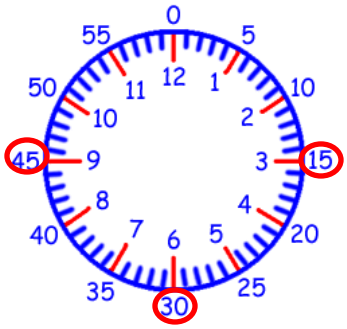
example. The minute hand is longer so you can tell the difference but takes a bit of math, and or memory to read it correctly (as the minutes aren't shown on most clocks). Each hour marker is **also** 5 minutes that the minute hand has travelled. Memorising at least a few of these minute markers makes reading a clock faster. Also, because a clocks hand always turns at a consistent speed, it takes twice as long to get to the 30min mark as it does to the 15min mark.	

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Predict and Plan

One of these clocks is in correct. Both are displaying the same time, but something is off. Write about which clock is incorrect and how you know.

_____

_____

_____

Demonstrate/Design/Discover

- ✓ Using the pages at the end of the worksheet, tape your large clock together, and cut out the hour and minute hands. Assemble the clock with a push pin in the center (or simply with some tape).

- ✓ Create a program that spins your robot on the spot, and then stops when it sees a black line. (You will need to figure out both the turn,

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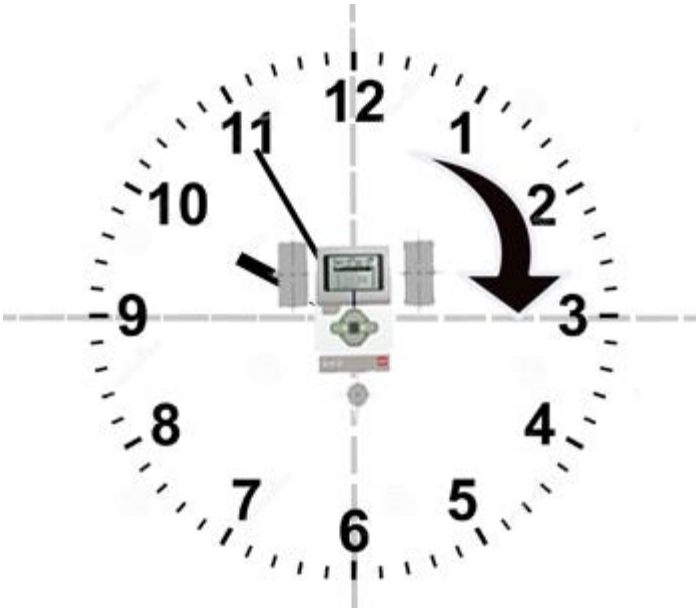
and the threshold value). Make sure it's working before moving on.



- ✓ Next figure out how long your robot takes to spin one hour marking around your clock at 50% power. (You can do this by timing one rotation and diving it by 12).

- ✓ Fill out the chart below using first predictions, and then testing with your robot.

Time On Clock	Time to spin and stop on hour hand (prediction)	Time to spin and stop on hour hand (actual)
9:50		
7:00		
5:30		
4:47		

*make sure to set the clocks hour hand exactly where it should be, not just exactly on the hour

- ✓ Now it's time to bring in the minute hand. Create a program that rotates until it sees a black line, puts the indicator light to red (without stopping) and waits again until it sees another black line and then stops. Demonstrate this to your teacher. The flow chart below will help you.

- ✓ Time permitting, make new estimates for each of the times in the table and test them out.

Tips: Choosing the correct light value is very important for consistent results. The best light values are exactly in between the white and the dark.
For example, if dark is 20% and light is 60%, the best light value is 40%.
Using port view on the robots brick can tell you the light reading in real time.

Record
Time for one full rotation at 50% power? _____ Time for 5 minutes worth of rotation? _____ (above ÷ 12)

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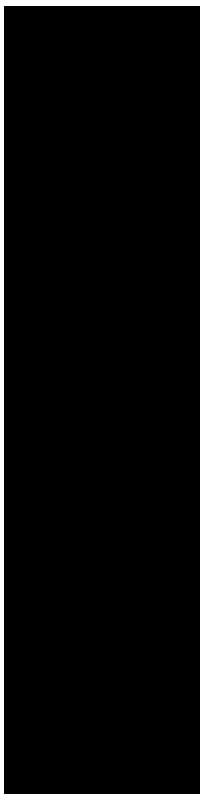

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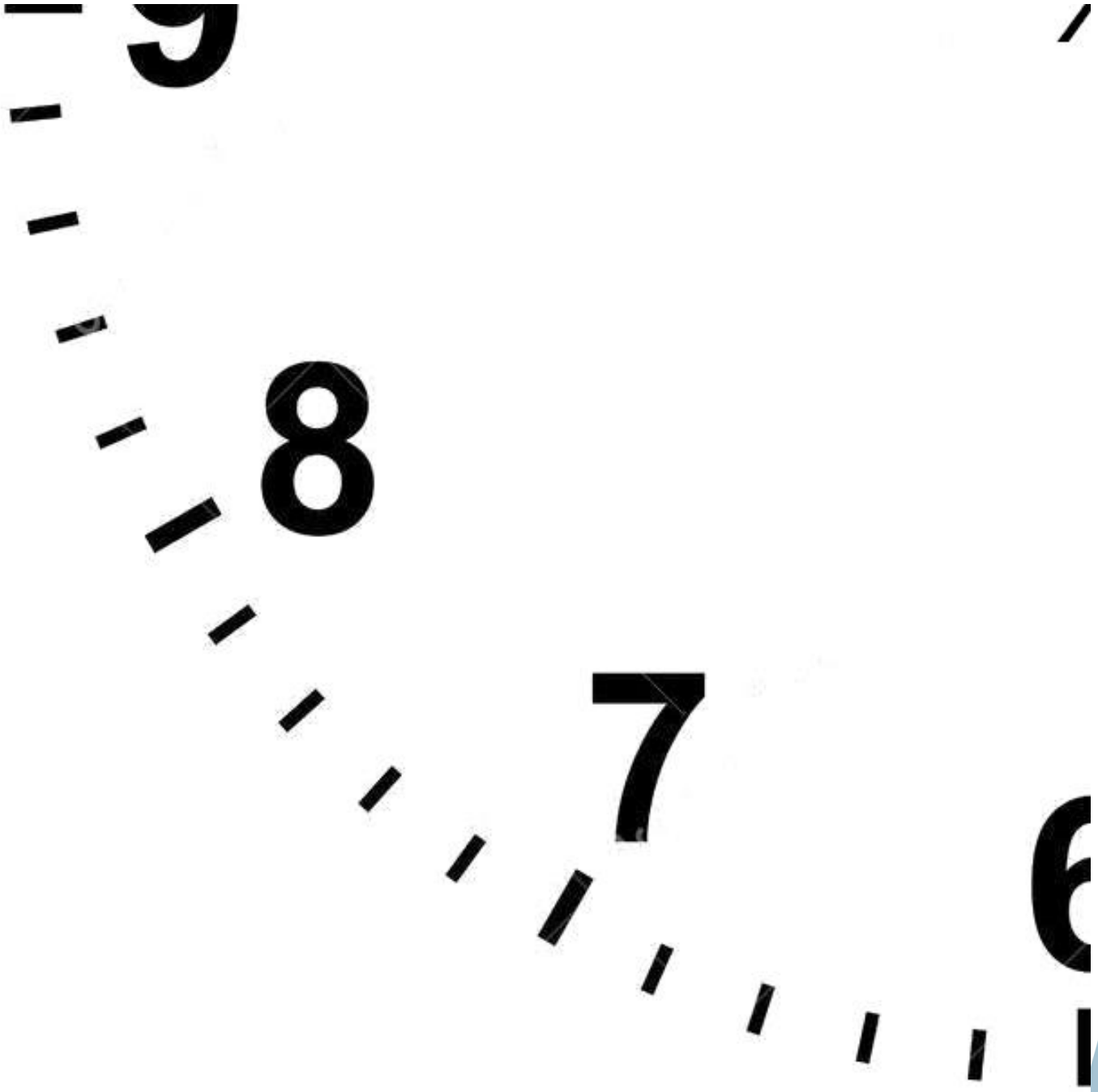

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