This badge is only for 4th graders in Mr. Dunlap's Core class.

Before you may start this badge, you must complete…
- ☐ Cubelets 1
- ☐ Cubelets 2
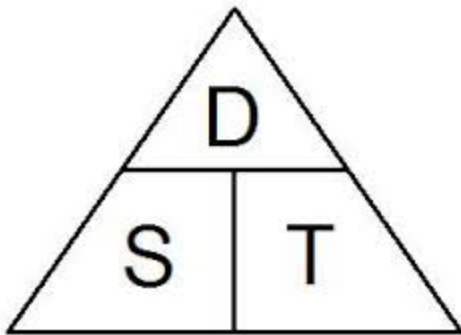- ☐ Have an avatar on your badge page.
- ☐ Cubelets 3

Once you have completed the above challenges, it's time to tackle this massive one.

PART ONE: The DST Triangle
Please watch the two videos below and be ready to share with Mr. Dunlap how the DST triangle works. Mr. Dunlap will have some sample problems for you to solve to show that you understand.

https://youtu.be/RlFgR297o8I
https://youtu.be/8glfUANjBbY

PART TWO: Robot Time!
You will need to build a robot that will run away from your hand. Construct that however you want, but there must be a bluetooth hat on it. Once you are happy with your robot, don't change it. Keep it the same!

You will run your robot three times. Using the orange Cubelet app, you will need to change the personality on your Distance Cube. Once with the default setting, once with a distance threshold of 50, and once with a distance threshold of 200. In the space below, write a prediction. Which setting will produce the fastest robot?

Using the table below, chart your data.

Distance Cube Settings	Distance (cm)	Time (sec)	Speed (cm/sec)
Default			
Threshold 50			
Threshold 200			

Was your prediction correct? Explain your answer.

PART THREE: ROBOT TIME 2!
Build another robot that will run away from your hand. This time it needs to look different, but it still needs a bluetooth hat.

Make a prediction below. Which robot will be faster? Why?

Using the table below, chart your data.

Distance Cube Settings	Distance (cm)	Time (sec)	Speed (cm/sec)
Default			
Threshold 50			
Threshold 200			

Was your prediction correct? Explain your answer.

Cubelets Speed Calculator 4th Grade