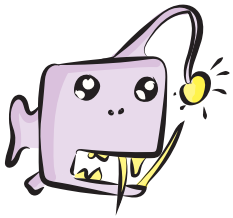
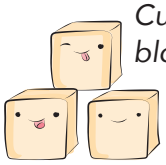
Practice using the scientific method



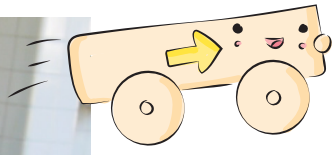
Now that you are familiar with the steps of the scientific method, try it out for yourself by designing a mini experiment that you can complete in an hour. This will be great practice for using the scientific method in preparation for a science fair project. Your mini project won't be related to reefs, but you can apply all of the same techniques to ask a question, design an experiment and measure data using Blocky car.

What you'll need:

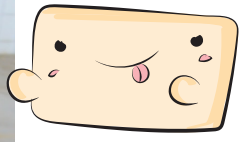
You can use a variety of materials from the STEMTaught supply shelf including Blocky car, Roxy ramp, the wooden marbles and Cubie blocks. You'll also need a Mezzie measuring tape to help you measure your results.



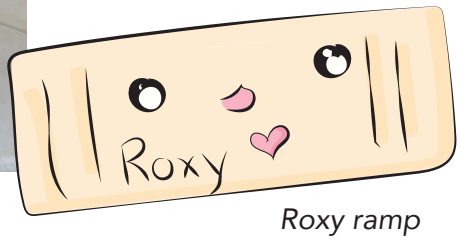
Cubie blocks



Blocky car, axles, and wheels



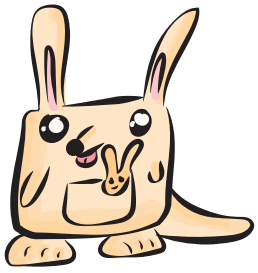
Extra Blockys for ramp spacers



Roxy ramp

What you'll do:

1. Ask a scientific question that you can answer using these STEM materials.
2. Design an experiment to help you answer your question.
3. Perform the experiment and measure your results.
4. Analyze your results and draw conclusions.



Go Blocky Car!

Follow the steps of the scientific method to design an experiment with Blocky car.

Step 1:

Make an observation and ask a scientific question

Take a look at the materials you have to work with for this experiment. Think about what you could do with a car, ramps and wooden Cubie blocks. Choose a question to investigate from the questions below or make one of your own.

What will you measure in your experiment?

Lead a class discussion to bring out all these points.

Example: I want to measure how far something rolls, slides, tips over. I could measure how far something gets pushed, or how far the car rolls up a ramp. I could measure how many blocks the car can move. (Students must choose one).

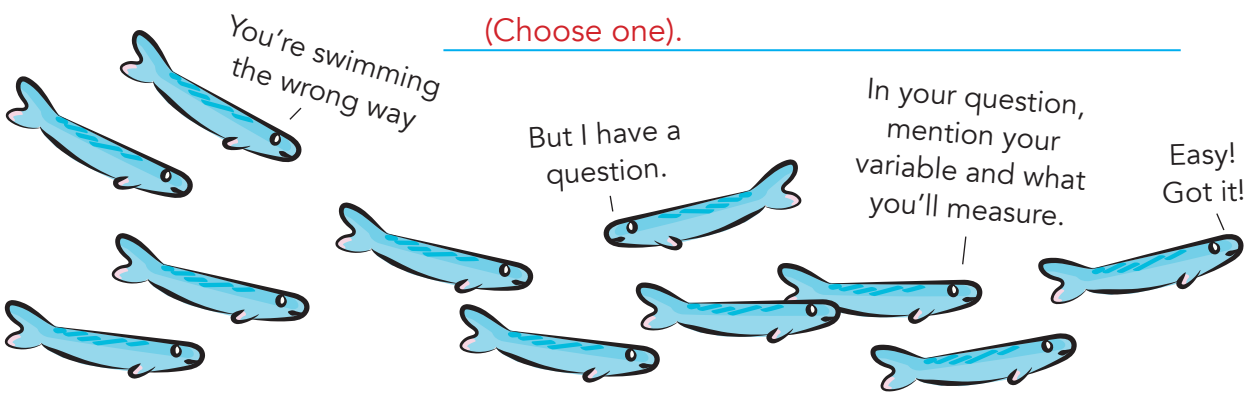
What experimental variable will you vary in your experiment?

Lead a class discussion to bring out all these points.

Example: I could vary the steepness of the ramp, how hard I push the car, how heavy the car is, how many blocks I tape to the car, how many blocks the car crashes into (choose one).

Write the guiding question for your experiment.

Example: Does the steepness of the ramp effect how far Blocky can go? Does increasing Blocky's weight allow him or her to crash through more stuff? Does Blocky's weight effect how far Blocky can roll up a ramp after rolling down? (Choose one).



Step 2:

Make a prediction and design an experiment

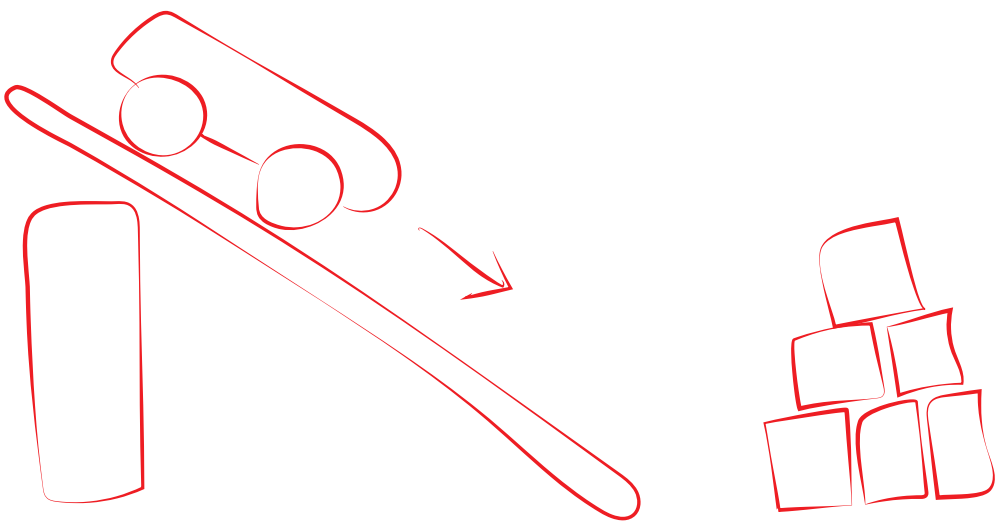
How will you change your experimental variable? What parts of your experiment will you hold constant.

Example: I will vary the number of blocks I add to Blocky's crash landing. I will keep the steepness of the ramp the same and release Blocky from the same height every time.

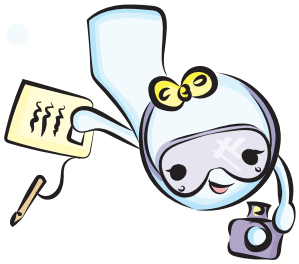
Design your experiment here. What will you measure? What do you think will happen?

Answers will vary depending on what experiment the child chooses to do. Example: I will roll Blocky down the ramp changing the number of blocks blocky crashes into. I will measure how far the blocks are pushed. I think that when I add more blocks it will stop Blocky faster. I do not know how many blocks it will take to stop blocky completely with no movement of the blocks at all.

Draw a picture showing your experimental setup.



Student graphs and data will all be different depending on their experimental designs.

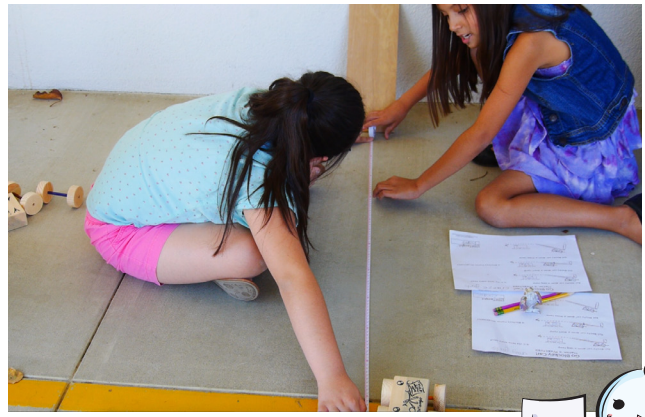


Step 3:

Perform your experiment and gather data

Record your data in the table.

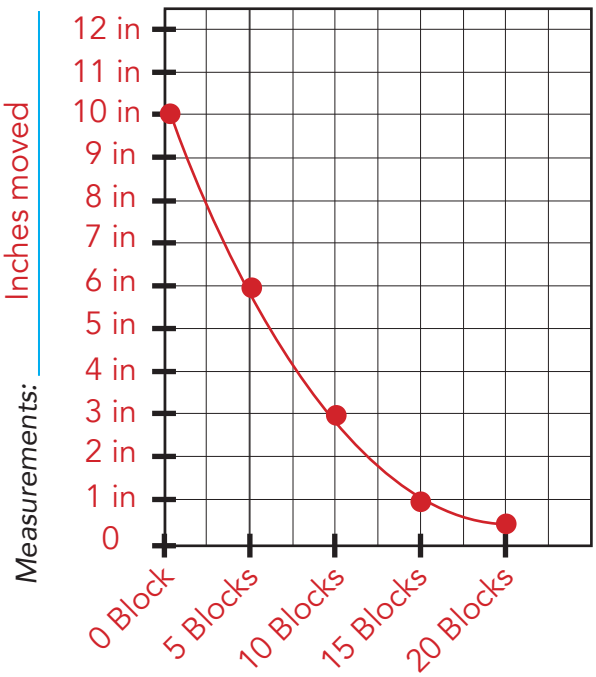
Number of blocks	Inches moved
Your variable	*What you measured*
1 block	10 inches
5 blocks	6 inches
10 blocks	3 inches
15 blocks	1 inches
20 blocks	0.5 inches



Step 3: Interpret your results

Graph your data.

Graph title: _____



Your variable: Number of blocks

What do you want to measure for your experiment?

Example: I think adding more blocks to the crash landing will slow Blocky down and might even stop Blocky.