



Sidewalk Safety Exploration

Home Connection

Dear Family,

During the last few days, children designed and built a model of a safety plan that could be used to help stop a balance bicycle. They acted just like engineers! To make the model, they . . .

- identified and learned about a problem
- planned ways to solve the problem
- made a model
- tested the model
- thought about their test results and made a new plan

In this exploration, children were introduced to science concepts, such as how pushes change the motion of an object. They used a toy truck to test how going uphill can make a moving object stop. They also investigated how hitting another object can change the speed or direction of a moving object. In addition, they practiced science and mathematics skills, such as counting and measuring, conducting fair tests, using data to make a comparison, and drawing conclusions supported by evidence.

Let your child tell you about the activities in this engineering project. As your child speaks, listen for science words such as **push** and **slope**. If your child needs help telling what happened, ask prompting questions, such as—

- What was the problem you were trying to solve?
- How did you find out how going uphill changes the way an object moves?
- How did you find out how barriers change the speed or direction of an object?
- What materials did you use to make a safety ramp?
- How did you know if your safety plan was successful?

This STEM project has been developed in partnership with Texas A&M University.

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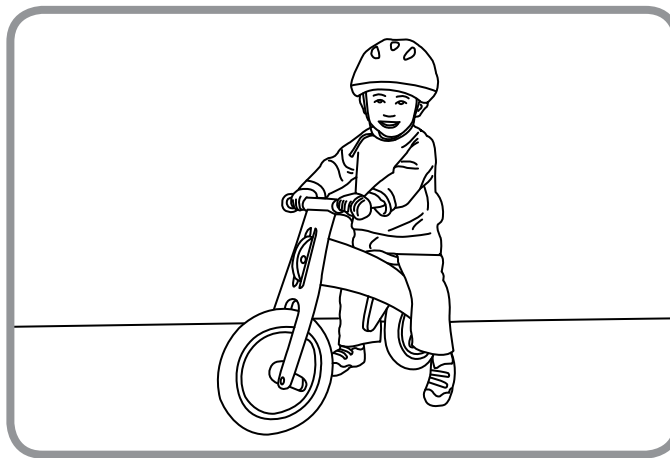
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Pushes and Safety

Use the image below to help your child tell about how a balance bike moves. Ask prompting questions, such as—

- What makes the bike move forward?
- How does the child stop the bike?
- What happens when the bike goes downhill?
- What happens when the bike goes uphill?



Try This at Home: Safety Structure

With your child, look for devices and structures in your home, car, and neighborhood that have been designed to keep people safe. How do they keep people safe? Examples may include safety helmets for bicycles, bumpers on cribs, grab bars in a bathtub or shower, or rubber mulch on a playground.

For example, you might look at a child's car safety seat or seat belts. Talk about how these devices keep the child from moving forward if the car stops suddenly. Look closely to see how the devices are attached. Ask your child to explain why it is important to be safe when riding in a car.

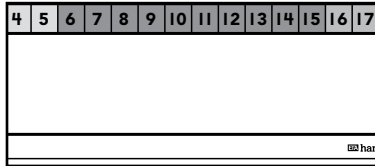
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Safety Problem

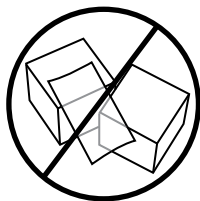
Name _____

Our Goals

- ☒ The truck will stop with its front wheels in the green safety zone

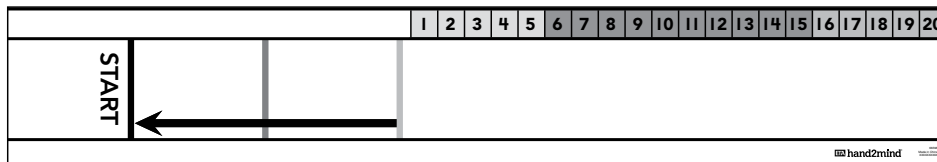


- ☒ Barriers will not break apart



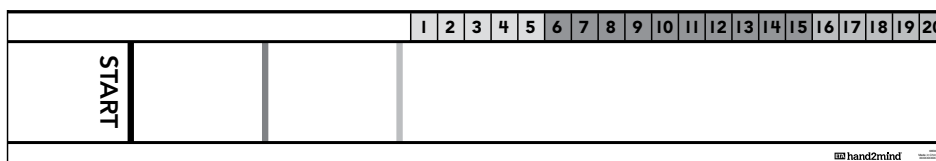
Our rules

- ☒ Pull the truck back from the orange line



- ☒ Use only these materials:

Ramp



Tape



8 cubes



Big and Small Pushes

Name _____

Predict

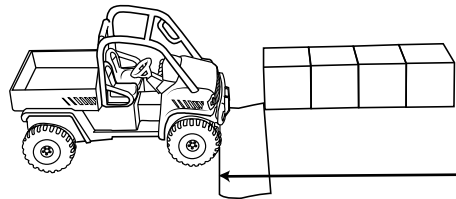
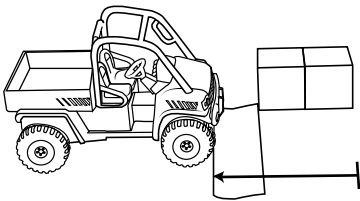
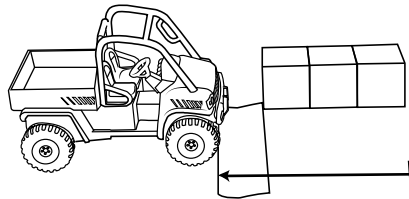
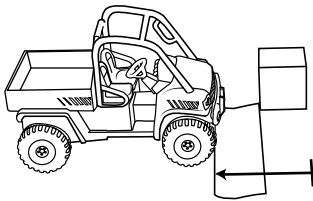
Which push will make the truck go farther?

small **push**

big push

What happened?

Which push made the truck go farthest?



Which push made the truck go farther?

a small **push**

a **big** push

Truck Races

Name _____

Teams	How many cubes?	Big push or small push?	Winner
Team A	__ cube(s)		
Team B	__ cube(s)		
Team C	__ cube(s)		
Team D	__ cube(s)		
Team E	__ cube(s)		
Team F	__ cube(s)		

Which made the truck go faster?









a small **push**

a **big** push

Slopes and Pushes

Name _____

How far the truck went

				
20				
19				
18				
17				
16				
15				
14				
13				
12				
11				
10				
9				
8				
7				
6				
5				
4				
3				
2				
1				
				
Start	Start	Start	Start	

What Do Barriers Do?

Name _____

How far the truck went

20
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1









Start

Start

Start

Start

Safety Test

Name _____

How far the truck went

20
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1

Start

Test 1

Start

Test 2