

# PLTW | Launch

## Launch Log Pushes and Pulls

**Name:**

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# Activity 1: Everyday Pushes and Pulls

Fill in the missing words:

A force is a \_\_\_\_\_ or a \_\_\_\_\_.  
\_\_\_\_\_

**push**                      **pull**

Draw a picture in each box.

<b>Push</b>	<b>Pull</b>

A large, empty rectangular box with a thin black border, occupying the upper two-thirds of the page. It is intended for taking notes or drawing.Three sets of horizontal lines for writing. Each set consists of a solid top line, a dashed middle line, and a solid bottom line. These lines are spaced evenly down the bottom third of the page.

## Activity 2: Pushes and Pulls Centers

### Ball and String:

How did you use a push and a pull to move the ball?

Push

Pull

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## Blocks

On which surface did you need a stronger push to move the blocks? Circle the answer.

**The blocks needed a stronger push on the smooth surface.**

**The blocks needed a stronger push on the rough surface.**

Draw a picture that shows the block that was the easiest to move. Include both the block and the surface.

Draw a picture that shows the block that was the most difficult to move. Include both the block and the surface.

A large empty rectangular box for notes or observations.

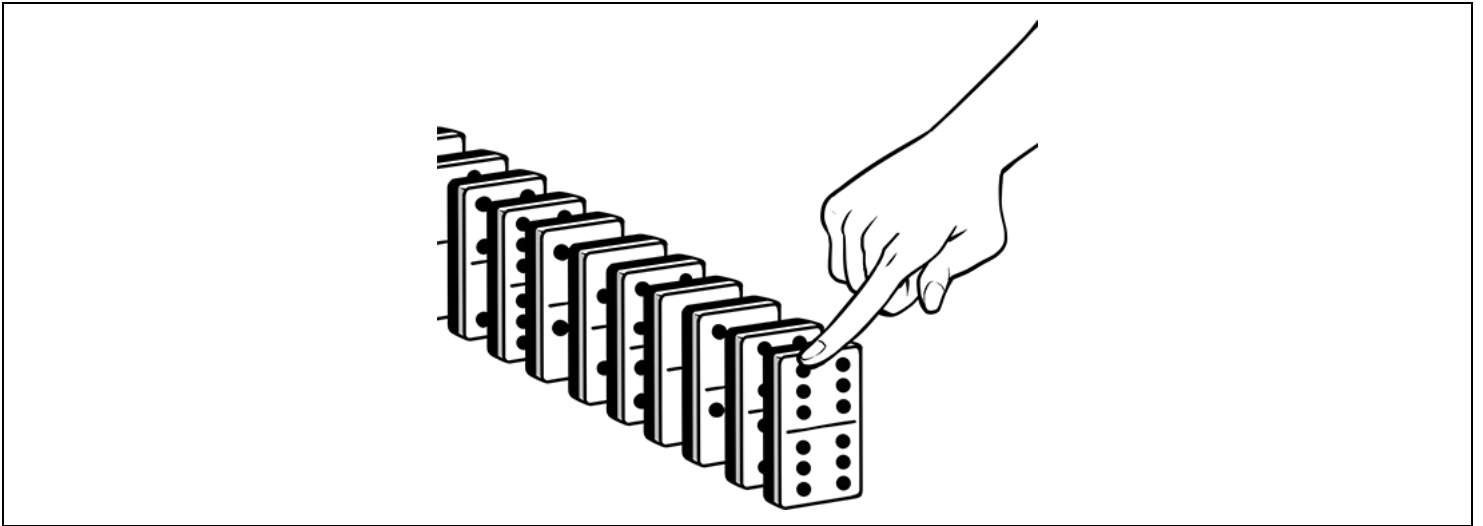
Four sets of horizontal lines for writing, each consisting of a solid top line, a dashed middle line, and a solid bottom line.



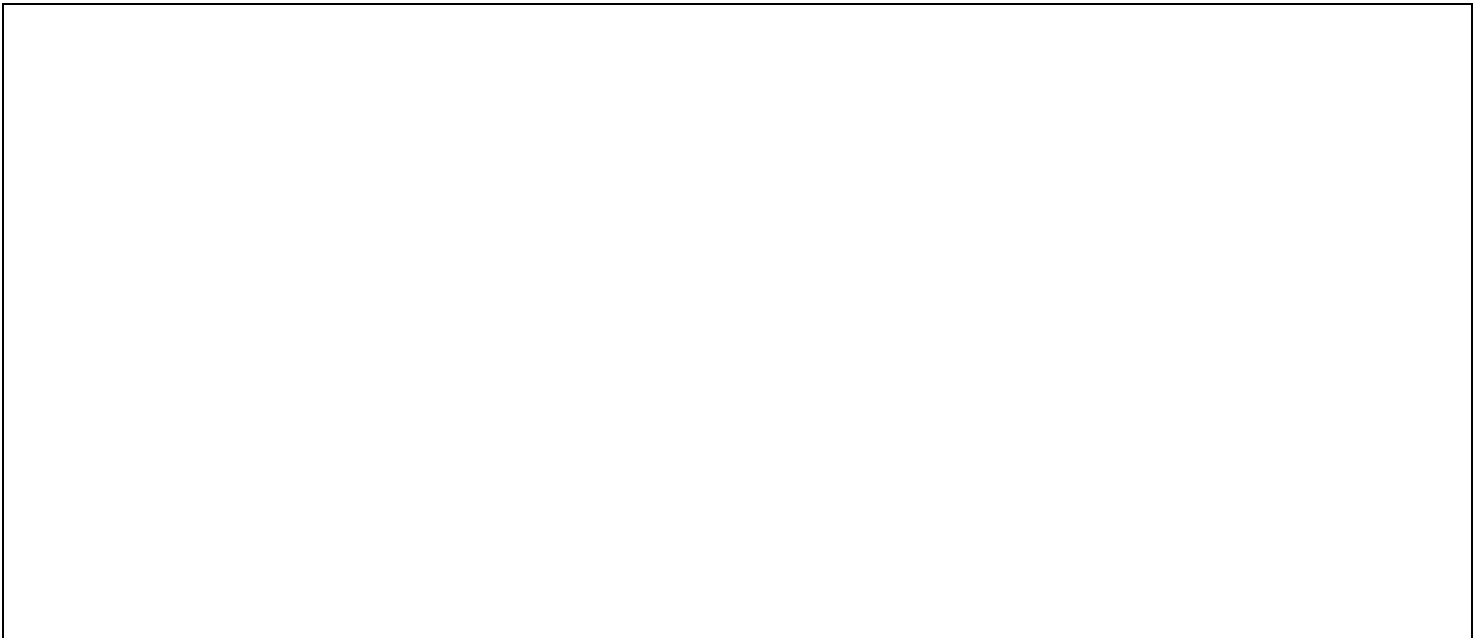
## Activity 3: When Pushes and Pulls Collide

Draw what you think the blocks shown below will look like after the push.

**Before**



**After**





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# Project: Changing Pushes and Pulls

Would you use a push or a pull to move the wagon up the hill?



push

pull

Explain your choice.

Four sets of handwriting lines for explaining the choice. Each set consists of a solid top line, a dashed middle line, and a solid bottom line.

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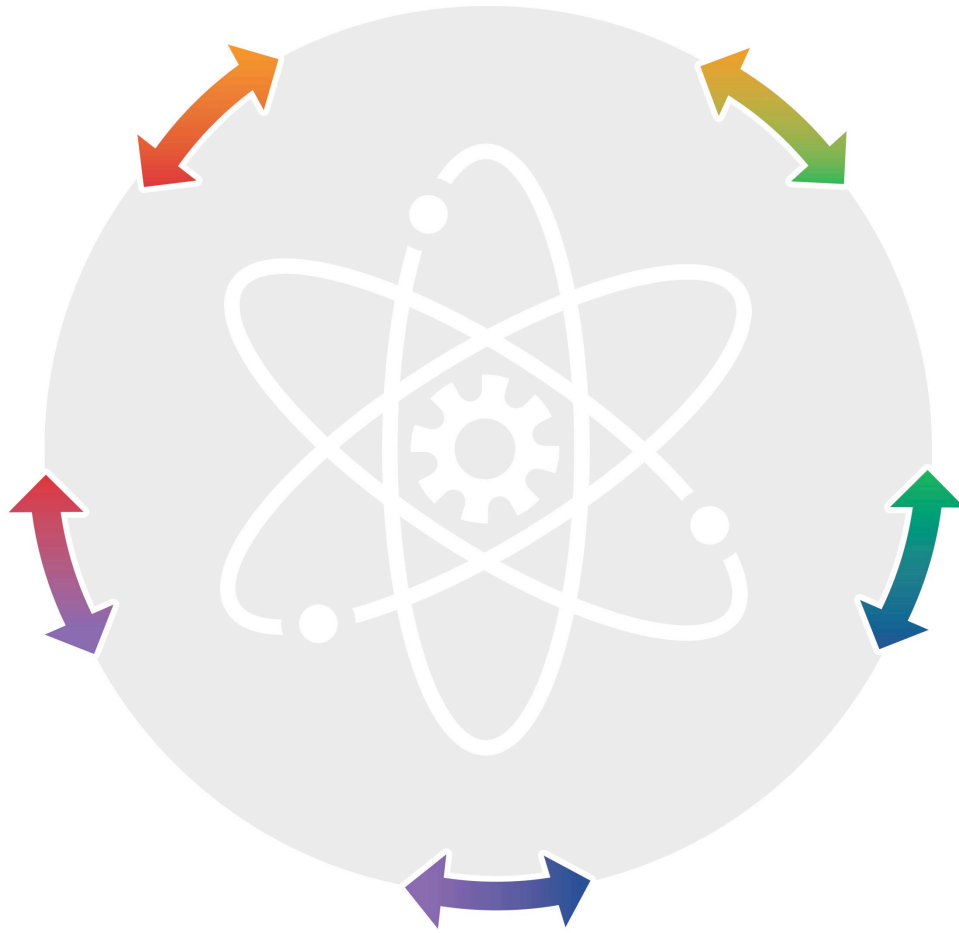
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# Problem: Push and Pull Design

## Design Process



**Ask – What is the problem?**

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**Explore** – How can you try to solve the problem? Draw your idea below.



Four sets of handwriting lines, each consisting of a solid top line, a dashed middle line, and a solid bottom line.

**Model** – Draw or insert a picture of your final design.



Describe your model.

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\_\_\_\_\_

\_\_\_\_\_

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**Evaluate** – Test your model. How well did it solve the problem?  
Circle the face that best answers the question.



Four sets of horizontal lines for writing, each consisting of a solid top line, a dashed middle line, and a solid bottom line.

**Explain** – Draw a picture or describe how you used a push or a pull to solve the problem.

Push

Pull

What would you like to change about your model?

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