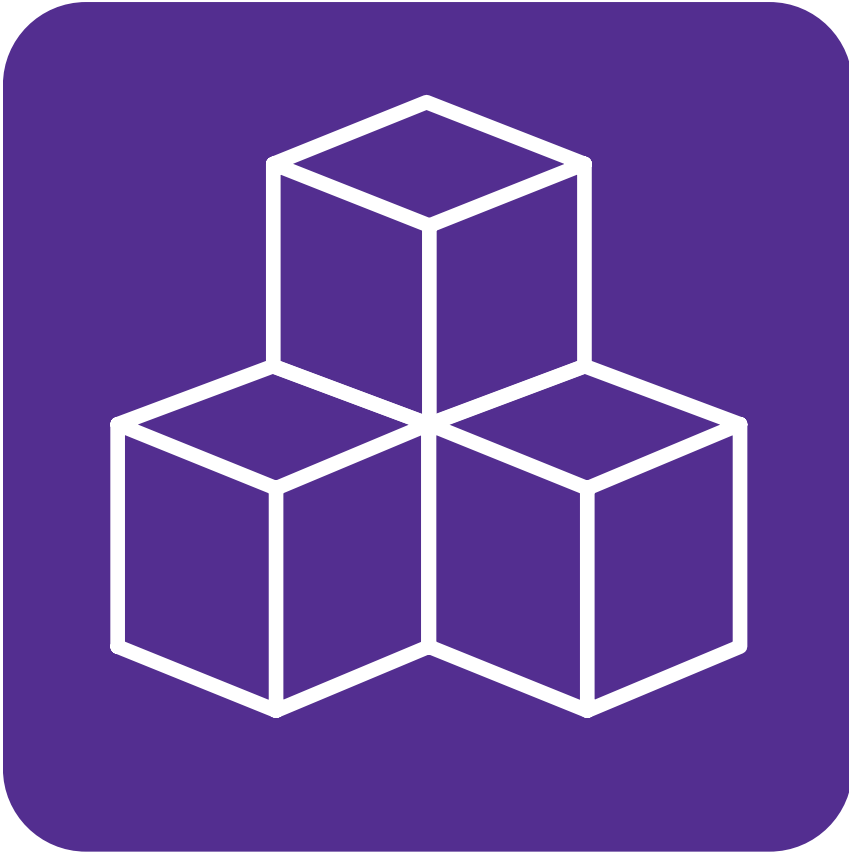


# INVENTION LOG

Name:

What challenge are you working on?

In a sentence or two, describe the challenge you will be working on.



# 1. CREATE

Explore new ideas and bring them to life. You can start by brainstorming, tinkering with Bits, and building from your imagination, or you can jump-start your challenge by building something from instructions.



PRO TIP

CREATE MULTIPLE PROTOTYPES! A PROTOTYPE IS JUST A TEST RUN TO HELP YOU LEARN MORE ABOUT YOUR IDEA. BE AMBITIOUS. BE BRAVE. TRY THINGS EVEN IF YOU'RE NOT SURE THEY'LL WORK.

### What ideas do you have for solving the challenge?

Write down or draw as many ideas as you can think of. It doesn't matter how "good" the ideas are. The goal is to explore as many possibilities as you can. Feel free to use more sheets of paper to record your ideas.

### Which idea seems best?

Look through your brainstorming list and choose which of your ideas you'd like to work on. Maybe it's the one you think will be the most fun to make, or it could be the one that will make the biggest difference in someone's life.

#### I will invent a...

What will it be?

#### that...

What will it do?

#### because...

Why did you choose that idea?

## Storyboard: What's the "before" story?

Think of your invention journey as a "before and after" story. In the boxes below, draw or describe what life is like without your invention. (For example: I wake up late every morning, which causes me to run downstairs in a rush, which causes me to forget to grab my lunch out of the fridge, which causes me to be hungry the rest of the day.) Sharing this story helps people understand why you're creating your invention. This storyboard may also give you ideas for how your invention could work.

STEP ONE

CAUSES

STEP TWO

CAUSES

STEP THREE

### Characters

Who are the people involved?

### Setting

Where does it happen?

## What are your constraints?

Constraints are your limits and requirements. For example, you might have limits on the amount of time you can spend on this challenge, the types of materials you can use, or how much your final invention can weigh. In the space below, create a list of any constraints you might need to keep in mind as you work.

## What are your goals?

What do you want your invention to accomplish? Achieving these goals will help you know your invention was a success.

## What are the important qualities for your invention to have?

These should all be things that will help it do its job better. For example, is it important that your invention is lightweight or durable?

## How could your Bits help you achieve success?

Look through your Bits, accessories, and any materials you have to work with. How could they be used? For example, how could you use the movement of a motor? In the space below, write out or sketch how you might use some of the available Bits or materials



PRO TIP

IF YOU'RE NOT SURE WHAT A BIT DOES OR HOW IT COULD HELP, SNAP IT INTO A CIRCUIT AND START TO PLAY WITH IT. IF YOU'RE STILL STUMPED, READ THROUGH THE "BIT INDEX" SECTION OF YOUR INVENTION GUIDE.

### POWER

### INPUTS

### OUTPUT

### WIRE

### ACCESSORIES

### MATERIALS

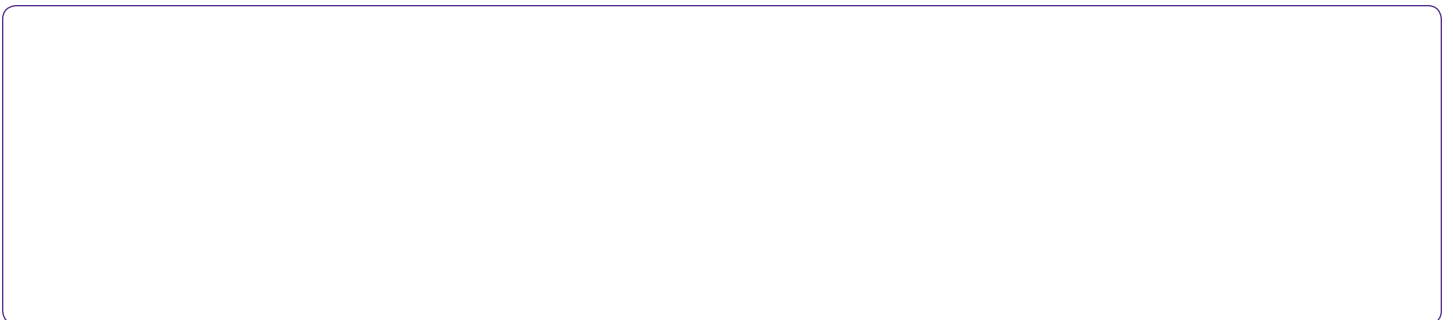
# PROTOTYPE #1

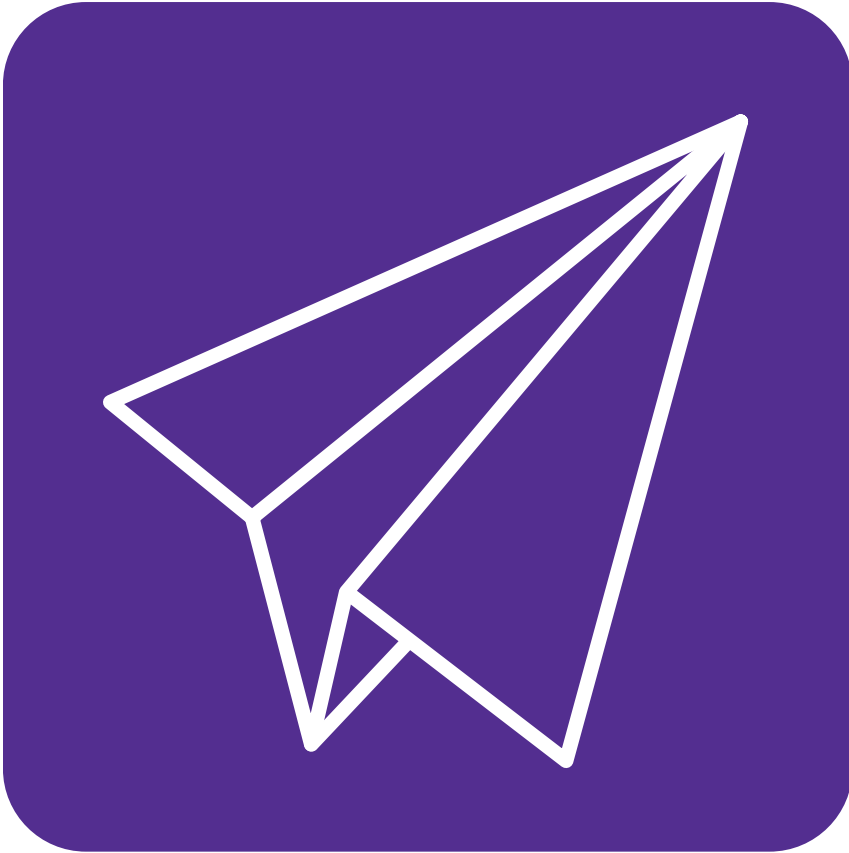
What does your first prototype look like?

Create a drawing of your prototype. Be sure to label which Bits you are using.

A large rectangular area filled with a grid of small dots, intended for drawing a prototype. The grid consists of approximately 30 columns and 40 rows of dots.

How do you think the prototype will work?

A large empty rectangular box with rounded corners, intended for writing a description of how the prototype will work.



## 2. PLAY

Use it! Playing with what you've created is fun, but also an important part of inventing. Playing is like a test run. It's a chance to see how well your invention works, and look for ways that you can make it better.



PRO TIP

KEEP YOUR YOUR EYES AND EARS OPEN.  
PAY SPECIAL ATTENTION TO HOW EACH  
PART OF THE PROTOTYPE IS WORKING.



### How did your testing go?

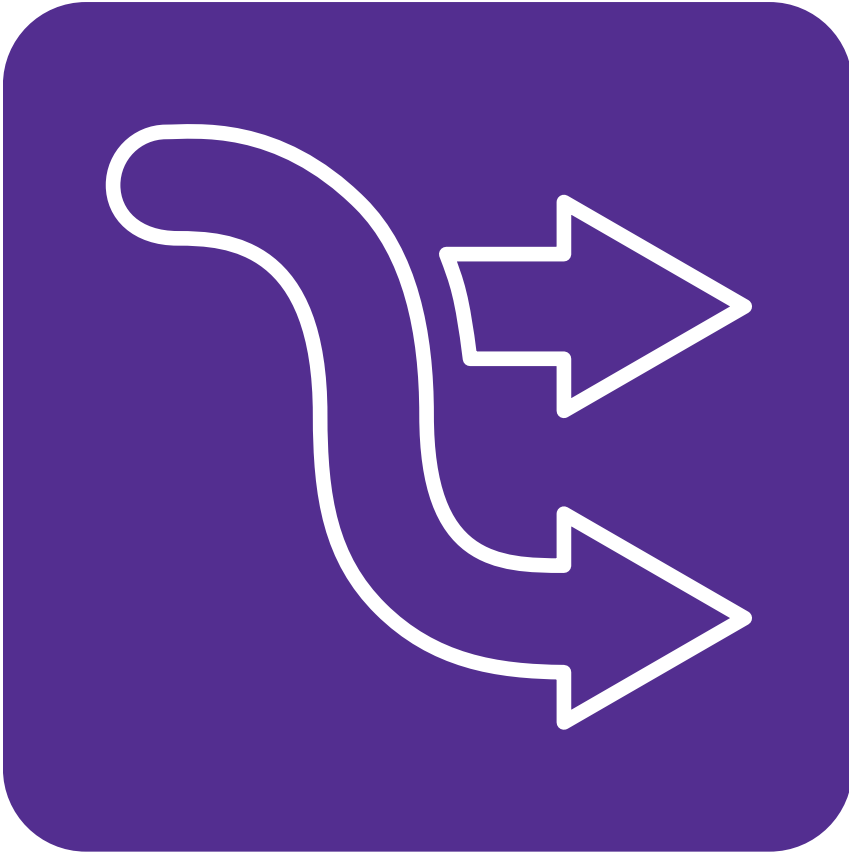
Describe how your test run went. What happened when you used your prototype?

### Successes

What parts worked well? Did you meet any of your goals?

### Still needs work

What parts didn't work well or go as planned? Are there any goals you still need to work on?



## 3. REMIX

Improve your invention. Keep experimenting! Add new Bits, swap parts with other inventions, or take all the pieces apart and put them together in a different way.




PRO TIP

BE PERSISTENT. REMIX YOUR INVENTION AS MANY TIMES AS YOU CAN. YOU'LL LEARN MORE EACH TIME, AND YOUR INVENTION WILL GET BETTER.

# PROTOTYPE # \_\_\_\_\_

What does your prototype look like?

Create a drawing of your prototype. Be sure to label which Bits you are using.

A large rectangular area filled with a light blue grid of small dots, intended for drawing a prototype.

What's new?

Are you adding anything new or trying a different approach? Are you fixing or improving the things that didn't go well in your last test?

A large, empty rectangular box with rounded corners, intended for writing the answer to the 'What's new?' question.

How do you think your changes will affect the way your prototype works?

A large, empty rectangular box with rounded corners, intended for writing the answer to the question about how changes will affect the prototype's function.

### How did your testing go?

Describe how your test run went. What happened when you used your prototype?

### Successes

What parts worked well? Did you meet any of your goals?

### Still needs work

What parts didn't work well or go as planned? Are there any goals you still need to work on?



# 4. SHARE

Tell your story. Inspire others. Show the world what you have created.

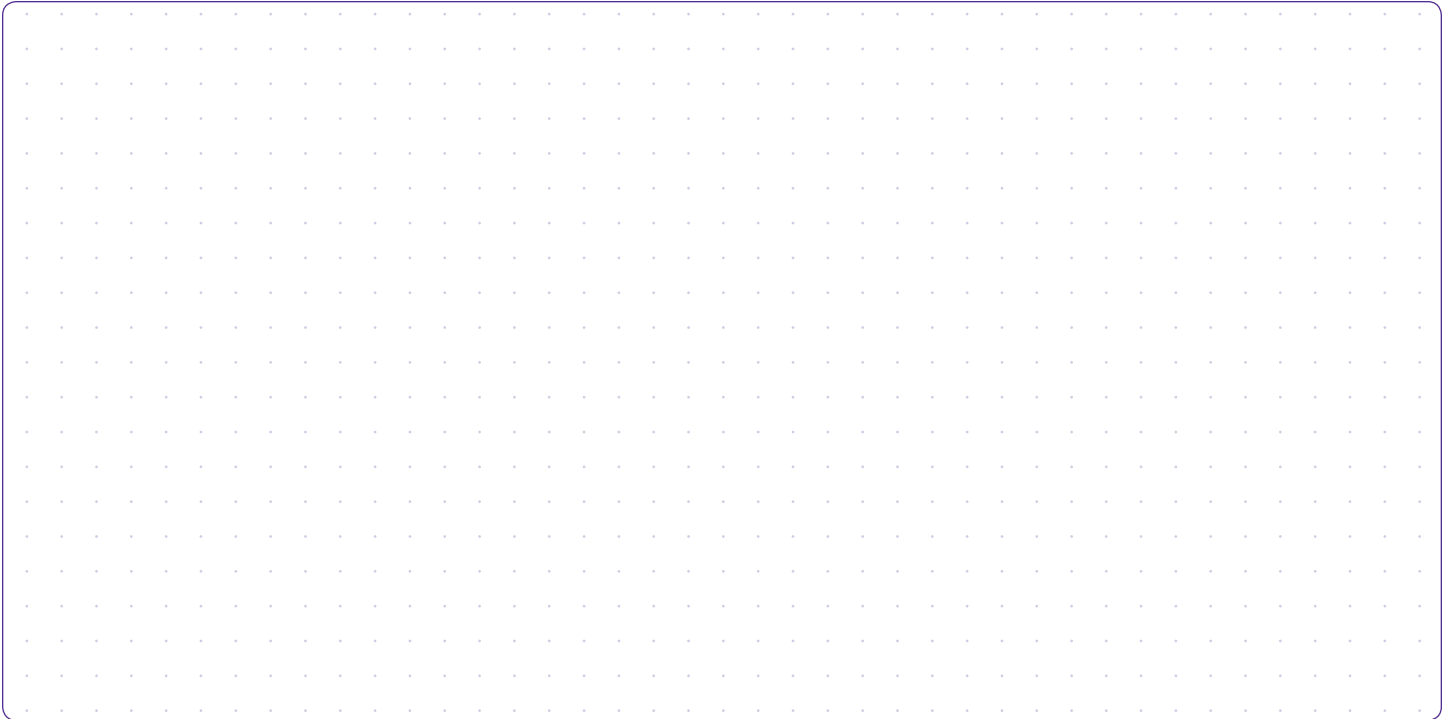


PRO TIP

BE OPEN TO FEEDBACK. LISTEN TO ANY IDEAS OTHERS  
HAVE ABOUT YOUR INVENTION. THERE IS ALWAYS  
ROOM FOR MORE PLAYING AND REMIXING.

Invention Name

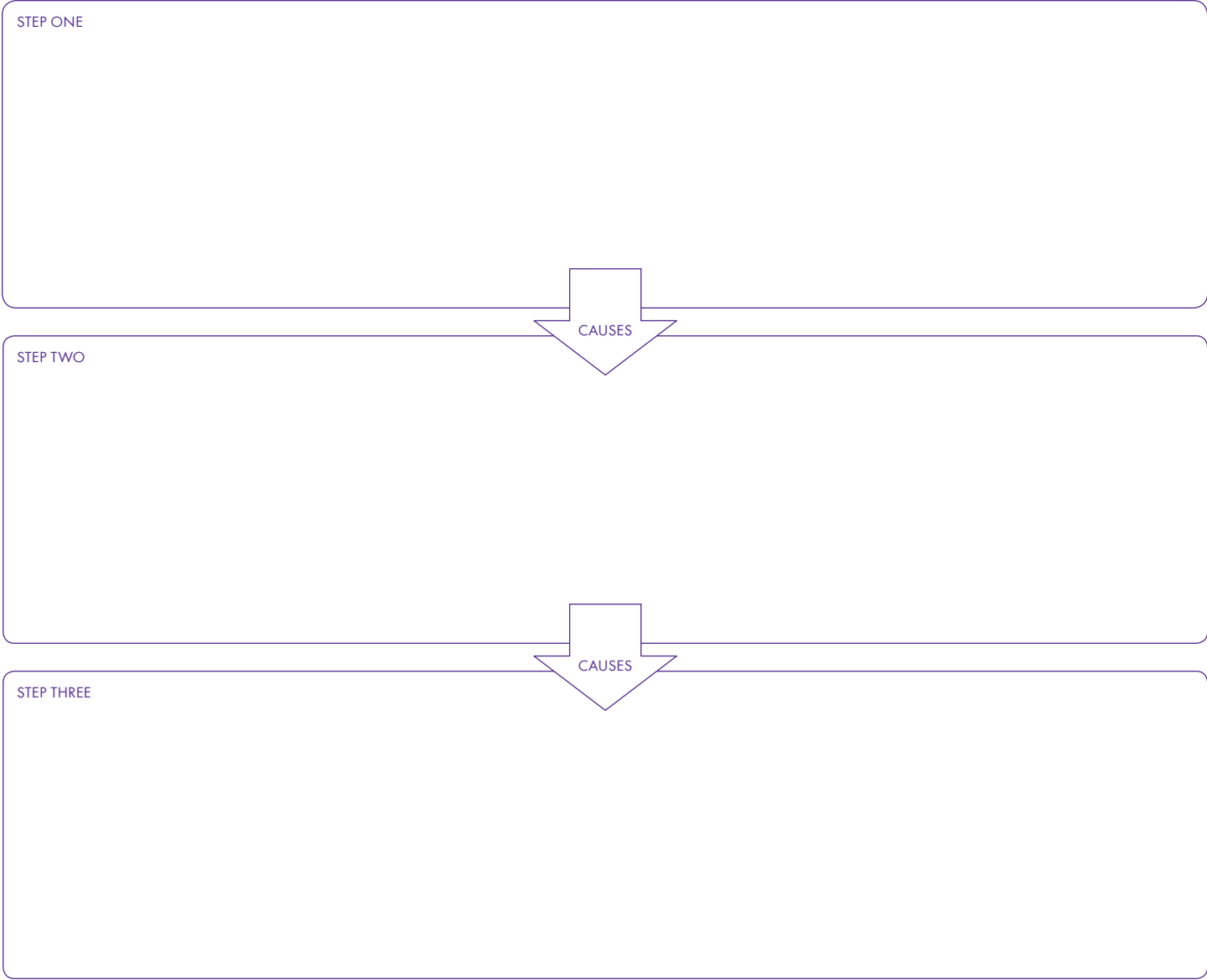
Create a drawing of your invention. Be sure to label which Bits you are using.



How does your invention work?

# Storyboard: What's the "after" story?

It's time to tell the final part of your "before and after" story. Draw or describe what life is like with your new invention. (For example: I usually wake up late and rush out of the house without my lunch. But now, opening the front door triggers my lunch reminder alarm, which causes me to go back to the kitchen to grab my lunch bag, which causes me to not be hungry.) Storyboards like these can help other people understand why your invention is exciting.



### Characters

Who are the people involved?

### Setting

Where does it happen?

What have you learned about being an inventor?

Part of becoming an inventor is thinking about how you work and how you could remix and improve your own process.

Did you learn anything about how your Bits work?

What was the most exciting part of inventing?

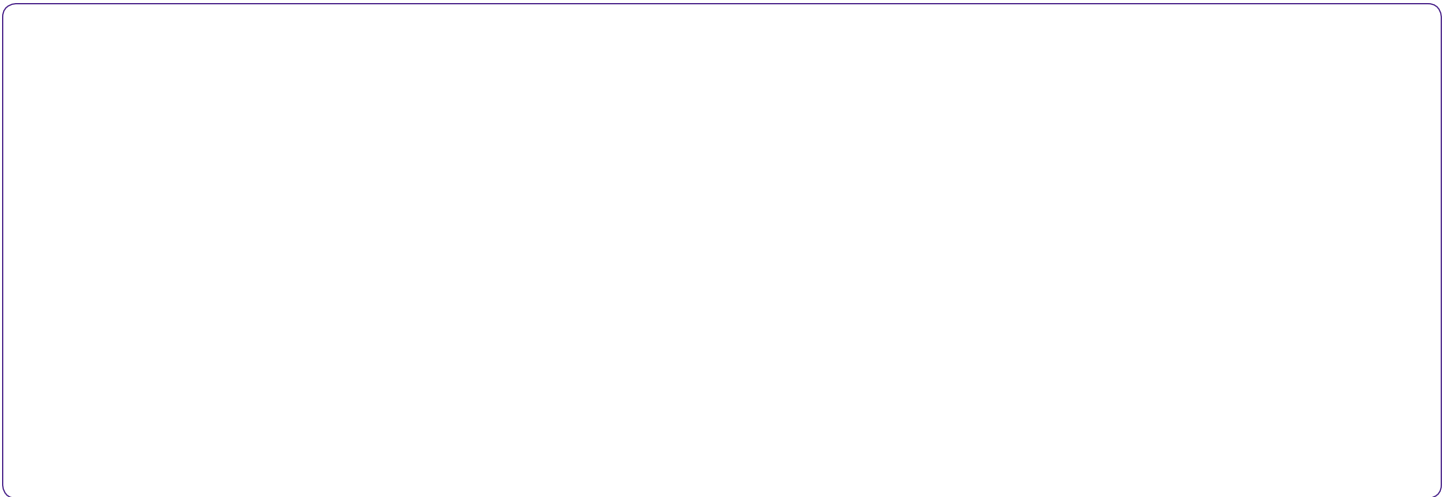
What is one new thing you learned during this challenge?



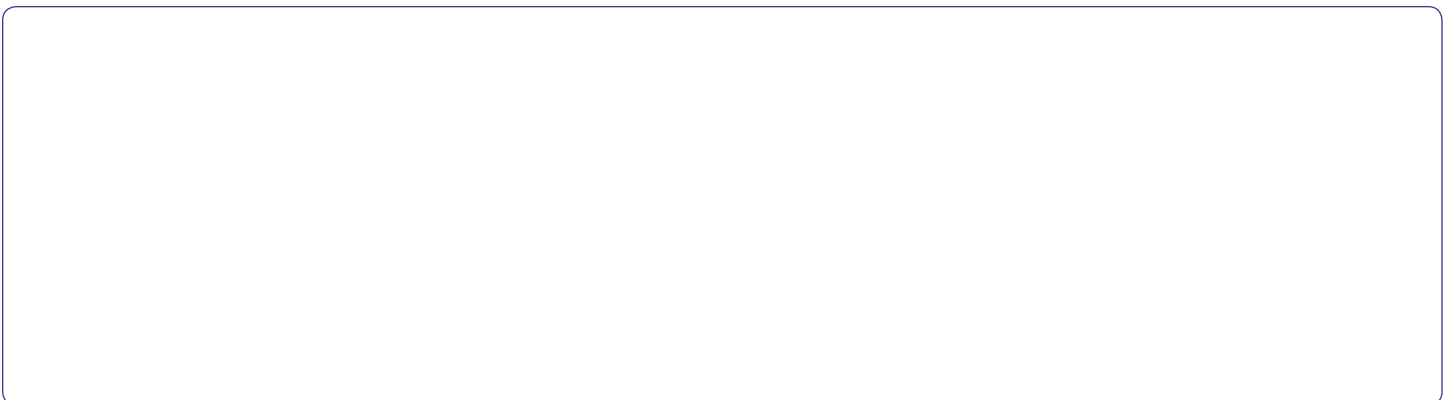
What did you learn from watching others go through the Invention Cycle?



What was the most challenging part of inventing? What is one thing you could do to try to get better at this?







What is something different you would like to try next time you work on an invention?



# Invention Log Checklist:

Use this checklist to make sure you have completed all of the steps of the Invention Log.

	CREATE	STUDENT	TEACHER
	<p>While brainstorming, I came up with at least 3 ideas related to the challenge.</p> <p>I listed my constraints and criteria for success so when I remix, I can look back and make sure my remixes are on the right track.</p> <p>I looked at all of my available Bits and materials and wrote down different ways some of them could help me complete the challenge.</p> <p>I made a detailed drawing of my first prototype and explained exactly how I thought it would work during the Play phase of the Invention Cycle.</p>	<input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>	<input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>
	<p>PLAY</p> <p>I paid careful attention to my prototype while I was playing so I could learn about how it worked.</p> <p>I recorded my observations in my Invention Log, including both things that I liked about the prototype and things that weren't right yet and needed work.</p>	<input type="checkbox"/>  <input type="checkbox"/>	<input type="checkbox"/>  <input type="checkbox"/>
	<p>REMIX</p> <p>For each one of my remix prototypes, I identified what new thing I was trying.</p> <p>Every time I created a new prototype, I made a new prototype profile in my Invention Log so I could look back at all the different things I tried later.</p> <p>After playing with and testing a prototype, I recorded what happened, what was successful, and what still needed work so I could continue to improve my invention.</p>	<input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>	<input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>
	<p>SHARE</p> <p>I created an "after" storyboard to go with my "before" storyboard. Together they show how my invention has solved a problem or filled a need.</p> <p>I shared my invention and the story of how or why it was made with someone else.</p> <p>I thought about everything I did during the challenge, and wrote down future improvements &amp; new things I want to try when I create my next invention.</p>	<input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>	<input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>