Name: _____ Date: _____

Pre-Test

Directions: Listen to each statement, then circle the smiley face if you agree, the plain face if you're not sure, and the frowny face if you disagree.

1.	I know what engineers do.	
2.	I can think of things engineers have invented that solve problems.	
3.	I know the steps of the Engineering Design Process.	
4.	I know why we use the Engineering Design Process.	
5.	I take notes and make drawings when I think about problems.	
6.	When I brainstorm, I come up with as many ideas as I can, even if they're a little crazy.	
7.	I can pick the best solution to a problem by thinking about what's good and not-so-good about each idea.	

STEM 2019_Program Assessment.indd 2 4/24/19 12:45 PM

8. When I get stuck, I ask for help.			
9. When I can't solve a problem, I think of other ways to look at it.			
10. If I can't think of any solutions to a problem at first, I keep trying.			
11. When I work in a group, I learn from other students in the group.			
12. I write and talk about problems as clearly as I can.			
13. When I want to solve a problem, I think of questions to ask about it.			
14. I listen to other students' ideas and share my ideas with them.			
15. I can change my mind when I learn something new.			

STEM 2019_Program Assessment.indd 3 4/24/19 12:45 PM

STEM
Inspired by the Engineering Design Process
powered by Catapult Learning

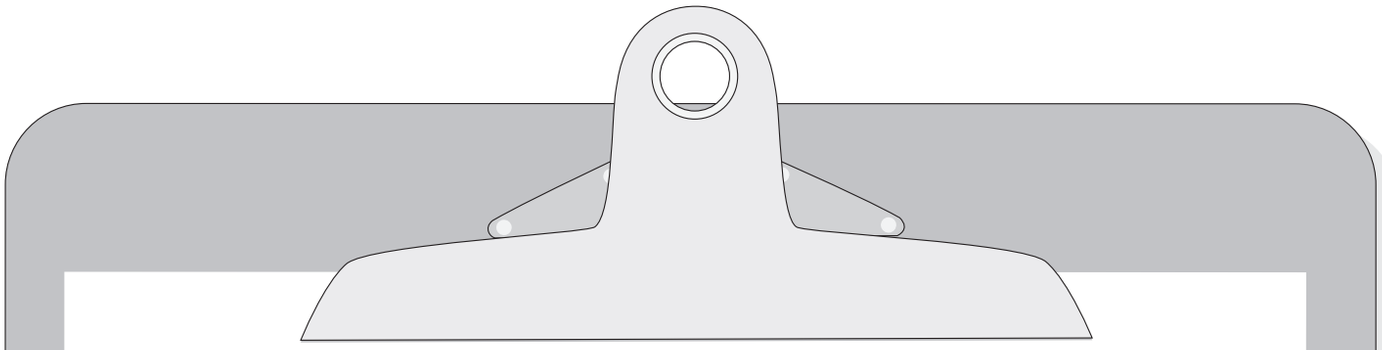
The Engineering Design Process

Unit 1
Primary

Student Resource Book

NAME:

G1-2_U1 SRB_2019_font.indd 1 4/5/21 3:56 PM



Essential Questions

- What is the Engineering Design Process?
- How can I use the Engineering Design Process to solve problems?

Unit Objectives

LESSON 1: What Is the Engineering Design Process?

- I can describe the steps of the Engineering Design Process (EDP).
- I can think about how to apply the steps to a design project.
- I can use the EDP to design and build a car that meets the requirements.

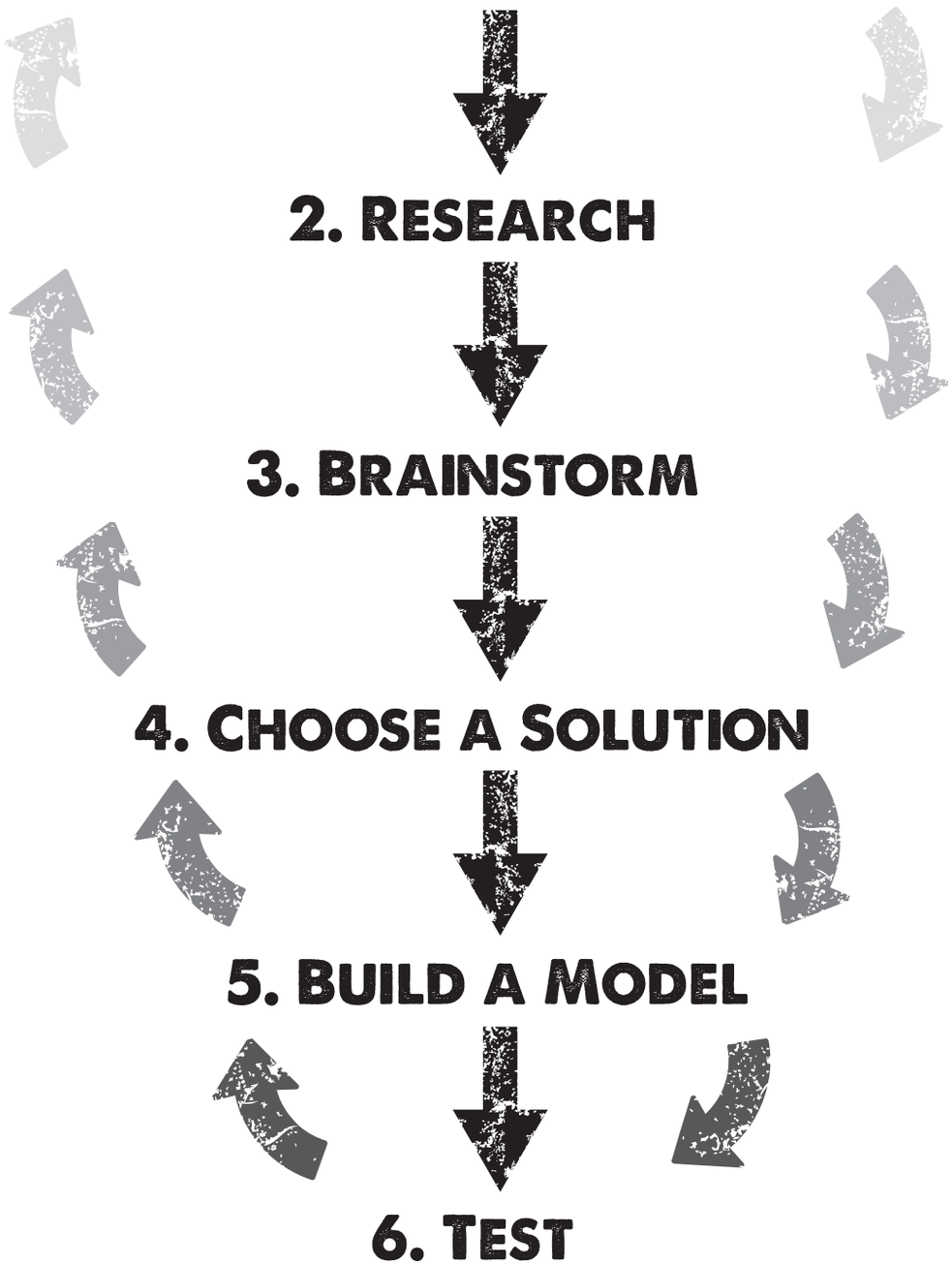
LESSON 2: Engineering Design Challenge: Build a Bridge

- I can define the problem and gather information to make a new design.
- I can brainstorm to gather information and ideas about how to build a model bridge.
- I can work with others to choose the best solution.
- I can build a model, using the information I have gathered.
- I can test my model and change it if needed.

Catapult Learning ©2019

G1-2_U1 SRB_2019_font.indd 2 4/5/21 3:56 PM

The Engineering Design Process



G1-2_U1 SRB_2019_font.indd 3 4/5/21 3:56 PM

Project/Session Name: _____ **Date:** _____

Daily Log

Notes or drawings:	
A problem I had:	**How I solved it:**
What I liked:	**What I didn't like:**
What I learned today:	

Catapult Learning ©2019

G1-2_U1 SRB_2019_font.indd 4 4/5/21 3:56 PM

Examining the Engineering Design Process

1. Define the Problem

- What do you want to change or make?
- What is your goal?

2. Research

- What do you already know about objects or tools like the one you'll make?
- What questions do you have and how can you get answers?

3. Brainstorm

- What are some of your ideas? Say them aloud, write them down, or draw them.
- How can you get more ideas?

4. Choose a Solution

- What are the good points of each idea?
- Which idea will work the best? Why?

5. Build a Model

- What do you need to build your model? Gather the materials.
- How will you start? Then what will you do?
- What will you do if your plan isn't working?

6. Test

- Does your model work?
- What changes can you make so it works better?

G1-2_U1 SRB_2019_font.indd 5 4/5/21 3:56 PM

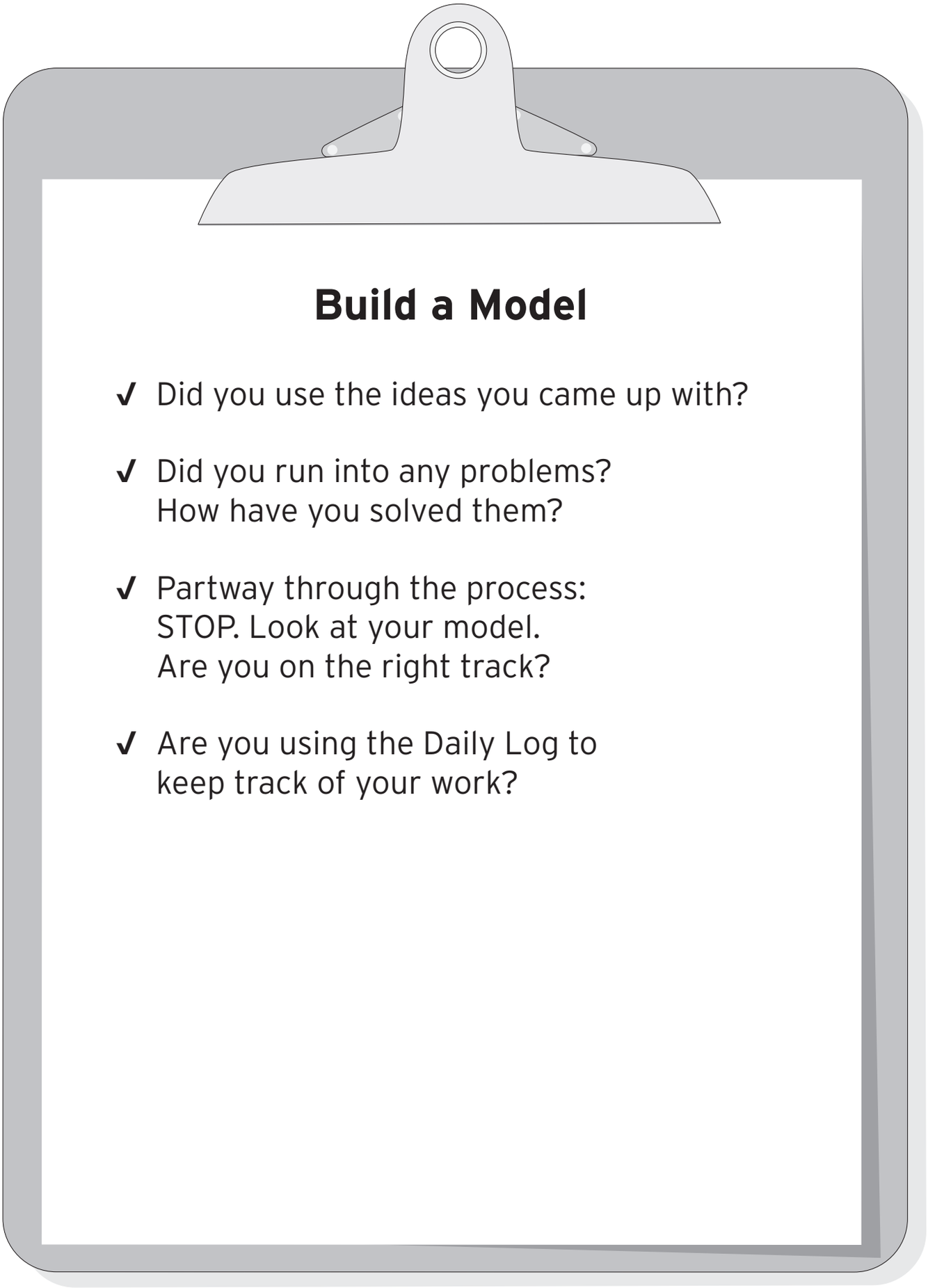
Project/Session Name: _____ **Date:** _____

Daily Log

Notes or drawings:	
A problem I had:	**How I solved it:**
What I liked:	**What I didn't like:**
What I learned today:	

Catapult Learning ©2019

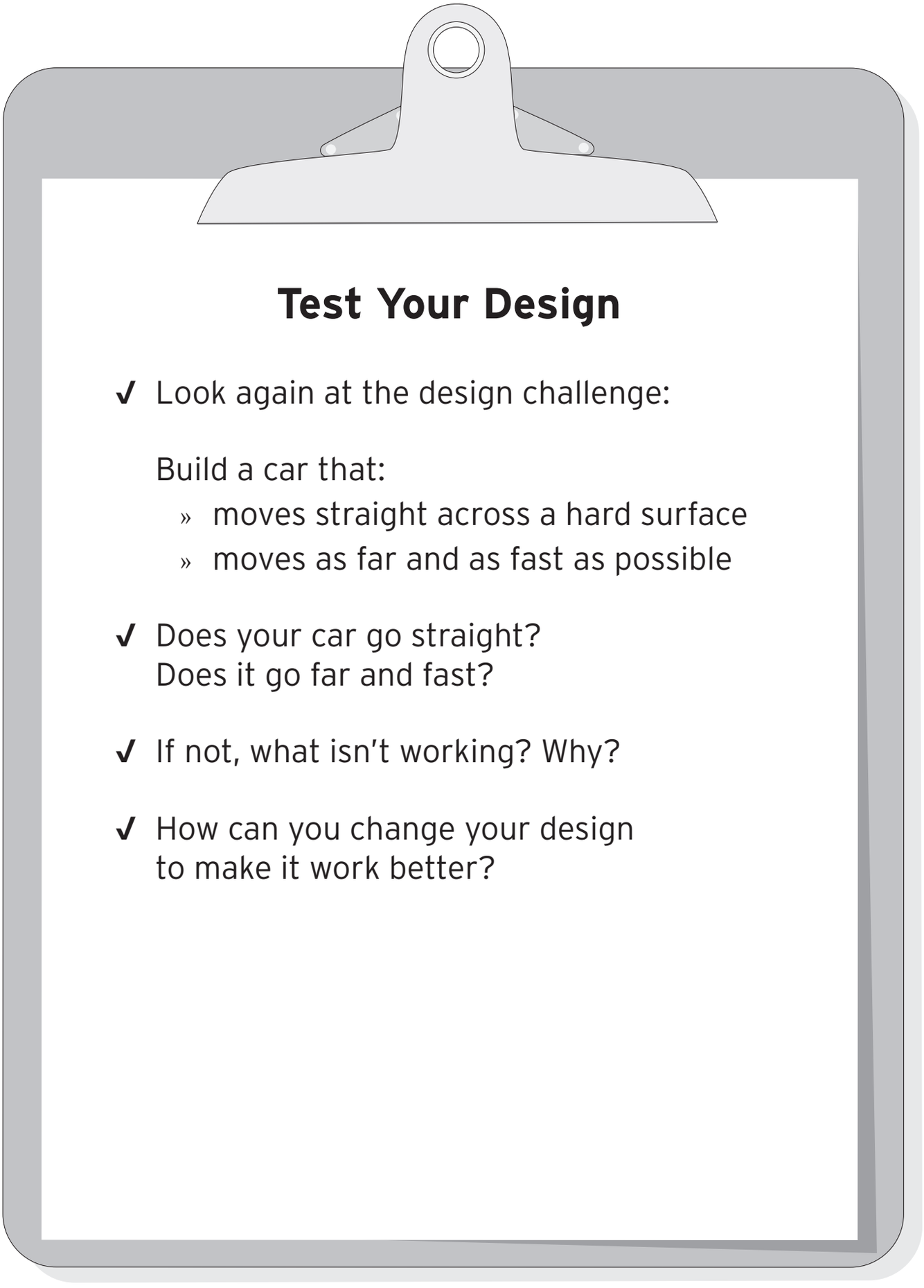
G1-2_U1 SRB_2019_font.indd 6 4/5/21 3:56 PM



Build a Model

- ✓ Did you use the ideas you came up with?
- ✓ Did you run into any problems? How have you solved them?
- ✓ Partway through the process: STOP. Look at your model. Are you on the right track?
- ✓ Are you using the Daily Log to keep track of your work?

G1-2_U1 SRB_2019_font.indd 7 4/5/21 3:56 PM



Test Your Design

✓ Look again at the design challenge:

Build a car that:

- » moves straight across a hard surface
- » moves as far and as fast as possible

✓ Does your car go straight?
Does it go far and fast?

✓ If not, what isn't working? Why?

✓ How can you change your design
to make it work better?

Catapult Learning ©2019

G1-2_U1 SRB_2019_font.indd 8 4/5/21 3:56 PM

Project/Session Name: _____ **Date:** _____

Daily Log

Notes or drawings:	
A problem I had:	**How I solved it:**
What I liked:	**What I didn't like:**
What I learned today:	

G1-2_U1 SRB_2019_font.indd 9 4/5/21 3:56 PM

LAVA MONSTER

By Sydnie Meltzer Kleinhenz

Fat raindrops splashed on my two cousins, Lee and Jaime, as they raced from my aunt's car into the house. They shook off the water. We stood together staring out the window at the pouring rain outside.

"Now we can't go to the park," said Jaime. "I like it when we play Lava Monster with Pop-Pop." Pop-Pop is our grandfather. He lives with me, my sister, and our mom and dad.

"The last time we played, Jordan got too scared," I said, patting her head in a big-sisterly way.

"Stop it, Alex. That was last summer," Jordan said.

The four of us flopped down on the family room floor.

"So, what do you want to do?" asked Jaime. I shrugged. Lee sighed.

"Hey!" Jordan said. "Let's play Lava Monster inside!"

We looked at each other. We cheered! Pop-Pop rushed into the room.

"What's all the noise about?" he asked.

I explained our Lava Monster idea. "The floor will be the hot lava," I said. "Everything off the floor will be safe for us to step on."

Catapult Learning ©2019

G1-2_U1 SRB_2019_font.indd 10 4/5/21 3:56 PM

"I think that will work," Pop-Pop said. "As long as I can do a safety check first. I'll go make some popcorn. Then I'll hide bags of it like treasure." We cheered again!

While Pop-Pop made the popcorn, we got to work on the family room. Lee and I brought down the ladder from the bunkbeds and made a bridge from the footstool to the couch.

I pulled two chairs away from the wall. We could step from one chair to the other. It would be like hopping on islands.

Jordan cleared off the desk and spread a blanket on top so that it hung over the sides. "It's a hiding place," she announced. Then she put a blanket under the desk. "If we touch the floor, we're out," she said. "So even if we're hiding, we need something to sit on."

Jaime pulled the pillows off the couch and lined them up from the desk to the couch.

"Stepping stones? Good thinking!" I said.

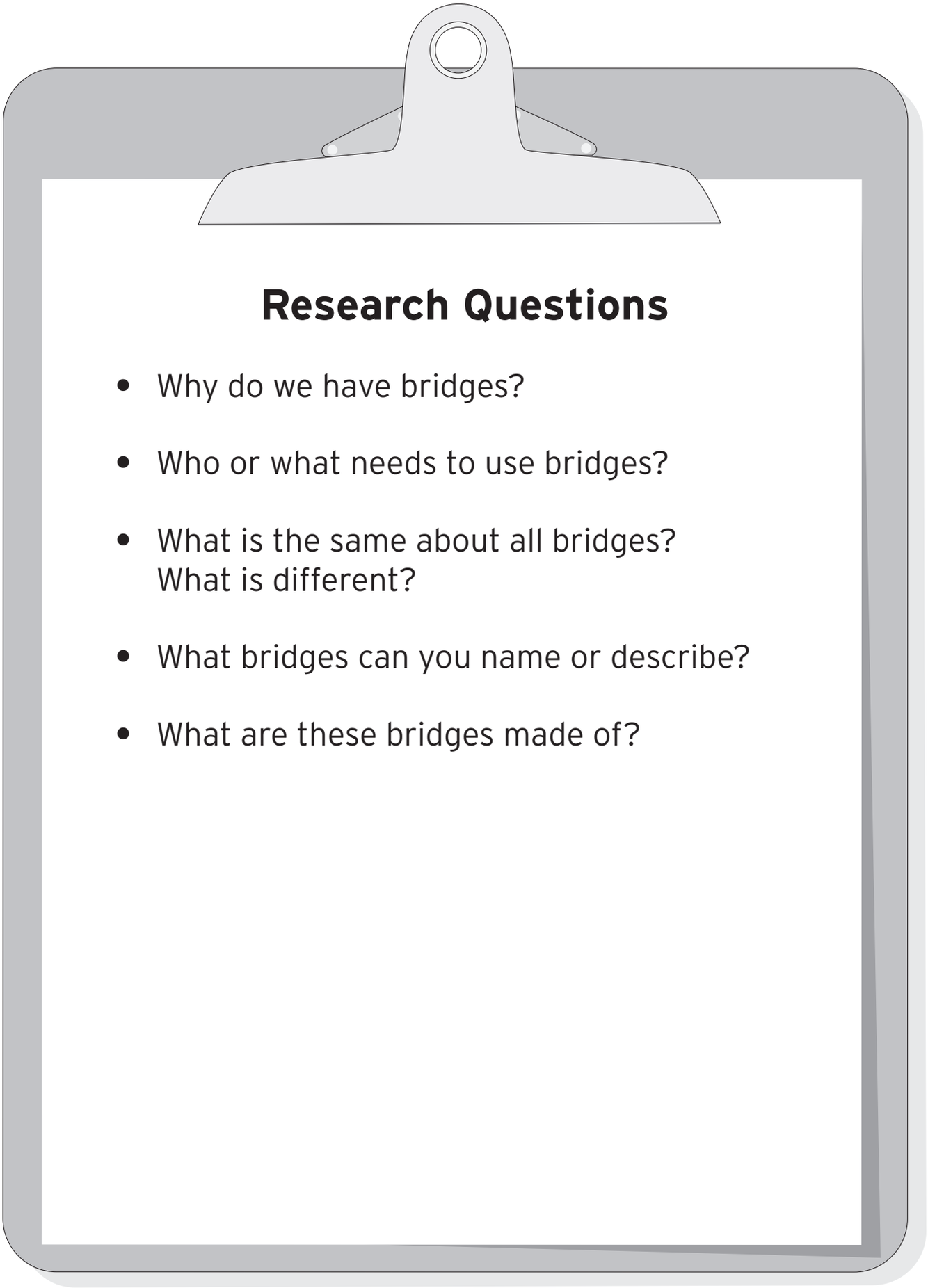
I put another blanket from the desk to another chair. Lee put down more cushions that we could use as stepping stones.

"It looks good!" Jaime said.

Jordan ran to get Pop-Pop. He looked around. He asked us to replace the ladder with something less risky. Jaime and Lee folded a quilt to make a path across the rug instead. Pop-Pop pushed us out of the room, so he could hide the bags of popcorn.

When we heard a Lava Monster roar, we knew the fun had begun.

G1-2_U1 SRB_2019_font.indd 11 4/5/21 3:56 PM



Research Questions

- Why do we have bridges?
- Who or what needs to use bridges?
- What is the same about all bridges? What is different?
- What bridges can you name or describe?
- What are these bridges made of?

Catapult Learning ©2019

G1-2_U1 SRB_2019_font.indd 12 4/5/21 3:56 PM

Project/Session Name: _____ **Date:** _____

Daily Log

Notes or drawings:	
A problem I had:	**How I solved it:**
What I liked:	**What I didn't like:**
What I learned today:	

G1-2_U1 SRB_2019_font.indd 13 4/5/21 3:56 PM

Project/Session Name: _____ **Date:** _____

Daily Log

Notes or drawings:	
A problem I had:	**How I solved it:**
What I liked:	**What I didn't like:**
What I learned today:	

Catapult Learning ©2019

G1-2_U1 SRB_2019_font.indd 14 4/5/21 3:56 PM

Post-Build Checklist

✓ Is your bridge big and strong enough for your car?
If not, review your problem statement.

✓ Did you follow the ideas you chose for the best solution?
If not, go back to that step and review the choices you made.

✓ Did you take notes and make sketches?
These will help you when you test your model!

✓ Have you encountered any problems?
Ask: ***Why do you think this [problem] happened?***

Rate your work on the Engineering Design Process.

	Great!	Okay	Not-So-Great	Ideas for Improvement
Define the Problem				
Research				
Brainstorm				
Choose a Solution				
Build a Model				
Test				

Group Work

✓ Did both you and your partner share the work? _____ If not, what can you change next time? _____

✓ Did you have any problems working together? _____ If so, what might you do differently next time? _____

G1-2_U1 SRB_2019_font.indd 15 4/5/21 3:56 PM

NOTES:

Catapult Learning ©2019

G1-2_U1 SRB_2019_font.indd 16 4/5/21 3:56 PM

Presentation Rubric

	Almost Always	Sometimes	Still Learning
My presentation is clear and easy to understand.			
I speak loudly and clearly.			
I look at my audience.			
I listen to my peers and share my ideas with the group.			

Work Habits Rubric

	Almost Always	Sometimes	Still Learning
I ask questions about what I don't know.			
I can change my mind when I learn something new.			
I think of creative solutions.			
I stay focused on the task.			

G1-2_U1 SRB_2019_font.indd 17 4/5/21 3:56 PM

Unit Review Question

You sleep in the top bunk bed. Sometimes, you get into bed and forget your book on the floor. You want to design a tool that lets you pick up your book without getting out of bed.

Complete the following steps of the Engineering Design Process. You can use any common items, such as sticks, rubber bands, rope, forks, and tape, in your design.

Research:

Brainstorm:

Catapult Learning ©2019

G1-2_U1 SRB_2019_font.indd 18 4/5/21 3:56 PM

Choose a Solution: Circle your preferred solution in the Brainstorm step. Then, explain why you chose it.

Build a Model: Draw a picture of your design.

G1-2_U1 SRB_2019_font.indd 19 4/5/21 3:56 PM

Catapult Learning™

©2019 Catapult Learning, LLC

Catapult Learning, LLC
Two Aquarium Drive, Suite 100
Camden, NJ 08103
1-800-841-8730

www.catapultlearning.com

All rights reserved. No part of this publication, in whole or part, except those pages marked specifically with permission for reproduction may be reproduced in any form, or by any means, or stored in a database or retrieval system, without prior written permission from the publisher.

BRICTEK® is a registered trademark of BRMB Inc. The trademarks and names of other companies and products mentioned herein are the property of their respective owners.

Printed in the United States of America.

STEM
Inspired by the Engineering Design Process
powered by Catapult Learning

Nature in Design

Unit 2
Primary

Student Resource Book

NAME:

G1-2_U2 SRB_2019_font.indd 1 4/5/21 3:56 PM

Essential Questions

- How do engineers get ideas from nature?
- How do seeds get spread by animal fur?

Unit Objectives

LESSON 1: Plants and Animals and Engineering

- I can understand how engineers copy ideas from nature.
- I can name things that might have been copied from nature.
- I can use the EDP to define and research a problem.
- I can brainstorm ideas to solve a problem.
- I can pick the solution that I think is best.
- I can build a model.
- I can test my model and change it if needed.

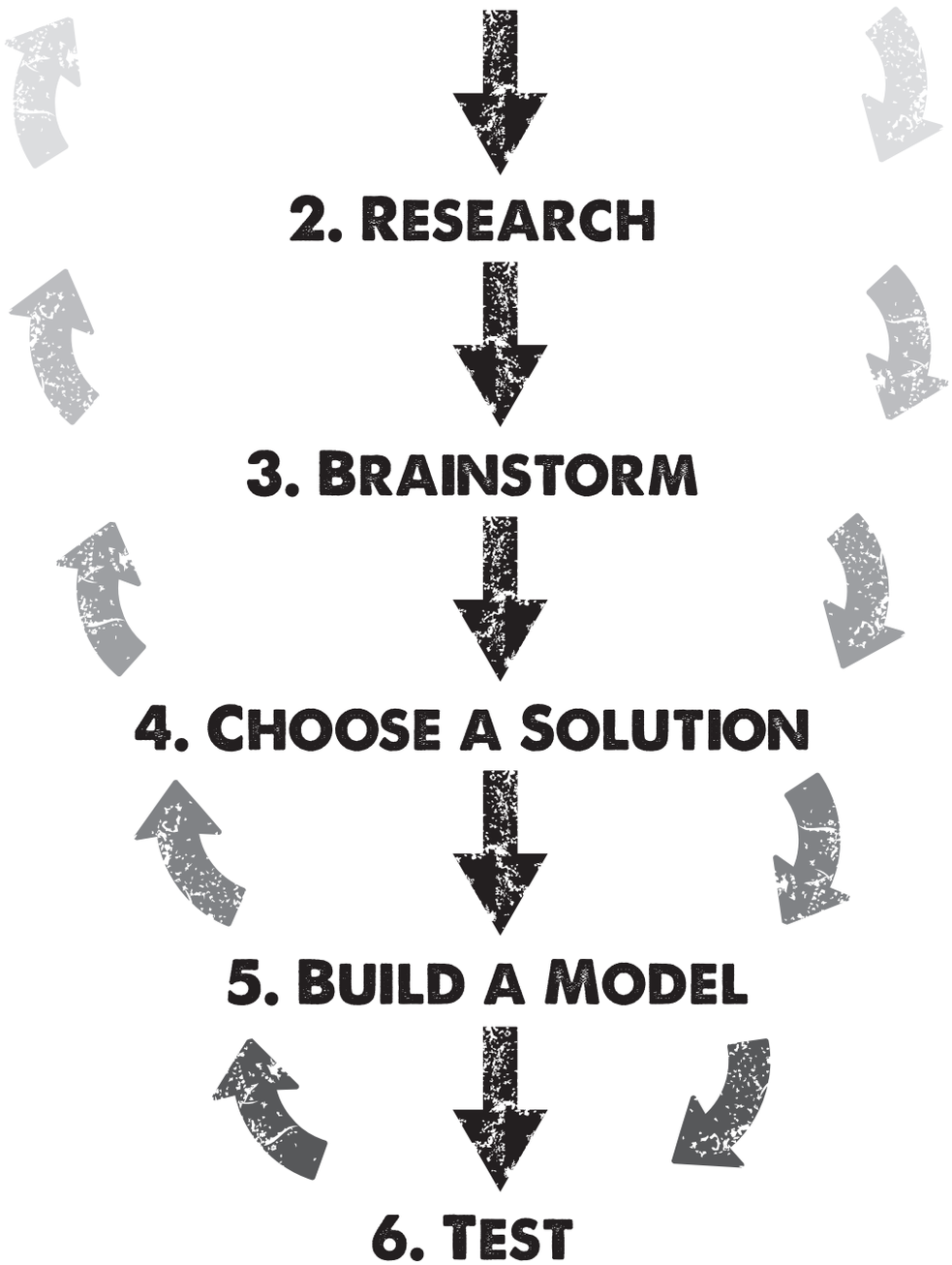
LESSON 2: How Animals Help Plants

- I can explain how seeds get dispersed, or spread, by animals.
- I can make burr-like seeds to understand why they stick to fur.
- I can play a game that mimics how seeds get dispersed.

Catapult Learning ©2019

G1-2_U2 SRB_2019_font.indd 2 4/5/21 3:56 PM

The Engineering Design Process



G1-2_U2 SRB_2019_font.indd 3 4/5/21 3:56 PM

Project/Session Name: _____ **Date:** _____

Daily Log

Notes or drawings:	
A problem I had:	**How I solved it:**
What I liked:	**What I didn't like:**
What I learned today:	

Catapult Learning ©2019

G1-2_U2 SRB_2019_font.indd 4 4/5/21 3:56 PM

G1-2_U2 SRB_2019_font.indd 5

BIOMIMICRY

Invention	Plant or Animal That Was Copied	Useful Part

4/5/21 3:56 PM

Project/Session Name: _____ **Date:** _____

Daily Log

Notes or drawings:	
A problem I had:	**How I solved it:**
What I liked:	**What I didn't like:**
What I learned today:	

Catapult Learning ©2019

G1-2_U2 SRB_2019_font.indd 6 4/5/21 3:56 PM

Research Plants and Animals

List or draw animals that travel in water.

What helps them swim?

List or draw plants that travel on water.

Why do they travel on water?

G1-2_U2 SRB_2019_font.indd 7 4/5/21 3:56 PM

Project/Session Name: _____ **Date:** _____

Daily Log

Notes or drawings:	
A problem I had:	**How I solved it:**
What I liked:	**What I didn't like:**
What I learned today:	

Catapult Learning ©2019

G1-2_U2 SRB_2019_font.indd 8 4/5/21 3:56 PM

Brainstorm

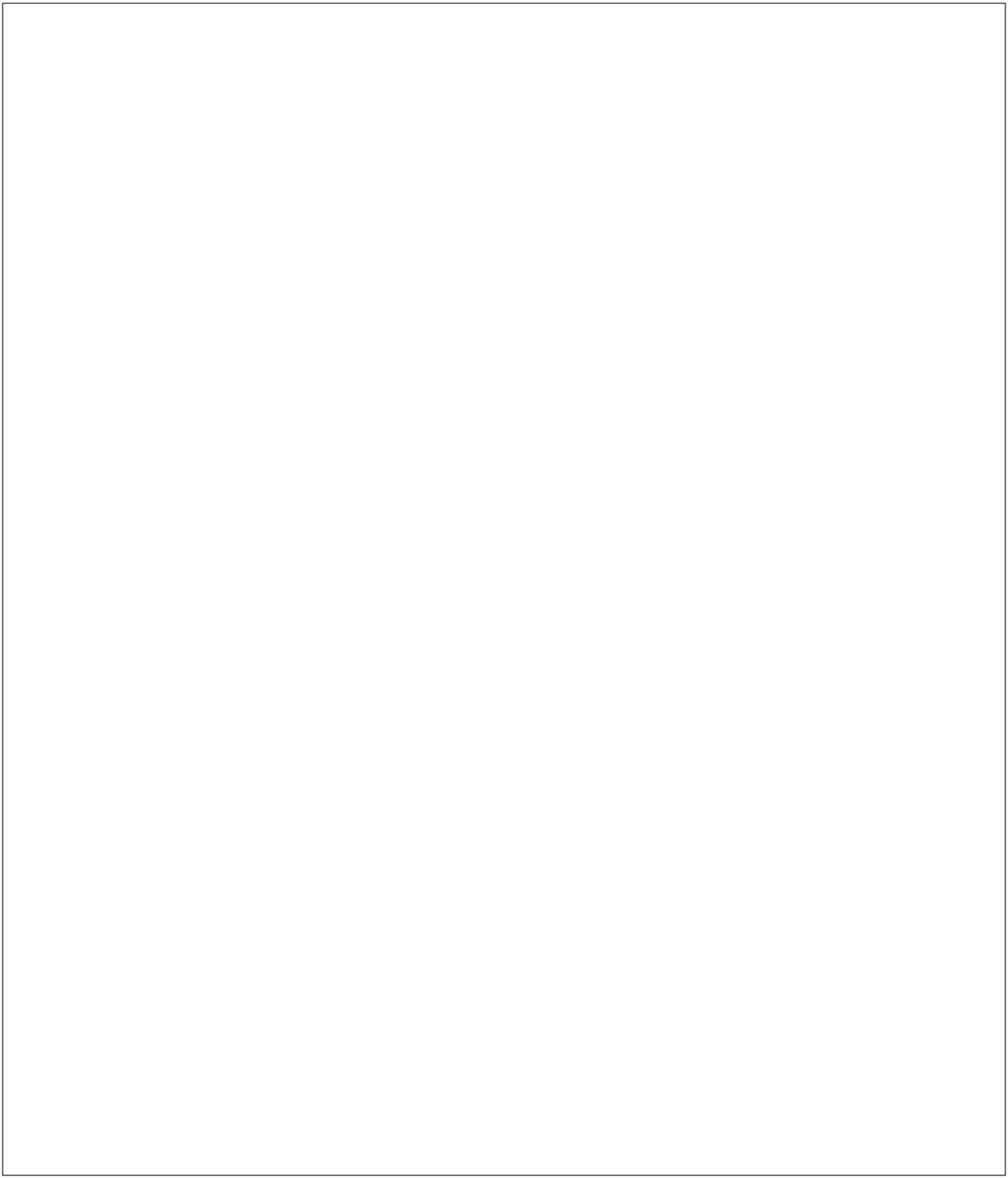
What parts of swimming animals might be useful for your model?

What parts of plants might be useful?

What are your ideas for your model?

G1-2_U2 SRB_2019_font.indd 9 4/5/21 3:56 PM

Draw a Model



Catapult Learning ©2019

G1-2_U2 SRB_2019_font.indd 10 4/5/21 3:56 PM

Project/Session Name: _____ **Date:** _____

Daily Log

Notes or drawings:	
A problem I had:	**How I solved it:**
What I liked:	**What I didn't like:**
What I learned today:	

G1-2_U2 SRB_2019_font.indd 11 4/5/21 3:56 PM

Test Your Model

Answer the questions.

1. Did your model work? Why or why not?

2. Would you change anything to make it better? Draw a picture of changes you might make.

3. Was this an easy or hard challenge? Why?

Catapult Learning ©2019

G1-2_U2 SRB_2019_font.indd 12 4/5/21 3:56 PM

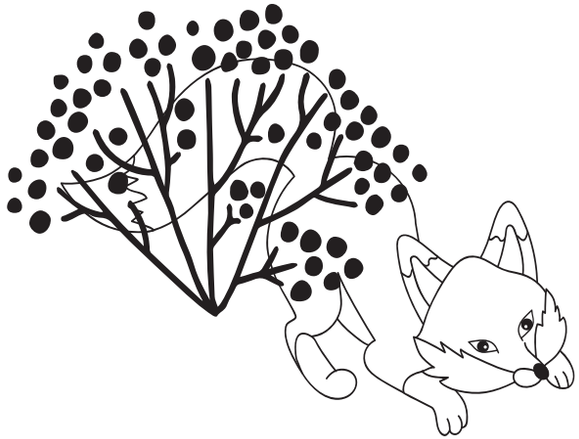
Project/Session Name: _____ **Date:** _____

Daily Log

Notes or drawings:	
A problem I had:	**How I solved it:**
What I liked:	**What I didn't like:**
What I learned today:	

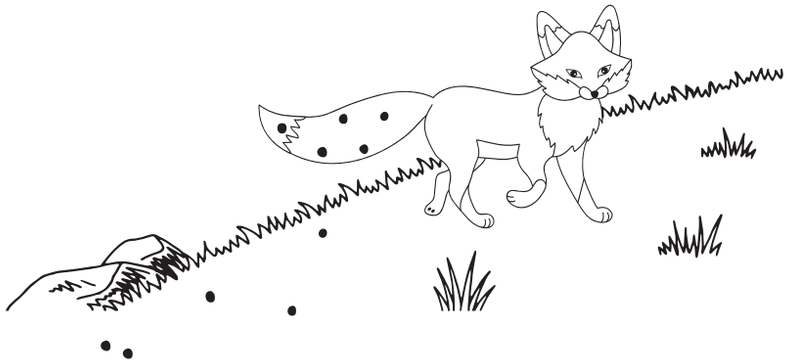
G1-2_U2 SRB_2019_font.indd 13 4/5/21 3:56 PM

Animals Move Seeds



1. A furry animal brushes against a bush with prickly seeds.

2. The seeds stick to the animal's fur.



3. The animal wanders to a different field.

4. The seeds fall to the ground and soon grow into new bushes.

Catapult Learning ©2019

4/5/21 3:56 PM
G1-2_U2 SRB_2019_font.indd 14

My Seed Story

Imagine you are a prickly seed. Tell what happens next.

One day, I was hanging on my branch when a fox came by. _____

G1-2_U2 SRB_2019_font.indd 15 4/5/21 3:56 PM

Project/Session Name: _____ **Date:** _____

Daily Log

Notes or drawings:	
A problem I had:	**How I solved it:**
What I liked:	**What I didn't like:**
What I learned today:	

Catapult Learning ©2019

G1-2_U2 SRB_2019_font.indd 16 4/5/21 3:56 PM

G1-2_U2 SRB_2019_font.indd 17

How Do Seeds Travel?

Draw pictures of a seed, an animal, and how the seed gets to a new place.

Seed	Animal with Fur	How the Seed Travels

4/5/21 3:56 PM

NOTES:

Catapult Learning ©2019

G1-2_U2 SRB_2019_font.indd 18 4/5/21 3:56 PM

Presentation Rubric

	Almost Always	Sometimes	Still Learning
My presentation is clear and easy to understand.			
I speak loudly and clearly.			
I look at my audience.			
I listen to my peers and share my ideas with the group.			

Work Habits Rubric

	Almost Always	Sometimes	Still Learning
I ask questions about what I don't know.			
I can change my mind when I learn something new.			
I think of creative solutions.			
I stay focused on the task.			

G1-2_U2 SRB_2019_font.indd 19 4/5/21 3:56 PM

Unit Review Question

Draw a picture of an animal. Circle a part of the animal that people copied to make something useful. Then fill in the sentence.

The _____ has _____.
(animal) (animal part)

People copied that part to make _____.
(useful thing)

It was smart to do that because _____

_____.

Catapult Learning™

©2019 Catapult Learning, LLC

Catapult Learning, LLC
Two Aquarium Drive, Suite 100
Camden, NJ 08103
1-800-841-8730

www.catapultlearning.com

All rights reserved. No part of this publication, in whole or part, except those pages marked specifically with permission for reproduction may be reproduced in any form, or by any means, or stored in a database or retrieval system, without prior written permission from the publisher.

Printed in the United States of America.

STEM
Inspired by the Engineering Design Process
powered by Catapult Learning

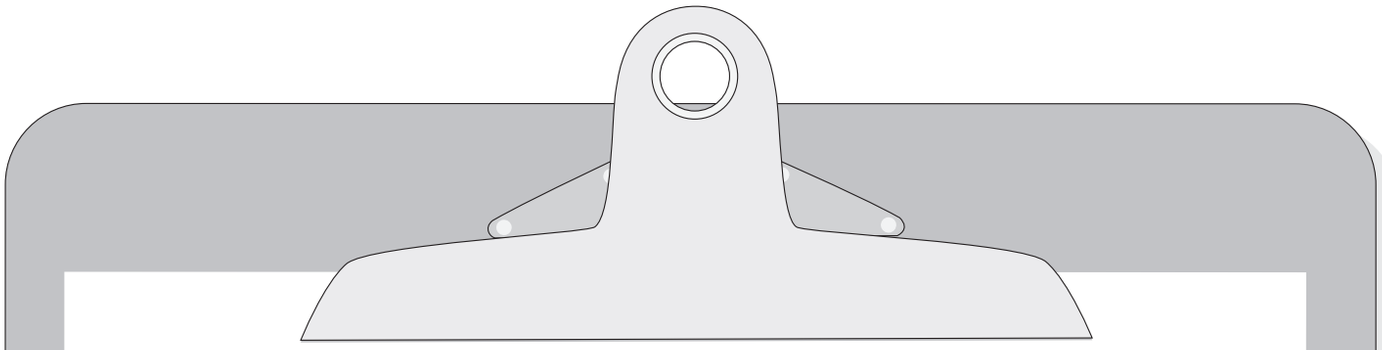
Weather, Water, and Wind

Unit 3
Primary

Student Resource Book

NAME:

G1-2_U3 SRB_2019_font.indd 1 4/5/21 3:56 PM



Essential Questions

- How can I make predictions about the weather?
- How do water and wind affect the Earth?
- What can I do to help the environment?

Unit Objectives

LESSON 1: What's the Weather Today?

- I can watch local weather.
- I can describe the day's weather.
- I can record information about the day's weather.
- I can compare the weather over two days.
- I can make a prediction about the next day's weather.

LESSON 2: Water and Wind

- I can identify water erosion and explain what it is.
- I can explain how water erosion affects the Earth.
- I can explain wind erosion.
- I can describe how wind erosion affects the Earth.
- I can use the Engineering Design Process to define and research a problem related to erosion.
- I can brainstorm ideas to slow or stop water from overflowing in a model of a river.
- I can compare ways to slow water erosion.
- I can use the Engineering Design Process to build a model that slows water erosion.

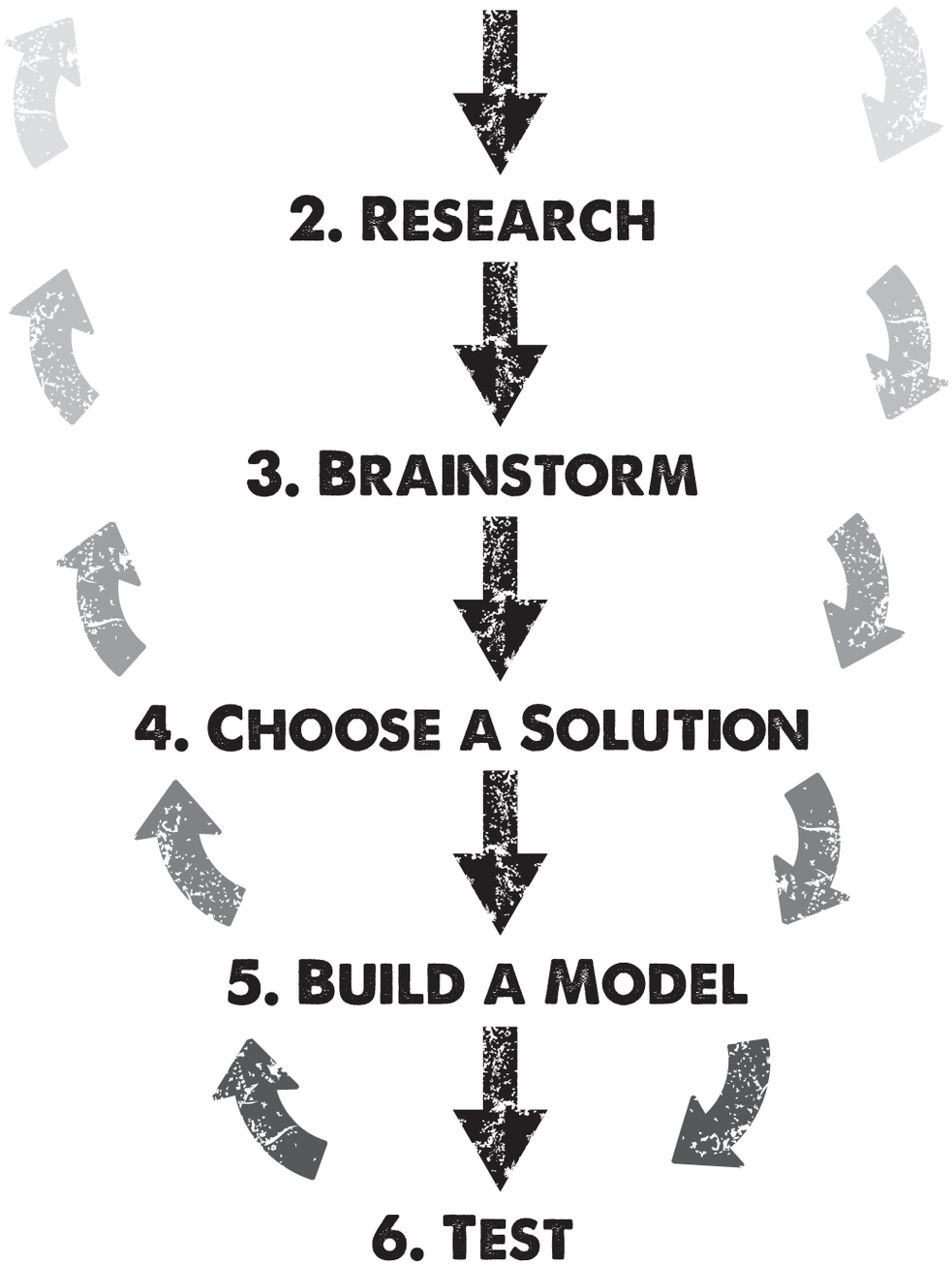
LESSON 3: Helping the Earth

- I can define natural resources.
- I can describe how garbage affects the environment.
- I can explain solutions that reduce the effect of garbage on the environment.
- I can make a poster to teach others about the three Rs.

Catapult Learning ©2019

G1-2_U3 SRB_2019_font.indd 2 4/5/21 3:56 PM

The Engineering Design Process



G1-2_U3 SRB_2019_font.indd 3 4/5/21 3:56 PM

Project/Session Name: _____ **Date:** _____

Daily Log

Notes or drawings:	
A problem I had:	**How I solved it:**
What I liked:	**What I didn't like:**
What I learned today:	

Catapult Learning ©2019

G1-2_U3 SRB_2019_font.indd 4 4/5/21 3:56 PM

Keeping Track of the Weather

	Date:	Date:	Prediction
Sun			
Clouds			
Wind			
Rain			
Snow			
Other			

I predict the weather tomorrow will be _____

_____

G1-2_U3 SRB_2019_font.indd 5 4/5/21 3:56 PM

Project/Session Name: _____ **Date:** _____

Daily Log

Notes or drawings:	
A problem I had:	**How I solved it:**
What I liked:	**What I didn't like:**
What I learned today:	

Catapult Learning ©2019

G1-2_U3 SRB_2019_font.indd 6 4/5/21 3:56 PM

Project/Session Name: _____ **Date:** _____

Daily Log

Notes or drawings:	
A problem I had:	**How I solved it:**
What I liked:	**What I didn't like:**
What I learned today:	

G1-2_U3 SRB_2019_font.indd 7 4/5/21 3:56 PM

Rainstorm Experiment

What do you think will happen? _____

_____

Draw what happened.

A few drops of water	1/2 cup of water	Full cup of water

What can happen to sand in a big rainstorm? _____

_____

Catapult Learning ©2019

G1-2_U3 SRB_2019_font.indd 8 4/5/21 3:56 PM

Project/Session Name: _____ **Date:** _____

Daily Log

Notes or drawings:	
A problem I had:	**How I solved it:**
What I liked:	**What I didn't like:**
What I learned today:	

G1-2_U3 SRB_2019_font.indd 9 4/5/21 3:56 PM

Wind Experiment

Draw a picture of what you think will happen when you blow on the sand. Then draw what did happen.

	What I think will happen	What happened
When I blow lightly (a breeze)		
When I blow hard (a wind storm)		

What can happen to a sandy desert or beach on a very, very windy day?

Catapult Learning ©2019

G1-2_U3 SRB_2019_font.indd 10 4/5/21 3:56 PM

Project/Session Name: _____ **Date:** _____

Daily Log

Notes or drawings:	
A problem I had:	**How I solved it:**
What I liked:	**What I didn't like:**
What I learned today:	

G1-2_U3 SRB_2019_font.indd 11 4/5/21 3:56 PM

How to Slow or Stop Water

Things we can use or do to slow or stop water:	How those things might work in a river:

Catapult Learning ©2019

G1-2_U3 SRB_2019_font.indd 12 4/5/21 3:56 PM

Project/Session Name: _____ **Date:** _____

Daily Log

Notes or drawings:	
A problem I had:	**How I solved it:**
What I liked:	**What I didn't like:**
What I learned today:	

G1-2_U3 SRB_2019_font.indd 13 4/5/21 3:56 PM

Project/Session Name: _____ **Date:** _____

Daily Log

Notes or drawings:	
A problem I had:	**How I solved it:**
What I liked:	**What I didn't like:**
What I learned today:	

Catapult Learning ©2019

G1-2_U3 SRB_2019_font.indd 14 4/5/21 3:56 PM

Litter in Our Schoolyard

What litter did you find?

Draw or name things made of plastic, paper, and metal.

Plastic	Paper	Metal

G1-2_U3 SRB_2019_font.indd 15 4/5/21 3:56 PM

Project/Session Name: _____ **Date:** _____

Daily Log

Notes or drawings:	
A problem I had:	**How I solved it:**
What I liked:	**What I didn't like:**
What I learned today:	

Catapult Learning ©2019

G1-2_U3 SRB_2019_font.indd 16 4/5/21 3:56 PM

NOTES:

G1-2_U3 SRB_2019_font.indd 17 4/5/21 3:56 PM

NOTES:

Catapult Learning ©2019

G1-2_U3 SRB_2019_font.indd 18 4/5/21 3:56 PM

Presentation Rubric

	Almost Always	Sometimes	Still Learning
My presentation is clear and easy to understand.			
I speak loudly and clearly.			
I look at my audience.			
I listen to my peers and share my ideas with the group.			

Work Habits Rubric

	Almost Always	Sometimes	Still Learning
I ask questions about what I don't know.			
I can change my mind when I learn something new.			
I think of creative solutions.			
I stay focused on the task.			

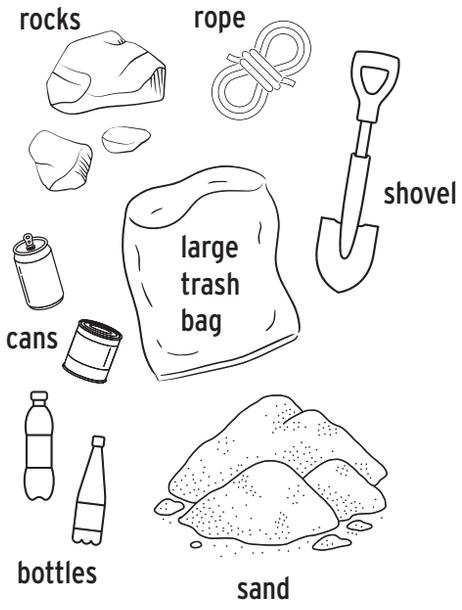
G1-2_U3 SRB_2019_font.indd 19 4/5/21 3:56 PM

Unit Review Question

You are camping with your family next to a small stream. You notice that a groundhog and its babies are living in a hole not far from the stream. If it rains too hard, you are worried that the groundhogs' hole may flood.

1. How you can predict whether it will rain soon?

2. The campground has a recycling bin. You can use the bottles and cans from it. Look at the other items you can use. Draw a picture of something you can make to keep the groundhogs safe.



Catapult Learning™

©2019 Catapult Learning, LLC

Catapult Learning, LLC
Two Aquarium Drive, Suite 100
Camden, NJ 08103
1-800-841-8730

www.catapultlearning.com

All rights reserved. No part of this publication, in whole or part, except those pages marked specifically with permission for reproduction may be reproduced in any form, or by any means, or stored in a database or retrieval system, without prior written permission from the publisher.

Printed in the United States of America.

STEM
Inspired by the Engineering Design Process
powered by Catapult Learning

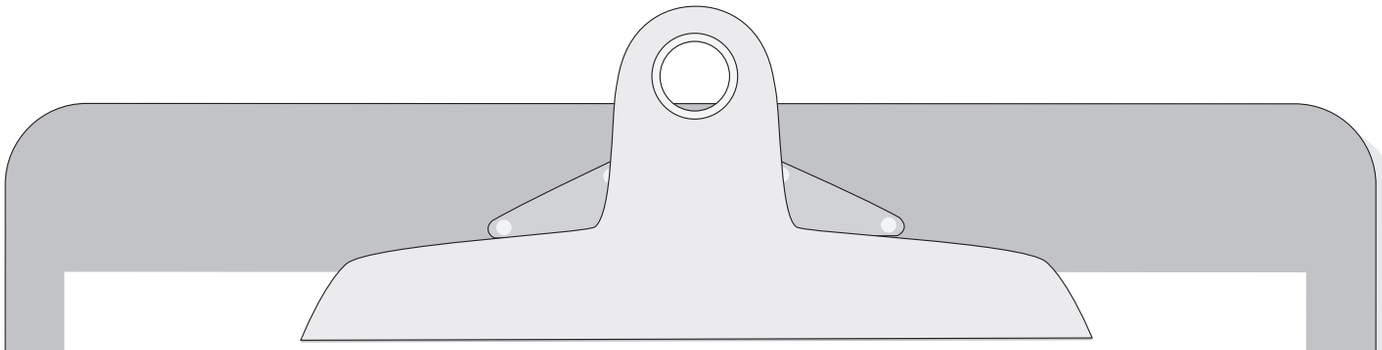
Earth's Forces and Energy

Unit 4
Primary

Student Resource Book

NAME:

G1-2_U4 SRB_2019_font.indd 1 4/5/21 3:56 PM



Essential Questions

- How can we move and change things?
- How do different materials affect how things move and change?
- What is energy?

Unit Objectives

LESSON 1: Pushes and Pulls

- I can name objects that I can push or pull.
- I can investigate how objects move when I push or pull them.
- I can change the speed and direction of an object.
- I can compare the effects of different pushes and pulls.
- I can change the speed of a marble by building and using a ramp.
- I can analyze information to see how different ramps affect the speed of a marble.
- I can compare how weight affects pulling an object.
- I can study information to understand the effect of weight on pulling an object.

LESSON 2: Properties and Structures

- I can explain what properties of objects are.
- I can sort materials based on their properties.
- I can compare the properties of different materials.
- I can choose the materials needed to solve a problem.
- I can use the Engineering Design Process to build a model house.
- I can predict how the sun will affect different surfaces.
- I can use observations to check my predictions.
- I can compare the properties of different materials.
- I can choose the materials needed to solve a problem.
- I can use the Engineering Design Process to build a shelter that will keep water cool.

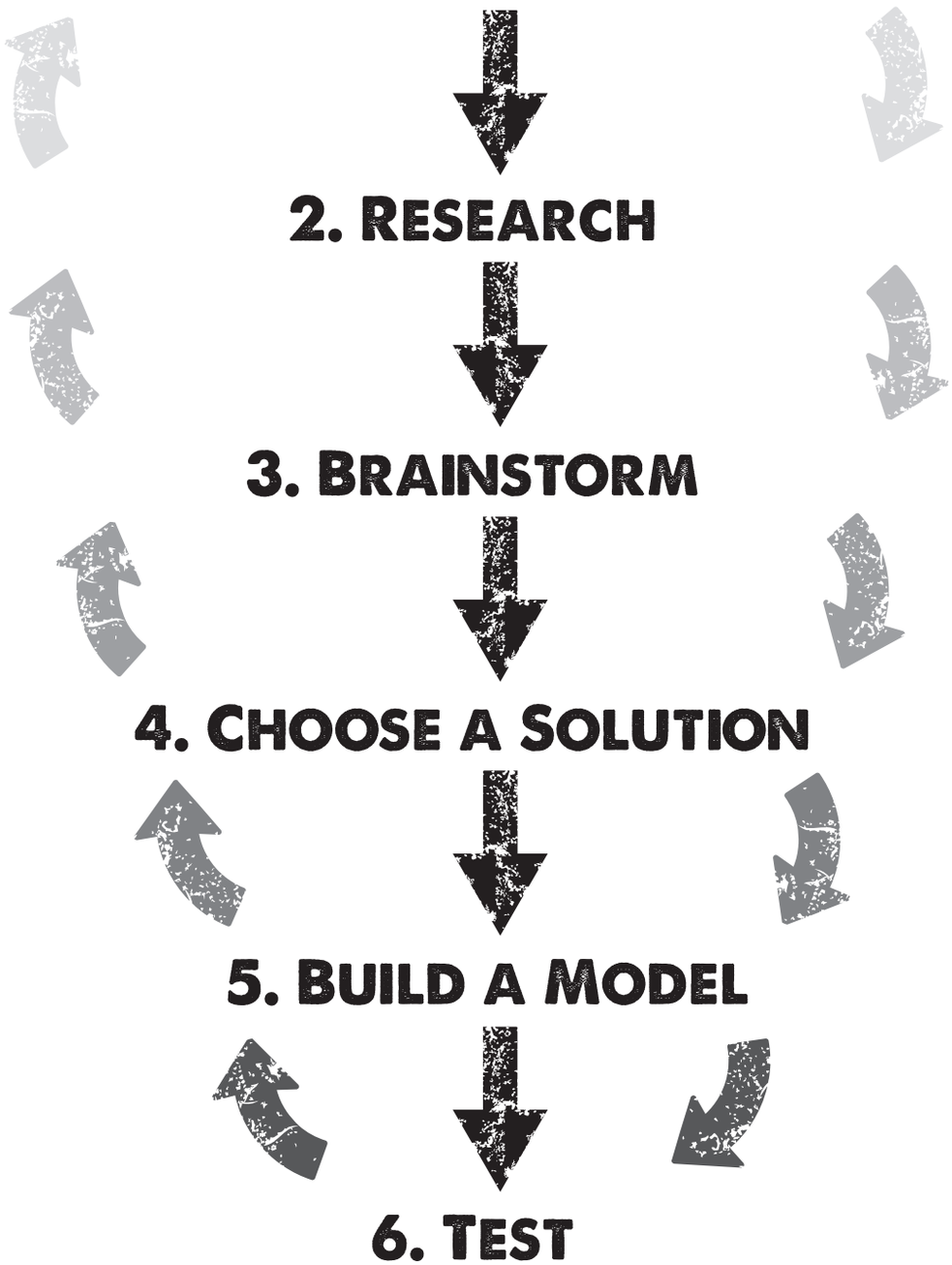
LESSON 3: Circuits

- I can describe open and closed circuits.
- I can identify whether a model circuit is open or closed.
- I can create a closed circuit to light a light bulb.
- I can use the Engineering Design Process to solve a problem.

Catapult Learning ©2019

G1-2_U4 SRB_2019_font.indd 2 4/5/21 3:56 PM

The Engineering Design Process



G1-2_U4 SRB_2019_font.indd 3 4/5/21 3:56 PM

Project/Session Name: _____ **Date:** _____

Daily Log

Notes or drawings:	
A problem I had:	**How I solved it:**
What I liked:	**What I didn't like:**
What I learned today:	

Catapult Learning ©2019

G1-2_U4 SRB_2019_font.indd 4 4/5/21 3:56 PM

G1-2_U4 SRB_2019_font.indd 5

Push It or Pull It

Object	I can push it.	I can pull it.

Object	I can push it.	I can pull it.

4/5/21 3:56 PM

Project/Session Name: _____ **Date:** _____

Daily Log

Notes or drawings:	
A problem I had:	**How I solved it:**
What I liked:	**What I didn't like:**
What I learned today:	

Catapult Learning ©2019

G1-2_U4 SRB_2019_font.indd 6 4/5/21 3:56 PM

G1-2_U4 SRB_2019_font.indd 7

Catapult Learning ©2019

Moving in Different Ways

What happened when you pushed your objects hard? _____

_____

Show how you made your objects . . .

stop	collide	go in a circle	zigzag

4/5/21 3:56 PM

Project/Session Name: _____ **Date:** _____

Daily Log

Notes or drawings:	
A problem I had:	**How I solved it:**
What I liked:	**What I didn't like:**
What I learned today:	

Catapult Learning ©2019

G1-2_U4 SRB_2019_font.indd 8 4/5/21 3:56 PM

Ramps and Speed

Which ramp will be the fastest? _____

Ramp 1	Ramp 2

Which ramp had the winning marble? _____

G1-2_U4 SRB_2019_font.indd 9 4/5/21 3:56 PM

Project/Session Name: _____ **Date:** _____

Daily Log

Notes or drawings:	
A problem I had:	**How I solved it:**
What I liked:	**What I didn't like:**
What I learned today:	

Catapult Learning ©2019

G1-2_U4 SRB_2019_font.indd 10 4/5/21 3:56 PM

Building a Bin

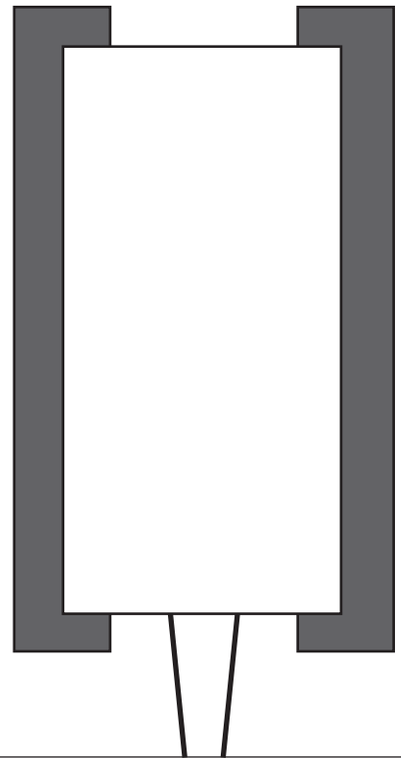
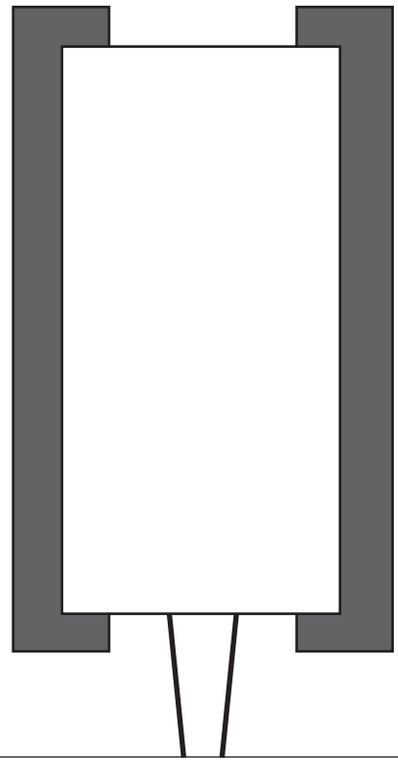
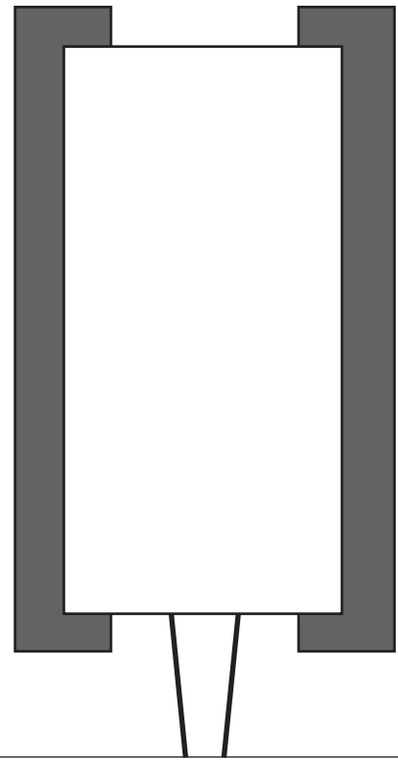
Sketches for Our Bin
(Circle the bin you will build.)

Notes

Our Finished Bin

G1-2_U4 SRB_2019_font.indd 11 4/5/21 3:56 PM

Bin Pull

Bin 1	Bin 2	Bin 3
Number of blocks 0	Number of blocks _____	Number of blocks _____
		

Which bin was easy to pull? _____

Which bin was hard to pull? _____

Which bin was hardest to pull? _____

Catapult Learning ©2019

4/5/21 3:56 PM

G1-2_U4 SRB_2019_font.indd 12

Project/Session Name: _____ **Date:** _____

Daily Log

Notes or drawings:	
A problem I had:	**How I solved it:**
What I liked:	**What I didn't like:**
What I learned today:	

G1-2_U4 SRB_2019_font.indd 13 4/5/21 3:56 PM

Sorting Things

Draw and label the objects that you sorted by color, shape, texture, and hard or soft.

Color	**Shape**
Texture	**Hard or Soft**

Catapult Learning ©2019

G1-2_U4 SRB_2019_font.indd 14 4/5/21 3:56 PM

Project/Session Name: _____ **Date:** _____

Daily Log

Notes or drawings:	
A problem I had:	**How I solved it:**
What I liked:	**What I didn't like:**
What I learned today:	

G1-2_U4 SRB_2019_font.indd 15 4/5/21 3:56 PM

Build a House

Define the Problem:

Research:
Circle the right word in each pair.

Straws are: bendable / not bendable hard / soft light / heavy

Paper is: bendable / not bendable hard / soft light / heavy

Blocks are: bendable / not bendable hard / soft light / heavy

Which blew farthest?

Circle one: the straw the paper the block

Brainstorm: What could your house look like?

Choose a Solution:
What materials did you choose?

Test:
Did your house blow down?

Catapult Learning ©2019

G1-2_U4 SRB_2019_font.indd 16 4/5/21 3:56 PM

Project/Session Name: _____ **Date:** _____

Daily Log

Notes or drawings:	
A problem I had:	**How I solved it:**
What I liked:	**What I didn't like:**
What I learned today:	

G1-2_U4 SRB_2019_font.indd 17 4/5/21 3:56 PM

Sunny and Shady Experiment

My Predictions

	Water	Ice	Blocks	Marbles
How will this feel in the **shade**? (Circle.)	Cold Cool Warm Hot	Cold Cool Warm Hot	Cold Cool Warm Hot	Cold Cool Warm Hot
How will this feel the **sun**? (Circle.)	Cold Cool Warm Hot	Cold Cool Warm Hot	Cold Cool Warm Hot	Cold Cool Warm Hot
Which will change the most in the sun?				

Catapult Learning ©2019

G1-2_U4 SRB_2019_font.indd 18 4/5/21 3:56 PM

Sunny and Shady Experiment

My Observations

	Water	Ice	Blocks	Marbles
How does this feel in the **shade**? (Circle.)	Cold Cool Warm Hot	Cold Cool Warm Hot	Cold Cool Warm Hot	Cold Cool Warm Hot
How does this feel in the **sun**? (Circle.)	Cold Cool Warm Hot	Cold Cool Warm Hot	Cold Cool Warm Hot	Cold Cool Warm Hot
Which changed the most in the sun?				

G1-2_U4 SRB_2019_font.indd 19 4/5/21 3:56 PM

Project/Session Name: _____ **Date:** _____

Daily Log

Notes or drawings:	
A problem I had:	**How I solved it:**
What I liked:	**What I didn't like:**
What I learned today:	

Catapult Learning ©2019

G1-2_U4 SRB_2019_font.indd 20 4/5/21 3:56 PM

Build a Shelter

Define the Problem:

Research:	**Color**	**Weight**	**Other**
blocks			
bandanna			
tissue paper			
black construction paper			
plastic bag			
foil			
building straws			

Brainstorm:

Choose a Solution:
What materials did you choose?

Test:
Did your shelter keep the water cool?

G1-2_U4 SRB_2019_font.indd 21 4/5/21 3:56 PM

Project/Session Name: _____ **Date:** _____

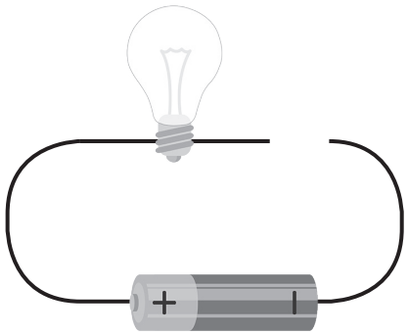
Daily Log

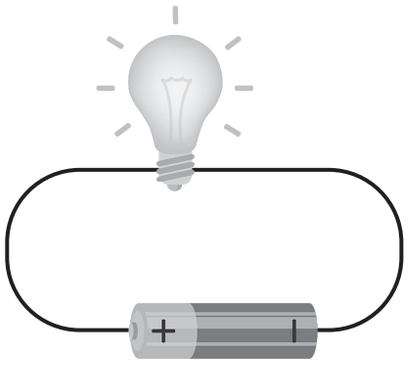
Notes or drawings:	
A problem I had:	**How I solved it:**
What I liked:	**What I didn't like:**
What I learned today:	

Catapult Learning ©2019

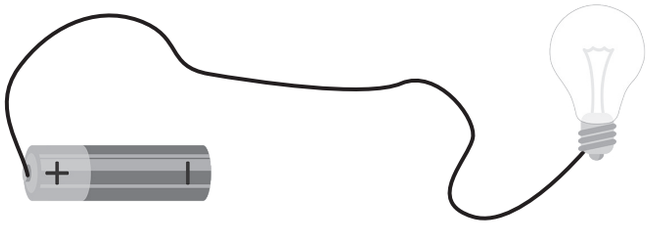
G1-2_U4 SRB_2019_font.indd 22 4/5/21 3:56 PM

Open and Closed Circuits





Is the circuit open or closed? Will the light bulb glow? Circle your answers.

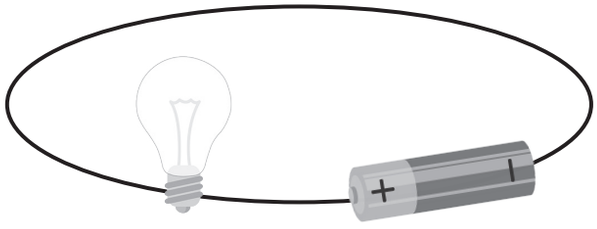


What kind of circuit?

open closed

Will the light bulb glow?

yes no



What kind of circuit?

open closed

Will the light bulb glow?

yes no

Draw a picture of a closed circuit.

Draw a picture of an open circuit.

G1-2_U4 SRB_2019_font.indd 23 4/5/21 3:56 PM

Project/Session Name: _____ **Date:** _____

Daily Log

Notes or drawings:	
A problem I had:	**How I solved it:**
What I liked:	**What I didn't like:**
What I learned today:	

Catapult Learning ©2019

G1-2_U4 SRB_2019_font.indd 24 4/5/21 3:56 PM

Build a Closed Circuit

Define the Problem:

Research:

1. What shape is a closed circuit?

2. What materials do you have?

Brainstorm:

Test:
Did your light bulb glow?

Final Design:

G1-2_U4 SRB_2019_font.indd 25 4/5/21 3:56 PM

NOTES:

Catapult Learning ©2019

G1-2_U4 SRB_2019_font.indd 26 4/5/21 3:56 PM

Presentation Rubric

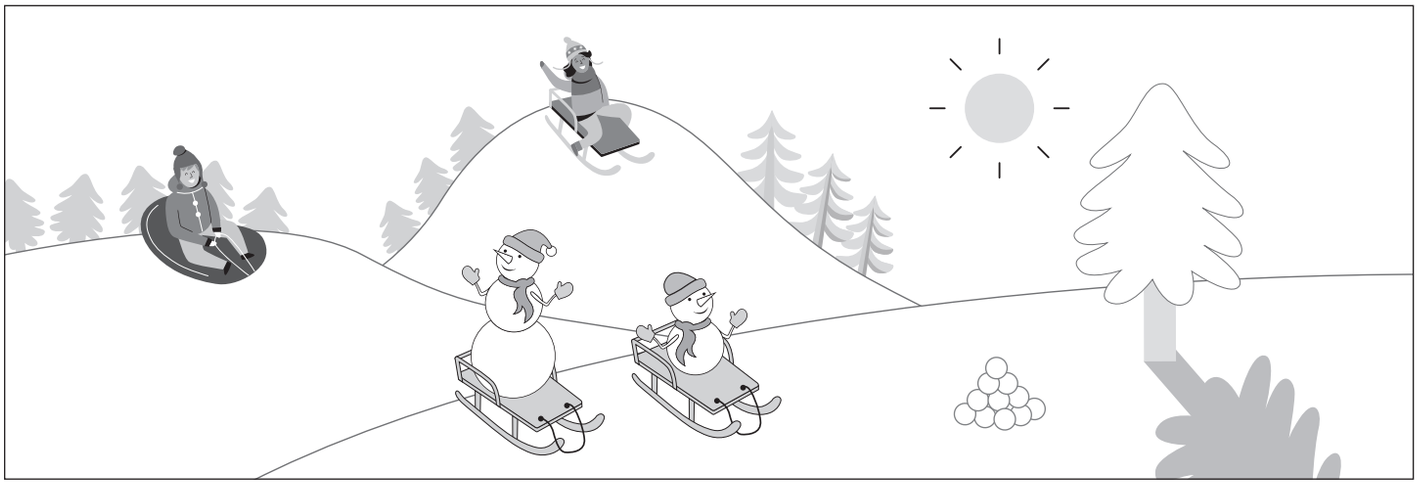
	Almost Always	Sometimes	Still Learning
My presentation is clear and easy to understand.			
I speak loudly and clearly.			
I look at my audience.			
I listen to my peers and share my ideas with the group.			

Work Habits Rubric

	Almost Always	Sometimes	Still Learning
I ask questions about what I don't know.			
I can change my mind when I learn something new.			
I think of creative solutions.			
I stay focused on the task.			

G1-2_U4 SRB_2019_font.indd 27 4/5/21 3:56 PM

Unit Review Question



Circle the hill that would be faster to sled down.

How could someone on a sled go down the hill even faster?
Write your answer or draw it in the picture.

Circle the snowman that would be easier to pull.

Why would he be easier to pull? _____

You want to make sure the snowballs don't melt before your snowball fight.
What should you do?

Catapult Learning™

©2019 Catapult Learning, LLC

Catapult Learning, LLC
Two Aquarium Drive, Suite 100
Camden, NJ 08103
1-800-841-8730

www.catapultlearning.com

All rights reserved. No part of this publication, in whole or part, except those pages marked specifically with permission for reproduction may be reproduced in any form, or by any means, or stored in a database or retrieval system, without prior written permission from the publisher.

BRICTEK® is a registered trademark of BRMB Inc. The trademarks and names of other companies and products mentioned herein are the property of their respective owners.

Printed in the United States of America.

STEM
Inspired by the Engineering Design Process
powered by Catapult Learning

The Engineering Design Process

Final Project

Primary
Student Resource Book

NAME:

G1-2_Capstone_SRB_2019_font.indd 1 4/5/21 3:55 PM

Essential Questions

- How can I use the EDP to solve a school or community problem?
- How can I explain my solution to others?

Unit Objectives

LESSON 1: Plan Your Final Project

- I can identify school or community problems.
- I can make a connection between school or community problems and the EDP.
- I can define one problem, do research, and brainstorm solutions.
- I can identify a solution to explore.
- I can identify details of my chosen solution.
- I can create a poster and presentation that explains my solution.
- I can make improvements to a poster and/or presentation.

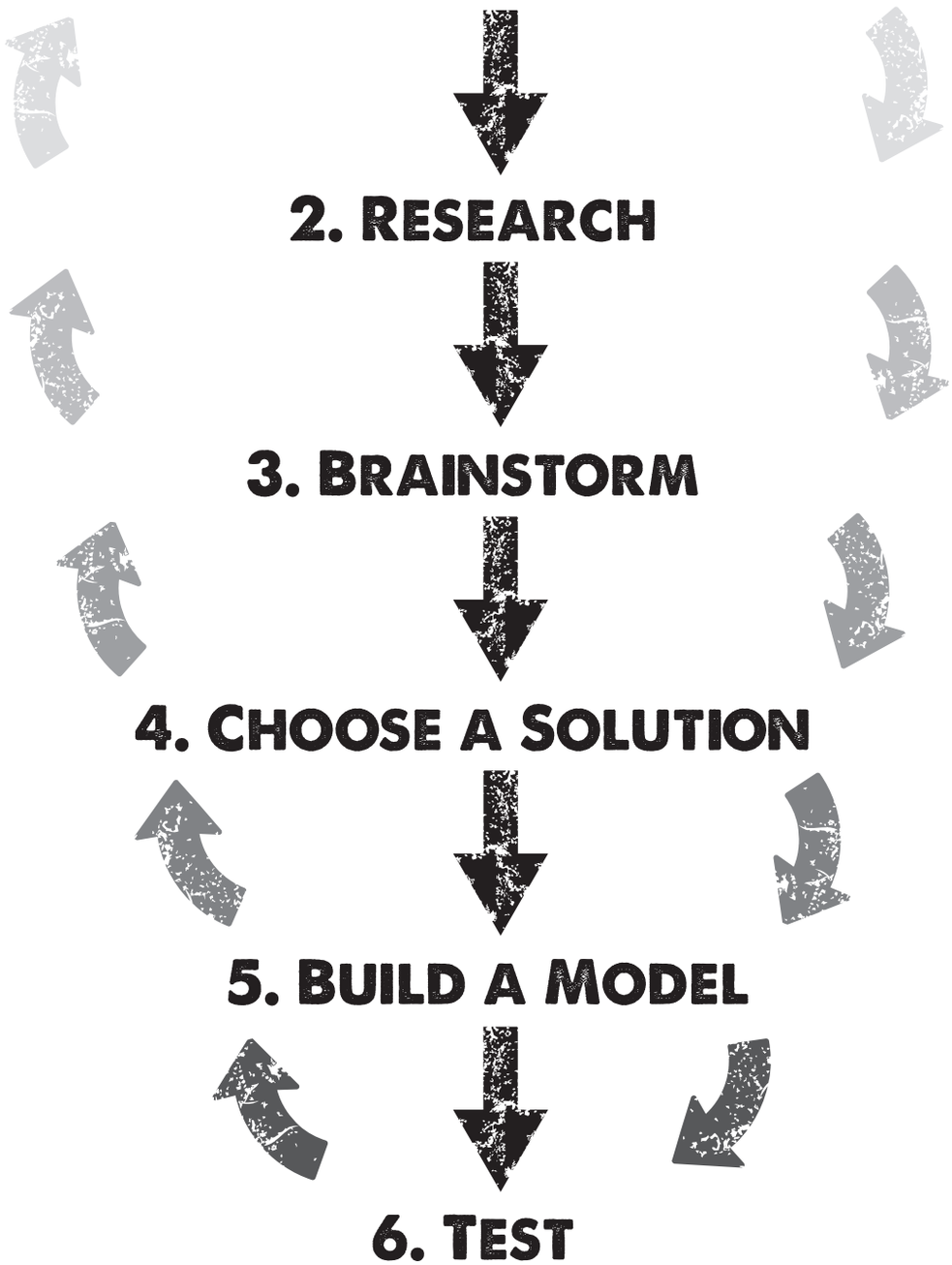
LESSON 2: Present Your Final Project

- I can show and explain my poster to my class.
- I can think and talk about my presentation.

Catapult Learning ©2019

G1-2_Capstone_SRB_2019_font.indd 2 4/5/21 3:55 PM

The Engineering Design Process



G1-2_Capstone_SRB_2019_font.indd 3 4/5/21 3:55 PM

Examining the Engineering Design Process

Define the Problem

- What do you want to change in your school or community?
- Who will be helped by solving this problem?
- What is your goal?

Research

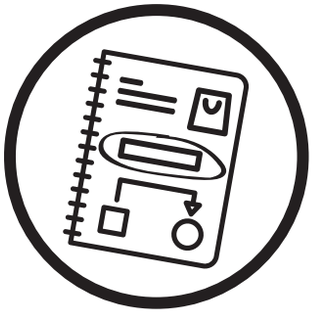
- Have people in your school or community tried to solve this problem before? What worked and what didn't?
- Do you have problems like this in your life? How have you tried to solve them?
- What do you know about the problem?
- What questions do you have about the problem? How can you get answers?

Brainstorm

- What are some of your ideas? Say them aloud, write them down, list, or draw them.
- What weird or crazy ideas can you come up with?
- How can you get more ideas?

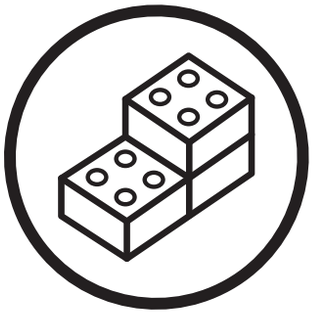
Catapult Learning ©2019

G1-2_Capstone_SRB_2019_font.indd 4 4/5/21 3:55 PM



Choose a Solution

- What is good about each idea?
- What is not-so-good about each idea?
- Which ideas would be easiest for your school or community to do?



Build a Model*

- What are the details of your solution?
- What is the best way to explain your solution to other people?
- How can you create a poster that will help you explain your solution?

Test

- Why should you test your poster and presentation?
- What can you learn?
- How can you make your poster or presentation better?

For this project, a poster will take the place of a model of your solution.

G1-2_Capstone_SRB_2019_font.indd 5 4/5/21 3:55 PM

List Problems

Catapult Learning ©2019

G1-2_Capstone_SRB_2019_font.indd 6 4/5/21 3:55 PM

G1-2_Capstone_SRB_2019_font.indd 7 4/5/21 3:55 PM

Define the Problem

Catapult Learning ©2019

G1-2_Capstone_SRB_2019_font.indd 8 4/5/21 3:55 PM

RESEARCH

G1-2_Capstone_SRB_2019_font.indd 9 4/5/21 3:55 PM

Brainstorm

Catapult Learning ©2019

G1-2_Capstone_SRB_2019_font.indd 10 4/5/21 3:55 PM

Choose a Solution

G1-2_Capstone_SRB_2019_font.indd 11 4/5/21 3:55 PM

Explore Your Solution

Catapult Learning ©2019

G1-2_Capstone_SRB_2019_font.indd 12 4/5/21 3:55 PM

G1-2_Capstone_SRB_2019_font.indd 13 4/5/21 3:55 PM

Presentation Rubric

	Almost Always	Sometimes	Still Learning
My presentation is clear and easy to understand.			
I speak loudly and clearly.			
I look at my audience.			
I listen to my peers and share my ideas with the group.			

Catapult Learning ©2019

G1-2_Capstone_SRB_2019_font.indd 14 4/5/21 3:55 PM

Poster/Presentation Notes

Drawing of our poster:

Notes about our presentation:

G1-2_Capstone_SRB_2019_font.indd 15 4/5/21 3:55 PM

TEST

Question or suggestion about other team's solution:

Question or suggestion about other team's poster or presentation:

Catapult Learning ©2019

G1-2_Capstone_SRB_2019_font.indd 16 4/5/21 3:55 PM

Improve

G1-2_Capstone_SRB_2019_font.indd 17 4/5/21 3:55 PM

NOTES:

Catapult Learning ©2019

G1-2_Capstone_SRB_2019_font.indd 18 4/5/21 3:55 PM

NOTES:

G1-2_Capstone_SRB_2019_font.indd 19 4/5/21 3:55 PM

Work Habits Rubric

	Almost Always	Sometimes	Still Learning
I ask questions about what I don't know.			
I can change my mind when I learn something new.			
I think of creative solutions.			
I stay focused on the task.			

Catapult Learning™

©2019 Catapult Learning, LLC

Catapult Learning, LLC
Two Aquarium Drive, Suite 100
Camden, NJ 08103
1-800-841-8730

www.catapultlearning.com

All rights reserved. No part of this publication, in whole or part, except those pages marked specifically with permission for reproduction may be reproduced in any form, or by any means, or stored in a database or retrieval system, without prior written permission from the publisher.

Printed in the United States of America.

Name: _____ Date: _____

Post-Test

Directions: Listen to each statement, then circle the smiley face if you agree, the plain face if you're not sure, and the frowny face if you disagree.

1.	I know what engineers do.	
2.	I can think of things engineers have invented that solve problems.	
3.	I know the steps of the Engineering Design Process.	
4.	I know why we use the Engineering Design Process.	
5.	I take notes and make drawings when I think about problems.	
6.	When I brainstorm, I come up with as many ideas as I can, even if they're a little crazy.	
7.	I can pick the best solution to a problem by thinking about what's good and not-so-good about each idea.	

STEM 2019_Program Assessment.indd 4 4/24/19 12:45 PM

8.	When I get stuck, I ask for help.			
9.	When I can't solve a problem, I think of other ways to look at it.			
10.	If I can't think of any solutions to a problem at first, I keep trying.			
11.	When I work in a group, I learn from other students in the group.			
12.	I write and talk about problems as clearly as I can.			
13.	When I want to solve a problem, I think of questions to ask about it.			
14.	I listen to other students' ideas and share my ideas with them.			
15.	I can change my mind when I learn something new.			

STEM 2019_Program Assessment.indd 5 4/24/19 12:45 PM