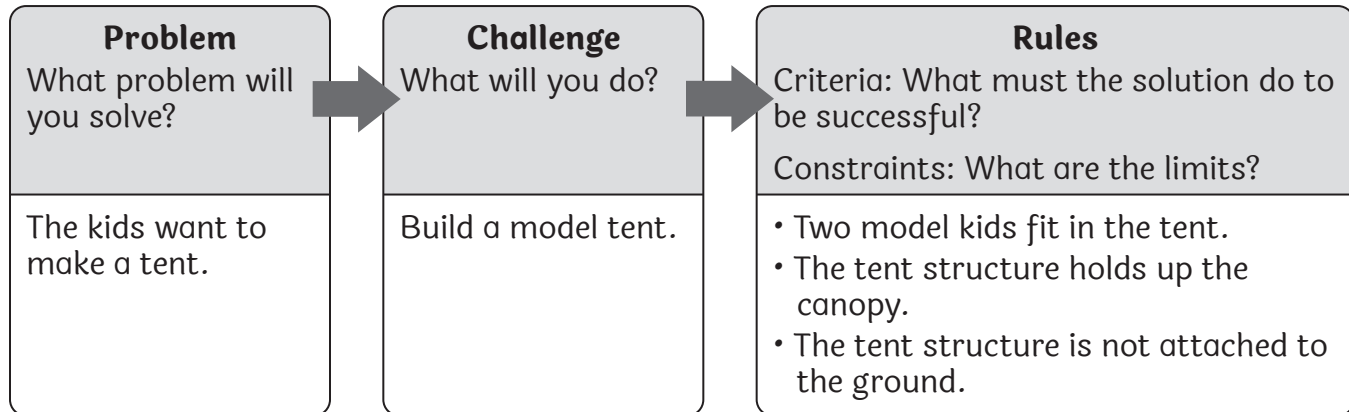


PLOT SUMMARY:

Caleb and Aisha are staying over at Grandma's house. They build a tent in the living room and have all kinds of imaginary adventures.

MODEL TENT CHALLENGE:



OTHER POSSIBLE PROBLEMS AND CHALLENGES:

Students can use the *Universal Challenge Pages* (pages 106–109) to create solutions to any of the problems below or problems they identify themselves.

Problem	Caleb and Aisha want to make shadow shapes.
Possible Challenge	<ul style="list-style-type: none"> • Design and create shadow puppets.

Problem	The kids want to know when someone is coming to their tent.
Possible Challenge	<ul style="list-style-type: none"> • Design and build a doorbell or other system of signaling.

Problem	The kids want to add more fun things to their tent.
Possible Challenge	<ul style="list-style-type: none"> • Engineer some more tent features, such as a working door and windows, furniture, a mail slot, or a flag.

MATERIALS:

Required: Each team will need a canopy to drape over their tent structure. You can vary the difficulty of the challenge by selecting a lighter canopy, such as a tissue or paper towel, or a heavier canopy like a dish towel. Each team will also need two model “kids” to put inside their tent. Again, you can vary the difficulty by offering smaller items, such as bear counters or dice, or larger items, such as action figures.

Suggested: structural items such as toothpicks, wooden skewers, straws, craft sticks, dry spaghetti, glow sticks; soft connectors such as marshmallows, gum drops, apple chunks, play clay

LESSON PLAN:

1. Have students read the passage and discuss the problems they identified. Use these questions as prompts:
 - Have you ever built a tent or another kind of shelter? How did you build it?
 - What problems do the kids in the story solve?
 - Can you think of some other solutions to these problems?
2. Introduce the Model Tent Challenge to students by reading Step 1 (page 39) together. You may want to write the rules for the challenge on the board or a chart.
3. Ask students to think about what they know about tents that could help them in this challenge. You may want to build students’ prior knowledge by showing them pictures of different kinds of tents such as A-frame tents, pyramid tents, dome tents, pop-up tents, yurts, and big-top circus tents. Explain that there are two main parts to a tent. The **structure** is usually made of poles or sticks. The **canopy** is the fabric that goes over the structure. Have students discuss the challenge and write or draw about their prior knowledge in the “What do we know about this?” section of Step 1 (page 39).
4. Give each group of students two small items to be their model kids. Remind students that they will be building a model of a tent, not a full-size tent, so their kids must be models as well. A *model* is a small copy of something, like a model airplane or a miniature model of a city. Tell students that both model kids must fit inside their tent. Prompt them to think about how big their tent will need to be to fit both model kids inside. To make the challenge more difficult, require the tents to have an entry/exit that the model kids can fit through.
5. Give each group the material they will use for the canopy of their tent. Have them feel its weight. Prompt them to think about how sturdy their tent structure will need to be to hold up the canopy.
6. Show students the available materials for building their tent structure. As you hold up each material, prompt students to think about how they could use it. Give students a copy of Step 2 (page 40). Have them discuss their plan and then write or draw the materials they will use and what their tent will look like. Then give them access to the materials.

LESSON PLAN:

7. Give students time to build their tent structures. Circulate to observe and answer questions as students work on their solutions. When a team thinks their tent structure is ready, give them a copy of Step 3 (page 41). Have them test their tent structure by placing their canopy over it. Then they should record their results and how they will improve their tent.
8. Have students share their solutions with the class and get feedback from peers, then revise their designs and test again. Have them repeat the test-and-improve cycle until they are satisfied with their results.
9. When students have completed the challenge, have them show and explain their tents to the class. Then have them fill out Step 4 (page 42).
10. If time, allow students to choose their own problem and testing setup and use the *Universal Challenge Pages* (pages 106–109) to complete their challenge.

NAME: _____

DATE: _____

Directions: Read the passage and underline the problems the characters have to face. Write and/or sketch your ideas for solutions in the margins.

INDOOR CAMPING

Caleb and Aisha were staying over at Grandma's house. They were very excited. Tonight, they would camp out in the living room!

Caleb and Aisha wanted to make a tent. They took the cushions off the couch. They tried standing the cushions straight up, but they kept falling over. Grandma showed them how to lean the tops of the cushions together to make a triangle. They didn't fall down! Caleb and Aisha made two triangles. They could crawl inside and lay down. There wasn't enough room to sit up.

"These tents are cozy," said Aisha.

"But they aren't very big," said Caleb.

"I have an idea," said Grandma.

Grandma put the dining chairs around the mini tents. She spread an old sheet over the tops of the chairs. It made a much bigger tent! Caleb and Aisha crawled inside. It was like their own little living room. They decided that their couch-cushion triangles would be their beds.

"You'll need these," said Grandma. She handed them each a flashlight. Caleb and Aisha took some books into their tent. They turned on their flashlights and read books for a while. Then they shined the flashlights on the sheet ceiling of the tent. They used their hands to make funny shadows on the ceiling.

Caleb wanted to make the tent even more fun. He got a pot and a wooden spoon from the kitchen. He put them outside the tent.

NAME: _____

DATE: _____

INDOOR CAMPING

He called, "Grandma! Come visit us."

Grandma came to the tent. "May I come in?" she asked.

"Please use the doorbell," called Aisha.

Grandma banged on the pot with the spoon.

Caleb and Aisha called, "Come in!"

Grandma came into the tent. She had a plate of cookies. "Where shall I put these?" she asked.

Aisha went and got a cardboard box. She placed it upside down in the middle of the tent.

"Please put it on the table!" she said.

Caleb, Aisha, and Grandma enjoyed cookies on their new table.

Caleb and Aisha loved playing in their tent. First, they pretended they were camping. They made a pretend fire with red and yellow paper. They all sang songs around the fire.

Next, they pretended they were on a safari in Africa. They made binoculars from paper towel tubes. They watched zebras and giraffes on the plains.

Then they pretended the tent was a spaceship. They blasted off from Earth. They visited Mars and Venus. Aisha tied a rope to one of the chairs. She held on to the other end. She went outside the tent and moved around very slowly. "I'm on a spacewalk!" she told Caleb.

Then their tent became a submarine. They dove beneath the ocean. They saw sharks and squid.

That night, Caleb and Aisha slept in their tent. They dreamed of more adventures.

NAME: _____

DATE: _____

STEP 1: PREPARE FOR THE CHALLENGE**What will we do?**

We will build a model tent.

What are the rules?

- Two model kids fit in the tent.
- The tent structure holds up the canopy.
- The tent structure is not attached to the ground.

How will we know it works?

We will know our tent structure works when two kids can fit inside. We will know it works when we can put the canopy on our tent structure and it stays standing.

What do we know about this?

NAME: _____

DATE: _____

STEP 2: BRAINSTORM, PLAN, AND BUILD**What materials will we use to build our tent?****What will our tent look like?**

NAME: _____

DATE: _____

STEP 3: TEST, IMPROVE, AND SHARE

We tested our tent. This is what happened:

How can we make our tent better?

Share the tent with the class. Make the tent better until it meets all the rules!



NAME: _____

DATE: _____

STEP 4: REFLECT

Did two model kids fit in our tent? Yes No

Did our tent structure hold up the canopy? Yes No

Was our tent attached to the ground? Yes No

This part was easy:

This part was hard:

I learned this:
