

# Sam's Parachute Misadventure

Tonight we are stepping into the shoes of engineers! We will be using the 6 STEM skills: Problem Solving, Creativity, Inquiry, Critical Thinking, the Engineering Design Process, and Collaboration to rescue Sam, the gummy worm. Sam caught the adventure bug! He headed to southwest Arizona—full of mountains and a desert climate! He climbed to the top of a mountain to see the beautiful desert below—but now can't get down! He is trapped on top of Superstition Mountain and needs to get down to the ground to his campsite. How on earth can he get down safely without injuring himself?! Sam must be placed inside the parachute during all trials and cannot fall out! Sam cannot fly, he's a worm! Only the parachute you create can be used to help Sam get to his campsite. But be careful not to hurt Sam.

## **Step 1:** Define the Problem

- What is the problem in this challenge? What do we need to figure out?

## **Step 2:** Plan Solutions

- Discuss as a family how gravity can affect the path of your parachute and what materials you can use to safely help Sam fly without falling out of the parachute!
- Look at your materials and sketch your ideas on a piece of paper. What design of your transportation device will keep Sam secure? How can your team design the device to float/fly?

## **Step 3:** Make a Model

- Using the solutions you have planned, try to make a model and start to experiment with combining materials to create your parachute design. Take five minutes to build it anyway you see fit.

## **Step 4:** Test the Model

- Now it's time to test your design. If it fails to float gently from different heights, redesign. Did it work?

## **Step 5:** Reflect and Redesign

- If your parachute is not working for all steps, create new solutions, use different materials and change the design of the parachute.
- What are different ideas you used as a family? Did you learn from mistakes? What happened when you tried again?