

# Protect the Pringle

Grade Level: 3, 4, 5, 6, 7, 8, 9, 10

Duration: 30-60 minutes

Classification: Classroom, STEM Spark

Subject(s): Product Engineering

Categories (STEM): Engineering

Keywords: Design, Build, Engineering Process

## Introduction

- Summary: Use the engineering process to create a container safe enough to get the Pringle through a series of unknown challenges
  - Description: Students will brainstorm designs, create a prototype, and eventually test their Pringle protector. Students will discuss the importance of testing and redesigning throughout the development process.

**Online Resources:** <https://stemactivitiesforkids.com/2016/02/25/690/>

## Materials

Materials	Quantity	Reusable?
Pringles	2 per group of 4 students	No
Copy Paper	10 sheets per group of 4	No
Masking Tape	2 meters per group of 4	No
Tub of Water (can use kit)	1 per class	Yes
Bag of Pennies	1 per class	Yes
Towel or Paper Towels	1 roll per class	No

## Directions

- Before the students arrive, hide the tub of water and bag of pennies. If you cannot hide it, leave the materials in the kit and do not let students look in it.
- Explain that students will make a model to keep a Pringle safe from a number of unknown tests.
- In groups of 3-4, have students brainstorm and design their Pringle package
- Design and build for 10-15 minutes, as time allows
- Give students a Pringle during last 2 minutes of building
- Test each model, check after that the Pringle is not broken nor wet
  - A drop test from shoulder height
  - Dropping a bag of pennies on it from waist level
  - Submerge the model in a tub of water
- Hand out materials again and have students change their design based on test results

### **Activity Extension**

- Have students try the activity with less materials.
- Have students design their own test.

### **Discussion Questions**

- What helped the Pringle survive?
- What failed to keep the Pringle alive?
- What was the difference in knowing the tests for making your design? Did it help?
- What is the most important material you were given to build?
- Why is it important to use your tape wisely?
- What is the hardest test to pass?
- What similarities does the engineering process have with the scientific method?

### **What is happening?**

- Students learn the engineering process as they refine their model and build according to knowing the tests and what is required of their product.

### **Applications**

- Majors
  - Industrial Engineering
  - Materials Engineering
- Jobs
  - Product Manufacturers
  - Home Builders
- Hobbies
  - LEGOs
- Real world applications
  - Postal services, sending/receiving packages
  - Wrapping a gift so it does not break during travel
  - Making robust buildings to withstand weather/uncertainty



This activity was last updated in fall 2020 by Student Role Models.