



# Stem Student packet



Name \_\_\_\_\_

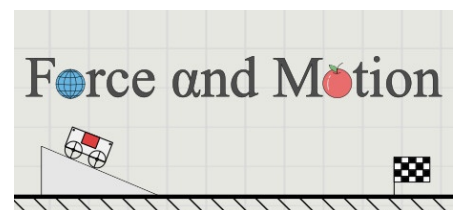
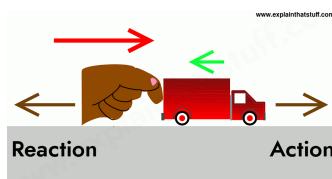
Section \_\_\_\_\_



# STEM Vocabulary

## STEM Vocabulary

1. **Motion:** The movement of an object. The car moves when the force from the balloon pushes it forward.
2. **Stability:** How well the car stays balanced and upright while moving. A stable car will not tip over or wobble as much during its motion.
3. **Distance:** The amount of space the car travels from start to stop.
4. **Energy:** The capacity to do work or cause motion. The air inside the balloon stores potential energy, which is released as kinetic energy when the balloon deflates.
5. **Force:** A push or a pull that can make an object move, stop, or change direction. In this project, the air from the balloon creates the force that moves the car.





## STEM- Balloon-Powered Car

## Building Background Knowledge

## Working Packet

**Directions: After watching the video about force and motion in class, answer the following questions.**

## Respond

1. What do you think will make the balloon-powered car move, and how does the balloon provide the force to push the car?
2. What factors do you think will affect how far your car travels, such as the size of the car, the placement of the wheels, or the design of the body?



## STEM- Balloon-Powered Car

Research

Working Packet

Group # \_\_\_\_\_ Section: \_\_\_\_\_  
Student Name: \_\_\_\_\_  
Partner's Name: \_\_\_\_\_  
\_\_\_\_\_

**Challenge: Design and build a balloon-powered car using the provided materials that can travel at least 100 cm. Test your design, make improvements, and compete to see whose car travels the farthest!**

### Research

(Sources: **Science Notebook, Elevate Science Textbook, and/or Discovery Education**. Note the **sources** you used, including **page numbers, titles, and/or links** in the provided space below.)



**Group #** \_\_\_\_\_

**Section:** \_\_\_\_\_

**Student Name:** \_\_\_\_\_

**Partner's Name:** \_\_\_\_\_

\_\_\_\_\_

**Give your project a title:**

\_\_\_\_\_

### **Design the Prototype**

(Create a labeled diagram of your prototype.)

### **Materials**



**Group #** \_\_\_\_\_

**Section:** \_\_\_\_\_

**Student Name:** \_\_\_\_\_

**Partner's Name:** \_\_\_\_\_  
\_\_\_\_\_

### **Test your Prototype - Collect your Data**

#### **Design 1**

**1. How far did your car travel in the first trial? How does this distance compare to the 100 cm goal?**

**2. What factors (like wheel alignment, balloon size, or body design) might have affected your car's distance?**

**3. Was your car stable during its movement, or did it wobble or tip over? How can you improve its stability for the next trial?**

**4. What changes could you make to improve your car's performance for the next trial?**



**Group #** \_\_\_\_\_

**Section:** \_\_\_\_\_

**Student Name:** \_\_\_\_\_

**Partner's Name:** \_\_\_\_\_  
\_\_\_\_\_

### **Improve the Prototype**

(Re-design your Prototype. Create a labeled diagram of your improved prototype.)

### **Materials**



**Group #** \_\_\_\_\_ **Section:** \_\_\_\_\_  
**Student Name:** \_\_\_\_\_  
**Partner's Name:** \_\_\_\_\_  
\_\_\_\_\_

### **Reflection Questions**

1. In what way did you improve your prototype?

2. Do you expect the improved prototype to pass the challenge? Why?

3. What did you learn? Discuss your success or lack of success and reasons for it.





**Make a Keynote – Use Keynote to create a presentation following the instructions below:**

**Parameters:**

- At least five slides with colorful background.
- A title slide with the group number and team members.
- Describe your design plan, including the materials used.
- Five pictures of your design
- 2 videos for testing (trial 1, and trial 2)
- 1 recorded audio explaining the final performance of your car, including how far it traveled in the final trial.