



Stem Student packet



Name _____

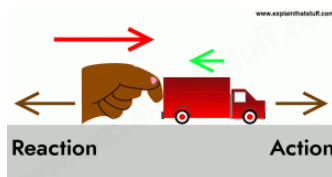
Section _____



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 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

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? Round the distance your car traveled to the nearest ten.

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.