

Unit Name: **Create-A-Car**

Time Frame: **Take Home/2 periods**

Author: Egg Harbor Township STEM Committee

UNIT

Subject: Forces, Earth and Human Activity, Empowering Writers-Transportation

Course/Grade: Science/LAL 5th

State/Group: NJ

School: Egg Harbor Township School District

UNIT SUMMARY: Students will design a car made solely of recyclable materials. They will race the cars and identify Newton's Laws.

UNIT RESOURCES: Forces Unit

L.5.1; W.5.1; 5-PS2; 5-LS2; 3-5-ETS1

Internet Resource Links: www.acua.com

STAGE ONE

GOALS AND STANDARDS: To create a car made out of recyclable materials and race them against their classmates.

ENDURING UNDERSTANDINGS: Students will understand how gravity and friction play a part in making something roll. Students will understand what are recyclable and non-recyclable items.

ESSENTIAL QUESTIONS: How do I use simple machines to create a complex machine? How do I make a car roll using only recyclable materials?

KNOWLEDGE AND SKILLS: Students will use trial and error to design a car.

STAGE TWO

PERFORMANCE TASKS:

1. Students will use only recyclable materials to create a car.
2. They cannot buy a model car set and put it together. It must be made from scratch.
3. The car must be able to roll.
4. Keep it under 12 inches wide by 12 inches long.
5. Race the cars down the ramp going into the cafeteria.

OTHER EVIDENCE: LAL Component

1. The students will write a one page expository piece detailing how they created the car. What challenges did they face? If they were to redesign the car, what would they do differently? How would they make it faster or roll better? Describe one of Newton's Laws that you used for this project.

STAGE THREE

LEARNING PLAN:

Grading Rubric-

1. Project was completed on time	5	3	0		
2. Car was able to roll	5	3	0		
3. Creative and Decorated	5	3	0		
4. Used recyclable materials	5	3	0		
5. Expository Piece	4	3	2	1	0

Vignette:

The ACUA (Atlantic County Utilities Authority) has hired your team to design a car completely made of recyclable materials. The car must be designed completely from scratch. You can not buy a model car. Your car must be able to roll and can not be larger than 12" by 12". The ACUA will sponsor a race that will determine a winner and choose the most creative. You will need to write an expository piece detailing how you created your car. They would like to know what challenges you faced, and what you would do differently if you were to redesign the car to improve it. Explain to the ACUA which Newton's Laws you have applied to your design. Good Luck!