



What Makes a Car Go?

Stottlemyer

Title: What makes a car go?

Audience

Subject: Science – Engines (Cars)

Student Population:

- 4th grade
- All first English speaking students
- Female and Male

Learning Community:

- Rural
- Elementary
- Team teaching
- Classroom arrangement: Desks are in a horse shoe shape with 3 horizontal rows of 3 desks in the center of the horse shoe.

Standard(s)

S4.A.1.3.2: Describe relative size, distance, or motion.

S4.A.2.1.4: State a conclusion that is consistent with the information/data.

M4.B.2.1.1: Use or read a ruler (provided) to measure to the nearest 1/4 inch or centimeter..

Objectives

- SWBAT work in small groups to build a car and see which group's car will go the farthest.

Materials and equipment

- Popsicle sticks
- Wooden wheels
- Balloons
- Ticket Out The Door Worksheet
- Rulers
- White board
- White board markers
- You tube video <https://www.youtube.com/watch?v=XRDCn5Gx8Xs>

Safety:

- Do not put materials in your mouth.

Procedures

Introduction

Engage:

- Watch YouTube video to introduce the topic of cars and engines.
 - <https://www.youtube.com/watch?v=XRDCn5Gx8Xs>
 - Explain how the video shows how a real car engine works but in our experiment we will be using a balloon as the engine
- Then introduce vocabulary to the students using the whiteboard.
- Ask students what they think the words mean before giving them the definition.
 - Body - something to hold the balloon that will power the car. (This can be an index card, Popsicle sticks, etc.)
 - Wheels - You can use any round object. (wooden wheels)
 - Axle - the straight stick that holds the wheels. (long wooden sticks)
 - Bearing - Something for the axle to turn inside. (straws)
 - Engine - In this case, the balloon. Both designs use a balloon rubber-banded to a straw so you can easily blow it up once it's on the car.

Anticipatory set/activating learning strategies

Explore:

- Tell students that all cars need an engine to make them go on a flat surface.
- Show the students an example of a car that they could build.

Sequence of lesson

Elaborate / Extend:

- Divide students up into groups of 3 or 4 (Assign groups)
- Lay materials in the front of the room for students to look at and pick what they want to use for their cars.
- Have each group design their car (give them approximately 30-45 minutes).
- Walk around the classroom while the groups are working to listen to their discussions.
- Then have each group line up along the white board so we can begin to race the cars and see which one goes the farthest. ("Okay class, you have 2 minutes to finish up your cars. Then we will line

up along the white board (the start line) to race our cars to see which one goes the farthest.”)

- Measure how far each car goes with a ruler(s).

Closure/summarizing strategy

Explain: (Explain why some cars went farther than other cars – link to vocab)

- Once each group has measured how their car went, have students return to their seats. (“Great job today boys and girls! This lesson went very well today! Now we are going to talk about why some of our cars went farther than others! Does anyone have any ideas?”)
 - The groups who blew their balloon up biggest went the longest
 - The lighter the car the further it went on a flat surface

Assessment/evaluation

Evaluate: (ticket out the door / observations)

- Hand each student a ticket out the door.
 - Question: write two facts that you learned from today’s lesson. (it can be two new vocab words, what an engine is, or why some cars went further than other cars)
- Ticket out the door will be completed before leaving class.
- This will be done independently without the help of their notes.
- The ticket out the door and the observations the teacher made throughout the lesson will informally assess the students’ knowledge of the lesson.

Assignments

- Ticket out the door
 - Explained in the assessment/evaluation section

Special considerations

Remediation

- These students will come with the teacher during their time to do independent work. The teacher will get out specific materials that they should use to make their car and guide them in the process.

Gifted Students/ Enrichment

- These students will try to make a car without using a balloon as a motor to see if they can find another way to make their car go. (ex. They could make a ramp for their car to go down).

Special Accommodations

- If a child has trouble seeing, I will have them sit in the front of the classroom.
- Allow for extra time during independent practice and when they complete their exit slips.

Early Finishers

- They will practice test runs of their car and make changes to it if needed.

Bibliography

Hershey Antique Auto Museum

Make a balloon-powered car. Retrieved October 21, 2015.