

INNOVATION WYRKSHOP

DIY VEHICLE

ESTIMATED TIME: **1 HOUR**

LEARNING OBJECTIVES

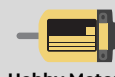
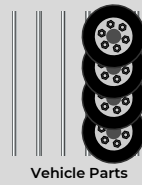
- Discover what a vehicle is and how they function.
- Explore how to make a "do it yourself" vehicle
- Test your new creation!

LEVEL: 1

STANDARDS

- NGSS
 - Defining engineering problems ETS1:A
 - Developing possible solutions ETS1:B
 - Optimizing design ETS1:C
- PBL
 - A challenge
 - Sustained inquiry
 - Authenticity
 - Student voice & choice
 - Reflection
 - Critique and revision
- STEM
 - Complex problems
- ISTE
 - Innovative designer 1.4.a, 1.4.c
 - Creative communicator 1.6.a, 1.6.b

MATERIALS NEEDED:



ACTIVITY OUTLINE:

INTRODUCTION:

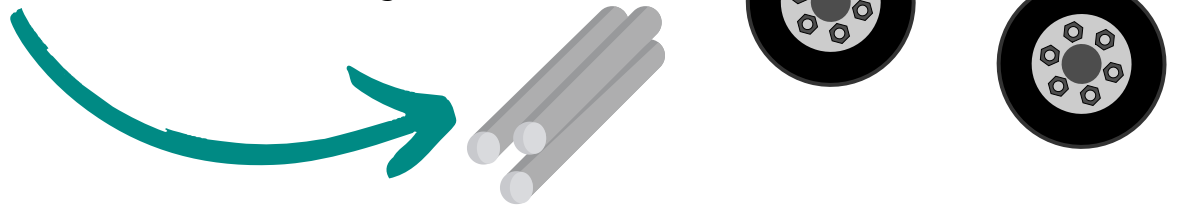
Vehicles are used to transport you between one place to the next. These are typically referred to as cars, trucks, and boats. Vehicles have wheels that spin around, and they use something called "fuel" to make their engines go! Some vehicles run on gas, while others might use electricity or even the power of the sun. Isn't that cool?

There are a few things that make up most vehicles like motors, wheels, and axels.

Engine: The engine is like the car's heart. It uses fuel (like gas) to create power and make the car move. It's where the vroom-vroom sound comes from!

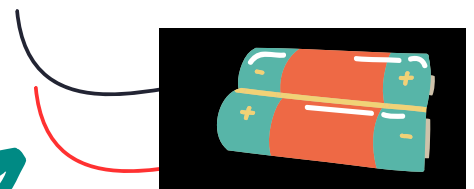


Wheels: Cars usually have four wheels (some have more!) that help the car roll smoothly on the road. The wheels are attached to axels and can turn left or right to steer the car.



Chassis: This is like the car's skeleton. It's the strong frame that holds all the parts together. It gives the car its shape and structure.

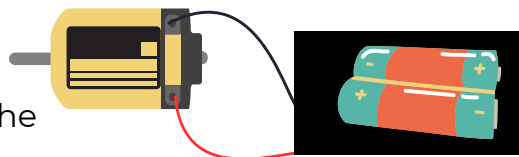
Fuel/Power: This is what makes the vehicle move by giving energy to the motor causing it to move! Today we will be using a battery pack and battery's.



Motion: Even with all the right elements, a vehicle cannot move without motion. A traditional vehicle usually uses force to move, but today we will be harnessing the power of air to move our vehicles forward using a propeller!

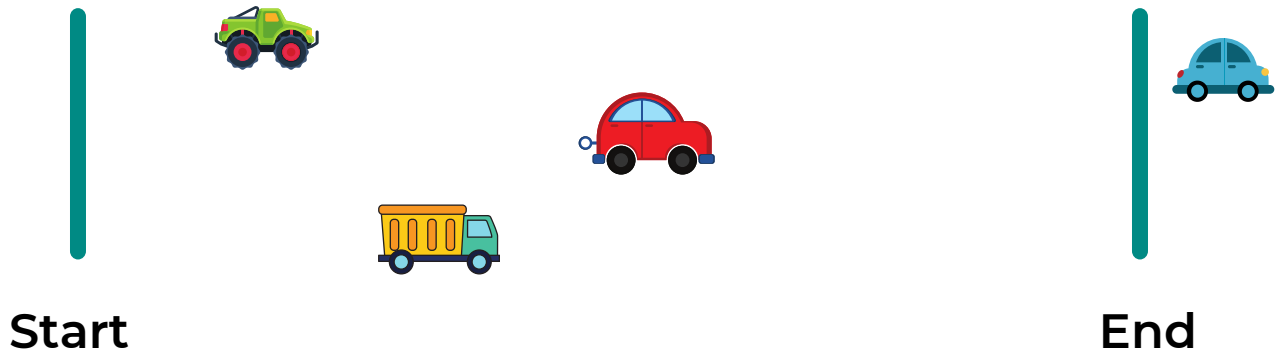
HINT:

The motor connects to the battery pack by connecting the end of the battery wires to the motor loops.



BUILDING A VEHICLE

Are you ready to build a super cool vehicle? Let's begin! You can only use the materials listed on the first page, that's what makes this a DIY vehicle "challenge". Use your newfound knowledge to create your own car, truck or boat, remember it must move at least 1 foot without you pushing or pulling it.



TESTING YOUR VEHICLE DESIGN

Now that you have created your vehicle, let's test it! Grab something to mark a start line and a finish line, remember your vehicle needs to be able to go at least one foot. Place your vehicle at the start line and start your engines!

Did your vehicle make it?

How can you modify it to go farther?

Did a peer's vehicle make it farther? Examine the differences between the vehicles and modify yours if you want!

