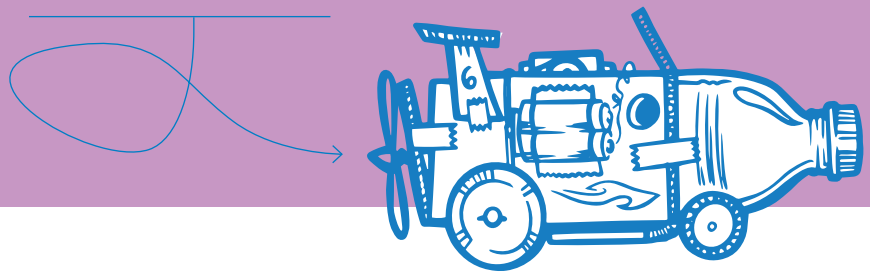
My New Ride Project Guide

intel FUTURE SKILLS

PROJECT OVERVIEW:

Design and build a uniquely-you car, boat, or other moving contraption—using DC motors, recycled materials and your creative ingenuity!



Project Intro Video: My New Ride Ideas

Inspirational Video: 9V Battery Car

PROJECT CATEGORY:
Design

DIFFICULTY LEVEL:
Intermediate

TIME RANGE:
60 - 80 minutes

ESSENTIAL SKILLS/ MINDSETS THAT YOU MAY LEARN:
Design Thinking
Iteration
DC Motors
Electricity/Electronics
Gears & Ratios
Simple Machines
Collaboration
Perseverance/Grit

TOOLS AND MATERIALS:
- Kit from Eudax or individual parts - 1.5-3v dc motor, switch, battery holders
- Batteries
- Styrofoam blocks
- Recycled bottles, lids, & containers
- Craft sticks, skewers, or straws
- Office supplies such as: rubber bands, paper clips, tape, etc.
- Cutting tools: Scissors, X-Acto knives, & a drill or punch
- Hot glue guns and sticks
- Optional: Plastic Gears, propellers, kiddie pool to use with the boat creations

AT HOME SUBSTITUTIONS:
- If you do not have a DC motor try to power your creation with wound-up rubber bands, mousetrap spring power, or salvage a DC motor from a Dollar Store mini fan to power up your new ride.

MATERIAL PURCHASE LINK:
http://tiny.cc/Intelbuylist

Project Steps

Dream It!

Your mission is to design and create a moving vehicle, or boat, (your new ride) using DC motors, rubber bands and other craft or recycled materials. Some of our favorite materials to use are: craft sticks or recycled plastic bottles, wood skewers and drinking straws (for axles) and glue or tape to hold it all together.

1. To start, watch the Inspire-to and How-to videos to unpack the challenge and see what others have built. [:08]

2. Decide what type of vehicle that you'd like to create and then list what parts you would need to create or find. [:02]

Draw It!

3. Examine the available materials for inspiration. [:05]
4. Sketch your moving vehicle or boat ideas; label all of the parts that you'll need to build. [:05]

Build It!

5. Gather your supplies and test some of your components. [:10]
6. Design and build your new ride with DC motors or even rubber band power. [:10]
7. Test, troubleshoot, and iterate to make your new ride better and better. [:10]
8. Decorate or change the form to make it a vehicle you'd love to drive. [:10]

Share It!

9. Show off your unique ride to others and see what they like best about it. [:05]
10. When you're all done, make sure you clean up and put extra parts back for later use. [:05]

Expand It!

If you liked making motorized vehicles, then you should try to make some advanced DC motorized toys:

- Try to make a vehicle with more than 2 motors.
- Can you make a small drone or helicopter?
- What about an off road vehicle with more than 8 wheels?

Still want more of a challenge? Make a motorized bubble machine:
https://youtu.be/CWFRqQhGa6w

Or, dig deeper into how motors work and then try to build one of your own. Experiment, invent, and make something truly unique to you!

THINK ABOUT IT:

- What type of vehicle would be, "uniquely you"?
- How will your ride move? DC motors, rubber bands or some other way? A fan? Wheel and axles? Gears? A propeller? –How will they move freely?
- How will you hold it together? Glue, tape or some other fastener?

DASH OF DESIGN:

Ideation, Iteration, and Prototyping are 3 main components of Design Thinking. Watch our video to learn how to use these better as you create your new ride.

PRO TIPS:

Testing each component of your new ride separately will help you to better fail quickly and learn from these mistakes before you get too far into your build. Remember, failing is a good thing when you learn from it!

Maybe try to mock up a skewer, straw & bottle cap wheel and axle assembly to see if it spins freely, how will it be powered by the motor? Think now to save time later.

HELPFUL RESOURCES

- Make a Battery Powered DIY Car
  https://www.makerspaces.com/make-a-battery-powered-diy-car/
- How To Make a Mini Car At Home: **https://youtu.be/wRvcHLaE1jU**
- How to Make a Simple Toy Boat: **https://youtu.be/78fvm0MFaOs**
- How to Make Propeller (4 Type Propellers): **https://youtu.be/PR0KmApTkI4**

NEED MORE HELP AND INFORMATION?

Contact us at: **intelfutureskills@intel.com**