

Stemmies Experiment Week 5 – Motorized Cars

You've hit the final week, and I hope you enjoy this project as well. Have fun and be creative!

Materials:

- Motor
- Colored tape
- 2 Batteries
- Straws (two will be used for axle holders and the rest for decoration)
- Popsicle sticks (large and small)
- Wires (red and black)
- Battery holder
- Motor holder
- Propeller
- Switch (will allow your car to turn on and off)
- Pipe cleaners
- Wheels
- Axles
- Small cup
- (If you want, you can use clear tape or glue from prior experiments, or even hot glue, if you ask a parent for help)

Instructions:

1. Build a base for your car using popsicle sticks, pipe cleaners (for decoration), colored tape, and straws (save two) and any materials you think are suitable for your car that you find at home, such as hot glue (ask a parent for help)
2. Attach the two wires that are already attached to the battery holder to the either side of the switch on the two protruding metal pieces on the bottom - Steps 2-5 are very important to do right, so if you are confused, be sure to ask a parent for help
3. Take the two other wires and attach one end of each to the metal piece on the side they go to (red to red and black to black)
4. Attach the other two ends of the wires that you just connected to the small metal pieces on the back of the motor
5. Put the two batteries into the battery holder, making sure to put the flat ends of the batteries (negative) against the springs, and the ends with knobs on them (positive) to the flatter end of the battery holder
6. Put the motor into the white motor holder and attach the propeller to the bar on the front of the motor
7. Test if motor is operational by turning on switch

8. Tape or glue the battery holder and the bottom of the motor holder to your base, make sure that the propeller is over the edge of the base
9. Cut two straws down to about the length of one of the axles, and tape or glue them to the bottom of your base
10. Put one wheel on an axle and do the same for the other axle
11. Thread the axles through the straws on the bottom of the base and connect the other wheels to the other sides of the axles

Turn it on and watch it go!

(For extra help see my video on sjlmidland.org and the instructions that came with the motor)

What Experiment Shows:

This experiment shows how an electric circuit works. What happens is batteries are full of electrons which want to go to the part of the circuit that has a lot of positively charged atoms like the other side of the batteries, but they have to go all the way around the circuit to get there. When you flip the switch on it completes the circuit and lets the electrons from the battery flow through the circuit, powering the motor and spinning the propeller. The propeller blows the air back, moving the car and turning the car's potential (stationary) energy into kinetic (moving) energy.

Thank you and remember to send photos to Mrs. Hickey and Mrs. Sleight!

Thank you for participating in this STEM program, I hope you enjoyed it.

Remember to complete the survey paper and return it to your teacher to get a candy prize!