

Teacher's Guide

JunkBots

Overview

Build simple robots with recycled materials.

Setup

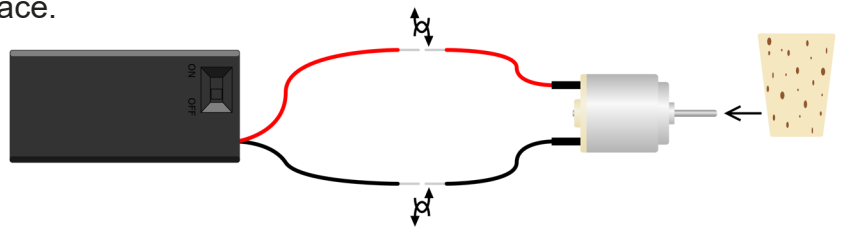
- Gather recyclable and craft materials.
- Arrange materials on tables or in bins.
- Put any dangerous tools (e.g., X-Acto knives, hot glue guns) on a separate table under adult supervision.
- Use tape to mark a race course and a “sumo wrestling” ring on the floor.



Activity

Help all students connect their circuits (steps 1-3) as a group. Then let them build, decorate, and test their robots (steps 4-6) at their own pace.

- 1 Insert two AA batteries.
- 2 Twist together red and black wires; wrap the connections in tape.
- 3 Press cork onto motor shaft.
- 4 Build robot's body from recycled materials.
- 5 Attach motor and battery pack.
- 6 Turn battery pack on, and watch the robot wobble and move!



Troubleshooting

- **Cork does not spin:** make sure batteries are inserted properly, there is no short circuit (metal parts of red and black wires should not touch each other), and cork is not jammed against robot's body.
- **Robot stops working suddenly:** remove tape from wires and make sure metal parts are still twisted together.
- **Robot does not move or moves slowly:** make robot's body stiffer and make sure motor is attached firmly. Use robot on a smooth, flat surface (not carpet).