

Advance Preparation

Prior to Brainstorming

1. Make sure you have poster-sized sheets of newsprint and markers available for the group diagrams created during the Brainstorming section.
2. Copy Blackline Master 5-1 for each student (Blackline Masters are found in Appendix A).

Prior to Activity: Identifying Forms of Energy

3. Prepare six bags of materials for students to use during the activity. Each bag should contain a small toy car and materials that encourage students to incorporate a variety of forms of energy. Following is a list of suggested materials (you may have more ideas):
 - Group 1: mouse trap (include safety caution), 5 rubber bands, 1 small ramp (can be premade ramp, plastic gutter material, PVC pipe, etc.), 1 marble, 1 toy car
 - Group 2: 2–3 ramps or pipes of varying lengths, 1 rubber band, 2 marbles, 1 plastic cup, 1 bouncy ball (1-inch diameter), 1 toy car
 - Group 3: 1 9-volt battery, 1 small motor, 2 pieces of electrical wire to complete a circuit, 1 toy car
 - Group 4: 1 bungee cord, 1 bouncy ball (1-inch in diameter), 2 strong magnets, 1 spring, 1 toy car
 - Group 5: wooden blocks, 1 physics stand (or something from which a string can be suspended), 1 marble, 2–3 foot length of string, 1 toy car
 - Group 6: ramp or pipe, bungee cord, sheet of rubber, marble, 1 toy car
4. Have supplies, such as duct tape, scissors, string, pop sticks, extra wooden blocks, and wire cutters on hand for students to use while building their devices. You should also have some sort of target, drawn on the floor or freestanding, for students to hit with their cars.