

Balloon Powered Cars for Critical Thinking

A Simple, Effective, Low-Cost Activity to Use in Your Classroom

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The activity

During this activity, students design and build [a balloon powered car](#) with recycled materials and get it “race ready” in a short period of time. This activity builds community while encouraging students to practice critical thinking and problem solving skills. The steps and methods of problem solving are laid out so students have a reference and the activity reinforces the skill.

Watch Rebecca implement this activity in her YouthBuild Classroom!

<http://tinyurl.com/TFBallo>
on



This activity is great for mental toughness, construction, and student projects, problem solving, team building

Students will learn

- Critical thinking steps of “Slow down, Problem Solve, and Plan”
- How to work independently during Mental Toughness to build on this Pillar
- To design and build a balloon powered car with seven recycled materials, and get it “race ready” in a short period of time

Here's what you do

Resources needed:

- Cardboard scraps (free)
- Tape, rubber bands
- Balloons
- Straws, wooden skewers (or toothpicks)
- Bottle caps (check your recycling bins)

- Hammer and small nail to puncture bottle caps

- Scissors

Approximate time: 90 minutes

Instructions

1) **Pre-Activity:** Introduce critical thinking as the idea of “slow down, problem solve, and plan.”

a. **Slow down:** Assess the problem / scenario

b. **Problem Solve:** What needs to be done? What do I already know? What do I need to know?

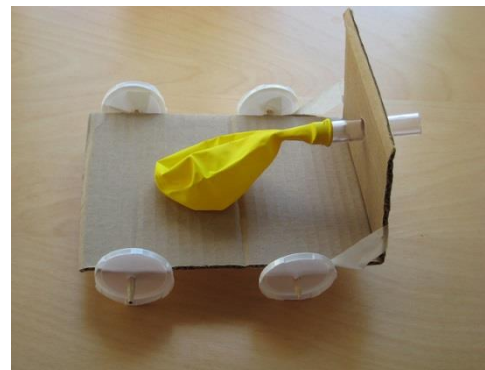
Probe: Problem solving is also anticipating what may come. How can we think ahead to prepare for what could happen?

c. **Plan:** What strategies do you use when faced with a challenge, either at school, in work, or at home? (*Talk it out, make lists, draw a visual, work by trial and error*).

Introduce car-building materials in a pile.

Verbally instruct students that they will make a balloon powered car using the seven materials provided. Allow students to have access to internet if requested- (Google “Balloon Powered Car” for more information.)

They will have an hour to build their cars, and the final race will be held after.



2) **Activity:**

- Cut out the body of the car from a scrap piece of cardboard (approx 5x7 inches)
- Tape straws to the underside of the car to act as tube for axels
- Place skewers (axel) through straws
- Attach punctured bottle caps on each end of the skewer (wheels)
- Wrap the rubber band around the balloon so it is secured to a straw.
Cut straw to necessary (student determines) size

- Tape straw/balloon to top side of the car

When students inflate the balloon, the pressure from the release of air propels the car forward. Straws that are bent, or balloons that are over-inflated, will yield poor results.

Success Tips

- Give students the freedom to elaborate on their cars if they're interested (colors, piping, shape)
- Students have no limit on how to access more information on how to build the cars
- Debrief following the activity to reinforce the idea of planning and problem-solving
- Prompt students to explore what worked best for their cars, what didn't work, and what they would change next time.