Materials

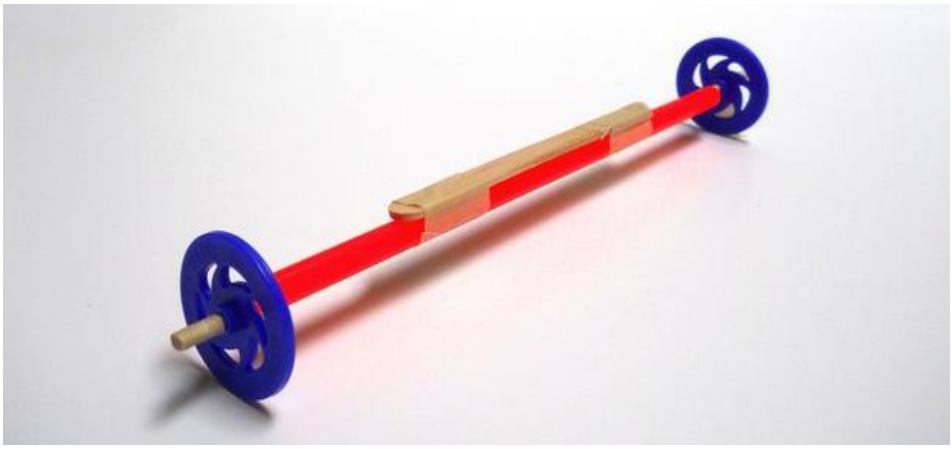
- 1 Propeller
- 4 Wheels
- Straws
- Bamboo skewers
- Craft sticks
- Craft cubes
- 1 Long Rubberband
- paperclips
- Masking tape
- Hot glue
- Clamps
- Wood glue

Discussion: We're starting a new engineering unit with a design, build, test cycle. Ask the kids if they know what an engineer is/ if they know any engineers. Talk about what engineers do as part of their work and what makes up the engineering process.

Design the car. Think about design specifications such as how much space the propeller needs to turn, how long the rubber band is when taut, how the wheels should be arranged, etc.

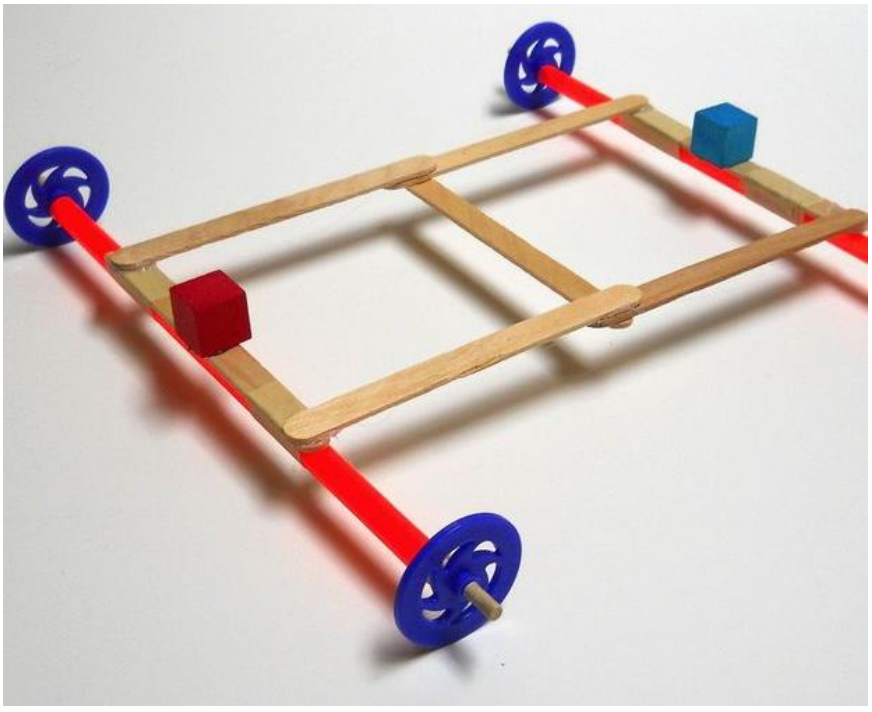
Build the car

Step 1: Make the Wheels

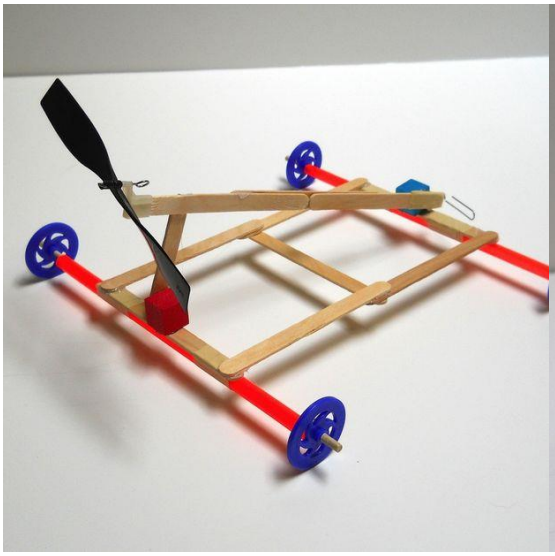
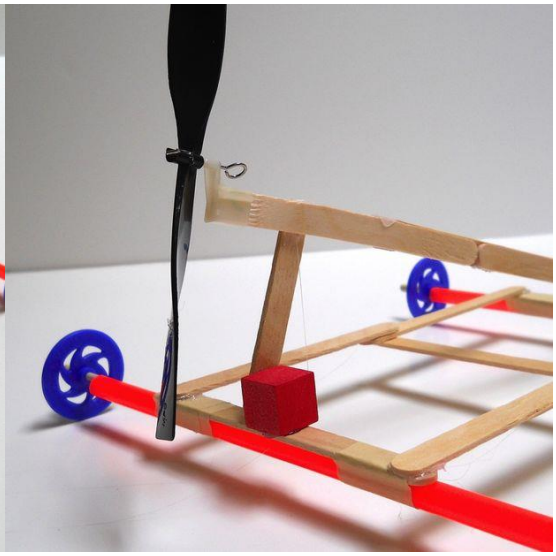
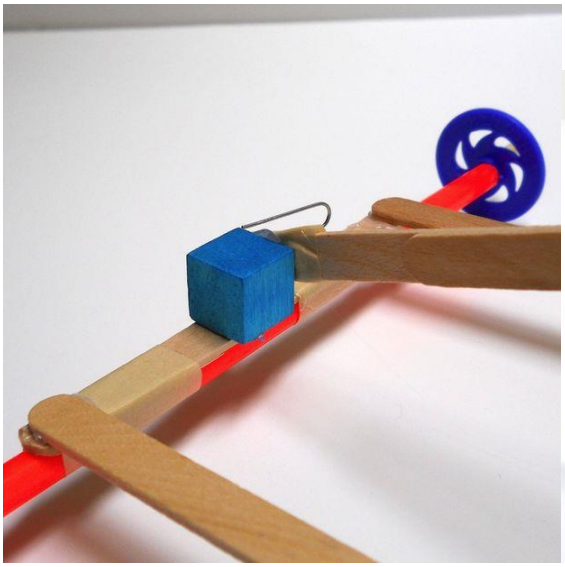
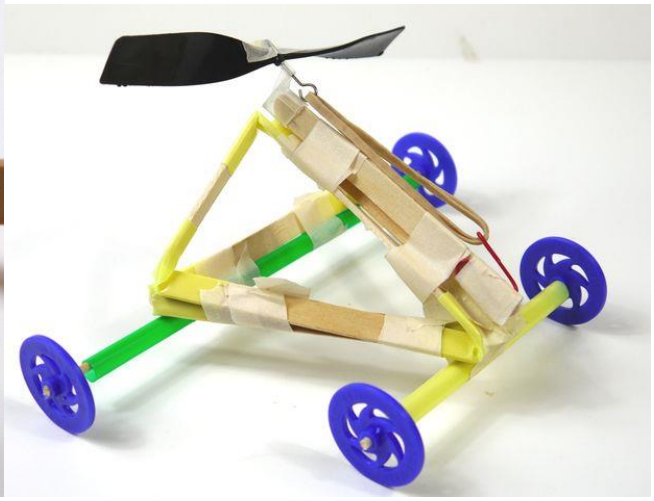


Step 2: Make the propeller shaft

Step 3: Make Base



Step 4: Assemble car

(Alternate design)

Troubleshooting:

- Remove any thin strands of dried glue before operating the car. "Hot glue strings" get tangled in the axle or propeller shaft.
- Make sure the skewers (axles) are straight. These are mass produced and can be severely warped.
- Wide-set wheels are more stable than narrow ones. A narrow car may flip over from the torque generated by the rubber band.
- The rubberbands may become loose over time. You can breath new life into old bands by unhooking them and tying one end into an overhand knot. Now the remaining band is shorter (and tighter) than before.

Test the car

We will test two things. 1) That the car goes straight. 2) Whose car is the fastest.