Project Idea

Design and build a **light** simple wheel-based hydraulic lifting system that is able to lift a weight of **300** grams.

Project Rules

You can **ONLY** use any of the following materials in your structure (any combination of these materials is allowed and you do not have to use all of them):

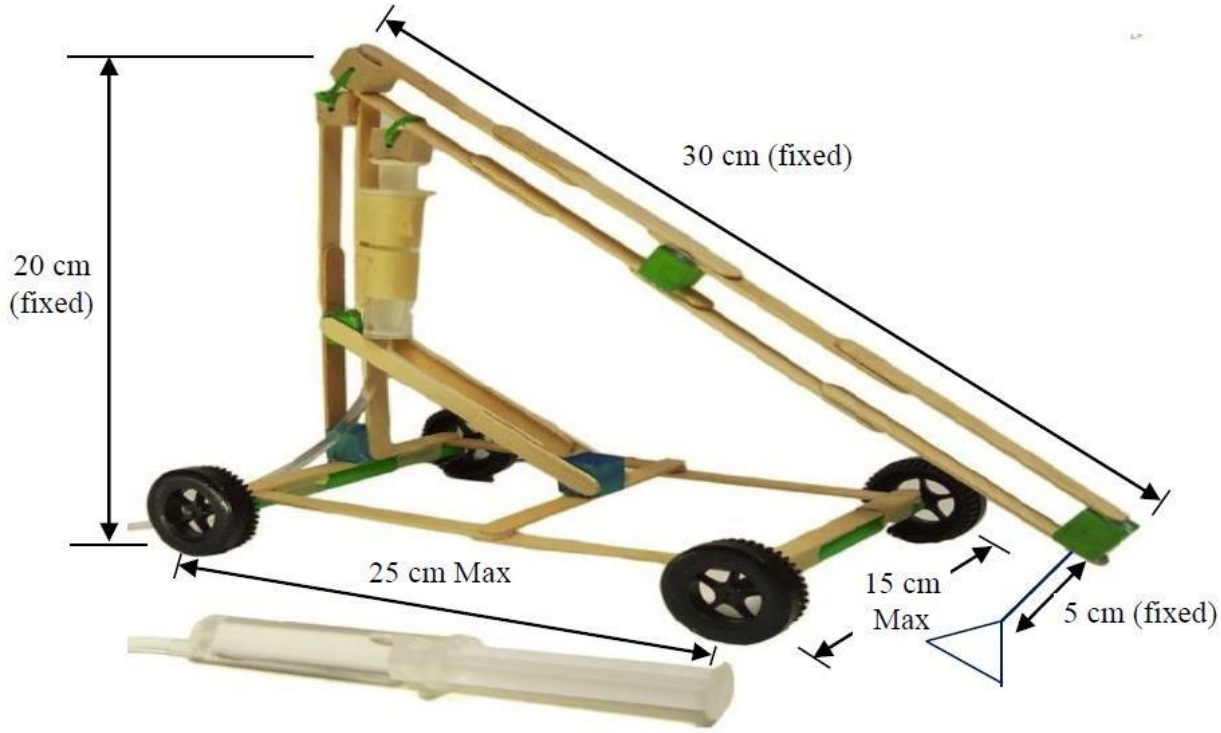
- Glue (glue gun and glue sticks are allowed)
- Scotch tape
- Vinyl tubing
- Plastic syringes (without needles)
- Water
- Oil
- Wheels
- Food coloring
- Staples
- Paper clips
- Rubber bands (any size)
- Straws
- Ear swabs
- Paper & Card Board
- Tooth picks
- Clay
- Threads (fishing threads are NOT allowed)
- Wooden BBQ sticks
- Wooden ice cream sticks (4.5" long)
- Wooden craft cubes
- Wooden bamboo skewers
- Cubes with holes in the middle
- Plastic bags
- Cable ties
- Foam Boards

The hydraulic system must have the following:

- **Base**: The base should have a rectangular shape, with the width being 15cm Max (where the width is measured as the distance between the two front wheels or the two back wheels), and the length is 25cm Max (where the length is measured as the distance between the front and the back wheels on either side).
- The **vertical arm** attached to the back side of the base should be 20cm high (with no restrictions on the other dimensions).
- The **horizontal arm** attached to the vertical one should be 30cm long (with no restrictions on the other dimensions).
- The **vertical** and **horizontal** arms can be of various shapes (e.g. square, triangle, round, etc), but must have the above dimensions.
- The hydraulic system should be able to lift the 300 grams weight **for at least 10 seconds without failing or tipping over**.

- The hydraulic system may not be glued to the ground or held by anyone while testing.
- The complete system weight, including the filled syringes (but without the weight used for testing) should not exceed **500 grams**.
- The structure must stand still **with or without the 300 grams** testing weight.
- You may cut any material (from the allowed list above) to any size.

The following picture provides a rough idea of the expected outcome (retrieved from http://www.instructables.com/id/Easy-Hydraulic-Machines).



Violating any of the above rules, will lead to significant loss in project grades