

# Design Portfolio Template

*Note: Please do not submit a filled-in version of this template to the National Judges as your team's Portfolio. Instead use this file as a notebook and sketch pad for initial notes and drawings, some of which, e.g. sketches of design ideas, can be scanned and included in a more polished, final portfolio document.*

## TITLE PAGE

**School:**

**Student Name(s):**

- 1.
- 2.
- 3.
- 4.

*(Insert a picture of your final design here)*

**Introduction: Context & Problem:**

Describe the challenge in your own words:

**Team member(s):**

Who are the team member(s) and what are his/her/their responsibilities in the production of the portfolio and the prototype device?

**Idea 1:**

Draw a sketch of your team's first design concept:

**Idea 2:**

Draw a sketch of your team's second design concept:

**Idea 3:**

Draw a sketch of your team's third design concept:

**Materials used:**

List, with dimensions if appropriate, of the materials would be used to build your prototype grabber:

## **Principles of Structural Strength and Stability:**

Describe how your device incorporates structural principles.

*Hint: Use terms such as: force, load, compression, tension, symmetry, triangulation, center of gravity, balance, beams, struts, gussets and aesthetics*

## **Rationale used to decide on the type of fluid power used and where to place the piston-syringe(s)**

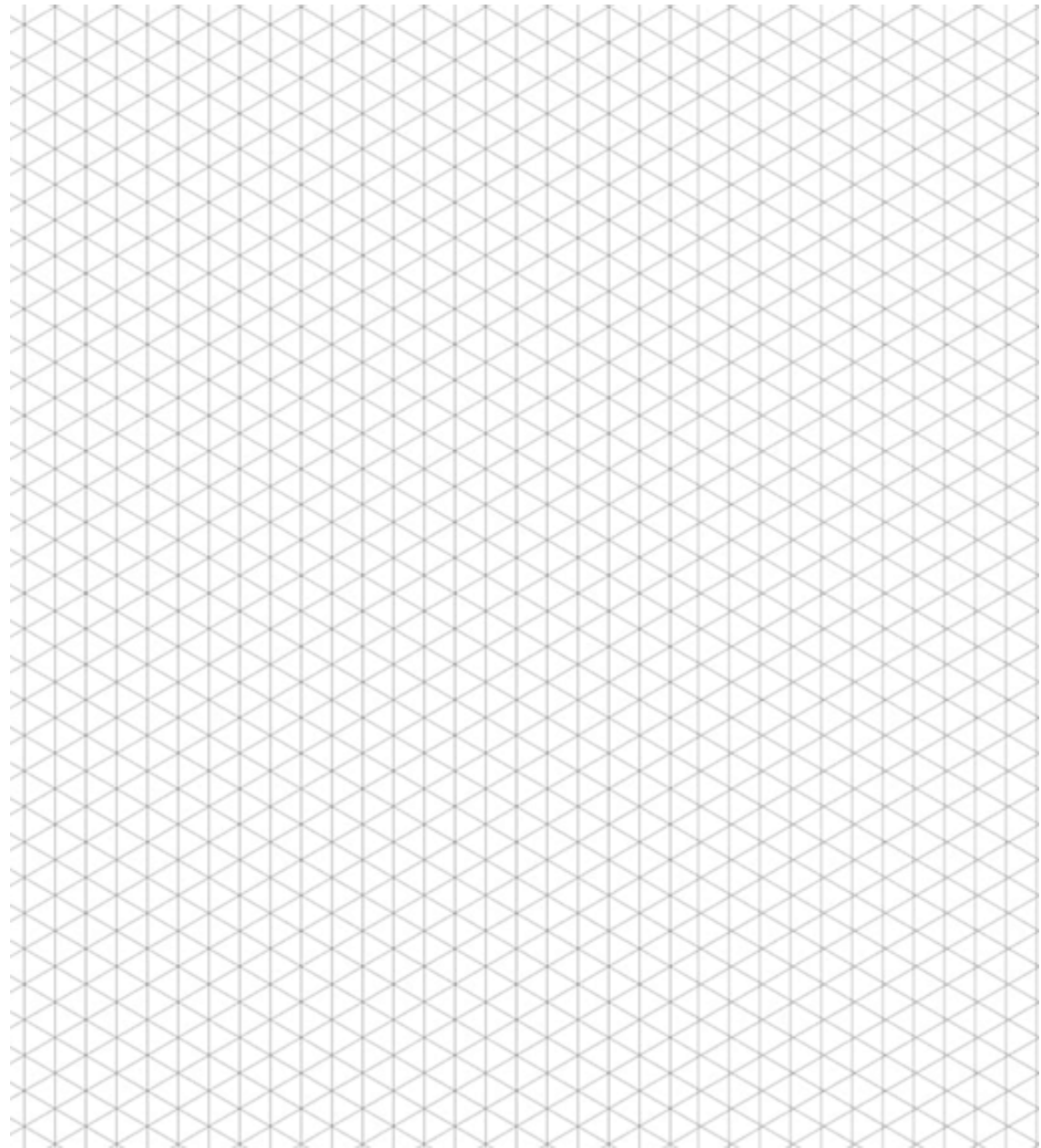
*Hint: Use terms such as: pneumatic, hydraulic, input, output, density, particle theory, pressure, Pascal's principle, lever, pivot, friction, work done and mechanical advantage*

**Proposed solution:**

Draw an orthographic drawing of your chosen solution showing main structural components:

**Proposed solution:**

Draw an isometric drawing of the portion of your prototype device used to grab the object:



What alternative designs did you consider before selecting one as the design of the prototype grabber?

Why did you select this design?



**Notes:**