# Portfolio Template

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| Introduction: Situation & Challenge:  Describe the challenge in your own words: |

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| Team members:  Who are the team members and what are their responsibilities in the production of the portfolio and the prototype device? |

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| Idea 1:  Draw a sketch of your team’s first design concept that shows connecting parts in detail: |

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| Idea 2:  Draw a sketch of your team’s second design concept that shows connecting parts in detail: |

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| Idea 3:  Draw a sketch of your team’s third design concept that shows connecting parts in detail: |

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| Materials used:  List, with dimensions and correct labels, the materials used to build your prototype: |

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| Principles of Structural Strength and Stability:  Describe how your device incorporates structural principles.  *Hint: Use terms such as: force or load or compression or tension; symmetry or triangulation; center of gravity or balance and counterbalance; support beams or struts; gusset or joining methods; aesthetics* |

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| Rationale used to decide on the type of fluid power used and where to place the piston-syringes:  Describe why the piston-syringes are located where they are in your device.  *Hint: Use terms such as pneumatic and hydraulic; system or input and output; density or particle theory; pressure or Pascal’s principle; lever or pivot; friction; work done or mechanical advantage* |
| Proposed solution:  Draw an orthographic drawing that shows front, side and plan views that shows that the scaled dimensions relate to the views. Include construction notes: |

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| Proposed solution:  Draw a properly dimensioned, high quality isometric drawing of the portion of your prototype device used to grab the object: |

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| Alternative Materials:  Provide a list of at least three alternative materials that would have been useful with reasons why they would have been so. Include comments on current materials: |

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| Evaluation of Prototype:  Describe two prototypes and provide thorough documentation of lessons learned, including reasons for choosing one of the prototypes. What worked and what didn’t work well and what did your team learn that will help your team produce a fully functioning device at the Challenge: |