# Portfolio – Notebook 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. |

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| **Idea 2:**Draw a sketch of your team’s second design concept. |

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| **Idea 3:**Draw a sketch of your team’s third design concept. |

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| **Materials used:**List the materials (including dimensions, if appropriate) 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, load, compression, tension; symmetry, triangulation; center of gravity, balance, beams, struts, gussets, and 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, hydraulic, input, output; density, particle theory, pressure, Pascal’s Law; lever, pivot, friction; work done, and mechanical advantage.*  |
| **Proposed solution:**Draw an orthographic drawing of your chosen solution that shows the main structural components.  |

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| **Proposed solution:**Draw an isometric drawing of the portion of your prototype device used to grab the object. |

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| **Alternative Materials:**List possible alternative materials that would have been useful and provide the reasons why they would have been useful. |

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| **Evaluation of Prototype:**Describe what worked and what did not work well. Also, describe what your team learned that will help the team produce a fully functioning device on Challenge Day. |