

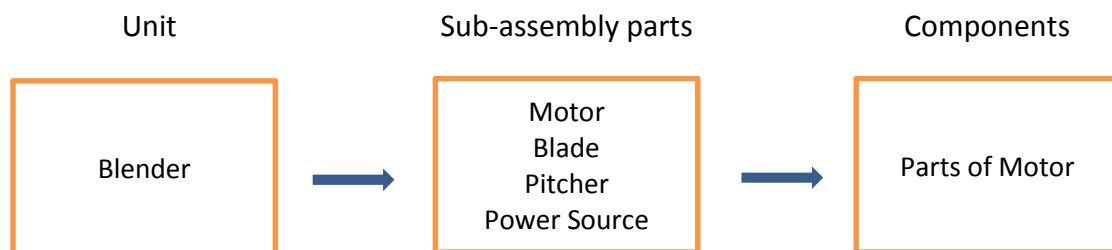
Puyallup School District

STEM Showcase: Reverse Engineering Checklist

Checklist:

- Choose and acquire a mechanical or electrical unit that you want to disassemble (should be made from a variety of materials and have several sub-assemblies and components).
- Diagram your unit in a journal. Label all the visible parts.
- Draw a labeled diagram in your journal of what you think the inside of your unit may look like.
- With either the operator's manual or on-line, research about your unit prior to disassembly. Record your learning in your journal.
- Describe the overall structure and function of the unit.
- Disassemble the unit to its sub-assembly parts and record in your journal as you go.
- Choose one *sub-assembly part and disassemble to its individual components; mount these on a board.
- On your board and in your journal explain the function of the chosen sub-assembly; as a unit, what does this sub-assembly do? What does it control? How does it fit into the unit as a whole?
- On your board and in your journal list each component within the sub-assembly.

Example:



*sub-assembly: a unit assembled separately but designed to fit in with other units into a larger manufactured product.

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STEM Showcase: Reverse Engineering Board

Grade:

Project Number:

	Developing (1)	Competent (2)	Proficient (3)	Points
Disassembly	Minimal disassembly of unit	Partial disassembly of unit	Disassembled to all sub-assembly parts	/3
Overall Unit	Minimal explanation of the unit and its operation	Partial explanation of the unit and its operation	Full explanation of the unit and its operation	/3
Sub-Assembly Label	Missing several sub-assembly parts	Partial labeling of sub-assembly parts	All sub-assembly parts are labeled	/3
Sub-Assembly Explanation	The purpose of the sub-assembly is not clearly explained in relation to the whole unit.	The purpose of the sub-assembly is partially explained in relation to the whole unit.	The purpose of the sub-assembly is clearly explained in relation to the whole unit.	/3
Components Description	Minimal descriptions of the components	Partial description of the components	Component parts and their functions are described accurately and with detail	/3
Visual	Layout of components is messy and unclear Project is disorganized	Layout of components is clear	Layout of components is clear and promotes understanding of the unit Project is organized	/3
Total Points (18 Possible Points)				/18

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STEM Showcase: Reverse Engineering Journal & Oral Presentation Rubric

Grade:

Project Number:

Standard	Judging Criteria	Points
Research/Journal Work of Disassembly Process	<ul style="list-style-type: none"> <input type="checkbox"/> Handwritten research notes and sources (from either an operator's manual or the internet) <input type="checkbox"/> Diagrams and descriptions included for each step of disassembly <input type="checkbox"/> All sub-assembly parts are listed and diagrammed <input type="checkbox"/> One chosen sub-assembly is clearly described; components of the sub-assembly are listed <input type="checkbox"/> Explained the sub-assembly's function; how it works within the unit as a whole 	/5
Oral Presentation	<ul style="list-style-type: none"> <input type="checkbox"/> The process of disassembly is clearly explained <input type="checkbox"/> Student demonstrates exceptional knowledge of the design and engineering of the unit and chosen sub-assembly. <input type="checkbox"/> Answers the judges questions with appropriate speed, volume, and expression; student is having a conversation with judges, not merely presenting a rehearsed speech. 	/3
Total Points (8 Points Possible)		/8