

11th-12th Science Electricity Project Evaluation Student _____ Date _____ Overall Grade:

| | A+ | A/B | B/C | C/D | Unacceptable |
|--|---|--|--|---|--|
| Design Journal | Journal is exceptionally completed with signs of creativity and original thinking. Writing is thoughtful, contemplative, and honest. Care is taken to use complete and coherent sentences. Sketches and diagrams are well labeled. Student clearly embraces the design process. | Journal shows creative thinking; effectively documenting the learning process. Much care is taken and illustrations are accompanied by comments. Contains regular daily entries. | Journal contains entries for most days. Sketches are accompanied by text. A solid documentation of the design process. | Journal demonstrates design process. There are gaps in coverage, but it is clear that the student has made thoughtful entries throughout the project. | Major gaps in coverage. Sketches exist in isolation. Journal has not been utilized to guide in the design process. |
| How well did you document the design process? | | | | | |
| Evidence: | | | | | |

| | A+ | A/B | B/C | C/D | Unacceptable |
|--|--|---|---|---|---|
| The Machine | The mechanics of the machine function smoothly and efficiently; the wiring is optimally configured; and the machine will produce a consistent, coherent output. (Eg.- produces electricity which is enough to light a light bulb.) | The machine functions mechanically; wiring is well configured; and the machine will produce a relatively consistent, coherent output. (Eg.- produces coherent electricity.) | The machine functions well enough to produce measurable output, even if there are some minor problems with mechanics and/or wiring. | Substantial progress was made in designing and building the machine, but it was not completed to the point of producing output. Student has clearly and specifically described in his/her journal the next steps necessary to complete a functioning machine. | Machine is incomplete or entirely nonfunctional, and student lacks a clear plan for completion. |
| How successfully did you solve this design challenge? | | | | | |
| Evidence: | | | | | |

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|---|--|---|---|--|--|
| Self-Direction | In addition to consistently making excellent use of class time, the student also put in extra time working on the machine and documentation outside of normal class hours. | Consistently used the entire class time to work efficiently on the project. | Used class time to work efficiently on the project, with only minor exceptions. | Often used class time to work on project, but had periods of stagnation or inaction. Teacher had to intervene to encourage student to get to work. | Substantial periods of stagnation or inaction during class. Teacher often had to intervene to encourage student to work. |
| How well did you use class time? | | | | | |
| Evidence: | | | | | |

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|---|--|--|--|---|--|
| Machine Performance Evaluation | Performance tests were particularly thorough and sophisticated in scope, including measurement and analysis of current, voltage, resistance, frequency, wave forms, mechanics, and efficiency. | Performance tests were thorough, including measurement and analysis of current, voltage, resistance, frequency, wave forms, and efficiency. | Performance tests were adequate, including measurement and analysis of voltage and wave forms. | Some performance tests were carried out, though in less depth than desired. Student shows some lack of clarity of purpose and meaning of tests. | Little or no performance tests carried out. |
| How well did you test your device? | | | | | |
| How well did you document your findings? | Report is especially thorough and attractive. Contains revealing diagrams and graphics. Analysis substantially exceeds expectations in terms of scope and sophistication. | Report was well organized and attractively presented. Includes a thorough analysis of how the design and functioning of the device relate to the measured current, voltage, resistance, frequency, wave forms, and efficiency. | Report was well organized and neatly presented. Includes some analysis of how the design and functioning of the device relate to measured voltage and wave forms. Some attempt made to address efficiency. | Report submitted. Describes tests and their meaning. May lack some depth, clarity, organization, or neatness. | Report substantially incomplete or inadequate. |
| Evidence: | | | | | |

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|---|---|---|---|--|---|
| Schematic Diagram | Diagram looks professional in terms of graphic presentation and scientific depth and clarity. Clearly shows the physics of magnetic field lines and induced current. Shows the relationship between the geometry of coils and magnets and the pattern of electrical output. | Diagram is neat, graphically attractive, and accurate. It is thoroughly annotated in a way that clearly explains design and function. Includes details of wiring and magnetic field lines, showing specifically how current is generated or used. | Diagram is competent in terms of neatness, accuracy, and graphic design. Includes annotations that explain design and function. Includes some indication of how wiring and magnets generate or use current. | Diagram is generally accurate, and includes some details on design and function. | Diagram is incomplete, inaccurate, and/or sloppy. |
| How clearly and attractively did you show “what’s really happening”? | Evidence: | | | | |

Overall Grade:

COMMENTS: