

<p>Scientific Approach & Engineering Design</p> <ol style="list-style-type: none"> 1. Does the student start with a clearly stated hypothesis/question for experimentation or statement of an engineering goal? (Up to 5 points) <ol style="list-style-type: none"> a. How does the student form the research hypothesis/question or engineering goal? 2. Does the student demonstrate knowledge of the scientific process in design and method? For engineering projects: Does the student have a clear objective and a tested solution? (Up to 8 points) <ol style="list-style-type: none"> a. Can the student explain why certain variables were chosen? b. Are enough trials performed? c. Are engineering projects subjected to re-design? 3. Are the student's conclusions consistent with all the data he or she collected? (Up to 7 points) <ol style="list-style-type: none"> a. Is the student able to explain the data? b. Are collection methods sound? c. Can the student explain the results? 4. Does the student learn any way to improve his/her scientific approach by doing the project? (Up to 5 points) 	<p>Up to 25 points _____</p>
<p>Knowledge of Project Areas</p> <ol style="list-style-type: none"> 1. How effectively does the student conduct preliminary research using multiple valid scientific/engineering resources? (Up to 5 points) 2. What is the extent of the student's knowledge of the content area related to interpreting data and reaching conclusions? (Up to 10 points) 3. Is the student aware of both the scope and limitations of the project? (Up to 5 points) 	<p>Up to 20 points _____</p>
<p>Thoroughness</p> <ol style="list-style-type: none"> 1. Does the student do sufficient research in the literature before starting the project? (Up to 5 points) 2. Is sufficient data generated to produce valid results? (Up to 5 points) <ol style="list-style-type: none"> a. Are there enough trials? Are variables properly controlled? b. Is there any statistical analysis? 3. Is thorough use made of all data/observations/ re-designing to reach a conclusion? (Up to 10 points) 	<p>Up to 20 points _____</p>
<p>Written Records and Report</p> <ol style="list-style-type: none"> 1. Does the student keep an original logbook (either digital or handwritten) with all plans, procedures, observations, and conclusions for failures as well as successes? (Up to 10 points) 2. Does the student put together an accurate lab report, complete with a bibliography? (Up to 5 points) 	<p>Up to 15 points _____</p>
<p>Ingenuity and Creativity</p> <ol style="list-style-type: none"> 1. Does the experimental question or engineering design show innovative thinking? (Up to 5 points) 2. How effectively does the student use his or her materials in the solution of problems? (Up to 3 points) 3. Is the explanation of the project clear and precise? (Up to 2 points) <ol style="list-style-type: none"> a. Does the explanation of the results and conclusions demonstrate critical thinking? 4. Does the student identify any further questions or re-designs from the experiment? (Up to 5 points) 	<p>Up to 15 points _____</p>
<p>Visual Presentation</p> <ol style="list-style-type: none"> 1. Is the project displayed in a logical, organized manner and reflects the knowledge of the student? (Up to 1 point) 2. Are charts and graphs of the data correct and used where needed? (Up to 3 points) 3. Does the presentation effectively convey the message in an understandable manner? (Up to 1 point) 	<p>Up to 5 points _____</p>

TOTAL Up to 100 points _____

Comments:

Project Number:

Name:

Title: