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| |  | | --- | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | | CATEGORY | **4** | **3** | **2** | **1** | | **Modification/**  **Testing** | Clear evidence of troubleshooting, testing, and refinements based on data or scientific principles. | Clear evidence of troubleshooting, testing and refinements. | Some evidence of troubleshooting, testing and refinements. | Little evidence of troubleshooting, testing or refinement. | | **Function** | Structure functions extraordinarily well, holding up under atypical stresses. | Structure functions well, holding up under typical stresses. | Structure functions pretty well, but deteriorates under typical stresses. | Fatal flaws in function with complete failure under typical stresses. | | **Scientific Knowledge** | Explanations by all group members indicate a clear and accurate understanding of scientific principles underlying the construction and modifications. | Explanations by all group members indicate a relatively accurate understanding of scientific principles underlying the construction and modifications. | Explanations by most group members indicate relatively accurate understanding of scientific principles underlying the construction and modifications. | Explanations by several members of the group do not illustrate much understanding of scientific principles underlying the construction and modifications. | | **Information Gathering** | Accurate information taken from several sources in a systematic manner. | Accurate information taken from a couple of sources in a systematic manner. | Accurate information taken from a couple of sources but not systematically. | Information taken from only one source and/or information not accurate. | | **Plan** | Plan is neat with clear measurements and labeling for all components. | Plan is neat with clear measurements and labeling for most components. | Plan provides clear measurements and labeling for most components. | Plan does not show measurements clearly or is otherwise inadequately labeled. | | **Construction -Materials** | Appropriate materials were selected and creatively modified in ways that made them even better. | Appropriate materials were selected and there was an attempt at creative modification to make them even better. | Appropriate materials were selected. | Inappropriate materials were selected and contributed to a product that performed poorly. | | **Construction - Care Taken** | Great care taken in construction process so that the structure is neat, attractive and follows plans accurately. | Construction was careful and accurate for the most part, but 1-2 details could have been refined for a more attractive product. | Construction accurately followed the plans, but 3-4 details could have been refined for a more attractive product. | Construction appears careless or haphazard. Many details need refinement for a strong or attractive product. | |