Engineering Design Journal Rubrics

This assessment outlines the complete evaluation guide for the 'Design a Flying Dragon' STEM project, which integrates the Engineering Design Process (EDP), mathematical calculations, and scientific reasoning. The assessment includes teacher and peer rubrics, detailed criteria, and optional student self-assessment prompts.

Teacher Evaluation Rubric (20 points)

This rubric is used by the teacher to evaluate the quality and completeness of the student's Engineering Design Journal.

Criteria	4 - Advanced	3 - Proficient	2 - Developing	1 - Beginning
Scientific Reasoning	Explains biological and physics principles in-depth	Shows solid understanding with some details	Some scientific ideas are used, but with limited depth	Little/no evidence of science concepts
Mathematical Accuracy	Accurate calculations and conversions with a clear explanation	Mostly correct math; minor errors	Attempted calculations; some errors	Incomplete or inaccurate math work
Creative Application	Highly imaginative and functional dragon design	Creative with clear practical thinking	Some originality may lack realism	Minimal effort or unrealistic features
Communication	Clear, well-organized blueprint or writing; labeled and explained	Mostly clear; some labeling or explanation missing	Lacks clarity in parts; needs more detail	Confusing or incomplete communication
Participation & Collaboration	Consistently led or supported group work	Participated and contributed	Some participation; inconsistent effort	Little to no participation or teamwork

Name of Evaluator and Total Points: _____

Peer Evaluation Rubric (20 points)

This rubric is used by students to provide constructive feedback on their peers' Engineering Design Journals and Dragon Designs.

Criteria	4 - Excellent	3 - Good	2 - Fair	1 - Needs Work
Clarity of Design	Very clear and detailed explanation of dragon design and features	Mostly clear design with a few unclear areas	Design is somewhat understandable, but needs more detail	Design is hard to follow or is not explained
Use of Math	Design is well supported by accurate math	Some math used correctly to support design	Math is attempted, but may have errors	Little or no math included
Creativity & Effort	Very creative and original effort in design	Good creativity and effort	Some creativity shown	Little effort or creativity
Teamwork/Feedback	Provided helpful, respectful peer feedback and worked well in the group	Provided feedback and worked fairly well in a group	Occasionally contributed or gave limited feedback	Rarely contributed or gave feedback

Optional Student Self-Assessment Questions

1. What part of the dragon design was most challenging for you?

2. How did you use math or science in your design?

3. What feedback did you get from your peers, and how did it help you?

4. What would you improve or change if you could redesign your dragon?

Name of Evaluator and Total Points: