

Learning Goals and Scales
2014-2015

Unit: DC Motor Suspended Transportation System

Learning Goals:

In this unit:

1. Students will use prior knowledge and skills to design and build a device that will use a DC motor as a source of propulsion to travel on a suspended wire.
2. Students will learn/apply/reinforce Engineering Design Process to help create the best possible solution.

Rigorous Learning Goal/Scale 1

Course:	Engineering Drawing – DC Motor Project
Score 4 Additional Success with the complex content and concepts—inferences, novel applications	In addition to score 3.0 performance, the student demonstrates in-depth inferences and applications that go beyond what was taught. <ul style="list-style-type: none"> • <i>Student is able to build a structure from their CAD Working Drawing and perform a stress test on the device that helps them understand the quality of their design.</i> Student makes no major errors or omissions regarding the score 4 content
Score 3 Mastery of complex content and concepts of learning goal	TARGET LEARNING GOAL: The student will <ul style="list-style-type: none"> • <i>be able to produce a detailed working on CAD that includes all information needed to build the device.</i> Student makes no major errors or omissions regarding the score 3 content
Score 2 Success with simpler content—vocabulary, foundational skills	The student will recognize or recall specific vocabulary or basic content, such as: <ul style="list-style-type: none"> • orthographic projection, rules to dimensioning, CAD techniques The student will perform basic skills or process, such as: <ul style="list-style-type: none"> • <i>sketching various views that convey ideas for solutions using orthographic visualization and interpretation skills</i> • <i>Alphabet of lines</i> • <i>Layout</i> • <i>CAD – layers, dimension setting, drawing techniques, printing plan</i> • <i>Measurement – reading ruler, applying measurement/size</i> Student makes no major errors or omissions regarding the score 2 content
Score 1 Partial success with help	With help, student achieves partial success at score 2 content and/or score 3 content
Score 0 No success even with help	Even with help, no success

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Rigorous Learning Goal/Scale 2

Course:	Engineering Drawing – DC Motor Project
Score 4 Additional Success with the complex content and concepts—inferences, novel applications	In addition to score 3.0 performance, the student demonstrates in-depth inferences and applications that go beyond what was taught. <ul style="list-style-type: none"> • <i>Student is able to discuss/communicate the solution (step7) and decide whether it needs to be improved (step 8)...recognizing the need to reenter the engineering design process loop.</i> Student makes no major errors or omissions regarding the score 4 content
Score 3 Mastery of complex content and concepts of learning goal	TARGET LEARNING GOAL: The student will <ul style="list-style-type: none"> • <i>be able to use steps 1-3 of Engineering design process to achieve step 4 = prototype construction and 5 and 6 = test/evaluation.</i> Student makes no major errors or omissions regarding the score 3 content
Score 2 Success with simpler content—vocabulary, foundational skills	The student will recognize or recall specific vocabulary or basic content, such as: <ul style="list-style-type: none"> • Engineering Design Process, Orthographic Projection The student will perform basic skills or process, such as: <ul style="list-style-type: none"> • Brainstorming ideas • Sketching idea/conveying basic idea • Using CAD – drawing basic plan • measurement application • general safety • craftmanship skills – cutting/glueing Student makes no major errors or omissions regarding the score 2 content
Score 1 Partial success with help	With help, student achieves partial success at score 2 content and/or score 3 content
Score 0 No success even with help	Even with help, no success