



**Dover Area School District Curriculum K-U-D
Middle School STEM- Grade 7**

Standard	Know	Understand	Do
Standard - 3.4.6.D1: Apply a design process to solve problems beyond the laboratory classroom.	Students will be able to define and explain the steps of the engineering design process. 1 Identify the Problem: Set Criteria and Constraints 2. Explore the Problem: Research 3. Plan your Solution 4. Build / Create your Solution 5. Test your design 6. Make Improvements using Data 7. Repeat Until Problem is Solved 8. Present Findings	Use Engineering Design Process to Solve Problems.	Complete an Engineering Design Process to Solve Complex Problems
Eligible Content - S6.A.1.1.3 Predict the outcome of an experiment based on previously collected data.	Previous Testing or Scale Testing creates useable Data. Scale Testing, Analysis, Observation.	Data can be used to make improvements	Using Data, students will be able to make improvements to their designs
Standard - 3.2.6.B4: Ohm’s Law through investigation of voltage, current, and resistance. Standard - 3.3.8.A2: Describe renewable and nonrenewable energy resources.	Renewable Resources Non-Renewable Resources Volts Amps Current	Wind energy is a renewable resource that can be used to create electricity.	Calculate Ohm's Law Evaluate the efficiency of different types of resources.
Standard - 3.2.6.B4: Describe how electric current produces magnetic forces and how moving magnets produce electric current.	Magnet North and South Pole Attract Repel Electromagnetic Sound Wave Electric Circuit	How sound waves are created using magnets.	Make a functional electromagnet Assemble a functioning electric circuit given provided parts.
Standard - 3.2.6.B1: Explain how changes in motion require a force.	Rover Pressure Hydraulics Force	Hydraulics can be used to transfer a force.	Make a functional hydraulic system that can apply a force to an object.
Standard - 3.2.8.B1: Explain how inertia is a measure of an object’s mass.	Newton's First Law Inertia Torque Friction	Inertia causes objects to retain momentum.	Create an example to show Newton's First Law.