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| Time Frame | Topic/Unit | Skills/Concepts | Major Assessments | Core Standards | Resources |
| Weeks 1 - 6 | **Introduction to the Engineering Design Process + General Engineering Principles** | * Engineering Design Process:   + Understand the Challenge (Criteria + Constraints)   + Research   + Brainstorm   + Select + Design Sketch   + Prototype   + Test   + Iterate   + Communicate * Engineering Job Postings * Critical Path Method (CPM) | * Engineering Report – Slow Your Roll Challenge * Critical Path Project (for example, develop a critical path diagram for building a house) |  | Materials for Slow Your Roll Challenge (Paper, tape, paper clips, ball)  Engineering Design Process from CK-12.com |
| Weeks 7 - 15 | **Industrial Engineering** | * **Industrial Engineering** Field Research related to salary, sub-disciplines, example projects in the field of **IE**. * Engineering Design Process Application to Authentic Project in **Industrial Engineering** | * Industrial Engineering Project *(note: this should be a relevant, real world project that actually exists – for example, improving the morning drop-off line at the elementary school)* |  | Varies based on what real-world projects are available and deemed appropriate |
| Weeks 16 – 30 | **Mechanical Engineering** | * **Mechanical Engineering** Field Research related to salary, sub-disciplines, example projects in the field of **ME**. * Engineering Design Process Application to Authentic Project in **Mechanical Engineering** * 3D Modeling in Autodesk Inventor   + Creating a part file   + Selecting a sketch plane   + Using sketch tools to create a profile   + Dimensioning sketches to be fully defined   + Extruding to add or remove material   + Creating subsequent planes, sketches, and extrusion features * 3D Printing | * Mechanical Engineering Project & Report *(note: this should be a relevant, real world project that actually exists – for example, designing, 3D modeling, and 3D printing grippers to output maximum force)* |  | Varies based on what real-world projects are available and deemed appropriate  Autodesk Inventor (or other 3D CAD software)  3D Printer |
| Weeks 30-38 | **Civil Engineering** | * **Civil Engineering** Field Research related to salary, sub-disciplines, example projects in the field of **CE**. * Engineering Design Process Application to Authentic Project in **Civil Engineering** * 3D Modeling skills previously mentioned | * Civil Engineering Project *(Design a bridge to be poured from concrete to bear the most weight)* |  | Varies based on what real-world projects are available and deemed appropriate  Autodesk Inventor  Ag shop, tools, and equipment  OSB sheets  Wood screws  Painters Tape  Concrete (bags)  Wire  Stage weights from Auditorium |