



ORGANIZING THEME/TOPIC	FOCUS STANDARDS & SKILLS
<p>Safety in the classroom lab Why is safety important in the classroom lab?</p> <p>Shop safety Tools Materials</p> <p>Safety rules and procedures</p> <p>Time Frame: Introduced Week 1 and integrated throughout course</p>	<p>Skills in Technology and Engineering</p> <ul style="list-style-type: none"> • Safely use tools to construct a project. (ITEEA.12:1) • Safely use materials to construct a project. (ITEEA.12:1) • Follow safety rules and procedures for the lab area. (ITEEA.12:1) <p>Career and College Readiness</p> <ul style="list-style-type: none"> • Technical Reading: Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text. (RI.6.1, RI.6.4) • Technical Reading: Interpret information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue. (RI.6.7)
<p>Foundations of technology</p> <p>How does technology affect our lives?</p> <p>Time Frame: 1 week</p>	<p>Technology and Engineering</p> <ul style="list-style-type: none"> • Demonstrate an understanding of how technology has changed over time. (ITEEA.06.D) • Identify positive and negative impacts of technology on society. (ITEEA.05) • Describe the connection between a specific technology and human want or need (ITEEA.04) <p>Career and College Readiness</p> <ul style="list-style-type: none"> • Technical Reading: Use information provided in manuals, protocols, or by experienced people to see and understand how things work. (ITEEA.17) • Technical writing: Demonstrate clear communication through technical writing skills and presentations (KS.ITT.06.A)
<p>Measurement How is measurement applied in architecture, construction, and engineering?</p> <ul style="list-style-type: none"> • standard measurement • metric measurement <p>Time Frame: Integrated throughout course</p>	<p>Technology and Engineering</p> <ul style="list-style-type: none"> • Use a standard and metric ruler to measure accurately. (ITEEA.04.E) • Apply the four basic math functions to whole numbers, decimals, percentages and fractions. (KS.IIT.02.A) <p>Career and College Readiness</p> <ul style="list-style-type: none"> • Apply knowledge from other disciplines in designing a solution or prototype. (ITEEA.03.F)

<p>Design Process Why is testing a product design important?</p> <p>Introduction to Design process</p> <ul style="list-style-type: none"> • Problem solving • Product design • Prototype development • Testing (criteria and constraints, controlling variables) • Data collection <p>Time Frame: Integrated throughout course</p>	<p>Technology and Engineering</p> <ul style="list-style-type: none"> • Apply the design and testing process to solve a problem. (ITEEA.11.H) • Follow the specific steps in the design process. (ITEEA.09.F) • Construct 2 and/or 3-dimensional representations of a designed solution.(ITEEA.11.J) • Test a design against pre-established criteria and refine as needed. (ITEEA13.H) <p>Career and College Readiness</p> <ul style="list-style-type: none"> • Technical writing: Document design process by creating design portfolios, journals, drawings, sketches, or schematics. (ITEEA.11.L) • Mathematical practices: Utilize computers and calculators in the design process of products and systems. (ITEEA.12.J) • Mathematical practices: Make sense of problems and persevere in solving them. (KCCRS MP1)
<p>Construction How does construction utilize geometric shapes for strong, safe, and functional design?</p> <p>Introduction to Construction principles</p> <ul style="list-style-type: none"> • Structure Design • Geometric shapes • Materials Usage <p>Time Frame: 2 weeks</p>	<p>Technology and Engineering</p> <ul style="list-style-type: none"> • Design a product to solve a problem. (ITEEA.08.E) • Design and build a structure that rests on a foundation. (ITEEA.20.G) • Follow a plan/procedure for making a product.(ITEEA.09.F) • Use tools, materials, and machines safely. (ITEEA.12.I) <p>Career and College Readiness</p> <ul style="list-style-type: none"> • Technical writing: Document design process by creating design process by creating design portfolios, journals, drawings, sketches, or schematics (ITEEA.11.L) • Mathematical practices: Utilize computers and calculators in the design process of products and systems. (ITEEA.12.J)
<p>Manufacturing Process Why is the manufacturing process used to build products in industry?</p> <ul style="list-style-type: none"> • Manufacturing process <p>Time Frame: 2 weeks</p>	<p>Technology and Engineering</p> <ul style="list-style-type: none"> • Model the manufacturing process (systems of inputs, processes, outputs, feedback). (ITEEA.19.H) • Apply the manufacturing process to manufacture a product. (ITEEA.19.F) • Use tools, materials, and machines safely. (ITEEA.12.I) • Explain the benefits and drawbacks of manufacturing <p>Career and College Readiness</p> <ul style="list-style-type: none"> • Technical writing: Demonstrate clear communication through technical writing skills. (KS.ITT.06.A)
<p>Visual Communication How do I read mechanical drawings or blueprints? How do I communicate my design ideas in a visual form?</p> <p>Introduction to Drafting</p> <ul style="list-style-type: none"> • Mechanical drawings • Computer Aided Drafting • Visual Communications <p>Time Frame: 2 weeks</p>	<p>Technology and Engineering</p> <ul style="list-style-type: none"> • Interpret a mechanical drawing or blueprint. (KS.IIT.01.A) • Develop a pictorial sketch of an object. (KS.IIT.05.C) • Construct 2-D representations of 3-D objects. (ITEEA.11.J) <p>Career and College Readiness</p> <ul style="list-style-type: none"> • Technical Reading: Use information provided in manuals, protocols, or by experienced people to see and understand how things work. (ITEEA.17) • Technical Reading: Follow instructions to operate a product or system. (KS.ITT.06.A) • Technical Writing: Demonstrate written or verbal communication utilizing measurements, drawing, or symbols.(ITEEA.17.K)

Introduction to Robotics

How does a robot function?

Systems

- Inputs
- Processes
- Outputs

Electrical circuits

Gears

Primary Resource: Snap Circuit Snap Rover

Time Frame: 3 weeks

Technology and Engineering

ITEEA.11.6-8H Apply design process to solve a problem in and beyond the laboratory.

- Build a simple robot to complete a given set of tasks
- Create circuitry to support
 - Remote control
 - Lights and sounds
- Examine function of gears

Career and College Readiness

- Technical Reading: Use information provided in manuals, protocols, or by experienced people to see and understand how things work. (ITEEA.17)
- Technical Reading: Follow instructions to operate a product or system. (KS.ITT.06.A)
- Mathematical practices: Make sense of problems and persevere in solving them. (KCCRS MP1)