



Construction Technology (15.1530) (Taught)

District Junior High > 2016-2017 > Basic > Technology & Engineering > Construction Technology (15.1530) (Taught) > Anderson, Tamara; Head, David; Landis, Timothy; Martinez, Leroy; Masimer, Paul; Walker, Bill
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Unit	CTE Standards and Objectives	Essential Questions	Content	Skills	Vocabulary	Formative & Summative Assessments
Construction Introduction <i>(Week 1, 1 Week)</i>	UT: CTE: Technical and Engineering UT: Grades 9-12 Introduction to Construction Technology Standard 1 Students will investigate career opportunities in the construction industry, will explore the impact of construction technology on our society, and will be able to identify a variety of construction technologies, and will learn and use safety practices. Objective 1 Identify occupations related to the construction industry. Objective 2 State the differences between past and present methods of construction.	<ol style="list-style-type: none"> 1. What is the difference between construction and manufacturing? 2. In what ways are construction techniques better today than they were 100 years ago? 3. Why don't we build pyramids today? 	<ul style="list-style-type: none"> • The world of construction • The impacts of construction on society • What kind of items are constructed • Class overview 		<ul style="list-style-type: none"> • construction • manufacturing • 	Classroom discussion Formative: Oral: Discussion Classroom discussion about the world of construction.

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Construction Occupations <i>(Week 1, 1 Week)</i>	UT: CTE: Technical and Engineering UT: Grades 9-12 Introduction to Construction Technology Standard 1 Students will investigate career opportunities in the construction industry, will explore the impact of construction technology on our society, and will be able to identify a variety of construction technologies, and will learn and use safety practices. Objective 1 Identify occupations related to the construction industry.	<ul style="list-style-type: none"> • How have construction careers impacted your life? • How would a career in construction impact your life? • What would life be like without skilled construction trades persons? • What qualities are needed to excel in construction careers? • What might be a construction career of the future? 	<ul style="list-style-type: none"> • The pros and cons of construction careers. • Where and how to apply for jobs in construction. • The hierarchy of construction careers. • Construction career wages. 	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • Contractor • Sub-contractor • Carpenter • Electrician • Plumber • Union • Apprentice • Journeyman • Mason • Architect, • Draftsman 	Construction Career Oral Discussion Formative: Oral: Discussion Students will be able to compare and analyze various construction careers.

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General Safety <i>(Week 2, 2 Weeks)</i>	UT: CTE: Technical and Engineering UT: Grades 6-8 Exploring Technology Standard 1 Students will learn and use safe practices, learn basic design skills, and be introduced to related careers through activity-based education. Objective 1 Learn and use basic safety rules for the tools, the equipment, and the facilities that will be used in the course.	<ul style="list-style-type: none"> • What is the most important safety rule? • How much money is your finger or eye worth? • How do you determine how dangerous it is to work in the shop? • What will it take to help you feel safe to work in the shop? 	<ul style="list-style-type: none"> • Shop safety rules, behavior and etiquette • Requirements to work in a shop • Know and understand safety expectations 	<ul style="list-style-type: none"> • "Safety Zone" 	General Safety Test Summative: Test: Written	

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Construction Design / Bridge Geometry <i>(Week 3, 2 Weeks)</i>	UT: CTE: Technical and Engineering UT: Grades 9-12 Introduction to Construction Technology Standard 1 Students will	<ul style="list-style-type: none"> • How would it effect our daily life if we did not have walkways over Bangerter Highway? • How many bridges can you identify that exist here in West Valley? 	<ul style="list-style-type: none"> • Four different types of bridges • Practical application of geometry • How to build a stick bridge • How to measure using 	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • pontoon • beam • suspension • arch • truss • symmetry 	Performance: Skill Demonstration

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	<p>investigate career opportunities in the construction industry, will explore the impact of construction technology on our society, and will be able to identify a variety of construction technologies, and will learn and use safety practices.</p> <p>Objective 3 Identify a variety of systems, methods, and materials used for building construction technology.</p> <p>Standard 2 Students will demonstrate an understanding of the benefits and limitations of construction design.</p> <p>Objective 3 Identify design factors in Materials.</p> <p>Standard 3 Demonstrate basic measurement principles that</p>	<ul style="list-style-type: none"> • How could you build a strong bridge out of straw? • How many people does it take to design and build a bridge • What materials can you use to build a bridge? • In what situations might it be better to use wood instead off steel? • What are the different occupations needed to build a bridge? 	<p>a ruler/measuring tape</p>			

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	<p>incorporate applied math applications related to construction practices.</p> <p>Objective 1 Measure using standard construction tools.</p> <p>Standard 5 Students will identify the basic applications of specific materials and fasteners in construction systems.</p> <p>Objective 1 Identify structural materials used in construction.</p>				•	

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<p>Measuring: Metric / SAE (Week 3, 1 Week)</p>	<p>UT: CTE: Technical and Engineering UT: Grades 6-8 Exploring Technology Standard 1 Students will learn and use safe practices, learn basic design skills, and be introduced to related careers through activity-based education. Objective 2 Learn and use measuring skills. UT: Grades 9-12 Introduction to Construction Technology Standard 3 Demonstrate basic</p>	<ul style="list-style-type: none"> • How would the world be different if we did not have standard measurements ? • Which system of measurement is better (Standard, Metric) and why? • How many different types of measurement have you used today? 	<ul style="list-style-type: none"> • How to read standard and metric rules. • Standard construction measurement tools: framing square, speed square, level, measuring tape, plumb line/bob. 		<ul style="list-style-type: none"> • SAE Metric Rule Measuring Squares (framing, combination) Estimating Scale Ratio 	<p>Metric and SAE "Ruler Game" Summative: Performance: Skill Demonstration Online ruler games.</p>

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	measurement principles that incorporate applied math applications related to construction practices. Objective 1 Measure using standard construction tools.				•	

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Construction Application and Production <i>(Week 4, 2 Weeks)</i>	UT: CTE: Technical and Engineering UT: Grades 6-8 Exploring Technology Standard 1 Students will learn	<ul style="list-style-type: none"> • What tool or machine could have made building this project easier? • What was the most valuable part of building this project? 	<ul style="list-style-type: none"> • Safe operation of tools and equipment. • Basic understanding of applied geometry. 	•	<ul style="list-style-type: none"> • Jig • Fixture 	Project construction Formative: Performance: Lab Assignment Project grading

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	<p>and use safe practices, learn basic design skills, and be introduced to related careers through activity-based education.</p> <p>Objective 2 Learn and use measuring skills.</p> <p>UT: Grades 9-12</p> <p>Introduction to Construction Technology</p> <p>Standard 1 Students will investigate career opportunities in the construction industry, will explore the impact of construction technology on our society, and will be able to identify a variety of construction technologies, and will learn and use safety practices.</p> <p>Objective 3 Identify a variety of systems, methods, and materials used for</p>	<ul style="list-style-type: none"> • What did you enjoy most about this project? 	<ul style="list-style-type: none"> • Quality standards. • Different construction materials. 			

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	<p>building construction technology.</p> <p>Objective 4 Learn and use safe work habits and techniques.</p> <p>Standard 2 Students will demonstrate an understanding of the benefits and limitations of construction design.</p> <p>Objective 3 Identify design factors in Materials.</p> <p>Standard 5 Students will identify the basic applications of specific materials and fasteners in construction systems.</p> <p>Objective 1 Identify structural materials used in construction.</p>					
<p>Machine Safety (Week 4, 7 Weeks)</p>	<p>UT: CTE: Technical and Engineering UT: Grades 9-12</p>	<ul style="list-style-type: none"> How valuable is safety instruction? 	<ul style="list-style-type: none"> Not to use any equipment that they have not passed a safety test on. 		<ul style="list-style-type: none"> machine safety safety test performance test bandsaw jointer disc sander 	<p>Machine testing Formative: Test: Written Written tests and performance testing.</p>

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	<p>Introduction to Construction Technology</p> <p>Standard 1 Students will investigate career opportunities in the construction industry, will explore the impact of construction technology on our society, and will be able to identify a variety of construction technologies, and will learn and use safety practices.</p> <p>Objective 4 Learn and use safe work habits and techniques.</p> <p>Standard 4 Students will identify and use common hand and power tools used in the construction industry.</p> <p>Objective 2 Identify common power tools used in the construction industry.</p>		<ul style="list-style-type: none"> • Be able to use applicable machinery safely. • identify different pieces of machinery, their uses and how to use them properly 		<p>scroll saw drill press miter saw table saw circular saw pneumatic nailer</p>	

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Measurement Estimation <i>(Week 6, 1 Week)</i>	<p>Objective 3 Understand and demonstrate safe practices regarding the use of these tools.</p> <p>UT: CTE: Technical and Engineering UT: Grades 9-12 Introduction to Construction Technology Standard 3 Demonstrate basic measurement principles that incorporate applied math applications related to construction practices. Objective 3 Demonstrate estimating principles.</p>	<ul style="list-style-type: none"> • How do you estimate the cost of building a house? • What things must you consider when estimating the cost of building a house, road, bridge? 	<ul style="list-style-type: none"> • construction material standards: cubic foot, cubic yard, plywood size, • the nominal size of lumber • building cost estimation factors: material costs, cost per square foot, landscaping, building permits, etc. 	•	<ul style="list-style-type: none"> • estimate • square foot • cubic foot • cubic yard • waste factor 	<p>House estimation Formative: Written: Informative worksheet-- estimate the cost</p>

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<p>Framing (Week 7, 13 Weeks)</p>	<p>UT: CTE: Technical and Engineering UT: Grades 9-12 Introduction to Construction Technology Standard 1 Students will investigate career opportunities in the construction industry, will explore the impact of construction technology on our society, and will be able to identify a variety of construction</p>	<ul style="list-style-type: none"> • What is the relationship in construction between function and forces. • Why would you like or dislike a career in framing? • What kind of structure would you like to build? • Would you like to build your own house someday? Why or Why not? 	<ul style="list-style-type: none"> • What graded lumber is. • Various engineered lumber products • Differentiate nominal lumber sizes as compared to common lumber sizes. • How various partitions are assembled and combined. 	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • Stud • Floor Joist • Header • Bottom and Top Plates • King Stud • Jack Stud • Cripple Stud • Window Sill • Blocking 	<p>Partition construction Formative: Project: Personal Individual partition s sections will be graded.</p>

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	<p>technologies, and will learn and use safety practices.</p> <p>Objective 3 Identify a variety of systems, methods, and materials used for building construction technology.</p> <p>Objective 4 Learn and use safe work habits and techniques.</p> <p>Standard 2 Students will demonstrate an understanding of the benefits and limitations of construction design.</p> <p>Objective 3 Identify design factors in Materials.</p> <p>Standard 3 Demonstrate basic measurement principles that incorporate applied math applications related to construction practices.</p> <p>Objective 2 Understand scale drawing.</p>					

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	<p>Standard 4 Students will identify and use common hand and power tools used in the construction industry.</p> <p>Objective 1 Identify common hand tools used in the construction industry.</p> <p>Objective 2 Identify common power tools used in the construction industry.</p> <p>Objective 3 Understand and demonstrate safe practices regarding the use of these tools.</p> <p>Standard 5 Students will identify the basic applications of specific materials and fasteners in construction systems.</p> <p>Objective 1 Identify structural materials used in construction.</p> <p>Objective 4 Identify fasteners used in construction.</p>				•	

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<p>Design Factors: (Week 11, 3 Weeks)</p>	<p>UT: CTE: Technical and Engineering UT: Grades 9-12 Introduction to Construction Technology Standard 1 Students will investigate career opportunities in the construction industry, will explore the impact of construction technology on our society, and will be able to identify a variety of construction technologies, and will learn and use safety practices. Objective 3 Identify a variety of systems, methods, and materials used for building construction technology.</p>	<ul style="list-style-type: none"> • If you were one of the three little pigs what material would you choose for building your house? Why? • If you were building your own house, what design features would you like to have? • What will the house of the future look like? 	<ul style="list-style-type: none"> • How to draw and design using CAD or board method • How to sketch a project • Understand advantages and disadvantages of various design factors (materials, geography, energy considerations) 	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • design • sketch • project • materials • geography • CAD • cost factors • alternative housing 	<p>Project design Formative: Performance: Lab Assignment Design a project according to specified parameters.</p>

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	<p>Standard 2 Students will demonstrate an understanding of the benefits and limitations of construction design.</p> <p>Objective 1 Identify design factors in Energy.</p> <p>Objective 2 Identify design factors in Geography.</p> <p>Objective 3 Identify design factors in Materials.</p> <p>Objective 4 Identify design factors in Material availability.</p> <p>Standard 5 Students will identify the basic applications of specific materials and fasteners in construction systems.</p> <p>Objective 2 Identify exterior covering materials used in construction.</p> <p>Objective 3 Identify interior covering materials used in construction.</p>					

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Materials / Fasteners <i>(Week 14, 3 Weeks)</i>	<p>UT: CTE: Technical and Engineering UT: Grades 9-12 Introduction to Construction Technology Standard 1 Students will investigate career opportunities in the construction industry, will explore the impact of construction technology on our society, and will be able to identify a variety of construction technologies, and will learn and use safety practices.</p> <p>Objective 3 Identify a variety of systems, methods, and materials used for building construction technology.</p> <p>Standard 5 Students will identify the basic applications of specific materials and fasteners in</p>	<ul style="list-style-type: none"> • How many different types of fasteners can you identify? • What are the advantages of using fasteners in construction? • What is the most important fastener ever invented? 	<ul style="list-style-type: none"> • Various fastener types and their application . • Advantages and disadvantages of various fasteners. • Identify various fasteners • 	<p>Use an electric drill /screw driver to drive a Phillips head screw. Use a hammer properly</p>	<p>fastener screw nail bracket pneumatic nailer staple pin bolt and nut clamp</p>	<p>fasteners Formative: Performance: Lab Assignment Hands-on application of fasteners--pound nails and drive screws.</p>

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	construction systems. Objective 4 Identify fasteners used in construction.					