Multiple Category Scope and Sequence: Scope and Sequence Report For Course Standards and Objectives, Content, Skills, Vocabulary

Wednesday, August 20, 2014, 3:03PM

	Unit	Course Standards and Objectives	Content	Skills	Vocabulary
District High School Basic **Introduction to Construction Technology (21.0109)** **(District)** 2014-2015 **Collaboration**	**Construction Introduction** (Week 1, 1 Week)	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.	▪ The world of construction ▪ The impacts of construction on society ▪ What kind of items are constructed. ▪ Class overview		▪ construction ▪ manufacturing ▪
	Construction Occupations (Week 1, 1 Week)	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.	▪ The pros and cons of construction careers. ▪ Where and how to apply for jobs in construction. ▪ The hierarchy of construction careers. ▪ Construction career wages.	▪ identify and define 5 construction careers	▪ Contractor ▪ Sub-contractor ▪ Carpenter ▪ Electrician ▪ Plumber ▪ Union ▪ Apprentice ▪ Journeyman ▪ Mason ▪ Architect, ▪ Draftsman

General Safety (Week 2, 2 Weeks)	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.	▪ Shop safety rules, behavior and etiquette ▪ Requirements to work in a shop ▪ Know and understand safety expectations	▪ Apply the safety rules and guidelines while working in the shop facility. ▪ Complete the safety test with a 100% score in two tries. ▪ Evaluate safe practices and behavior.	"Safety Zone"
Construction Design / Bridge Geometry (Week 3, 2 Weeks)	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. Standard 2 Students will demonstrate an understanding of the benefits and limitations of construction design. ▪ Objective 3 Identify design factors in Materials. Standard 3 Demonstrate basic	▪ Four different types of bridges ▪ Practical application of geometry ▪ How to build a stick bridge ▪ How to measure using a ruler/measuring tape	▪ Apply basic geometric design and measuring skills to build a truss bridge. ▪ Identify and compare four bridge types	▪ pontoon ▪ beam ▪ suspension ▪ arch ▪ truss ▪ symmetry

	measurement principles that incorporate applied math applications related to construction practices. ▪ Objective 1 Measure using standard construction tools. Standard 5 Students will identify the basic applications of specific materials and fasteners in construction systems. ▪ Objective 1 Identify structural materials used in construction.			
Measuring: Metric / SAE (Week 3, 1 Week)	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: 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 1 Measure using standard construction	▪ How to read standard and metric rules. ▪ Standard construction measurement tools: framing square, speed square, level, measuring tape, plumb line/bob.	▪ Read a ruler to within 1/16th of an inch. ▪ Accurately measure and construct a simple structure. ▪ Compare and differentiate the proportion of various objects.	SAE Metric Rule Measuring Squares (framing, combination) Estimating Scale Ratio

tools.

Construction Application and Production (Week 4, 2 Weeks)	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: 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. ▪ Objective 4 Learn and use safe work habits and techniques. Standard 2 Students will demonstrate an understanding of the benefits and limitations of construction design. ▪ Objective 3 Identify design factors	▪ Safe operation of tools and equipment. ▪ Basic understanding of applied geometry. ▪ Quality standards. ▪ Different construction materials.	▪ Accurately follow a plan to build a structure. ▪ Use and operate tools and equipment safely.	▪ Jig ▪ Fixture

	in Materials. Standard 5 Students will identify the basic applications of specific materials and fasteners in construction systems. ▪ Objective 1 Identify structural materials used in construction.			
Machine Safety (Week 4, 7 Weeks)	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 4 Learn and use safe work habits and techniques. Standard 4 Students will identify and use common hand and power tools used in the construction industry. ▪ Objective 2 Identify common power tools used in the construction industry. ▪ Objective 3 Understand and demonstrate safe practices regarding the use of these tools.	▪ Not to use any equipment that they have not passed a safety test on. ▪ Be able to use applicable machinery safely. ▪ identify different pieces of machinery, their uses and how to use them properly	▪ Use machinery safely.	machine safety safety test performance test bandsaw jointer disc sander scroll saw drill press miter saw table saw circular saw pneumatic nailer
Measurement	UT: CTE: Technical and	▪ construction material standards:	▪ calculate square feet	▪ estimate

Estimation (Week 6, 1 Week)	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.	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.	▪ calculate building cost estimates	▪ square foot ▪ cubic foot ▪ cubic yard ▪ waste factor
Framing (Week 7, 13 Weeks)	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. ▪ Objective 4 Learn and use safe work habits and techniques. Standard 2 Students will demonstrate an understanding of the benefits and limitations of construction design. ▪ Objective 3 Identify design factors in Materials. Standard 3 Demonstrate basic	▪ 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.	▪ Frame a standard partition, door and window partition,garage door partition and/or roof truss. ▪ Use basic hand and power tools.	▪ Stud ▪ Floor Joist ▪ Header ▪ Bottom and Top Plates ▪ King Stud ▪ Jack Stud ▪ Cripple Stud ▪ Window Sill ▪ Blocking

	measurement principles that incorporate applied math applications related to construction practices. ▪ Objective 2 Understand scale drawing. Standard 4 Students will identify and use common hand and power tools used in the construction industry. ▪ Objective 1 Identify common hand tools used in the construction industry. ▪ Objective 2 Identify common power tools used in the construction industry. ▪ Objective 3 Understand and demonstrate safe practices regarding the use of these tools. Standard 5 Students will identify the basic applications of specific materials and fasteners in construction systems. ▪ Objective 1 Identify structural materials used in construction. ▪ Objective 4 Identify fasteners used in construction.			
Design Factors: (Week 11, 3 Weeks)	UT: CTE: Technical and Engineering, UT: Grades 9-12, Introduction to Construction Technology Standard 1 Students will investigate career	▪ 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,	▪ Construct a project that they have designed.	▪ design ▪ sketch ▪ project ▪ materials ▪ geography ▪ CAD

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.

Standard 2
Students will demonstrate an understanding of the benefits and limitations of construction design.

- Objective 1
  Identify design factors in Energy.
- Objective 2
  Identify design factors in Geography.
- Objective 3
  Identify design factors in Materials.
- Objective 4
  Identify design factors in Material availability.

Standard 5
Students will identify the basic applications of specific materials and fasteners in construction systems.

- Objective 2
  Identify exterior covering materials used in construction.
- Objective 3
  Identify interior covering materials used in construction.

energy considerations).

- cost factors
- alternative housing

Materials / Fasteners (Week 14, 3 Weeks)	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. Standard 5 Students will identify the basic applications of specific materials and fasteners in construction systems. ▪ Objective 4 Identify fasteners used in construction.	▪ Various fastener types and their application. ▪ Advantages and disadvantages of various fasteners. ▪ Identify various fasteners ▪	Use an electric drill/screwdriver to drive a Phillips head screw. Use a hammer properly	fastener screw nail bracket pneumatic nailer staple pin bolt and nut clamp