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| **TEXAS CTE LESSON PLAN** [www.txcte.org](http://www.txcte.org/)   |
| **Lesson Identification and TEKS Addressed**  |
| **Career Cluster**  |  Architecture and Construction  |
| **Course Name**  |  Architectural Design I |
| **Lesson/Unit Title**  |  Architecture Models   |
| **TEKS Student Expectations**  |  **§130.53. (c) Knowledge and Skills**(7) The student begins expressing ideas through original architectural projects using a variety of media with appropriate skill. The student is expected to: 1. create beginning visual solutions by elaborating on direct observation, experiences, and imagination;

(C) demonstrate beginning effective use of architectural media and tools in design, drawing, painting, printmaking, and sculpture such as model building. |
| **Basic Direct Teach Lesson** (Includes Special Education Modifications/Accommodations and  one English Language Proficiency Standards (ELPS) Strategy)  |
| **Instructional Objectives**  | * Demonstrate the process of model building
* Describe the process of planning and developing a model
* Identify various tools and equipment used for model building
* Describe the use of models for presentation
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| **Rationale**  | Students will learn and practice modeling skills, craftsmanship, and safety skills for related equipment.  |
| **Duration of Lesson**  | The lesson will take 25-30 minutes to complete. The independent practice can take anywhere from 45 minutes to a few days, depending on teacher resources, project level, and time frame. Please refer to the extension/enrichment section for further explanation.  |
| **Word Wall/Key Vocabulary** *(ELPS c1a,c,f; c2b; c3a,b,d; c4c; c5b) PDAS II(5)*  | * Typeface- The style or design of a font
* Font- A complete set of type of one style and size
* Model- A representation, generally in miniature, to show the construction or appearance of something
* Three Dimensional- Having, or seeming to have, the dimension of depth as well as width and height
* Serif – the small lines that extend from the ends of a font as seen in Times New Roman. Fonts without these lines are called sanserif.
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| **Materials/Specialized Equipment Needed**  | * Paper
* Pens, pencils
* Modeling Materials- card stock, chip board, crescent board, museum board, and cardboard
* Cutting Mats (if needed)
* Protective coverings for desks/tables (if needed)
* Adhesives- school glue and/or modeling glue (if needed)
* Presentation boards (if needed)
* Construction paper (if needed)
* Markers (if needed)
* Scissors (if needed)
* Paint and paint brushes (if needed)
* Cutting tools (if needed)
* Desk/table surface for student work space
* Storage area for student models
* Surface to hang presentations (if needed)
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| **Anticipatory Set** (May include pre-assessment for prior knowledge)  | * Review and familiarize yourself with the terminology, materials, modeling equipment, supplies, safety regulations, and presentation software.
* Have equipment, materials, supplies, and documents ready for distribution prior to the start of the lesson.
* Due to the model building process, student may require space for working and space for storing models.
* Teacher may consider building a sample model for themselves to better understand the process and time frame needed for completion.
* Discuss safety rules for use of equipment and materials.
* Discuss procedures for equipment disbursement and return.
* Discuss procedures for workspace cleanup.
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| **Direct Instruction \***  | **Tasks** * Consult with clients to determine functional or spatial requirements of structures.
* Prepare scale drawings.
* Plan layout of project.
* Prepare information regarding design, structure specifications, materials, color, equipment, estimated costs, or construction time.

**Soft Skills** * Active Listening
* Complex Problem Solving
* Critical Thinking

The main purpose of this lesson is to help students: * learn the importance of craftsmanship and model building (past);
* understand how to layout or plan a project (present); and
* plan to improve the modeling process for projects (future).

**Show** examples of architectural models and various fonts/typefaces. Allow students to ask questions anddiscuss pictures if they are unclear or curious.  **Ask** students if they know what a “model” is.  **Tell** students that a model is usually a scaled representation of some object or item. It is usually used in placeof the real item for inspection or visualization. **Ask**students if they have ever built a model. Was it a kit or by themselves? **Tell**students there are several types of models, like model cars. Many of them come in some type ofkit with instruction. In architectural modeling, they usually do not come with instructions on how to build. The instructions or plans come from the architect themselves. It must be a well-developed, planned, and thought-out process. This greatly increases the level of difficulty for the model. **Ask**students if they have ever put anything together, such as a toy or shelving unit. **Tell**students that these items are very like a model. They must be put together in a specific manner inorder to work or have a specific outcome. Model building is the same way. You should properly plan and layout what goes where, what you will need, how it is put together, etc. **Ask**students if they know what a typeface or font is. **Tell**students that a typeface is a style or design of letters. The font is a complete set of a typeface of astyle. There are many types of fonts and typefaces that have been developed over the years. They all serve different purposes and give different “looks” to letters and words.  |
| **Guided Practice \***  | * Discuss and show model samples (if needed)
* Discuss each piece of material and equipment
* Model safe use of equipment
* Demonstrate how to use materials for modeling
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| **Independent Practice/Laboratory Experience/Differentiated Activities \***  | * Have students select “letter”
* Have students begin selecting fonts/typefaces
* Have students begin sketching ideas for letter
* Have students plan or layout their model
* Have students build models
* Have students “personalize” models
* Have students prepare presentation for model
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| **Lesson Closure**  | 1. Have students present their architectural letters to class
2. Ask students to reflect on each other’s models
3. Have students reflect on the modeling process
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| **Summative/End of Lesson Assessment \***   |  **Informal Assessment** Any of the following can be used as informal assessments. * Spot check for idea creation
* Spot check for sketches
* Spot check for planning/layout phase
* Spot check for model building
* Check progress on developing presentation

**Formal Assessment*** Student font/typeface selection
* Student sketches
* Student plans/layouts
* Student study model
* Student final model
* Student personalization of model (painting, coloring, decorating, embellishing, etc.)
* Student model craftsmanship
* Student model completion
* Presentation participation
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| **References/Resources/** **Teacher Preparation**  | 1. Reference Books
2. Sample model (if required)
3. Lesson Presentation
4. Instructor Computer/Projection Unit
* Sutherland, Martha (1999). *Model Making: A Basic Guide*. New York, New York: W. W. Norton & Company.
* D. K. Ching, F. (2009). *Architectural graphics*. Hoboken, New Jersey: John Wiley and Sons,
* D. K. Ching, F. (2007). *Architecture: Form, space, and order*. Hoboken, New Jersey: John Wiley and Sons.
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| **Additional Required Components**  |
| **English Language Proficiency Standards (ELPS) Strategies**  |   |
| **College and Career Readiness Connection1**  |  **Biology****112.34 (c) Knowledge and skills**1. Scientific processes. The student uses scientific methods and equipment during laboratory and field investigations. The student is expected to:
	1. collect and organize qualitative and quantitative data and make measurements with accuracy and precision using tools such as calculators, spreadsheet software, data-collecting probes, computers, standard laboratory glassware, microscopes, various prepared slides, stereoscopes, metric rulers, electronic balances, gel electrophoresis apparatuses, micropipettors, hand lenses, Celsius thermometers, hot plates, lab notebooks or journals, timing devices, cameras, Petri dishes, lab incubators, dissection equipment, meter sticks, and models, diagrams, or samples of biological specimens or structures.

**Geometry** **111.34 (b) Knowledge and skills**1. Dimensionality and the geometry of location. The student analyzes the relationship between three-dimensional geometric figures and related two-dimensional representations and uses these representations to solve problems. The student is expected to:
	1. describe and draw the intersection of a given plane with various three-dimensional geometric figures;
	2. use nets to represent and construct three

 dimensional geometric figures; and* 1. use orthographic and isometric views of three-dimensional geometric figures to represent and construct three-dimensional geometric figures and solve problems.
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| **Recommended Strategies**  |
| **Reading Strategies**  |   |
| **Quotes**  |   |
| **Multimedia/Visual Strategy** **Presentation Slides + One Additional Technology Connection**  |   |
| **Graphic Organizers/Handout**  |   |
| **Writing Strategies** **Journal Entries + 1 Additional Writing Strategy**  |    |
| **Communication** **90 Second Speech Topics**  |   |
| **Other Essential Lesson Components**  |
| **Enrichment Activity** (e.g., homework assignment)  | * use materials of their own to produce the model.
* build more than one letter, maybe their own or someone’s initials.
* build complete words.
* use a complex font, such as a cursive style.
* present their letter models.
* create real plans/blueprints of their models.
* create working drawings of their models by board drafting or CAD (computer-aided design).
* model their letters in a 3D program.
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| **Family/Community Connection**  |   |
| **CTSO connection(s)**  |  SkillsUSA  |
| **Service Learning Projects**  |   |
| **Lesson Notes**  |   |