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| **TEXAS CTE LESSON PLAN**  [www.txcte.org](http://www.txcte.org) | |
| **Lesson Identification and TEKS Addressed** | |
| **Career Cluster** | Architecture & Construction |
| **Course Name** | Architectural Design I |
| **Lesson/Unit Title** | Architectural Drafting - Auxiliary Views |
| **TEKS Student Expectations** | **130.53. (c) Knowledge and Skills**  (2) The student applies key cognitive skills and academic behaviors to the requirements of architectural studies.  (I) The student is expected to apply descriptive geometry related to auxiliary views, revolutions, and intersections |
| **Basic Direct Teach Lesson**  (Includes Special Education Modifications/Accommodations and  one English Language Proficiency Standards (ELPS) Strategy) | |
| **Instructional Objectives** | Specific Objectives  • Identify auxiliary views in architectural projects  • Demonstrate the projection of auxiliary views  • Identify the need of auxiliary views  • Describe auxiliary views in relation to architecture |
| **Rationale** | People working in architectural design should be able to utilize descriptive geometry to represent architectural features of a structure. |
| **Duration of Lesson** | 25-30 minutes |
| **Word Wall/Key Vocabulary**  *(ELPS c1a,c,f; c2b; c3a,b,d; c4c; c5b) PDAS II(5)* | • Auxiliary- additional or supplementary  • Projection- the representation of a line, figure, or solid on a given plane as it would be seen from a direction  • Inclined- deviating in direction from the horizontal or vertical; sloping  • Surface- the complete boundary of a solid figure  • Orthographic projection - representing a three-dimensional shape as two-dimensional.  • Perpendicular – two geometric shapes or lines that meet at a right angle |
| **Materials/Specialized Equipment Needed** | **Instructional Aids**   * Reference Book * Sample auxiliary view images or drawings * Projector to view images or drawings   **Materials Needed**   * Paper * Pens, pencils * Drawing paper (if needed)   **Equipment Needed**   * Drafting equipment (if needed) * Surface to hang drawings (if needed) * Digital camera or cell phones |
| **Anticipatory Set**  (May include pre-assessment for prior knowledge) | 1. Discuss safety rules for use of equipment and materials. 2. Discuss rubric for presentations. 3. Discuss expectations for drawings. |
| **Direct Instruction \*** | Introduction  The main purpose of this lesson is to help students:  • Understand there are alternate views beyond orthographic projection (past)  • Understand auxiliary views to find true size and true shape (present)  • Recognize the need and use of auxiliary views for architectural projects (future)  − Show examples of auxiliary views for objects or from architecture. Allow students to ask questions and discuss pictures if they are unclear or curious.  − Ask students if they have ever seen an object that has a slanted surface (example: the roof of a house).  − Tell students that when we create technical drawings for this type of object, you cannot tell the true size or shape from using the typical views. You would need an alternate view, called an auxiliary view, to see the true size and shape.  − Ask students if they understand surfaces and perpendicular projection.  − Tell students that the object would have different “surfaces,” and the inclined surface would be used to create the auxiliary view. You would project the view perpendicular to the inclined surface. This process takes a little practice, but once you understand it, the process becomes rather easy to utilize.  Outline  I. Prior knowledge of orthographic projection  Begin discussion over orthographic projection and what it means to students.  II. Prior knowledge of auxiliary views  Begin discussion over auxiliary views and what it means to students.  III. Vocabulary and terms for auxiliary views  Use software presentation, images, web, etc. to introduce concept of auxiliary views.  IV. Demonstration projection of auxiliary views  Demonstrate the projection of auxiliary views. Use the software projection or sample images.  V. Demonstrate proper use of tools, materials, and equipment.  Demonstrate the tools, materials, and equipment for drafting or drawing.  VI. Independent Practice  Students will create an auxiliary view drawing.  *Individualized Education Plan (IEP) for all special education students must be followed. Examples of accommodations may include, but are not limited to:*  NONE |
| **Guided Practice \*** | * Demonstrate how to create auxiliary views to students. * Model the proper techniques and safety for using the tools, materials, and equipment for students.   *Individualized Education Plan (IEP) for all special education students must be followed. Examples of accommodations may include, but are not limited to:*   * NONE |
| **Independent Practice/Laboratory Experience/Differentiated Activities \*** | * Have students create auxiliary view drawings.   *Individualized Education Plan (IEP) for all special education students must be followed. Examples of accommodations may include, but are not limited to:*   * NONE |
| **Lesson Closure** | * Have students present their auxiliary view drawings |
| **Summative/End of Lesson Assessment \*** | Informal Assessment (LSI Quadrant III)  All the following can be used as informal assessments:  • Spot check for vocabulary terms  • Check for progress on auxiliary view drawings  • Participation in auxiliary view drawings  Formal Assessment (LSI Quadrant III, IV)  • Auxiliary views drawings using grading rubric  *Individualized Education Plan (IEP) for all special education students must be followed. Examples of accommodations may include, but are not limited to:*  NONE |
| **References/Resources/**  **Teacher Preparation** | * Muller, Edward, Grau, Phillip A. (2008). *Architectural drawing and light construction.* Upper Saddle River, New Jersey: Prentice Hall. * French, Thomas, Helsel, Jay (2002). *Mechanical drawing: Board and CAD techniques*. Westerville, Ohio: Glencoe/McGraw-Hill. |
| **Additional Required Components** | |
| **English Language Proficiency Standards (ELPS) Strategies** |  |
| **College and Career Readiness Connection[[1]](#footnote-1)** |  |
| **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) |  |
| **Family/Community Connection** |  |
| **CTSO connection(s)** | SkillsUSA |
| **Service Learning Projects** |  |
| **Lesson Notes** |  |

1. Visit the Texas College and Career Readiness Standards at <http://www.thecb.state.tx.us/collegereadiness/CRS.pdf>, Texas Higher Education Coordinating Board (THECB), 2009. [↑](#footnote-ref-1)