


# Ganado Unified School District #20

## (Architectural Drafting I)

### PACING Guide SY 2022-2023

Resources	AZ College and Career Readiness Standard	Essential Question (HESS Matrix)	Learning Goal	Vocabulary (Content/Academic)
<b>First Year</b>				
<b>Textbooks:</b> <b>Exploring Drafting, Architecture: Residential Drafting and Design, Construction Technology Print Reading, AutoCAD: Basic Applications, AutoCAD: Intermediate Applications, AutoCAD: Advance Applications, AutoDesk: AutoCAD/REVIT ; CTSO Curriculum,</b>	<b>STANDARD 6.0 – PRODUCE TECHNICAL DRAWINGS</b> 6.1 Use fundamental drafting techniques for drawings 6.2 Demonstrate freehand lettering technique 6.3 Determine correct line types & line weight 6.4 Create Title Blocks 6.5 Format a sheet set 6.6 Apply notes/annotations & dimensions as appropriate & required 6.7 Plot, Print, or create digital drawings 6.8 Organize a sequence of drawings & supporting documents <b>STANDARD 8.0 – PREPARE DRAWINGS OF SECTIONS &amp; DETAILS</b> 8.1 Create & place one North/South & one East/West cross section on a plan 8.2 Create a larger scale detail of one area of a cross section/detail 8.3 Create plan details 8.4 Identify parts & pieces for detailed drawings	How can we keep our Lab a safe environment?  What is one example of an appropriate Laboratory safety?  How can the specific problem or challenge I want to face?  How can Draw according to the Rubric?  How can the students meet the challenge of using creativity & ingenuity?  What kinds of problems would require students to	Students will be able to: <ul style="list-style-type: none"> <li>• Freehand Lettering</li> <li>• Technical Lettering</li> <li>• Utilizing the Alphabet of Lines</li> <li>• Utilizing Line Weights</li> <li>• Title Blocks</li> <li>• Sequencing Numbers</li> <li>• Apply Notes</li> <li>• Identifying Legends</li> <li>• Plot Plans</li> <li>• Topographic Plans</li> <li>• One-Point Perspective</li> <li>• Two-Point Perspective</li> <li>• Three-Point Perspective</li> <li>• Oblique views</li> <li>• Perspective views</li> <li>• Isometric Views</li> <li>• Pictorial Views</li> <li>• Projected Views</li> <li>• Utilize Architect Scale</li> <li>• Utilize Engineer Scale</li> </ul>	Architect Scale Engineer Scale T-Square 30/60 Degree Triangle Compass Mechanical Pencil 2H Lead Construction Line Hidden Line Border Line Section Detail Line Break Line Elevations North Arrow Isometric Rendering Perspective Pictorial Projected Straightedge Leaders Texts Layers

<b>SkillsUSA, OSHA-10</b>	<b>STANDARD 9.0 – CREATE PICTORIAL DRAWINGS, MODELS, &amp; RENDERINGS</b>  <b>9.1 Create isometric or perspective drawings using manual and/or electronic techniques</b> <b>9.2 Select appropriate materials &amp; properties to apply to the entities</b> <b>9.3 Render a model to create a presentation drawing</b> <b>9.4 Create video of rendered model</b>	work together in groups?  	<ul style="list-style-type: none"> <li>• Applying Models</li> <li>• Applying Miniature Models</li> <li>• Differentiate Scale Details</li> <li>• Applying Cross-Sectional</li> <li>• Draw Full Height Wall</li> <li>• Analyze Floor Plans</li> <li>• Applying Rendering</li> <li>• Differentiate Colors</li> </ul>	Sequencing Major Components Exterior Aerial Views Entities Architectural Intent Animation Fly-Through Vanishing Point Camera Perspective Shading Lighting
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**Second Year**

<b>Textbooks: Exploring Drafting, Architecture: Residential Drafting and Design, Construction Technology Print Reading, AutoCAD: Basic Applications, AutoCAD: Intermediate Applications, AutoCAD: Advance Applications, AutoDesk: AutoCAD/REVIT ;</b>	<b>STANDARD 2.0 – INTERPRET TECHNICAL DOCUMENTS &amp; BUILDING SPECIFICATIONS USED BY ARCHITECTS &amp; ENGINEERS</b>  <b>2.1 Interpret dimensions, symbols, legends, scales &amp; directions/orientations</b> <b>2.2 Read &amp; interpret content &amp; information communicated in schematics &amp; technical drawings</b> <b>2.3 Locate &amp; interpret information on specific documents</b> <b>2.4 Analyze schematics &amp; technical drawings for clarity, completeness, accuracy</b> <b>2.5 Recognize cross-referencing on technical drawings</b> <b>2.6 Identify &amp; describe basic types of drawings by trade</b> <b>2.7 Verify &amp; justify documents for dimensional accuracy, completeness, details</b> <b>2.8 Compare schematics to technical drawings</b> <b>2.9 Interpret legal land descriptions</b>	How can we keep our Lab a safe environment?  What is one example of an appropriate Laboratory safety?  Describe the risks and dangers tools and equipment?  How can the specific problem or challenge I want to face?  How can Draw according to the Rubric?  How can the students meet the challenge of	Students will be able to: <ul style="list-style-type: none"> <li>• Identify Preliminary Concept of a drawing</li> <li>• Identify Schedules</li> <li>• Identify Reference Callouts</li> <li>• Identify Architectural</li> <li>• Identify Mechanical</li> <li>• Identify Engineer</li> <li>• Identify Structural</li> <li>• Identify Civil</li> <li>• Apply appropriate specifications</li> <li>• Apply CSI Format</li> <li>• Verify State Codes</li> <li>• Verify National Building Standards</li> <li>• Recognize Sections</li> <li>• Recognize Elevations</li> <li>• Recognize Floor Plans</li> <li>• Analyze Schematics</li> </ul>	Dimension Scale Symbols Legends Schematic Plan Notes Cut Sheets Cross-reference Sections Elevation Floor Plans Roof Plans Technical Drawings Plumbing Plan ALTA GIS Site Plan Building Codes ADA ANSI CADD VDCM
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**CTSO  
Curriculum,  
SkillsUSA,  
OSHA-10**

**2.10 Verify state, county, local, & national building standards, codes, and regulations used in architectural drafting**

**2.11 Apply appropriate specifications for project-specific jobs**

**STANDARD 5.0 – DETERMINE THE TYPES & COMPONENTS OF BUILDING SYSTEMS**

**5.1 Identify the components of a site plan**

**5.2 Identify different types/parts of foundations/footings**

**5.3 Identify different types/parts of plans**

**5.4 Identify different types of floor structures & systems**

**5.5 Examine types of walls**

**5.6 Distinguish components of a wall**

**5.7 Identify parts of a staircase systems**

**5.8 Identify parts of ramp systems**

**5.9 Identify types of roofs**

**5.10 Identify components of roofs**

**STANDARD 7.0 – APPLY DESIGN DRAFTING CONCEPTS AS RELATED TO ARCHITECTURAL DESIGNS**

**7.0 Prepare a foundation or basement plan**

**7.2 Prepare a floor plan or model from a preliminary sketch**

**7.3 Prepare roof details**

**7.4 Prepare an electrical plan locating receptacles, switch, lighting fixtures**

**7.5 Prepare a plumbing plan showing fixture locations & floor drains**

**7.6 Prepare a basic HVAC plan locating air handlers, condensers, duct returns, return plenum, transfer ducts, & diffusers**

**7.7 Prepare drawings of four exterior elevations including keynote elements**

**7.8 Identify & prepare the components of door & window schedules**

using creativity & ingenuity?

What kinds of problems would require students to work together in groups?



COMMUNICATION

How can we keep our Lab a safe environment?

What is one example of an appropriate Laboratory safety?

Describe the risks and dangers tools and equipment?

- Analyze Technical Drawings
  - Identify Property Lines
  - Identify Utility Access
  - Identify Site Plan
  - Examine Architectural Stud Walls
  - Examine Structural Stud Walls
  - Distinguish Sheathing
  - Distinguish Stud Spacing
  - Distinguish Air Space
  - Identify Ramp Systems
  - Identify Roof Systems
  - Prepare Foundation Plans
  - Prepare Floor Plan
  - Prepare Pitch Calculations
  - Identify Roof Drain Schedules
  - Identify HVAC Schedules
  - Identify Doors and Windows Schedule
  - Identify Utility Lines
  - Analyzing Drain & Drainage
  - Develop drawings using North, East, South, West
  - Develop Site Walls
  - Analyzing Utility Lines
  - Understanding Setbacks
- BIM
  - Format
  - Line Types
  - Drawing Scale
  - Text Styles
  - Property Lines
  - Setbacks
  - Landscaping
  - Contour
  - Concrete Slab
  - Stem Walls
  - Masonry
  - Crushed Rock
  - Framing
  - Wood/Steel Trusses
  - Sheathing
  - Wood/Steel Beams
  - First Level
  - Second Level
  - I-Joist
  - Girder
  - Bracing
  - Treads
  - Run
  - Riser
  - Rise
  - Precast
  - Inverted Pitch
  - Shed
  - Gable
  - Barrel
  - Roof Flashing
  - Easement
  - Site Walls
  - Switch
  - Receptacle

7.9 Assemble a set of working drawings for a residential or small commercial structure  
 7.10 Prepare site plan  
 7.11 Prepare a landscape plan including vegetation, irrigation, & retention basins

- Drawing Stairs and Staircases
- Analyzing Doors & Windows Schedules
- Understanding Electrical Plan

Two-way Switch  
 Single Pole Switch  
 Three-way Switch

## Second Year

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**STANDARD 3.0 – UTILIZE HARDWARE & SOFTWARE TOOLS INCLUDING BASIC COMPUTER CONCEPTS, OPERATIONS, & TECHNOLOGY APPLICATIONS**

3.1 Use computer hardware/software for design drafting solutions  
 3.2 Apply electronic file management techniques  
 3.3 Maintain electronic file management techniques  
 3.4 Use various formats to import & export data files  
 3.5 Use the Internet, Intranet, and/or third-party file transfer/storage programs

**STANDARD 4.0 – UTILIZING COMPUTER-AIDED SOFTWARE SYSTEMS FOR PROJECT MANAGEMENT**

4.1 Compare & contrast services & processes provided by CADD, VDCM, & BIM systems  
 4.2 Determine the program to analyze drawings  
 4.3 Use CADD, VDCM, & BIM software functions & commands to set up drawings scale, format, dimensioning  
 4.4 Apply item properties, colors, line types, editing commands, text styles, & grouping techniques

How can we keep our Lab a safe environment?  
  
 What is one example of an appropriate Laboratory safety?  
  
 Describe the risks and dangers tools and equipment?  
  
 How can the specific problem or challenge I want to face?  
  
 How can Draw according to the Rubric?  
  
 How can the students meet the challenge of using creativity & ingenuity?  
  
 What kinds of problems would

Students will be able to:  
 Identify Hardware  
 Identify Software  
 Apply Electronic File

- Utilize computer Hardware & Software
- Utilize design drafting solutions
- Apply Folders & Subfolders
- Apply Reference Files
- Apply PDF
- Utilize Internet
- Utilize Intranet
- Apply FTP
- Apply Cloud
- Utilize Archiving
- Maintain File Cleanup
- Utilize dxf
- Utilize Tiff
- Utilize gif
- Import/Export Data files
- Differentiate CADD & VDCM, BIM
- Utilize CADD
- Utilize VDCM

PDF  
 ADA  
 ALTA  
 GIS  
 Plat Maps  
 FTP  
 Cloud  
 Storage files  
 Archiving  
 CADD  
 CAD  
 VDCM  
 BIM  
 Format  
 Line Types  
 Line Weights  
 Drawing Scale  
 Dimensioning  
 Rendering  
 Colors  
 Text Styles  
 Templates  
 Setting Scales  
 Title Block  
 Sheet Layout  
 Cartoon Set  
 Sheet Organization

4.5 Incorporate standard parts, symbol libraries, and/or templates  
 4.6 Control viewing commands  
 4.7 Characterize the difference between model space & paper space to determine scale in AutoCAD

require students to work together in groups?

- Apply Item Properties
- Apply Item Color
- Symbolize Libraries
- Symbolize Templates
- Control Viewing Commands

AutoCAD  
 Revit  
 Model Space  
 Miniature Modeling

### Third Year

**Textbooks:**  
**Exploring Drafting, Architecture: Residential Drafting and Design, Construction Technology Print Reading, AutoCAD: Basic Applications, AutoCAD: Intermediate Applications, AutoCAD: Advance Applications, AutoDesk: AutoCAD/REVIT ; CTSO Curriculum, SkillsUSA, OSHA-10**

**STANDARD 1.0 – APPLY MEASUREMENT & SCALE CONCEPTS IN DESIGN DRAFTING**  
 1.1 Compare types of measurement instruments used by architects & engineers  
 1.2 Perform field measurements with handheld instruments  
 1.3 Select & apply the appropriate scale for viewing information & drawings  
 1.4 Transcribe illustrations and/or field measurements accurately to a scale  
 1.5 Verify interior dimensions for spatial awareness  
 1.6 Assess measurements for accuracy by documenting existing conditions

How can we keep our Lab a safe environment?

What is one example of an appropriate Laboratory safety?

How can the specific problem or challenge I want to face?

How can Draw according to the Rubric?

How can the students meet the challenge of using creativity & ingenuity?

What kinds of problems would require students to work together in groups?

Students will be able to:

- Measure Instruments
- Utilize Architect Scale
- Utilize Engineer Scale
- Perform Tape Measure
- Perform Laser & Digital Applications
- Apply Scale to Drawings
- Apply Viewing Information
- Illustrate field measurements
- Illustrate drawings
- Apply accuracy to drawings
- Coordinate drawing applications