Flipped IN-CLASS Lesson Plan Template

Topic or concept:
Orthographic and Para-line drawings.

Basic objectives for preparatory work:	Advanced objectives for classwork & after class work:
1. Students will recognize the way we visualize form in three-dimensional geometric representation 2. Students will be able to define the terminology of different perspective drawing systems 3. Students will be able to label the components of an orthographic and para-line drawing and identify the major features critical to these drawing techniques 4. Students will be able to identify and list different perspective grid systems	1. Students will create a para-line drawing using traditional tools (pencils, paper, guides) 2. Students will create a para-line drawing using digital tools (Adobe Illustrator, Photoshop) 3. Students will create an orthographic projection drawing using traditional tools (pencils, paper, guides) 4. Students will create an orthographic projection using digital tools (Adobe Illustrator, Photoshop)

	Time planned	Activity and rationale	Resources needed
Beginning of class period	15 mins	**Guided Notes.** Students will fill-in a handout with information to activate knowledge from reading assignments and provide accountability for preparatory work.	• Textbook: 1) Montague, John; *Basic Perspective Drawing: A Visual Guide (6th Edition)* 2) Robertson, Scott. *How to Draw: Drawing and Sketching Objects and Environments From Your Imagination* 3) Henry, Kevin; *Drawing for Product Designers* • Print-out of notes with gaps for students to fill + pen/pencil • Orthographic terminology hand-out (from Canvas) • Writing tool

	Time planned	Activity and rationale	Resources needed
Middle of period	30 mins	**Demo** Demonstrate an orthographic drawing using traditional tools. • Students are encouraged to write notes on techniques and resources. • Students are also encouraged to follow along demo on their own tablets.	• Sketchbook for notes • Traditional tools: Marker paper, tracing paper, pencil, polymer eraser, gum eraser, pink ruler, red prisma, blue prisma, 30° triangle.
Middle of period	60 mins	**Class exercise**. Students will create their own orthographic drawing of a provided rectilinear form using traditional tools. • Start by using • Photos can be uploaded to this shared drive for future reference.	• Traditional tools: Marker paper, tracing paper, pencil, polymer eraser, gum eraser, pink ruler, red prisma, blue prisma, 30° triangle.
Middle of period	30 mins	**Demo** Demonstrate a para-line drawing using digital tools. • Students are encouraged to write notes on techniques and resources. • Students are also encouraged to follow along demo on their own tablets.	• Sketchbook for notes • Pencil/pen • Tablet computer • Adobe Illustrator/Photoshop
End of period	30 minutes	**Orthographic quiz #1** Students will be given a worksheet that exemplifies their understanding of orthographic translation. Three plan views will be provided and students must translate the drawing on a perspective grid provided.	• Print-out quiz • Pencil/pen

Flipped AFTER CLASS Work Plan Template

Advanced learning objective	Activity and rationale	Instructions to students
1. Using digital tools, students are asked to create an accurate orthographic drawing of the rectilinear form shown in class. **2.** Using digital tools, students are asked to create an accurate para-line drawing of the rectilinear form shown in class. **3.** Students will exemplify standard practices in orthographic drawing communication including line weight, alignment, penmanship, and dimensioning. **3.** Discuss, critique, and engage actively in professional review of their own as well as their peers' work using standard expectation metrics.	By creating a para-line drawing using tradition tools, students will integrate knowledge of the simplest perspective system to communicate form in 3D (para-line). Communicating, exploring, and designing forms in 3D is essential to the role of an Industrial Designer and subsequent career in industry. Industry has adopted digital tools; however, we will practice starting with traditional tools before creating drawings in software. Orthographic drawings are the blueprint for creating new products. Students must be able to communicate in the language of manufacturing and basic engineering in order to be effective designers.	Drawing for industrial design is different from artistic drawing. Techniques employed such as differentiating line weights, alignment, dimensioning, composition, and using different line weights for different purposes are useful for standardized and clearer communication of design intent. Be sure to take notes during in-class demos and for reference as you execute your final assignment deliverables. Taking detailed notes as you prepare for the next class with reading assignments is also a really helpful practice. Make note of any questions for further clarification and/or insights. As SJSU students, you have access to Lynda.com tutorials for free through your MLK library membership.

Class: DSID21 Visualization Sec.2
Date assigned: August 22nd
Date due: August 27th
Time estimate to complete this assignment: 1-3 hours

Overview/Introduction

What is this lesson about? Why do we care?
Orthographic drawings are the blueprint for building and creating new products. Accurate and industry standard communication in the language of manufacturing and basic engineering will help make you a more effective designer. Line weight, alignment, drawing templates, and accurate dimensioning are part of the orthographic drawing language of manufacturing and engineering to achieve this goal.

Learning Objectives

Basic objectives
1. Identify the key terminology used in orthographic and para-line drawings
2. Summarize the differences and uses of orthographic and para-line drawings
3. Describe the key components of an orthographic drawing
4. Describe the process of creating a para-line drawing

Advanced objectives
1. Using traditional tools, students will create an accurate orthographic drawing of the rectilinear form shown in class.
2. Using traditional tools, students will create an accurate para-line drawing of the rectilinear form shown in class.

Preparatory Activities and Resources:

1. View the prepared lecture on canvas.

2. Read over the textbook and canvas pages listed below.

3. This shared drive might be helpful for future reference of documented photos.

4. Using calipers, measure and document detailed notes and dimensions using quick sketches in your notebook or Sketchbook Pro.

5. Reference the dimensioningbasics.pdf for technical standards to follow when creating orthographics.

Resources:

Reading from textbook:
Henry: Chapter 2 (pgs 24-41)
Henry: Chapter 3 (pgs 62-63

Robertson: Chapter 2 (pgs 20-27)
Reading from Canvas:
Dimensioning Basics
Montague: Chapter 4 (pgs 40-48)

Exercises: Please complete and upload by 3pm on August 27th.

Draw three orthographic views ((1) top, (2) side and (3) front) of the rectilinear form provided in 1:2 scale using traditional tools (pencils, marker paper, guides). Include all necessary dimensions.

Exterior lines: Thick
Interior lines: Thin
Dimensions: Thin/Medium

Upload a JPG or PDF to Canvas before the deadline. Have your completed assignment up on the wall for the critique when it is due.

All assignments in this class will use the standard nameplate formatting on each page.

Please use clear hand lettering.

Questions?
Join a discussion on canvas, reach out to schedule with me during office hours, (kohar.scott@sjsu.edu/ T/Th 6-7pm), phone a friend, make friends with senior ID students!

This is given for students to complete after the class meeting in which they work together.

Class: DSID21 Visualization Sec.2
Date assigned: August 27th
Date due: August 29th
Time estimate to complete this assignment: 2-3 hours

Learning Objectives

Advanced objectives

1 Synthesize form communication techniques by creating an orthographic drawing using standard digital tools (Adobe Illustrator, Photoshop).
2 Synthesize form communication techniques by creating a para-line drawing using standard digital tools (Adobe Illustrator, Photoshop).
3 Discuss and critique students own as well as their peers work according to standard practice.

Activities & deliverables:

A2 Orthographic and Para-line Drawing created using Adobe Illustrator

DESCRIPTION OF ASSIGNMENT:

Draw three orthographic views ((1) top, (2) side and (3) front) of the rectilinear form provided using Adobe Illustrator. Include all necessary dimensions. Draw one paraline drawing of the same rectilinear form provided. All four drawings will be in in the same 1:2 scale. Layout in layers to work out all details and then do a final layer.

DETAILS

Line-weights Used
Exterior lines: Thick
Interior lines: Thin
Dimensions: Thin/medium

Upload a JPG or PDF of the assignment to Canvas before the deadline. Print out the assignment at 11" x 17" and have it up on the wall for the critique when it is due.

On all assignments in this class you will use the standard nameplate formatting to label your drawing. Please use clear hand lettering.

Resources:

Reading from textbook:
 Henry: Chapter 2 (pgs 24-41)
 Henry: Chapter 3 (pgs 62-63
 Robertson: Chapter 2 (pgs 20-27)
Reading from Canvas:
 Montague: Chapter 4 (pgs 40-48)
 Video list (on canvas):
 Dimensioning in Illustrator
 Drawing orientations and Dimensions
 Paraline A2 Assignment
 Resizing Arrowheads
Digital Tutorials (through your MLK library membership):
 As SJSU students, you can apply for free MLK library membership and gain
 access to Lynda.com tutorials for free.

Questions?

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(kohar.scott@sjsu.edu/ T/Th 6-7pm), phone a friend, make friends with senior ID students!