

Engineering Design Process Student Activity Sheet 3.3b

Student Name: _____

Orthographic Projection

Question for Analysis

What are orthographic projections and what role do they play in the design process?

Key Concepts

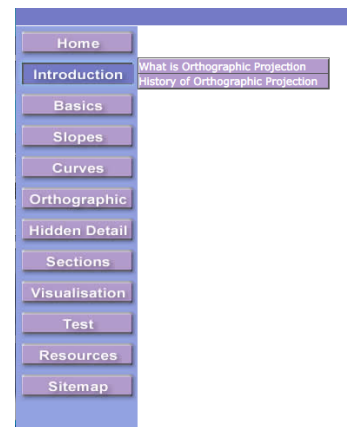
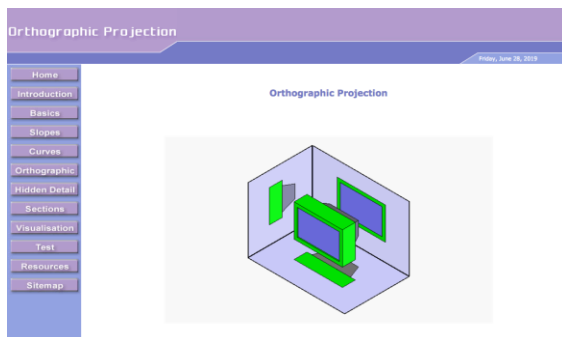
- **Orthographic Projection** – a method of projection in which an object is depicted or a surface mapped using parallel lines to project its shape onto a plane.

Instructions

Go to the following website:

https://sulis.ul.ie/access/content/user/anthony.rynne/orthographic_projection_fyp/orthographic_projection_fyp/webpages/home.html

The homepage should look similar to the image below. When you hover your cursor/mouse over a box in the left-hand menu, an additional dialog box will appear (example is shown below). Please use this feature to help you navigate to the various portions of the module.



Hover over the menu item “Introduction” and then select “What is Orthographic Projection” in the connected dialog box. Read this short page and answer question 1.

1. Explain both **how** and **why** orthographic projections could be considered a universal language for engineers.

Hover over the menu item “Basics” and then select “Viewing objects Orthographically” in the connected dialog box. Use this to answer questions 2-5.

2. What is an Elevation? Define and draw an example below.

3. **Fill in the blank:** When choosing which face to use as the Elevation you choose the _____. This is because it improves the presentation of the object and because the _____ typically shows the most detail.

4. What is a Plan view? Define and draw an example below.

5. What is an End Elevation? Define and draw an example below.

Hover over the menu item “Orthographic” and then select “Fundamentals of Orthographic Projection” in the connected dialog box. Use this to answer questions 6-10.

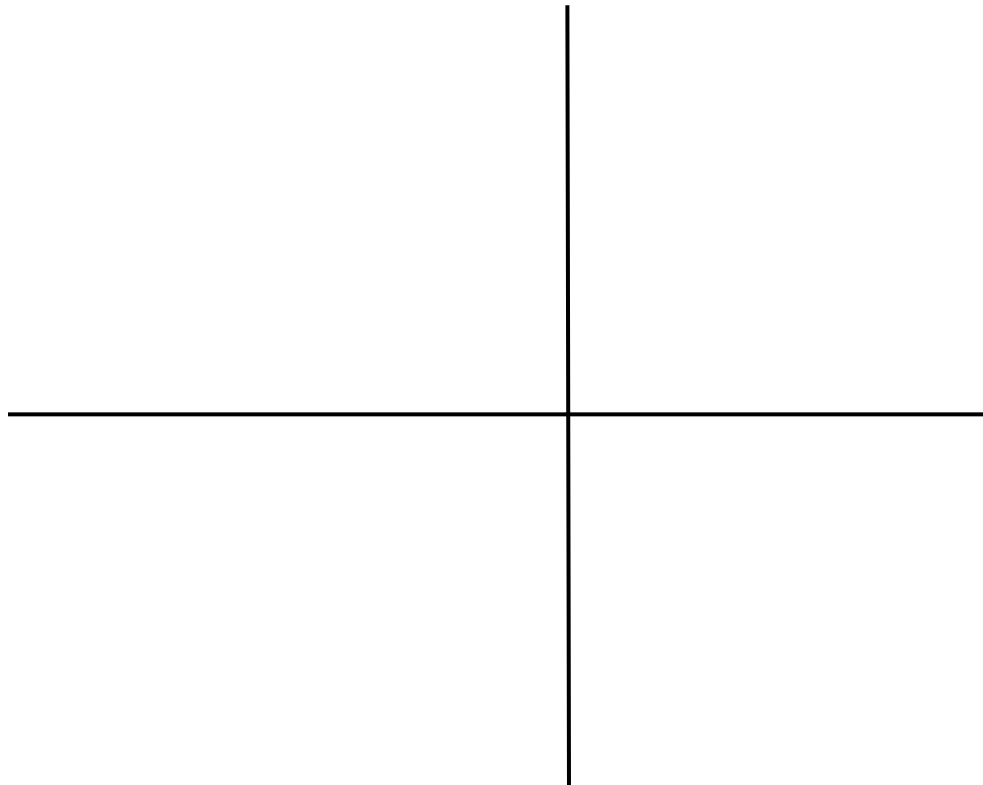
6. **Fill in the Blank:** The Elevation typically gives us _____ and _____, the Plan gives us _____ and _____ of the object.

7. What is a vertical plane? Define.

8. What is a horizontal plane? Define.

9. What is a profile plane or end vertical plane? Define.

10. Using the 8 steps provided on the webpage, recreate below an orthographic projection on the axis of the “L-shaped” object.



Hover over the menu item “Orthographic” and then select “BS888” in the connected dialog box. Use this to answer question 11. Even though these are British standards, the lines are generally the same in other national standards.

11. Use the table on the webpage and the connected examples pictured below it to define and draw examples of each of the different line types:

a. Continuous Thick:

b. Continuous Thin:

c. Dashed:

d. Chain Thick:

e. Chain Thin:

Hover over the menu item “Visualisation” and then select “Visualisation” in the connected dialog box. Use this to answer question 12.

12. What is the “removal method”? Explain and provide a drawn example.
