

Orthographic Projection

Summary

This lesson introduces students to orthographic projection drawings. By the end of the lesson, students will be able to identify the different views of orthographic projection drawings and draw them.

Time Frame

1 class periods of 45 minutes each

Life Skills

Thinking & Reasoning, Employability

Materials

Gather any worksheets or activities from the web sites provided. I use an activity manual from a book that has great worksheets for orthographic projections. The name of the book is Technology Shaping our World. You can contact the publisher at the following website address.
<http://goodheartwilcox.com/>

Simple objects that students can use to draw orthographic projections. Examples might include rectangular boxes, books, or VHS tapes.
Legos or other building blocks.

Background for Teachers

The activities in this lesson are designed to give students a basic understanding about what orthographic projection drawings are and where they are used. It also will give them a chance to practice drawing orthographic projection drawings. The teachers should have a good understanding of orthographic projections and how they are used. Become familiar with several orthographic projection drawings so that you can help the students. An orthographic projection drawing shows three views of the object. These include the top, front, and right side view. This is useful because it gives someone the exact dimensions of the object on these three views. Combined with an isometric drawing, cabinet and furniture makers have complete drawings to build an object. Look at examples on the web sites for further clarification on what an orthographic projection drawing is and how it is used.

Student Prior Knowledge

Students should have a basic understanding of drafting.

Intended Learning Outcomes

Identify the three different views of orthographic projections and explain why they are useful in building an object.
Demonstrate how to draw an orthographic projection drawing.

Instructional Procedures

Ask the class if anyone knows what an orthographic projection drawing is. Hold a rectangular box in your hand. Ask the class how many sides there are to a box. List the different sides on the board (Top, bottom, right side, left side, front, and back). Ask them if any of the sides are duplicate views. Erase the bottom, right side, and back. Explain that the remaining three views are known as an orthographic projection drawing (Top, front, and right side). Distribute graph paper and rulers to each student.

Draw a basic object in orthographic projection on the board and have the students draw it on their paper. Distribute any worksheets or activities that you found on the Internet or other resources.

Place an object on the table and have the students draw that object in orthographic projection. Assist and answer questions when necessary.

Distribute legos or other building blocks. Have each table build a staircase with three steps. Have them draw the steps in orthographic projection.

Assess the students for understanding as they draw their orthographic projection drawings. Discuss some of the careers that would use orthographic projection drawings.

Assessment Plan

Place the same object on each table and have the students draw it in orthographic projection.

Draw an object on the board in isometric, give the proper dimensions, and have students draw the object in orthographic projection.

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