

Act like a drafter or designer and see how well you can visually communicate a design concept to a teammate.

MATERIALS:

- Clear plastic box, 4"x4"x4" ([example](#))
 - Alternate: clear, deep sandwich containers
- Snap cubes ([example](#))
 - Alternate: building cubes (e.g. Legos)
- Dry erase markers and eraser

METHOD:

1. Divide into teams of 2-3 students.
2. Select one student on each team as the designer. The designer uses five snap cubes to create a custom shape.
3. The designer draws orthographic projections with a dry erase marker on all sides and top of the box.
4. The designer hides their shape and shares the orthographic projections with their teammates.
5. The teammates recreate the shape based on the orthographic projections.
6. The designer checks their work and provides feedback on design improvement.

Orthographic projection illustrates a three-dimensional object on a two-dimensional plane. A projection shows edges of an object from a single perspective: visible edges are shown as solid lines and obscured edges are shown as dashed lines. Most commonly the views are of six perpendicular planes, like a cube: front, rear, left, right, top, bottom.

Think of your school building – you might look at a map to see the outline of the building from a bird's eye view and look at street view or photographs from multiple angles to understand the height and layout of different sections of the building.

Drafters often use three-dimensional design software to create a product but develop two-dimensional plan sets for manufacturers or contractors to follow as they construct the design.

TAKE IT BACK TO CLASS:

- Repeat the method, adding snap cubes one at a time to increase difficulty.
- Research architectural plans for a well-known building. How does the drafter or designer use orthographic projection to communicate the final build?

SOURCE:

[“Hands-On Orthographic Team Challenge” from eGrove Education](#)

NOTES

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. There are no margins, text, or other markings on the paper.