Created by Mr. Saunders

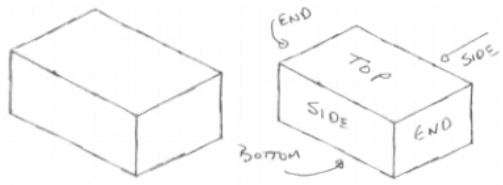
Orthographic Projection Drawings

Graphic communications has many forms. Orthographics is one such form. It was developed as a way of communicating information about physical objects. It is part of a universal system of drawings. House plans - one well known drawing format, are a form of orthographic projection. In simple terms, orthographic drawings are views (front, side, top, and so on) of an object. An orthographic view is only one side. It takes several views to show the entire object. Before getting to views, it is useful to look at another type of drawing. Pictorial drawings show several sides at the same time. Many people find pictorial drawings easier to understand. They do not provide as much information as orthographic views. The most commonly used pictorial drawing for technical information is called **isometric drawings**. Isometric drawings were developed to approximate perspective, but are much easier to draw. For a square box, all the sides are drawn as vertical lines, or at 30 degrees to the horizontal.

Example 1 shows a typical isometric of a box. Note the way the sides are labeled. This is very important, because each side is normally used to create orthographic views.

Pictorial Drawing Example 1

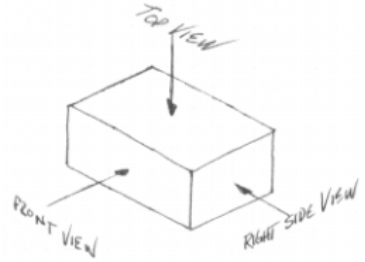
A simple box has 6 sides - top, bottom, 2 ends and 2 sides. An isometric drawing of a box looks like this.



Add labels to the sides...

These labels are OK, but in the world of technical drawings, special labels are used. The label refers to a position on the drawing. Proper labels for the sides on this box are:

The drawing below has only 3 sides labeled (bottom is opposite the top, left side is opposite the right side, rear is opposite the front).

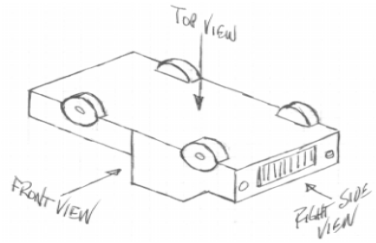


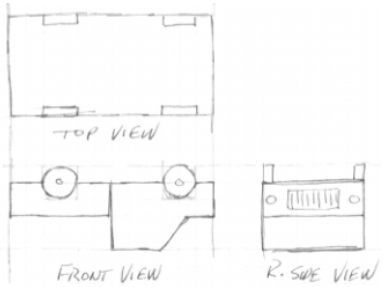
- Top View
- Front View
- Right Side View
- Left Side View
- Rear View
- Bottom View

One important thing to note is that these labels are for the position. Front view is always in this location, regardless of the object that is drawn.

The Makings of an Orthographic Projection:

Note the next drawing.

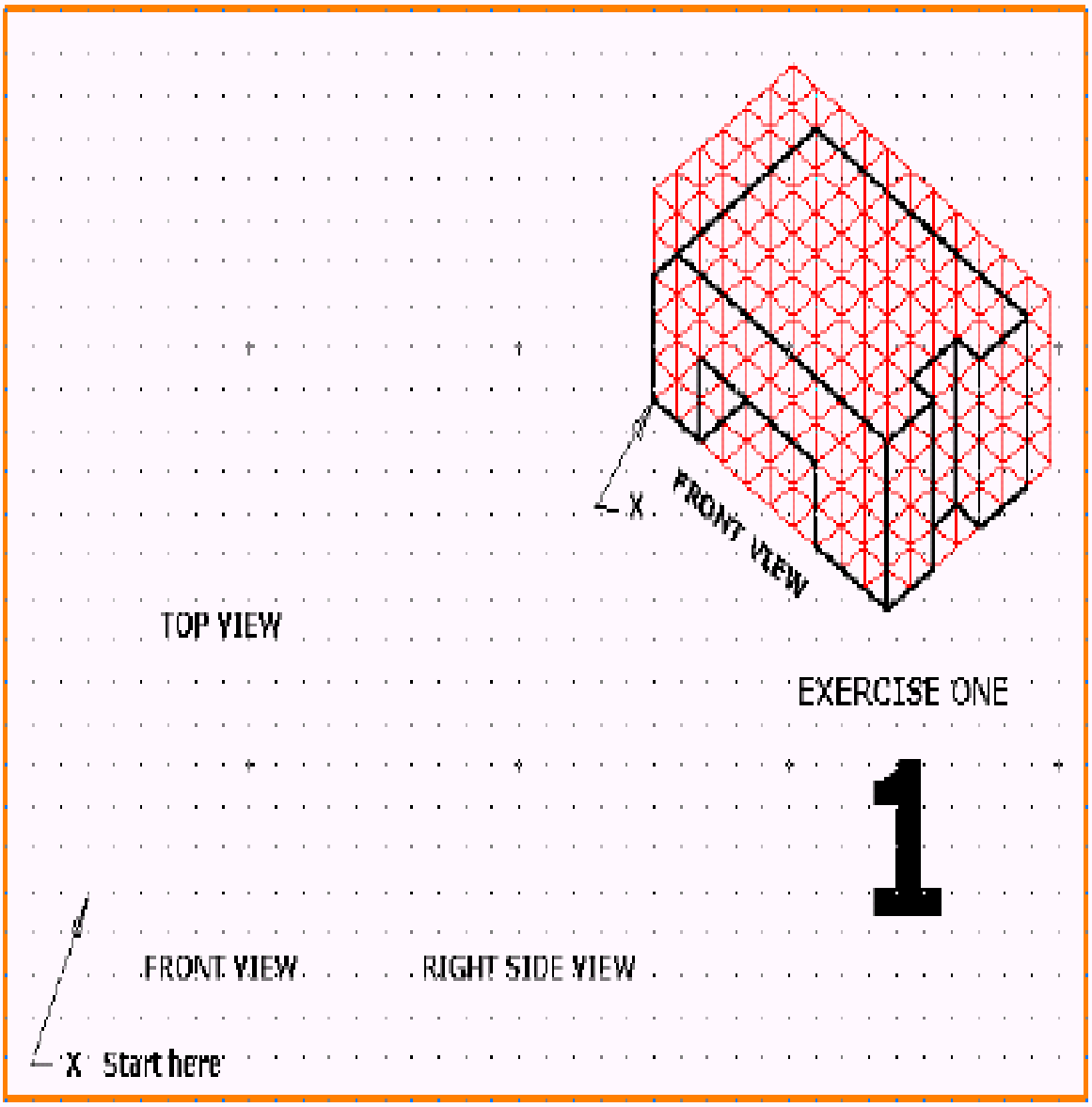




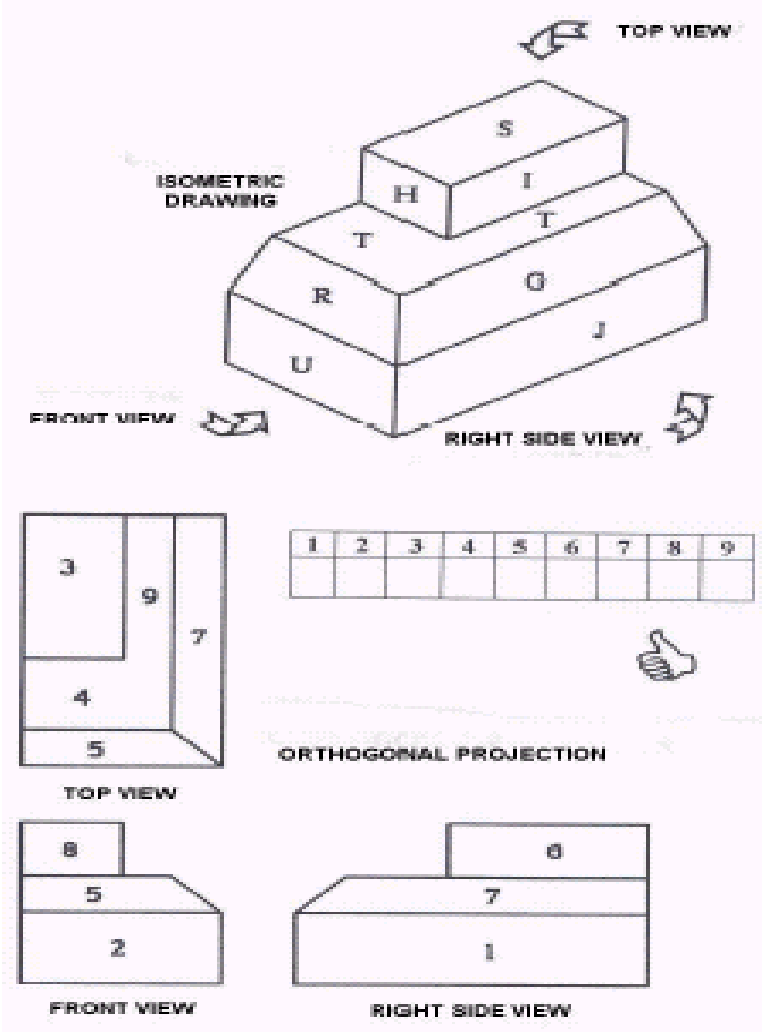
These views are now starting to look like orthographic views or projections. They are located in particular positions. They are always located in these positions. Floor plans for a house are really a special type of Top View.

Exercise 1: Creating the Orthographic Views

- Use the 3D isometric object to produce the 3 OPs (top, front, side)
- Use the grid system to keep all sizes and proportions correct.



Exercise 2: Identify the like surfaces between the lettered isometric and the numbered orthographic projection. (Place the Letter from the isometric into the numbered table of the Orthographic.) What does the correct answer spell?



Exercise 3: *Isometric & Orthographic Projection "Pre-Test"*

- Visit the following websites, follow the instructions and answer the questions.
- Show Ms. Doucette your "score" at the end of each session.
- Record your score in the space below
- Hint: You are able to rotate/orbit the objects to observe all sides

http://www.fi.uu.nl/toepassingen/00198/toepassing_wisweb.en.html

Score _____

http://www.fi.uu.nl/toepassingen/00207/toepassing_wisweb.en.html

Score _____

Exercise 4: *Point of View (Web Game)*

- Visit the following website

http://pbskids.org/cyberchase/games/pointofview/pointofview.html

- Complete each level by correctly drawing (in the grid area) each view of the individual characters on the screen.
- Hint: Carefully count the spaces and locations of the isometric (3D model) to insure the correct placement of the orthographic view.
- Challenge: *What level can you achieve?*

Exercise 5: Isometric/Orthographic Matching

- Study the two drawing types and complete the table by matching the numbered orthographic projections with the lettered isometric drawings.