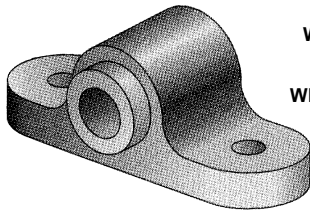


### What can you learn about this object from this drawing?

Could you build an accurate model only using this drawing?



What is its size?

What is it made of?

What does the other side of it look like?

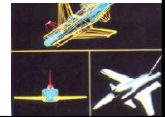
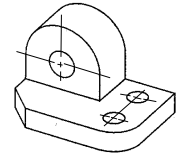
Are there any moving parts?

What is missing that you might need?

Source: <http://misskiley.pbworks.com/>

### Three Basic Types of Technical Drawings

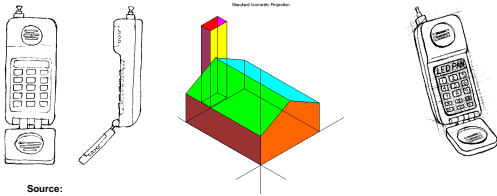
- Freehand sketches
- Instrument drawings
- Computer drawings and models



Source: <http://misskiley.pbworks.com/>

### Introduction to Projections

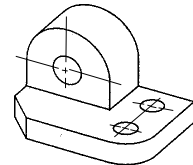
- Two Basic Categories
  - Presenting objects with 2-D media in 2-D or 3-D
- Orthographic and Isometric                      Pictorial



Source: <http://misskiley.pbworks.com/>

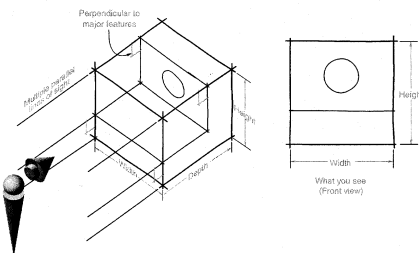
### Orthographic Projections

- The purpose of orthographic projections is to accurately represent object.
- Accurately, means to make a drawing from which it is possible to manufacture or reproduce the object only using the drawing as a guide.



Source: <http://misskiley.pbworks.com/>

### Orthographic Projection



Source: <http://misskiley.pbworks.com/>

### Which Views to Present?

#### General Guidelines

- The **Front View** that is which is the most descriptive of object.
- Has normally the longest dimension as the width (or length).
- Most common combination of views is to use: **Front, Top, and Side View**, Which ever gives all information you need to understand the object.
- Views other than the Principal Views are called **Auxiliary Views**.

Source: <http://misskiley.pbworks.com/>

Normally we use the front top or right side view only.

The 4 other views only repeat what we already can see in the these views.

These views can be seen by either physically or mentally rotating the object into the appropriate position to show the detail of the object visible form that view.

Source: <http://misskiley.pbworks.com/>

### Conventional Orthographic Views

Each view is constructed so that information (dimensions, and object edges, etc ..), are clearly related to the other views.

Source: <http://misskiley.pbworks.com/>

### Construction Lines

Construction Lines When a drawing is rendered, basic faint lines are drawn to provide a framework for the completion of the projection.

Although not part of the object, these lines provide the framework to construct the drawing of the object.

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### Dimension Lines

Dimension Lines display precise information about the size of the object.

Source: <http://misskiley.pbworks.com/>

### Object Lines

Object Lines Represent features that are only visible in the current view.

Source: <http://misskiley.pbworks.com/>

### Hidden lines

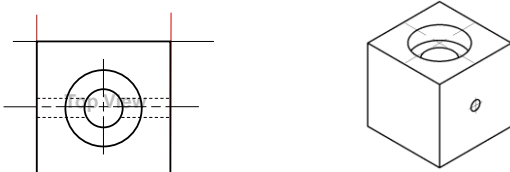
Hidden Lines represent features that cannot be seen in the current view. We show these unseen details, with dashed lines.

ALL Hidden or internal details must be included.  
What does the inside of this block look like?

Source: <http://misskiley.pbworks.com/>

## Center Lines

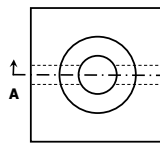
**Center lines** represent symmetry and mark the center of circles, the axes of cylinders, and the axes of symmetrical parts, such as bolts.



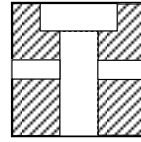
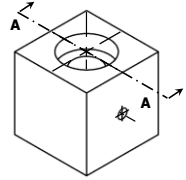
Again, though not part of the object, these lines are important elements of the objects dimension and construction.

Source: <http://misskiley.pbworks.com/>

## Sectioning of a view



The section line labeled A:A shows the arrows pointing in the direction to which you are observing the "cut" or section.



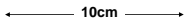
**Section Lines** Are used to represent where the object is to be "cut" or sectioned to reveal interior details. This is used when other views may not adequately reveal information about the object.

Source: <http://misskiley.pbworks.com/>

## Types of Lines in Orthographic Projections

**Construction lines** - Basic faint lines which are drawn to provide a framework for the completion of the projection.

**Dimension Lines** display precise information about the size of the object.



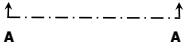
**Object Lines** - represent visible features for an object. They are the darkest and most present.

**Hidden Lines** - represent features that cannot be seen in the current view. They are as dark as the object lines.

**Center lines** - represent symmetry and mark the center of circles, the axes of cylinders, and the axes of symmetrical parts, such as bolts

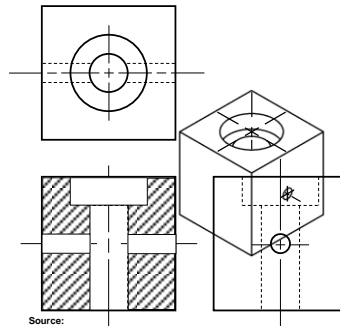
**Section Lines** Are used to represent where the object is to be "cut" or sectioned to reveal interior details. This is used when other views may not adequately reveal information about the object.

Source: <http://misskiley.pbworks.com/>



## Review: Major views used in orthographic projections.

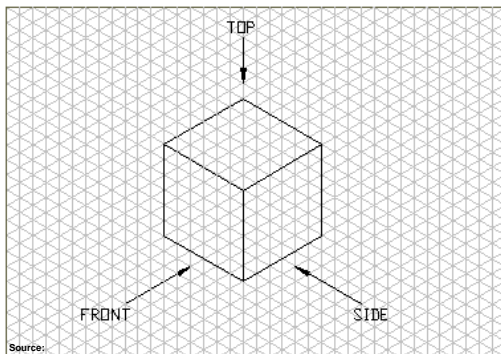
Isometric View



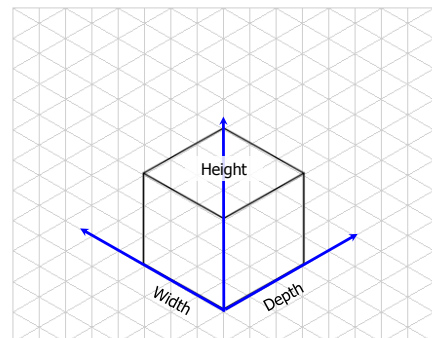
Source: <http://misskiley.pbworks.com/>

1. Object
2. Hidden
3. Center
4. Sectional

## Isometric Drafting



Source: <http://misskiley.pbworks.com/>



Source: <http://misskiley.pbworks.com/>