

PROJECT LEAD THE WAY

**PLTW**

## **Sketching Practice**

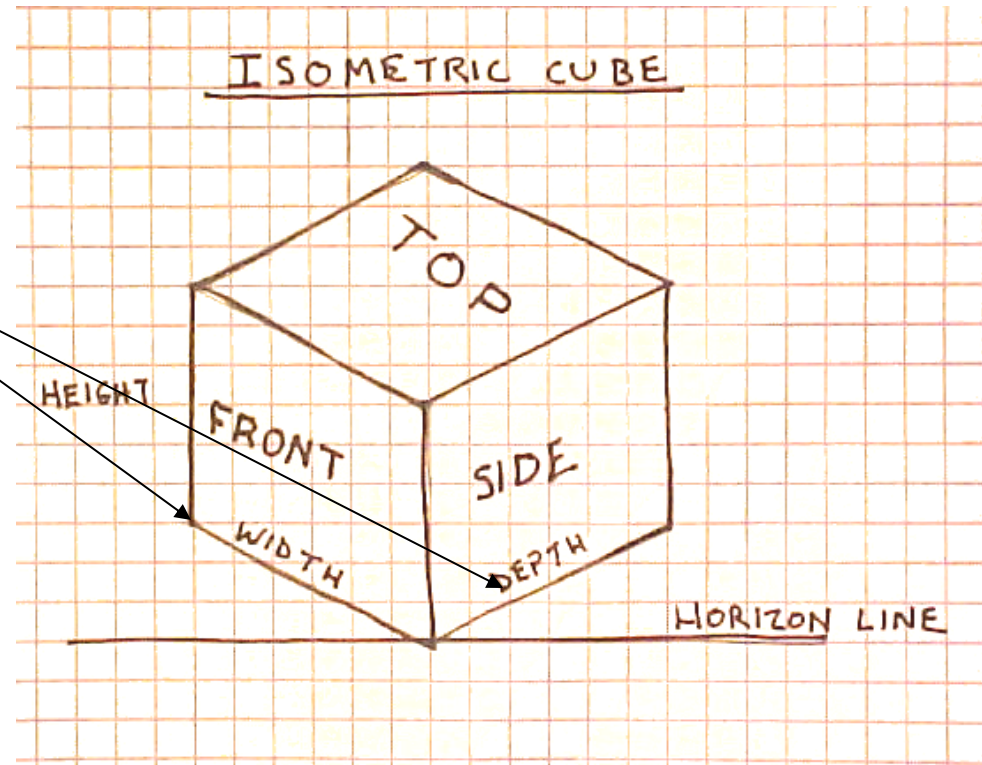
**“One picture is worth a thousand words.”**

# Pictorial Sketches

- Show shape of object
- Show height, width, and depth
- Common types:
  - Isometric
  - Perspective

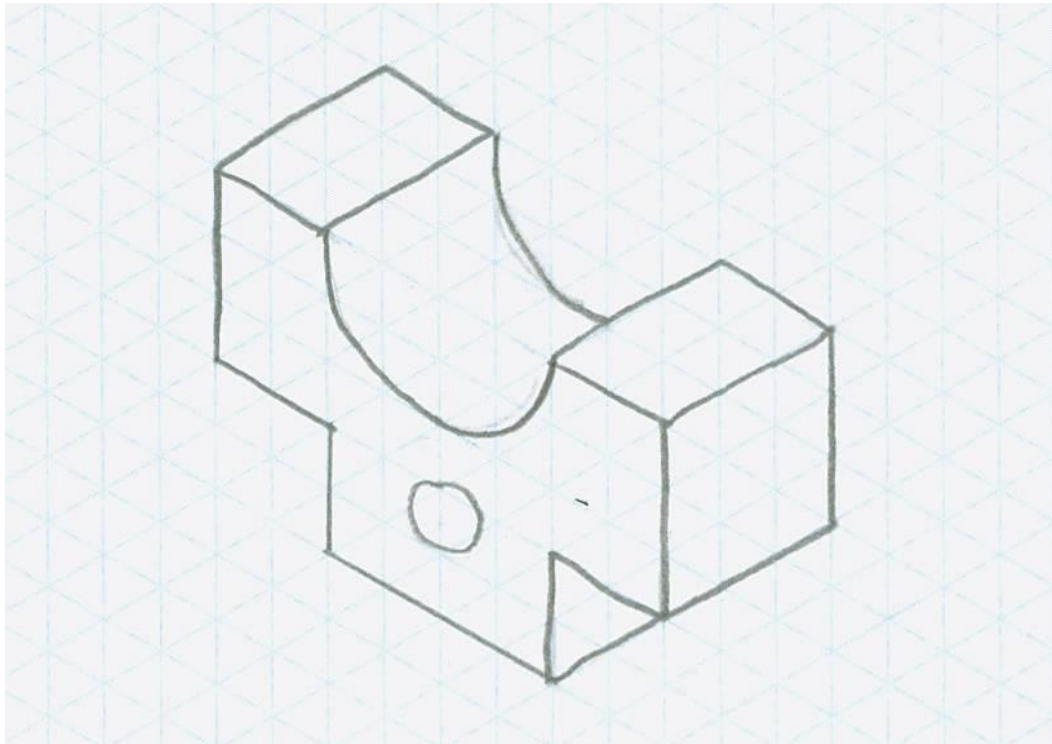
# Isometric Sketch

- Width and depth lines are drawn at  $30^\circ$  from the horizon line.
- One view shows height, width, and depth.



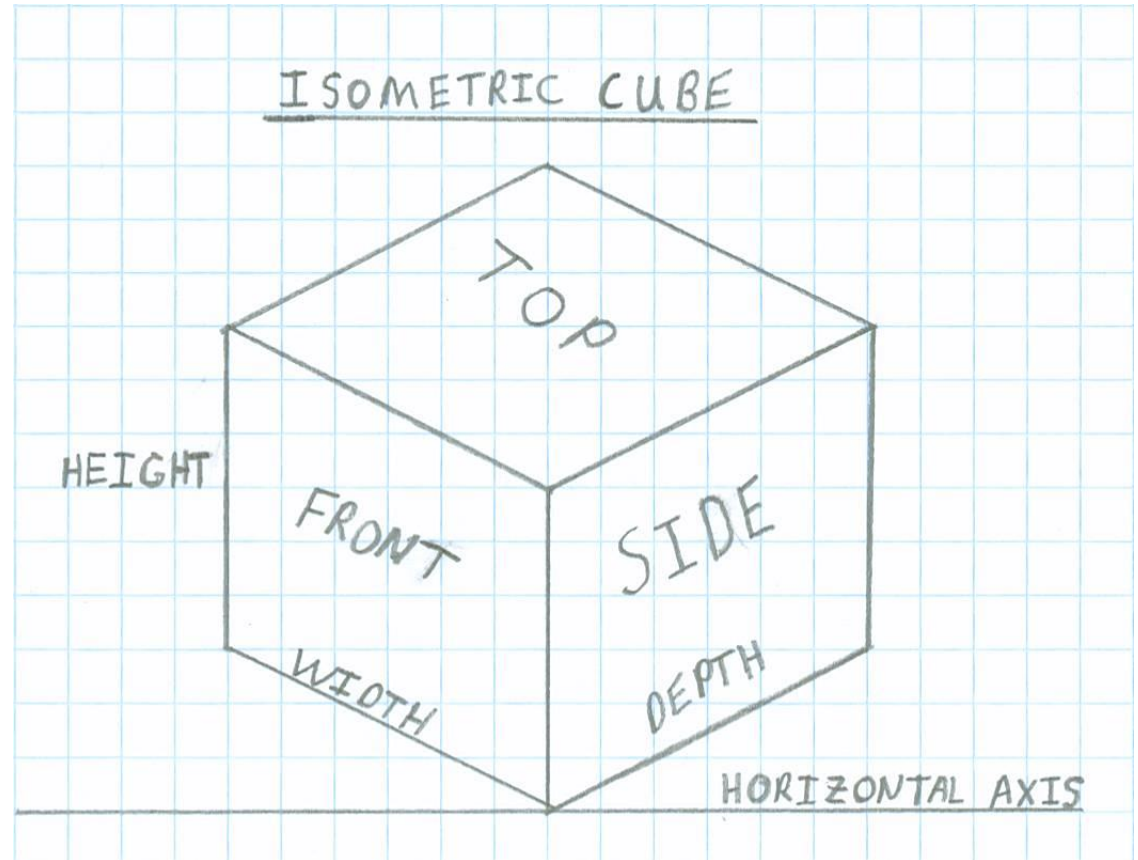
# 3D Sketching Techniques

## Isometric Grid Paper

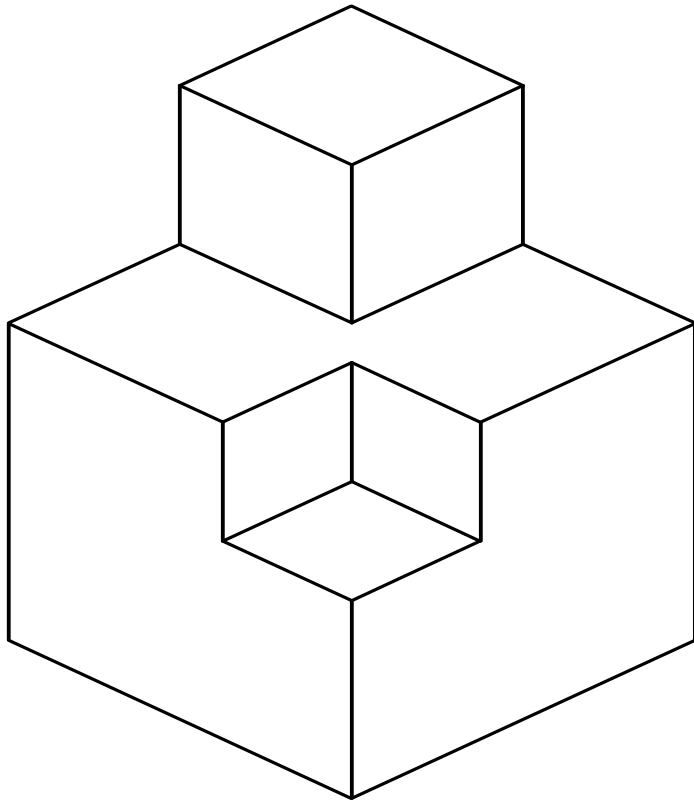


# Thumbnail Isometric Sketch

Copy and label this cube on your isometric axis.



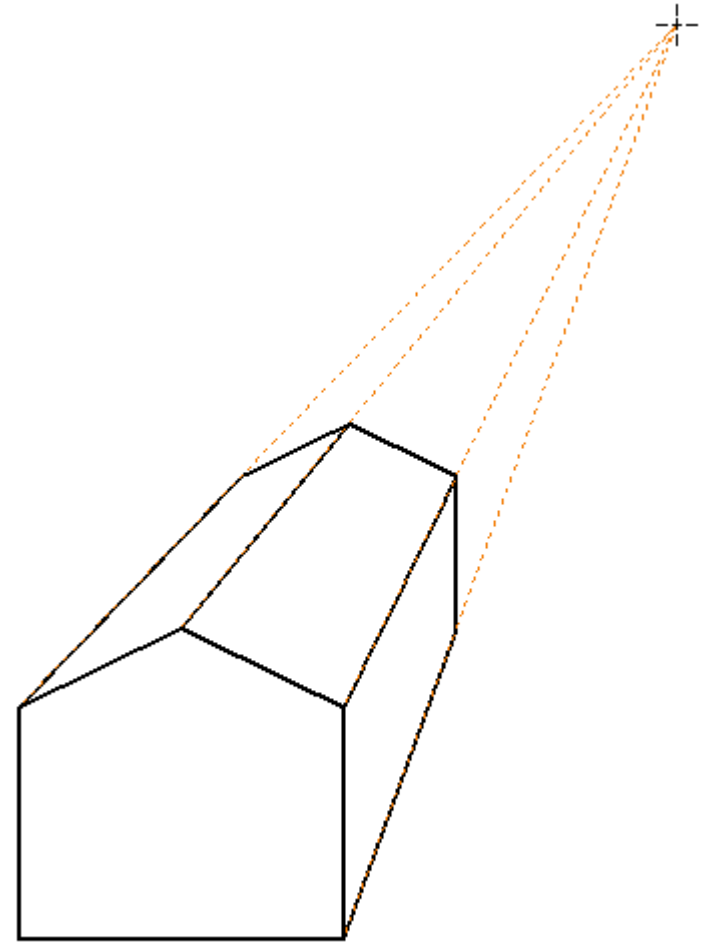
# Isometric Thumbnail Sketch



- Additive and Subtractive 3D sketch
- Follow the steps in your activity to complete this drawing on the isometric graph paper.

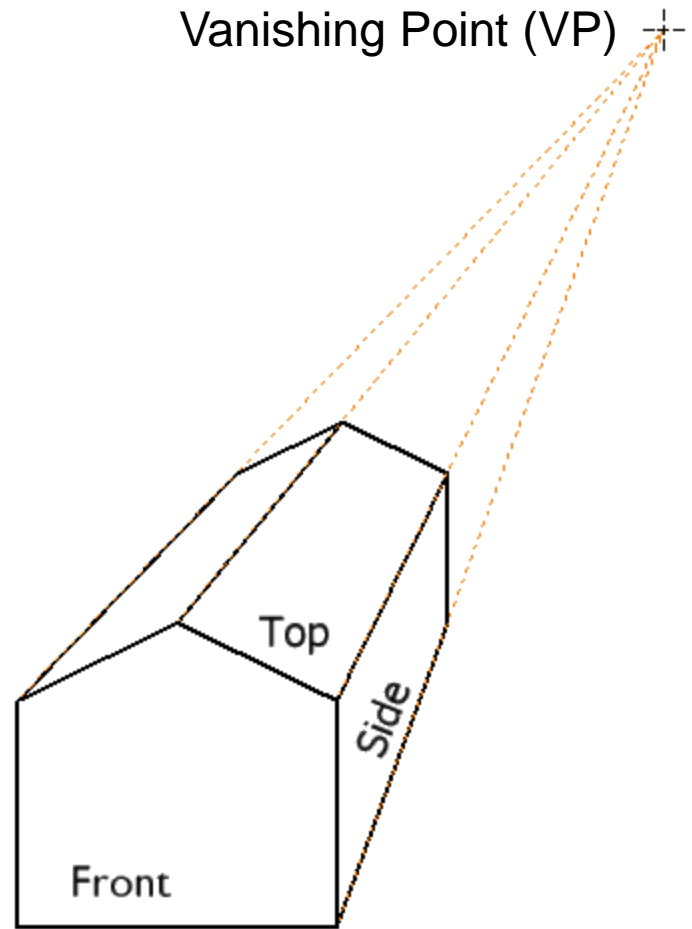
# Perspective

- Perspective is a way to draw that shows a view of the object in the most realistic way.
- Vanishing points are used to guide the lines in the object to the horizon line or the horizontal line you see at your line of sight.



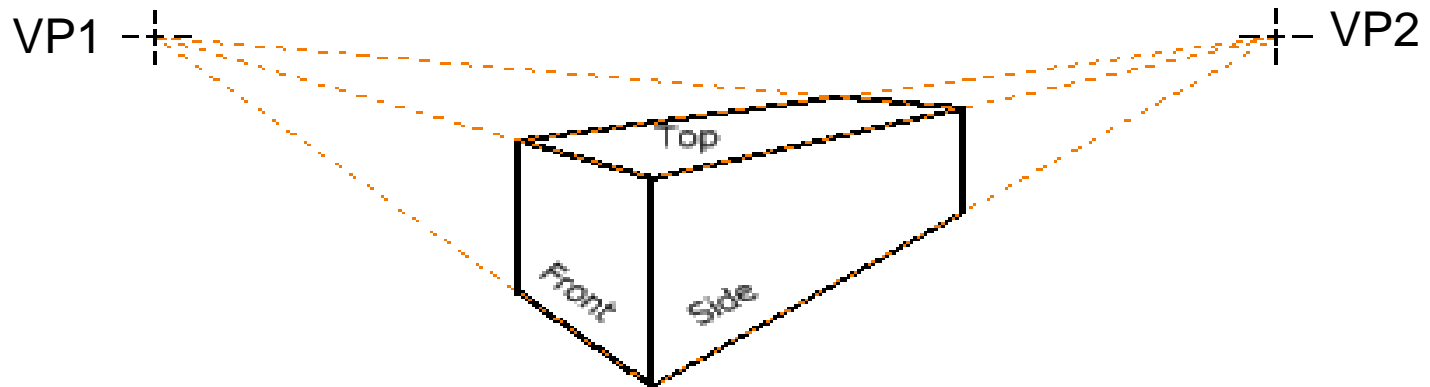
# One-Point Perspective

- All lines in the depth project to one point (the vanishing point).
- The location of the vanishing point is based on your line of sight.
- Copy this one-point perspective sketch onto your activity. Label the front, top, and right side.



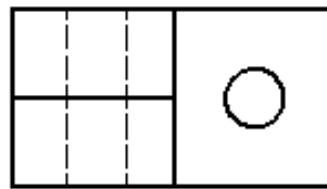
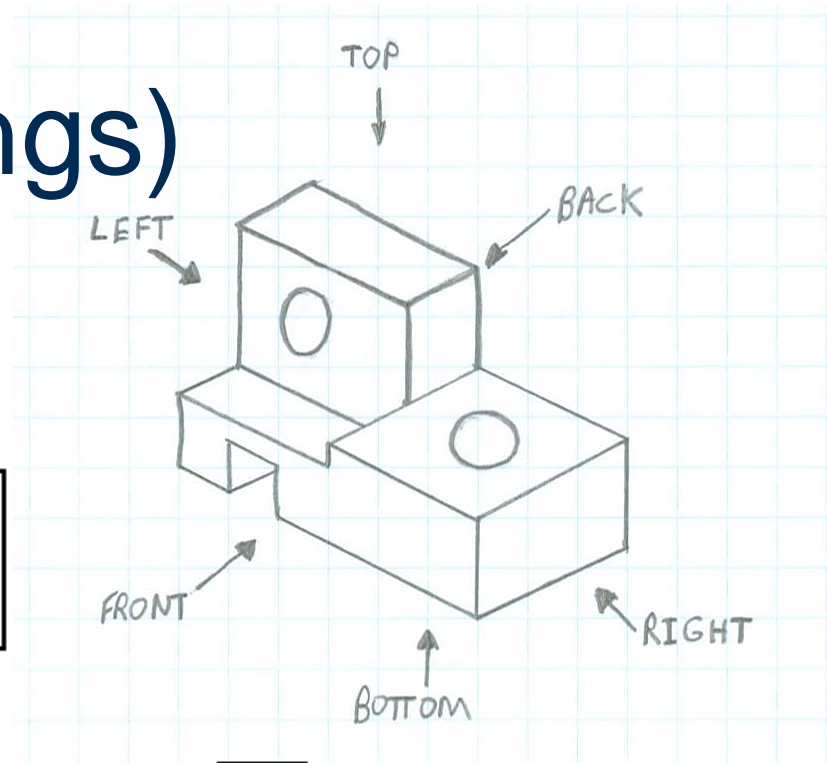


# Two-Point Perspective

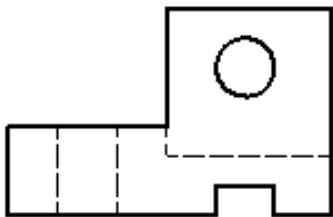


- In two-point perspective, the width lines converge on one vanishing point (VP1), and the depth lines converge on the other vanishing point (VP2).
- Copy this two-point perspective onto your activity sheet. Label the top, front, and side.

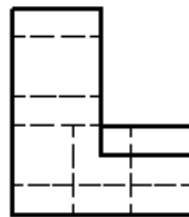
# Orthographic (Multiview Drawings)



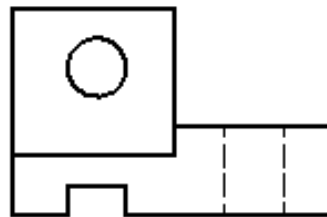
Top



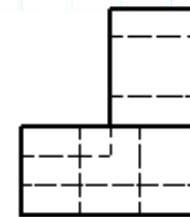
Back



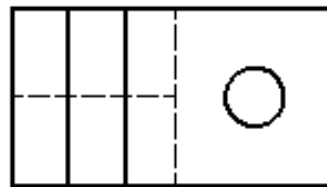
Left



Front



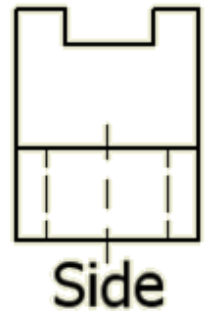
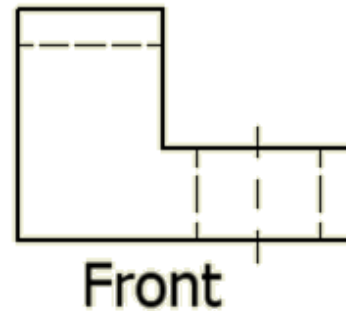
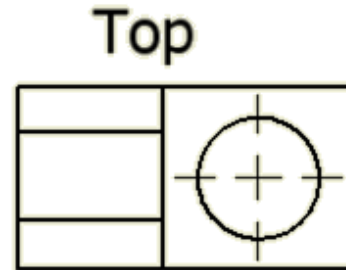
Right



Bottom

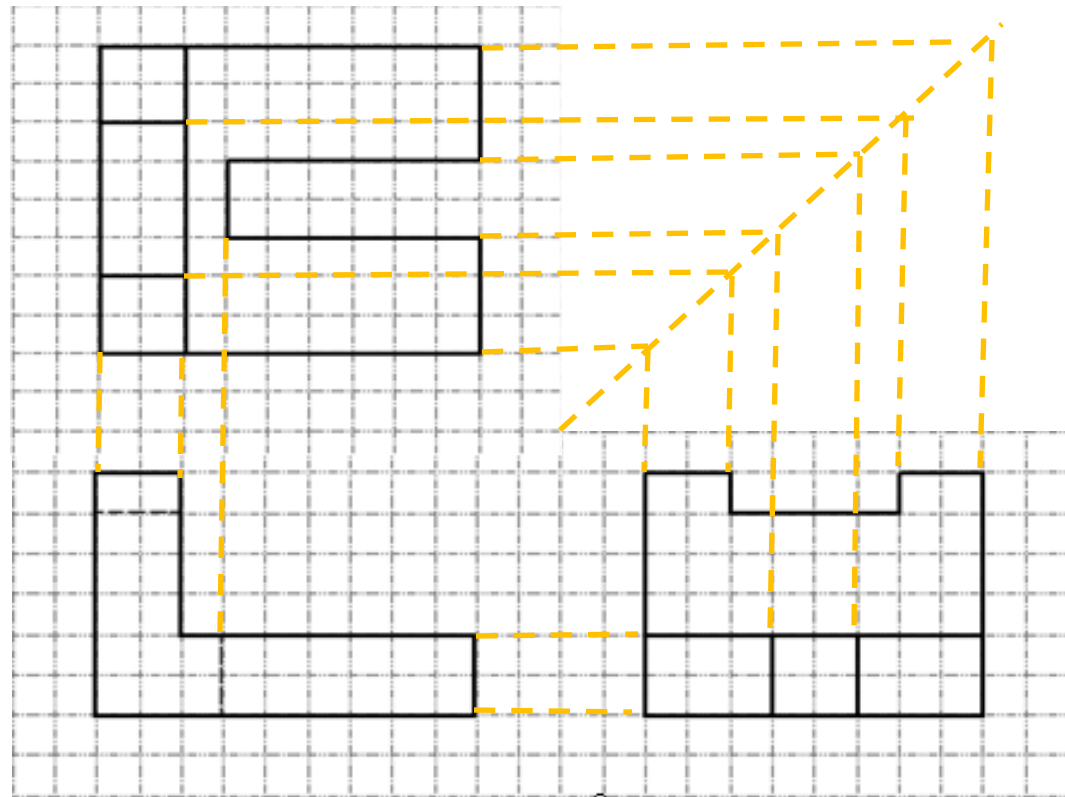
# Orthographic (Multiview) Sketching

- An orthographic sketch is used to show true size and shape.
- Each view is adjacent to the other as if unfolded from a 3D shape.
- Notice the top view is directly above the front with the right side view directly to the right of the front.



# Orthographic (Multiview) Sketching

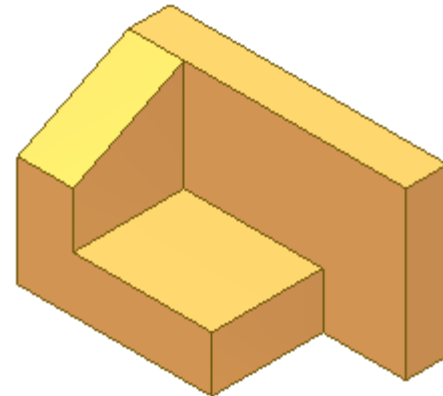
- Copy this orthographic sketch onto your activity sheet. Label the top, front, and right side.
- Don't forget the hidden lines.



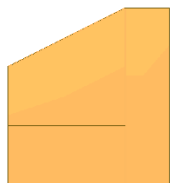
# Orthographic – View Selection

Characteristics for selecting the front view

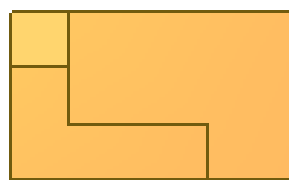
- Best shape & details
- Longest dimensions
- Fewest hidden lines
- Most natural position



Which view do you think should be the front?



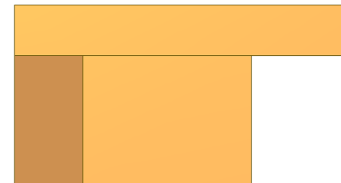
1



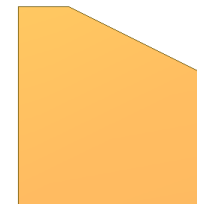
2



3



4



5

# Precedence of Lines

- Object lines exist over hidden and center lines.
- Hidden lines exist over center lines.

