

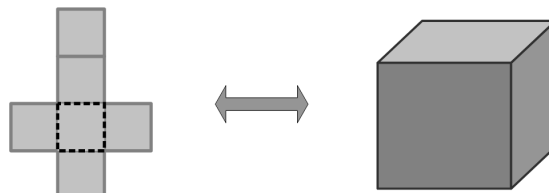
Handout #1

SS-IV3DS: Identifying and Visualizing 3D Shapes



Into

Talk About . . .



LESSON OBJECTIVE

When you complete this lesson, you will be able:

- To identify common 3D shapes from drawings.

- To identify common 3D shapes that need to be 'folded'.

• **1D, 2D, 3D.** For example: *1D is when you walk in a straight line, back and forth. 2D is like paper, a drawing -- you can move up and down and left and right. 3D is like the real world. You can go up and down, left or right, and forward or back.*

• **We Already Know 2D Shapes.** For example: *We already know the names of 2D shapes, right? Like squares, rectangles, circles, and triangles. Today, we're going to learn the names and properties of a 3D shapes.*

• **Today We'll Look at 3D Shapes That Have A Volume.** For example: *3D shapes have a volume. Remember, 2D shapes -- like squares or triangles -- have an **area** and 1D shapes -- like a line -- have a length. Volume is a **measure of how much space something takes up**.*

3D shapes have a volume:

true | false

We live in a 2D world:

true | false

REVIEW

Below, draw a square:

Below, draw a triangle:

Below, draw a line:



On the above shapes, label them as either '1D' or '2D'.



In your own words, define **area**:

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“ Definitions: Common 3D Shapes

Here are some very common 3D shapes along with their names and proprieties:

NOW YOU KNOW!

Unlike **two dimensional shapes** like squares and triangles, **three dimensional shapes** have a **volume**.

That is, they **take up three dimensional space**.

DEFINITION: 1D, 2D, 3D

'1D' stands for **one dimensional**.

'2D' stands for **two dimensional**.

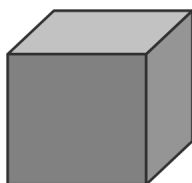
'3D' stands for **three dimensional**.

People use the shortcut '3D' all the time -- like when they say, "Hey, did you see that 3D movie yet?"



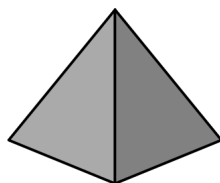
Box (Rectangular Solid). Must have **six sides**. Opposite sides are equal in area and perimeter.

Every angle is a right (90°) angle.



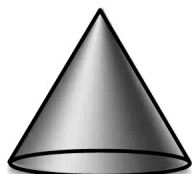
Cube. Must have **six sides**. All sides are equal in area and perimeter.

Every angle is a right (90°) angle.



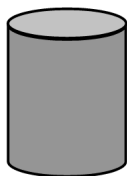
Pyramid. Must have four sides.

All sides are flat triangles.



Cone. Must have two continuous surfaces.

The bottom is a flat circle.



Cylinder. Must have three continuous surfaces.

The bottom and the top are flat circles. The middle is a tube.



Sphere. Has only one continuous surface and forms a perfectly symmetric ball.

Every point is **equal distance** from the center.

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Investigate: Folding 2D into 3D Shapes

DIRECTIONS

Attached to this handout are some **three dimensional shape cutouts**. Take them and cut them out along the dotted lines.

With your tutor, fold the flat shapes into **three dimensional shapes**. Use them to answer the questions to the right.

First, fold your shapes. Then fill in the table below:

Shape Letter	Three Dimensional Name of Shape
A	
B	
C	
D	
E	

- Q1** What separates a **cone** from a **pyramid**?
- Q2** Is a **cube** also a **box (rectangular solid)**?
- Q3** There was no **sphere** shape. Why do you think that was?
- Q4** Put your shapes away. Now draw a cube **spread out flat on a piece of paper** (like the one you folded):
- Q5** Now draw a pyramid **spread out flat on a piece of paper** (like the one you folded):

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Say It

In your own words, talk about the difference between 2D and 3D?



Do 3D shapes have an **area** or a **volume**? Explain the difference between area and volume in your own words:



Closure

Today, we learned about some 3D shapes and worked on visualizing them from a folded piece of paper.

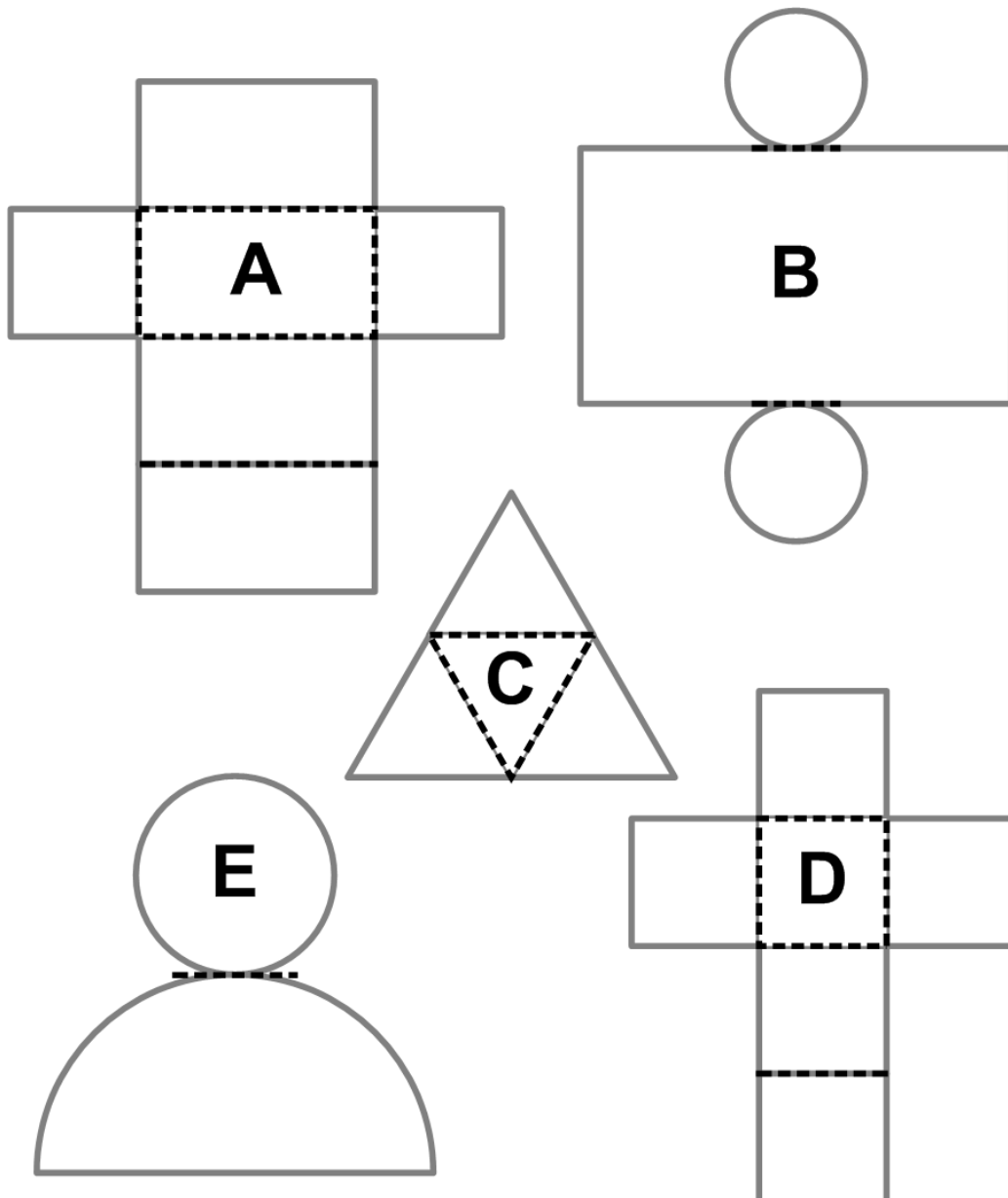


Which shape do you find the hardest to remember?

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-- cutouts --



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-- cutouts --

