1-1 Nets and Drawings for Visualizing Geometry

How can two-dimensional figures be used to visualize three-dimensional objects?

- ➢ You can represent a three-dimensional object with a two-dimensional figure using special drawing techniques.

- • Read pages 4 – 7.

Key Concepts:

Identify a solid from a net.

Draw a net from a solid.

Advanced: recognize isometric and orthographic drawings.

Vocabulary

- - Net
- - Solid

Skills:

You will be given a net from which you will identify the related solid.

You will be given a solid from which you will draw a net.

Common Core State Standards:

G-CO.A.1: Know precise definitions of angle, circle, perpendicular line, parallel line and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.

What is Geometry?

Name: Date:
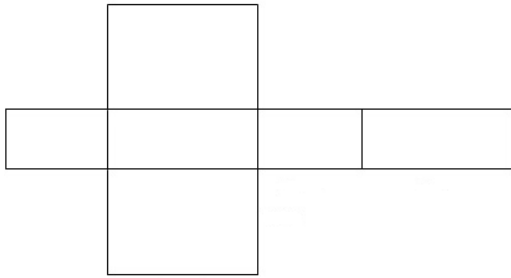**1-1 Nets and Drawings for Visualizing Geometry**

Geometry is the visual study of shapes, sizes, patterns, and positions.

It is concerned with the properties and relationships of:
-    points, lines, angles, curves, surfaces, and solids

Topic 1: Identifying a Solid from a Net

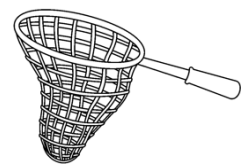Look at these two objects: what descriptions can you think of for each of them?

The first picture is called a _____. It is a two-dimensional diagram that can be folded to form a three dimensional figure.

A net shows all the _____ of a figure in one view.

In Geometry, we use the term _____ for a three-dimensional figure.

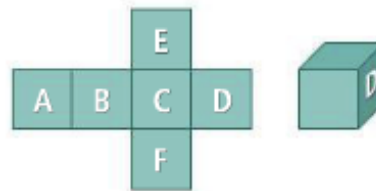*Please don't confuse a net in Geometry with something you take fishing.*

1-1 Nets and Drawings for Visualizing Geometry

The net at the right folds into the cube shown beside it.
Which letters will be on the top and front of the cube?

A, C, E, and F all share an edge with D
when you fold the net, but only two of
those sides are visible in the cube shown.

A wraps around and joins with D to become the back of the cube.
B becomes the left side. F folds back to become the bottom.

E folds down to become the top of the cube. C becomes the front.

Try it with net being provided to you. Cut out the net and fold.
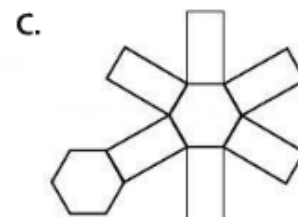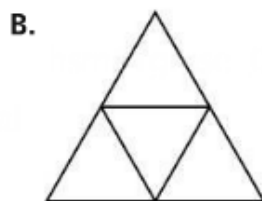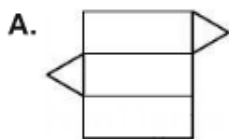
Got It?   Using the same net shown above is folded as shown at the right.
          Which letters will be on the top and right side of the cube?

Try it first in your head just looking at the head, then verify with cut-out provided.

Practice, page 7

Match each three-dimensional figure with its net.

6.

7.
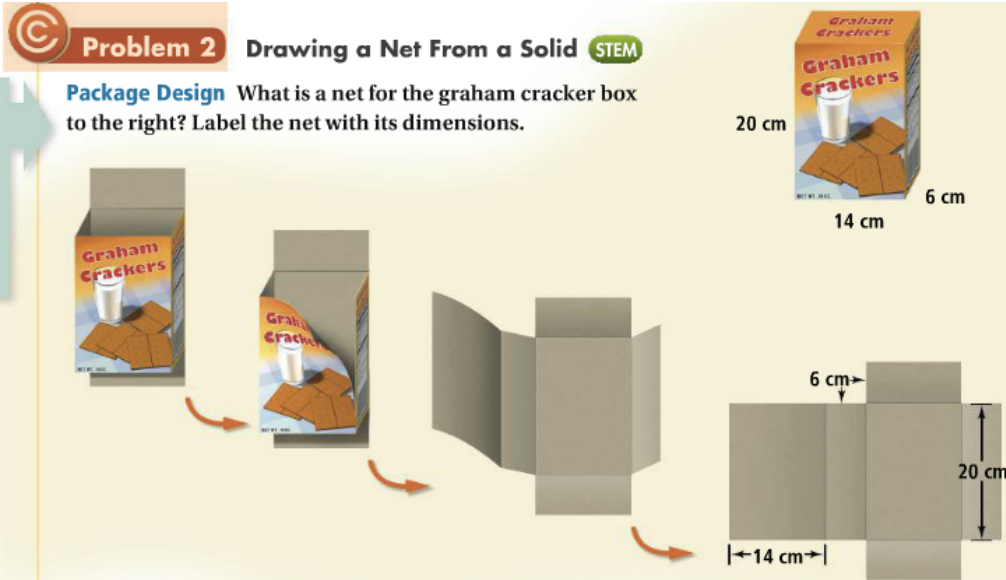
8.

A.

B.

C.

Topic 2: Drawing a Net from a Solid

The value in a net is that you can see all the measurements for all the surfaces in one diagram.

You can create your own net from a solid (remember a solid is a three-dimensional figure).

Notice how in the example above, we unfolded the solid down into its net.
-    Please notice how the original dimensions of the solid are carried over to the net.

Got It? 2. a. What is a net for the figure at the right? Label the net with
         its dimensions.
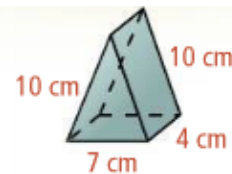
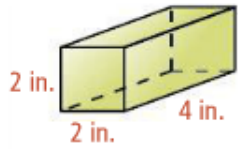What different 2-dimensional figures do you see in this net?
<u>Practice</u>: page 7
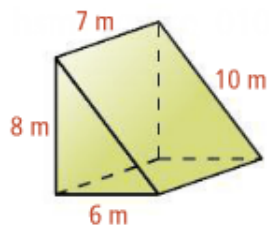
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Use the space below to show your work.

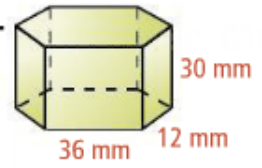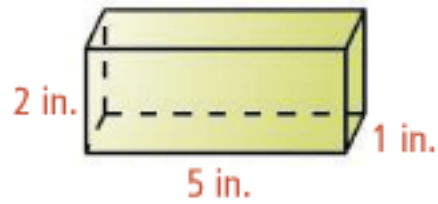**Draw a net for each figure. Label the net with its dimensions.**

9.

2 in.

2 in.

4 in.

10.

7 m

10 m

8 m

6 m

11.

30 mm

36 mm   12 mm

1. What is a net for the figure below? Label the net with its dimensions.

2 in.   1 in.

5 in.

Practice: page 8

Manufacturing Match the package with its net.

24.   25.   26.

A.   B.   C.