Nets

Information

Common core icons

This icon indicates a slide where the Standards for Mathematical Practice are being developed. Details of these are given in the Notes field.

Slides containing examples of mathematical modeling are marked with this stamp.

This icon indicates an opportunity for discussion or group work.

The **Standards for Mathematical Practice** outlined in the Common Core State Standards for Mathematics describe varieties of expertise that mathematics educators at all levels should seek to develop in their students.

These are:

1) Make sense of problems and persevere in solving them.

2) Reason abstractly and quantitatively.

3) Construct viable arguments and critique the reasoning of others.

4) Model with mathematics.

5) Use appropriate tools strategically.

6) Attend to precision.

7) Look for and make use of structure.

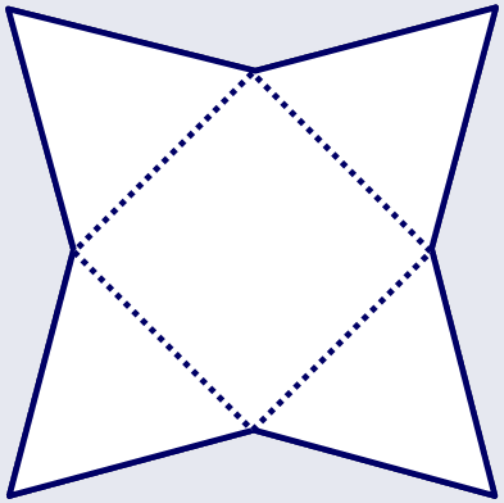
8) Look for and express regularity in repeated reasoning.

This icon indicates that the slide contains activities created in Flash. These activities are not editable.

This icon indicates teacher's notes in the Notes field.

Introducing nets

Here is an example of a net:



A net is a 2-D representation of a 3-D shape.

If you cut this shape out and folded it along the dotted lines, you could stick the edges together to make a 3-D shape.

Can you tell which 3-D shape this net would make?

Folding a net

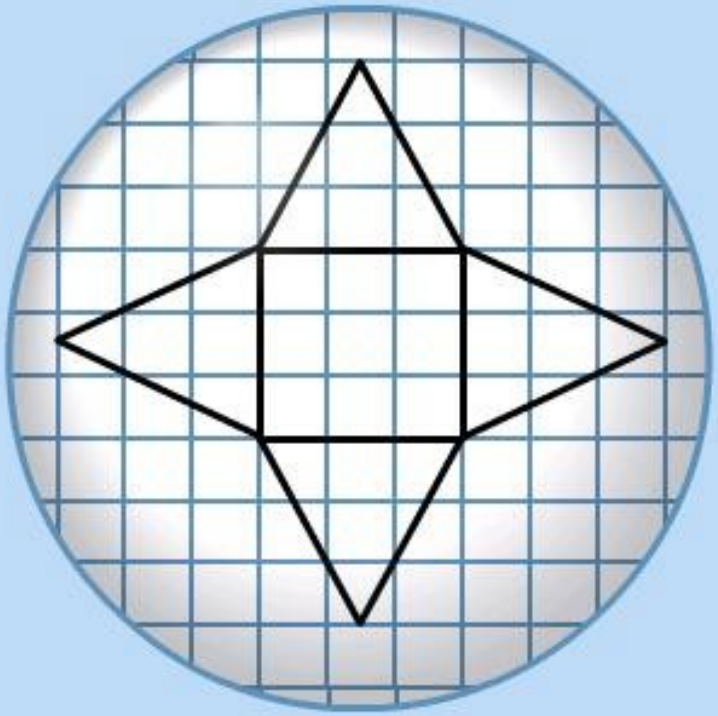
Press play to watch the net being folded.

Which 3-D shape?

Can you figure out which 3-D shapes these nets will make?

Press **start** to begin.

start



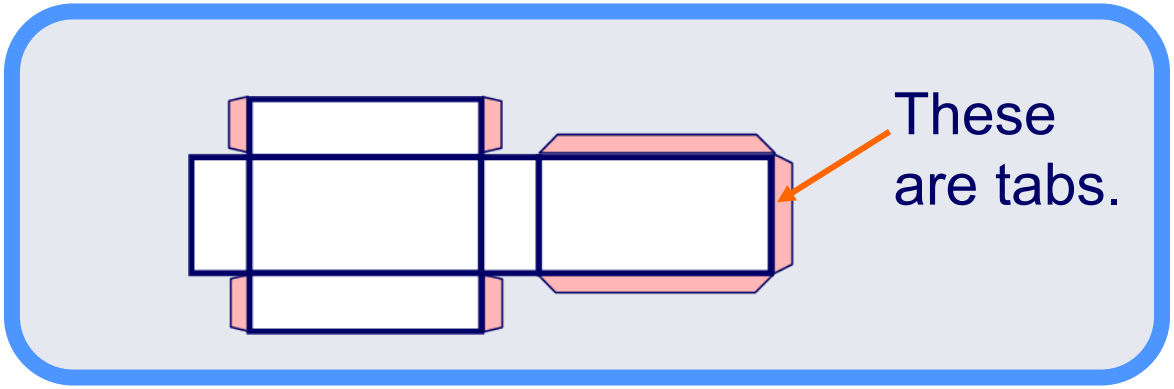
Constructing nets

Before constructing an accurate net of a solid shape, it is a good idea to make a sketch of how we expect the completed net to look.

Remember, in math, a sketch is a diagram that is not drawn to scale. We should still use a ruler to do this.

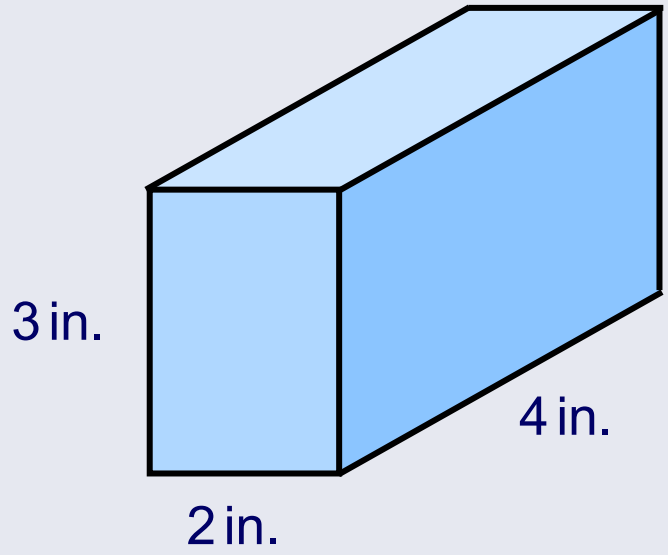
Suppose we want to construct the net of a rectangular prism of length 4 in., width 2 in. and height 1 in.

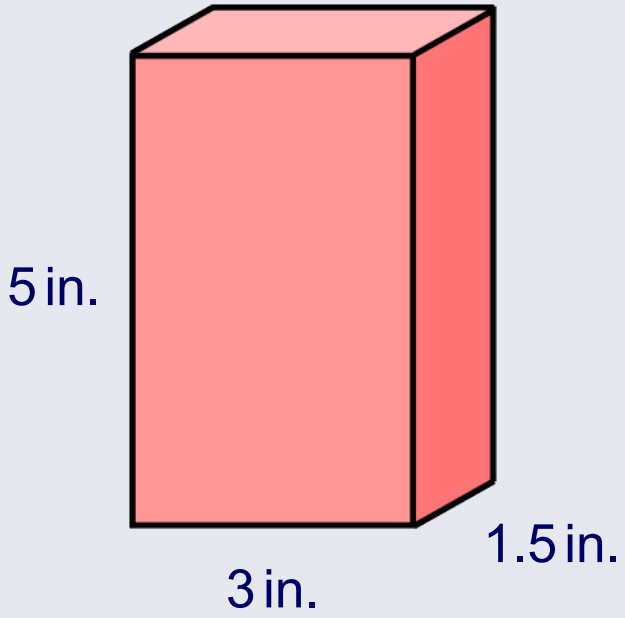
We can sketch the net as follows:



Construct a rectangular prism

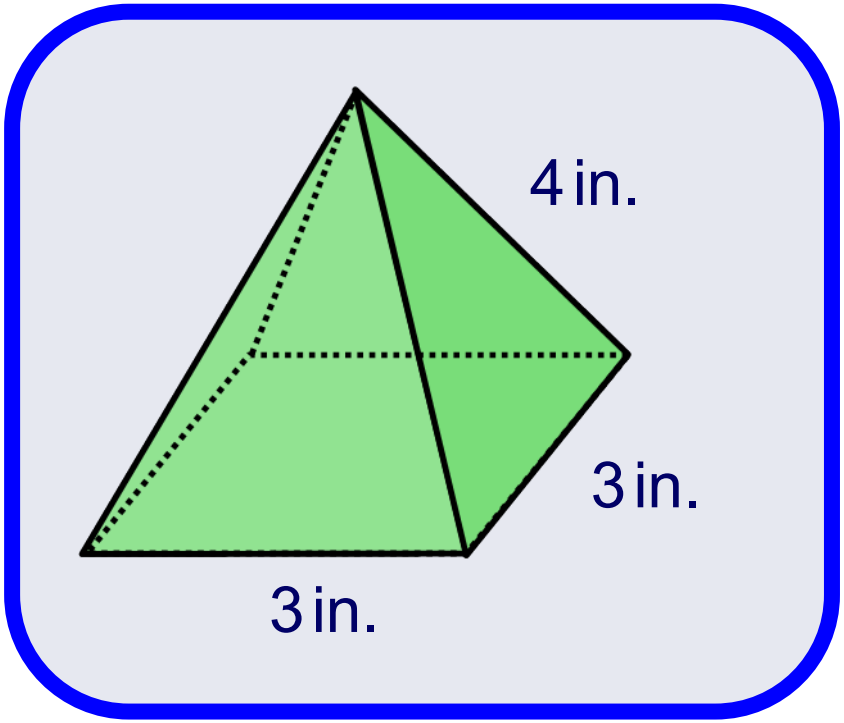
Construct nets for the following prisms on plain card.



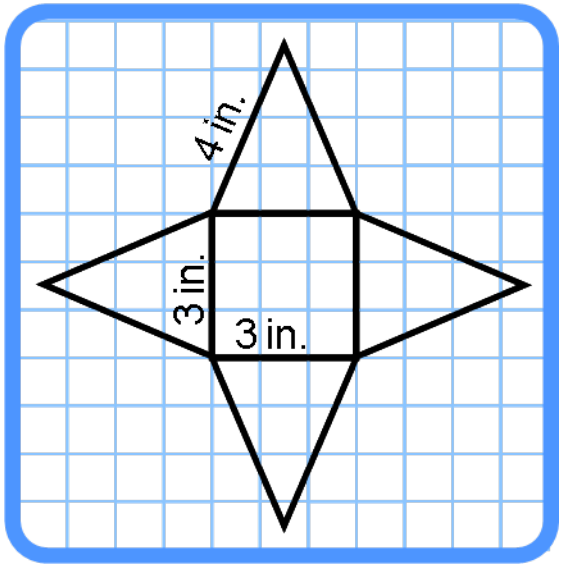


Construct a square pyramid

Construct the net of a square-based pyramid with base 3 in. by 3 in. and sloping edges of length 4 in.

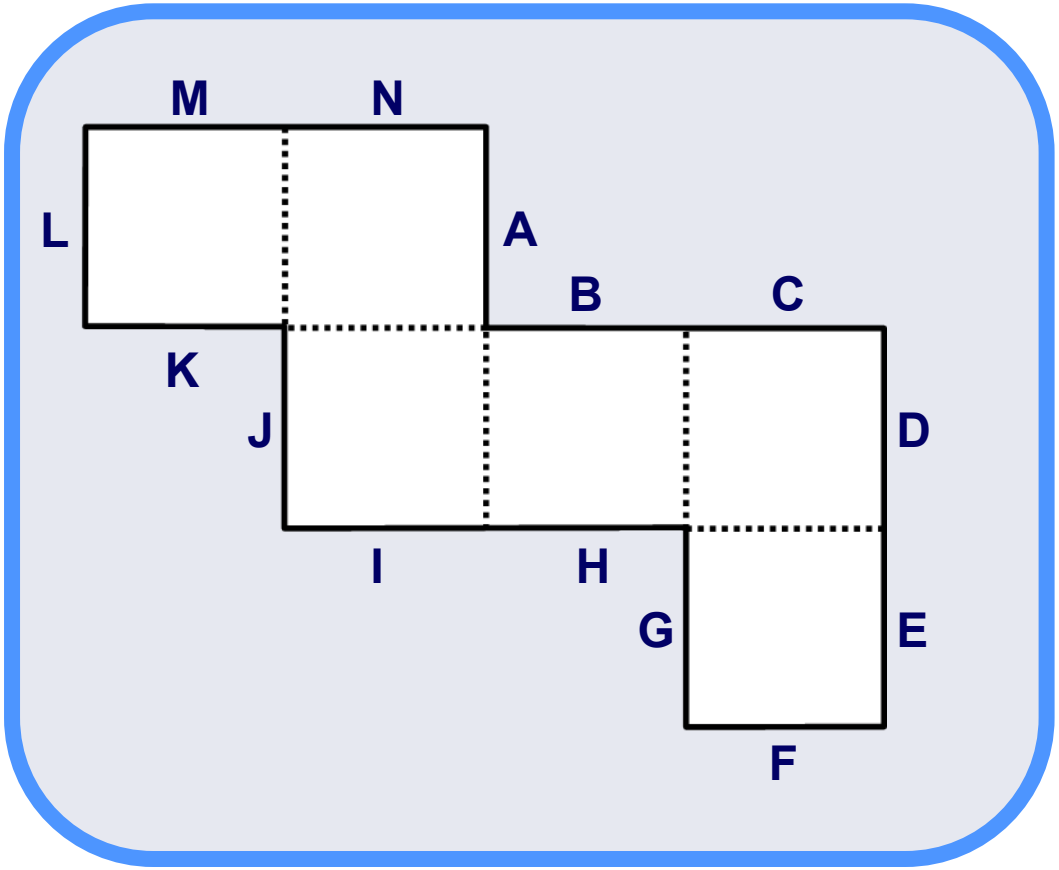


Your sketch should look something like this.



Nets of cubes

Here is a net of a cube. When the net is folded up, which sides will touch?



A and B

C and N

D and M

E and L

F and I

G and H

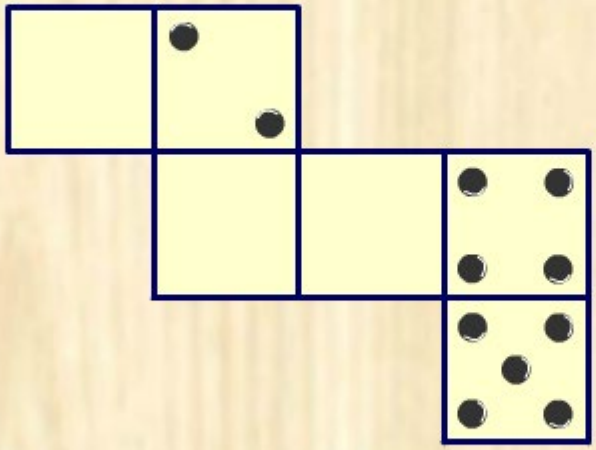
J and K

Which nets will make a cube?

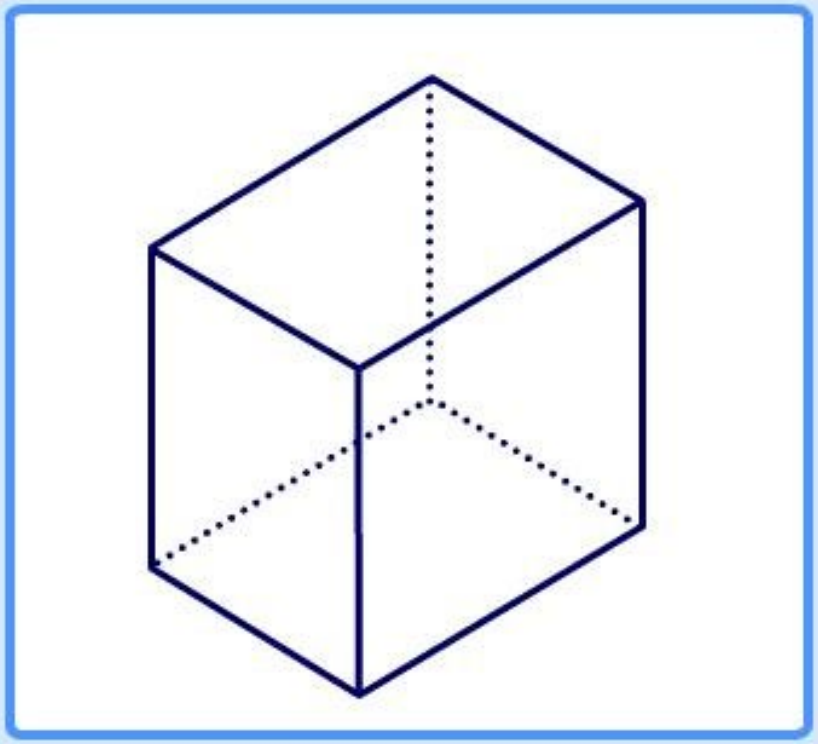
Decide whether each net will make a cube.

Nets of dice

Drag the faces into place to complete each net.



Calculating surface area

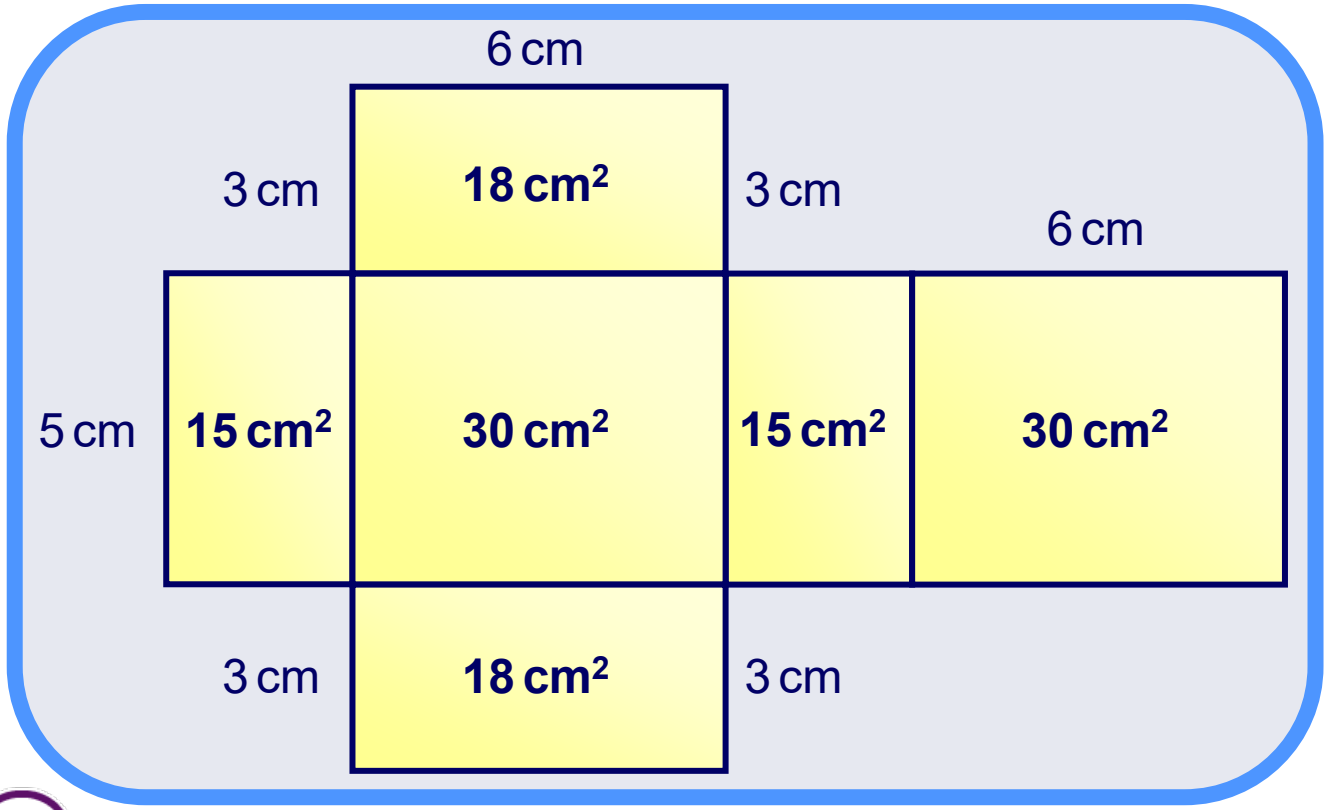


To find the **surface area** of a shape, we calculate the total area of all of the faces.

Using nets to find surface area

It can be helpful to use the net of a 3-D shape to calculate its surface area.

Here is the net of a 3 cm by 5 cm by 6 cm rectangular prism.



Write down the area of each face.

Then add the areas together to find the surface area.

Surface area = **126 cm²**

Surface area of Mount Wilson

Mount Wilson is part of the Rocky Mountains in Colorado.

In winter, the mountain is covered in snow. It is 4,300 m tall and 8,000 m wide.

What area of the mountain is covered in snow?