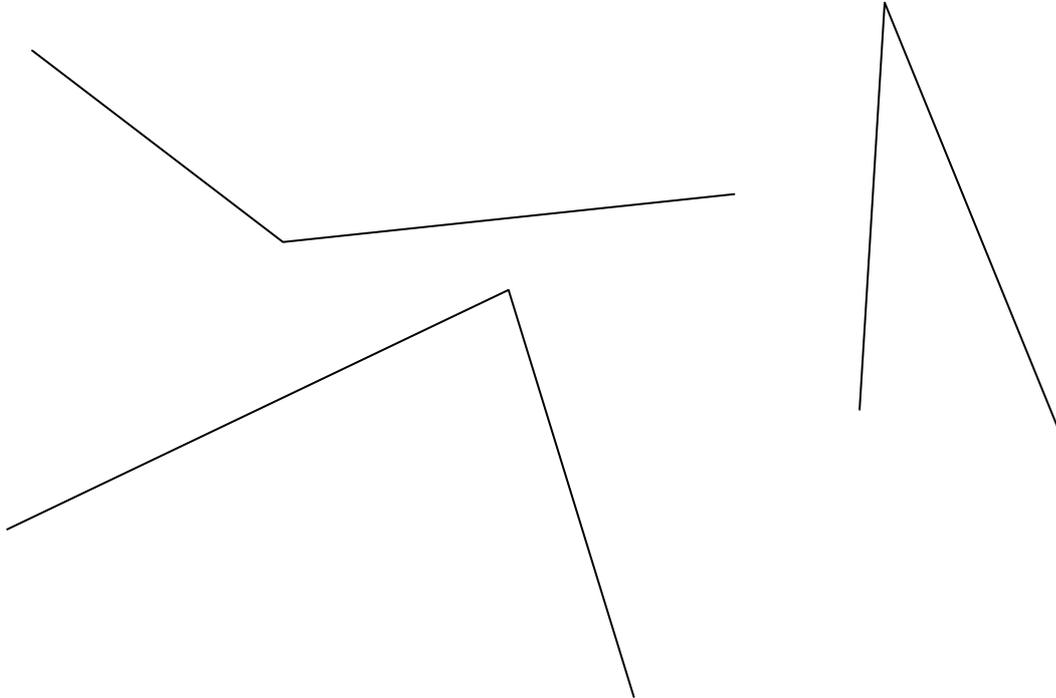# E11. Using a protractor

Use a 360° protractor to measure the following angles, and write the number of degrees beside each one. Remember to include measurements for both the inside and outside angles.

Use a 360° protractor to draw the following angles. Write the measurement beside each angle.
1. 55°
2. 105°
3. 155°
4. 205°
5. 255°
6. 300°
7. 355°

BACKWARDS QUESTION:
What would an angle of 450° look like?

K7. Subfamilies of triangles

Families of shapes have subfamilies. Compare the family of shapes shown below. Answer the questions to group these into subfamilies.

Write the letter of the shapes which fit into the following subfamilies. Some of the shapes are in multiple subfamilies.
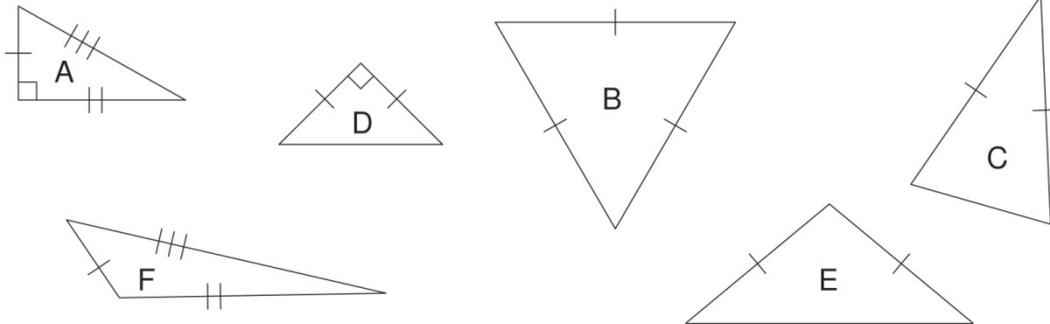
Triangles: All closed shapes that have three straight sides

Equilateral triangles: Triangles that have three equal sides, and three equal angles

Isosceles triangles: Triangles that have two equal sides and two equal angles

Scalene triangles: Triangles that have three different sides and three different angles

Right angled triangles: Triangles that have a right angle

BACKWARDS QUESTION:
What category would the following triangle be: side of 3cm, side of 4cm and a side of 5cm. Draw it and measure the angles. Give reasons for your answer:

Wednesday: At-home Investigation

This lesson allows your child to think about how 3D objects can be represented with 2D shapes.

You will need:
- Some small 3D objects such as:
  - A rectangular prism or a cube (box for cards, box of baking powder, dice)
  - A cylinder (empty cardboard roll, spice jar, can of tomatoes)
  - Something with a triangular face if you can find one (Toblerone, a pyramid)
- Lots of paper (you can use old paper, newspaper or recycling)
- Scissors and tape
- Camera or phone to take a photo of the original object and the folded-up-net next to it.

Students will need to make "nets" of the shapes you provide. They can do this by tracing around each face, turning the shape, then tracing the next face etc. You might also like to consider cutting down an old cereal box to see how it would fold up to make the box.

Number task for 10-15 minutes: *Multiplication grid below*

X	3	4	5	6	7	8	9
3							
4							
5							
6							
7							
8							
9							

Record your time here for the 49 questions:

Mark your answers using a calculator or with an adult. Circle any that are wrong.

At-Home Investigation

Come up with a plan to make a net of some 3D shapes in your house

My plan:
Find one object with square or rectangular faces to draw, one with a circular face, and one with a triangular face if you can. Think about what shapes are on each of the faces, and how you might create a "net" for the object that would fold up to make it. To help you get started, the net below would fold up to make a cube.
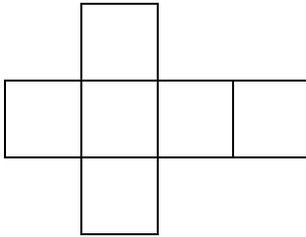
Sketch what you think a net might look like for each of your objects here:

Carry out my plan:
Using your objects, trace around each face carefully. Make sure that they attach along the right edges so that they will fold up correctly. Take a photo of each net with the original object, once you have cut out the net and folded it up. Attach the photo here or email it to your teacher.

Extend your learning:
Measure each side length and angle of your net. Record the measurements here.

Interleaved practice

Number:

1. Complete the following number sequence: 208 , 205 , ___ , ___ , 196 , ___ , ___ , 187

2. 21 457 + ____ = 30 634

3. Write down all of the factors of 48. Draw arrays that show the factors you have listed?

4. What number comes after 3 519 099?

5. How many weeks would it take to save up for a new skateboard that costs $58.90 if you earn $12 per week pocket money?

Measurement/Geometry:

6. Use a ruler or tape measure to find the length of 5 objects that are longer than 30cm and shorter than a metre. Write the name of the objects and their length here.

7. What time will it be in 110 minutes? Write your answer in analogue and 24-hour time.

8. The dotted line in shape 1 shows a line of symmetry. It is not a line of symmetry in shape 2. Why not? Draw a different line of symmetry in shape 3
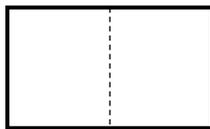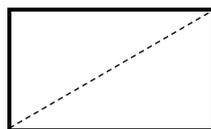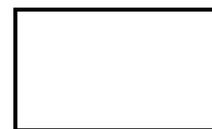
shape 1   shape 2   shape 3

Chance/Data:
9. Choose 5 different types of toys and work out how many you have.
   Design a table to record your findings.

K9. Predicting the shape from the net

> 📄 It is often useful to be able to tell which 3D shape goes with which net. You can tell which ones match by their properties such as the number and shape of their faces, and their angles.

Look at the pictures of the 3D shapes below. Answer the questions about each, then write which net would fold to give that shape.
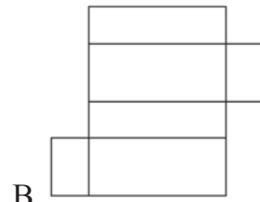
Cube:

1. How many faces does it have?

2. What shape are the faces?

3. What is special about the angles?
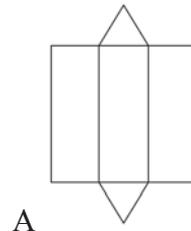
Rectangular Prism:

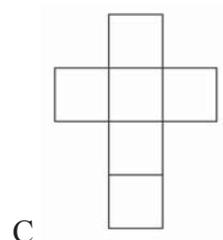1. How many faces does it have?

2. What shape are the faces?

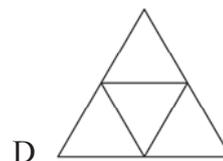3. What is special about the angles?

Triangular Prism:

1. How many faces does it have?

2. What shape are the faces?

3. What observations can you make about the angles?

Triangular Pyramid:

1. How many faces does it have?

2. What shape are the faces?

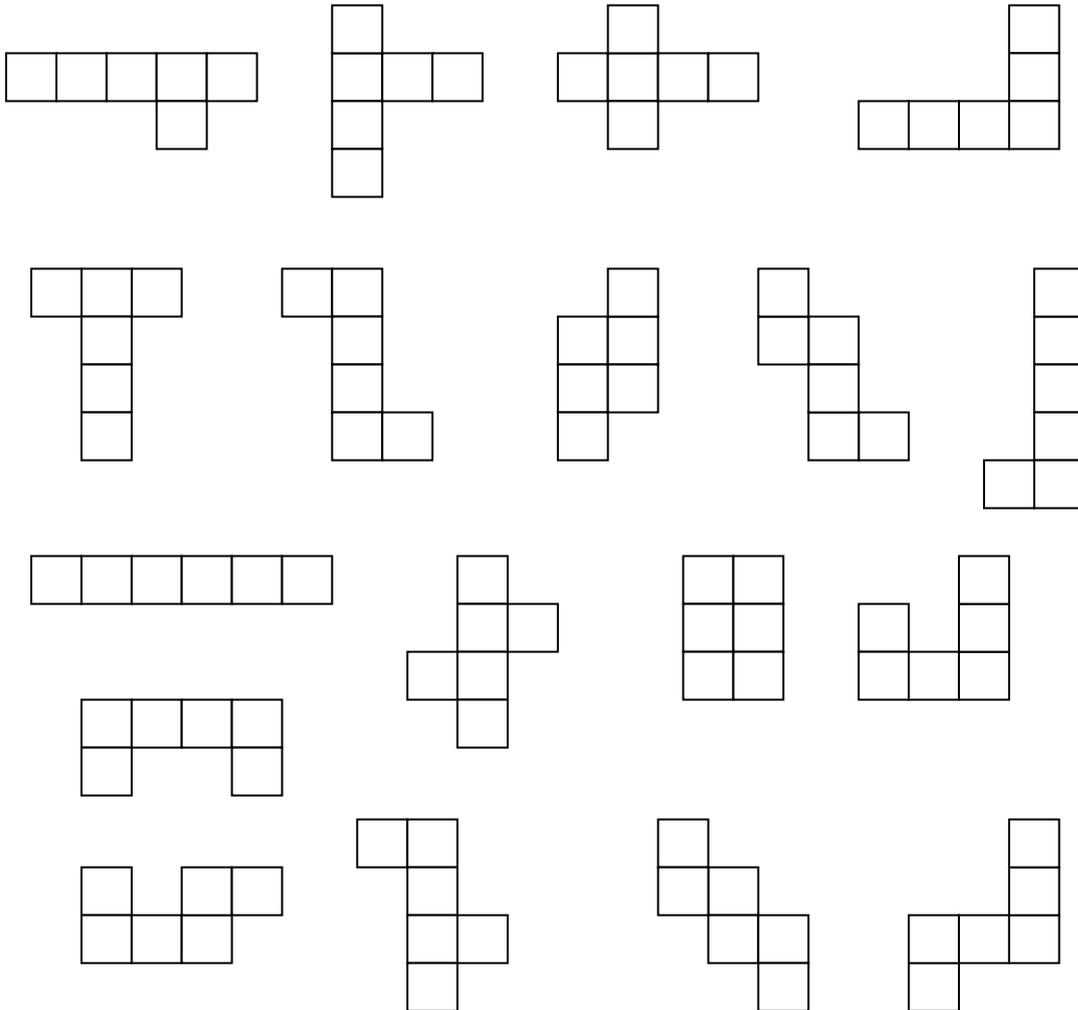3. What observations can you make about the angles?

A

B

C

D

> **Backwards Question:**
> What shape other than a cube would have 6 faces with at least 5 congruent?

Identifying cube nets

Examine the diagrams below and circle the nets that would fold to give a cube.

Draw three nets that would fold to give the same triangular pyramid: