Congruent Figures (Year 8)

Monday, 22 April 2019   6:58 pm

⭐ By the end of the lesson I would hope that you have an understanding of the following. I would also hope that you can apply the understanding to a number of different questions and question types:

- Know what it means to be congruent
- Know what it means to be similar
- Tell the difference between congruent and similar shapes
- Know what a figure is
- Match and describe shapes using
  - Points (vertices)
  - Lines (edges or sides)
  - Angles

RECAP

In previous lessons we have looked at a range of topics which all relate to Geometric Reasoning.
Primarily we have looked at angles:

- Angles on a straight line
- Angles around a point
- Complementary angles
- Supplementary angles
- Angles sum of polygons
- Vertically opposite angles
- Alternate angles
- Co-interior angles
- Corresponding angles

We also looked at how we can move shapes around by:

- Rotating them (about a point in a certain direction)
- Reflecting them (in a mirror line)
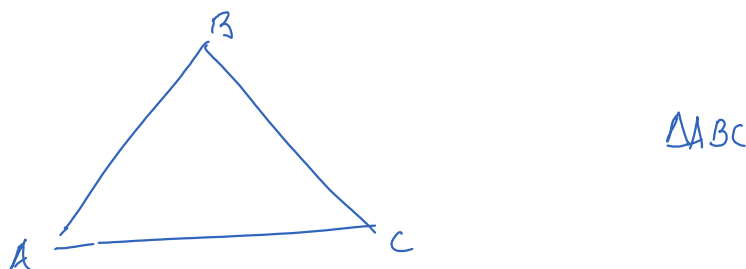- Translating them (using translation vectors)

Finally we looked at a relationship for certain polyhedral between vertices, faces and edges.

Shapes have names!
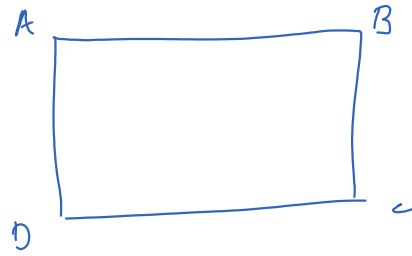Not Bob, Alice or Muriel … but described by the letters used at their vertices

Naming shapes

The following triangle could be described using letters *ABC* (or *CBA*)
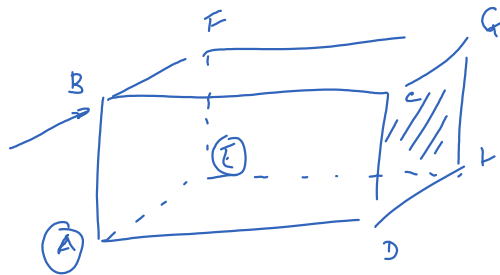

The following quadrilateral could be described using the letter *ABCD* (or *DCBA*)

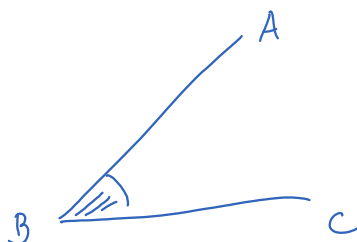The following cuboid could be described using *ABCDEFGH.*

Using the above cuboid we can then describe lines and faces (or planes).

AB = line   ABCD   Face   CDHG

GH

Angles or angels?

It is important to note that most shapes have angles.
These can be described in a number of ways.
Looking at the following shape:

$A\hat{B}C$

We can see the angle could be described in two different ways:

$$\angle B \qquad\qquad \angle ABC$$

What is congruence?

When two shapes are identical in every way, we say they are **congruent**.
Although they are identical, they do not have to have the same orientation.
In fact, the easiest way to trick students is to have two shapes which are identical, but one is rotated or reflected.

When being asked if two shapes are congruent, it's not enough (by the time you get to Year 8 and 9) to just say "yes!".
You have to be able to use the correct Mathematical language.

We use the following sign: $\equiv$
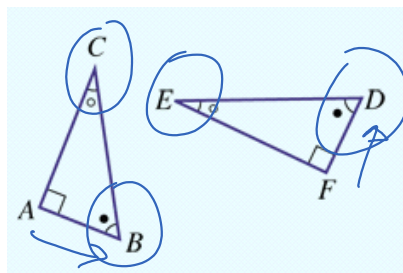
$$\triangle ABC \equiv \triangle FDE$$

Hence, we could state that $\triangle ABC \equiv \triangle FDE$

We would need to say why with qualifying statements though!

Statement 1: Vertex C corresponds to Vertex E
Statement 2: Side AB corresponds to Side FD
Statement 3: $\angle B$ corresponds to $\angle D$