**Angle Rules**

**Motivation:**

Buildings: triangles help strength.

Designers need to be able to calculate forces using angles.

General skills: logical reasoning, structured arguments.

**Prior knowledge:**

On mini-whiteboards, write down what you know about angles.

**Prior knowledge:**

To know some facts:

* Right angle is 90 degrees
* Names for different sizes of angles

**Activities:**

Class discussion, notes if necessary.

Testing on mini-whiteboards.

**Aims / Prior Knowledge:**

To know rules and shorthand for:

* Angles around a point add to 360
* Angles on a straight line add to 180
* Angles in a triangle add to 180.
* Opposite Angles are equal
* ‘Base’ angles in an isosceles triangle are equal

**Activities:**

Class discussion

Peer testing then Quizlet

<https://quizlet.com/287426109/angles-a-basic-angle-rules-flash-cards/>

Quizlet live

### Aim:

To describe angles using three vertices

### Activities:

**B**

**A**

**C**

**O**

Problem: how to describe the difference between the yellow and purple angles?

They can’t both be ‘angle B’ so we need to use more vertices to describe them.

We describe the ‘journey’ which creates the angle.

Examples:

Yellow and blue angles

Practice:

Describe the following angles:

Red,

Green

Purple

**Video:** <https://www.youtube.com/watch?v=AuizRpeJMhw>

**Aims:**

To use a combination of the angle rules to find angles in compound shapes.

**Activities:**

130o

71°

*x*

Example 1:

Example 2:

140o

*p*

100o

Angles A practice.

Followed by: Angles A extension

**Aims:**

To be able to write out your solutions to angle problems logically and clearly

**Activities:**

130o

70°

*x*

Example 1:

Show that

130o

*70*

?

Example 2:

140o

*p*

100o

Example 3:

More examples for those who need it.

Section B

Photograph some work and critique it.

Followed by: Section C as extension

**Assessment:**

130o

30°

*x*

150o

Calculate the value of x

List the angles and reasons you used along the way.

Show me when you’ve done.

Write another question that requires the use of 3 different angle rules.

Don’t give the letters needed along the way.

**Assessment Solution:**

a = 50 o angles around a point add up to 360

b = 50 o base angles in an isosceles triangle

x = 80 oangles in a triangle add up to 180

**Extension Aim:**

To be able to explain what is wrong with a picture

a = 68 opposite angles

b = 52 angles on a line add to 180

68 + 52 + 63 = 183 so angles in the triangle do not add up to 180.

b

a

68°

63°

128o