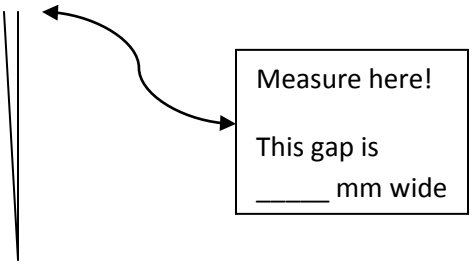
How to Calculate the Amount of Error in Your Try Square

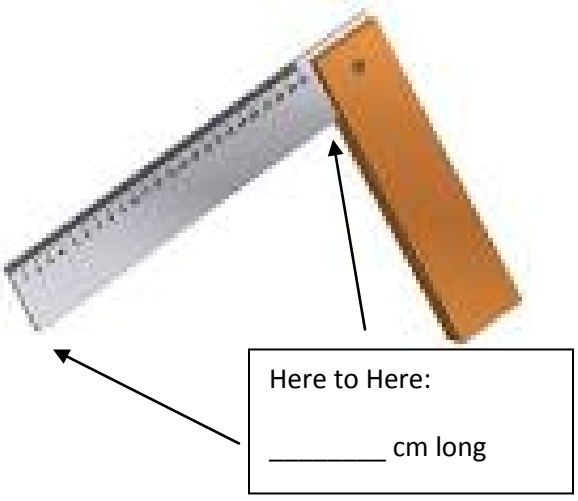
(or How to Set Up a Proportion)

- With your stock placed against the bottom of this paper, use a pencil to mark a line against the inside edge of your try square beam.
- Flip your try square so the stock faces the other direction. Use a pencil to mark a line with the inside edge of your try square beam. You should have two lines against this paper which look like the illustration below.

- Measure the gap between the two lines



- Measure your beam from stock to end



- Now, let's set up a proportion. Proportions compare two things – such as boys to girls in a class – and allow us to manipulate the amounts and solve problems. In this case we want to know the relationship between the amount of error and the length of our beam. We will use a fraction to set this up:

$$\frac{Amount\ of\ Gap}{Length\ of\ Beam} = \frac{\qquad mm}{cm}$$

- How long must our beam be for the amount of error to be 10 mm? We set up a pair of equivalent fractions like below:

$$\frac{Amount\ of\ Gap}{Length\ of\ Beam} \quad - - \rightarrow \quad \frac{\qquad mm}{cm} = \frac{10\ mm}{????}$$

We replace our ??? with an X.

$$\frac{Amount\ of\ Gap}{Length\ of\ Beam} \quad - - \rightarrow \quad \frac{\qquad mm}{cm} = \frac{10\ mm}{X}$$

Then, we cross-multiply.

(Amount of Gap: _____mm)(X) = (Length of Beam:_____cm)(10mm)

Now, before you start putting numbers into a calculator, we need to isolate the X. We can do this easily – divide both sides by the (Amount of Gap:_____mm). It looks like this:

(Amount of Gap: _____mm)(X) = (Length of Beam:_____cm)(10mm)

(Amount of Gap: _____mm) = (Amount of Gap: _____mm)