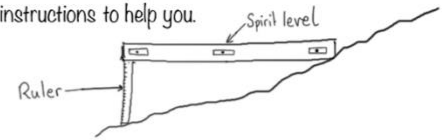
Elm Row and Calton Hill Maths Trail

1) a) Draw some of the patterns you can see used in the architecture (building design).

b) Describe how some of these patterns are repeated across the building.

c) Draw part of the building and mark as many lines of symmetry on it as you can.

2) Measure the gradient of the slope somewhere on the hill. Follow these instructions to help you.



a) Find what a flat surface would look like using a spirit level. Keep one end of the spirit level on the ground.

b) Measure the height of the other end of the spirit level from the ground using a ruler. Height =

c) Measure the length of your spirit level. Length =

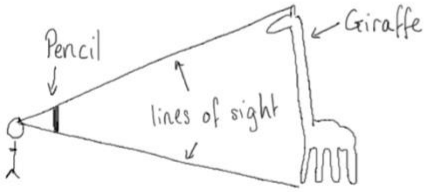
d) Calculate the gradient. Gradient = Height ÷ Length

=

3) a) Walk around the Monument. What is its perimeter of the base in stride lengths? You can't walk right up to every wall so you will have to do some problem solving.

b) What is the area of the base in stride lengths squared? Split the shape into simpler parts and add their areas together. Show your working.

5) How tall are the giraffes outside the Omni centre? Follow the instructions to estimate an answer.



a) Hold up a pencil a stride length away from your face. Carefully move back and forwards until the giraffes look the same size as your pencil.

b) Ask a friend to measure the distance from you to the giraffes in stride lengths. Distance = stride lengths

c) Do the following calculation:

Height of giraffes = Length of pencil x distance to giraffes in stride lengths

= x

=

4) a) Estimate the circumference of the Nelson Monument. Circumference = 3.14 x diameter

b) Estimate the area of the cross section of the Nelson Monument. Area = 3.14 x radius

c) Estimate the volume of the Nelson Monument. Its height is 51m. Volume = area x height