## Determining the diameter of the Sun

Safety advice – Observing the Sun is dangerous and can cause permanent blindness; it must never be observed through optical instruments such as binoculars/ telescope nor through the Pringle tube described below!

First get hold of a Pringles tube (other makes are equally suitable!) Remove the plastic lid and discard. Eat the crisps!

Make a small pinhole in the metal end of the tube with a nail and hammer.

Measure the length of the tube with a ruler, I = .....

Point the metal end of the tube (with pinhole) at the Sun (obviously a sunny day is needed!) Hold a piece of card a few centimetres away from the other end. A little circle of light will fall on the card. Adjust the angle of the tube until the circle of light is smallest in diameter.

Measure the diameter of this circle of light d = .....

By geometry the diameter of the Sun, D, can be found (see diagram below), if the distance to the Sun is known,  $L = 150\ 000\ 000\ km$ 



Using your measurements, determine the diameter of the Sun with an estimate of the uncertainty. Compare with the expected value of 1 400 000 km. Good observing!

