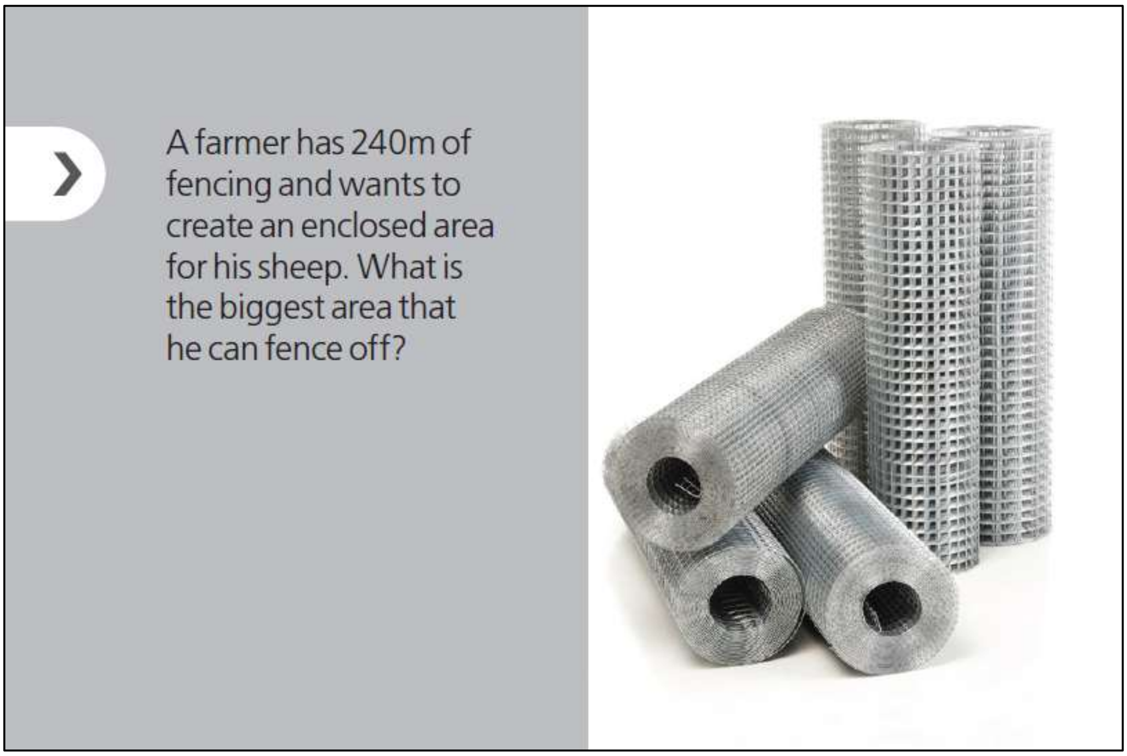

The starting point is to consider rectangular areas. If we let one side be x, the other side will be $120 - x$. The area of the rectangle would therefore be $x(120 - x)$.

The problem is therefore to maximise $x(120 - x)$. This can be done either experimentally or analytically.

One way of doing this analytically is to complete the square.

$A = 120x - x^2$
$A = -(x^2 - 120x)$
$A = -((x - 60)^2 - 3600)$
$A = 3600 - (x - 60)^2$

The maximum would therefore be when the side length is $60\ m$ giving an area of $3600\ m^2$

This is a square!

The next thing the students may wish to consider is the possibility of a different shape giving a larger enclosure.

Using a regular hexagon with side length $40\ m$ which can be split into 6 equilateral triangles (each of side $40\ m$) gives an area of $6 \times \frac{1}{2} \times 40 \times 40 \times \sin 60 = 2400\sqrt{3}\ m^2$ this is more than $3600\ m^2$.

This eventually should lead to considering a circle with circumference $240\ m$.

The radius of the circle would be $\frac{240}{2\pi} = \frac{120}{\pi}$ and the area would be $\pi \times \left(\frac{120}{\pi}\right)^2 = \frac{14400}{\pi} = 4584\ m^2$ to the nearest whole number.