Spreadsheets

Lesson 3 – Modelling a real-life problem

The aim of this lesson is to model a real-life problem.

Follow the instructions below and by the end you should be able to:

- Use formulae to perform calculations
- Solve a problem relating to perimeters and areas of rectangles.

REMEMBER: Always save your work as you go along using a meaningful name.

A USEFUL REMINDER: Perimeter = the distance around the outside of the rectangle found by adding all the sides together. Area = the space within the rectangle found by multiplying the length by the width.

1. Modelling in Computing means creating or using a model or simulation of a real-life situation on a computer. For example, we could start by creating a page in 2Calculate which added up how much money we made by selling 3 pizzas for 25p and 2 apples for 10p each in the school tuck shop. We could then use 2Calculate to explore what would happen if we changed parts of the model — by putting up the prices for example. Changing certain values within the page and seeing what happens is what is meant by modelling.

2. Today we are solving a problem for farmer McFlock. She keeps sheep and each sheep needs at least 1m² of space in the field. Create a spreadsheet to draw fields as in the following example. **NOTE** this is not to scale; each cell height or width represents 1m.

3. Work out the maximum number of sheep that can be kept with 12m of fence?

4. What if farmer Mc Flock obtains more fencing? Can you think of a way that the spreadsheet could calculate the best answer?
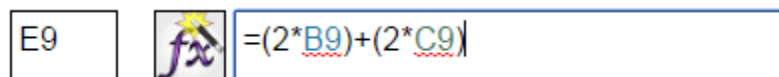
5. Here is an example solution:

Length	width	area	perimeter
4	2	8	12
3	3	9	12

The perimeter and are columns both use a formula.

The area column formula was created using the formula wizard.

| D9 | $f x$ | =B9*C9 |

The perimeter column formula was typed into the formula bar.

| E9 | $f x$ | =(2*B9)+(2*C9) |

Remind yourselves how to use the formula wizard and bar by looking at lesson 2 and by watching the video for this lesson.

Extension activities:
A) Choose a different length of fencing and work out the maximum number of sheep
B) What is the smallest amount of fencing you would need to keep 24 sheep?