# Making Biscuits Spreadsheet

**Introduction**
This activity builds on earlier units about information handling and assumes that children:

- can calculate total costs
- can recognise number patterns
- can use a reference to locate a grid in a square.

**Age Range**
Upper Key Stage 2

**Software**
Excel

**Resources**
Making Biscuits – prepared Excel spreadsheet
Making Biscuits – Pupil worksheet, extension worksheet and help sheet

**Lesson Plan**
Discuss the idea of working to a budget, for example, for a school tuckshop. Discuss how totals will need to be recalculated if prices or quantities change, such as the cost of ingredients or number of biscuits which can be made from a quantity of biscuit dough.
**Outcome: children understand that costing models may need to be changed**.

Show the class how to move around a spreadsheet and how to enter numbers and text labels. Ask the class to identify the contents of particular cells. (Questions 1 to 3)
**Outcome: children enter data into cells**

Show the children how to enter a formula into a spreadsheet, such as '=c2+c3'. Ask the children to use formulae to add the contents of two or more cells. Ask the children to enter the formula to find the total cost of making 1 batch of biscuits (no extra ingredients). Ask the children to explore what happens when data in the two cells is changed. Ask them to explore subtraction, multiplication and division and to predict how the contents of cells will change. (Questions 4, 5, 6, 7, 8, 11)
**Outcome: children enter data and formulae into cells, modify the data, make predictions of changes and check results.**

Show the class how to copy fomulae from one cell to another. Complete the column for making 3 batches of biscuits. (Questions 9, 11)
**Outcome: children copy formulae to create tables of results**

Remind the class how '=c7+c8+c9+c10+c11+c12' produces a total. Discuss the amount of typing required. Introduce the use of '=SUM(c7:c12)' as a shorter way of producing totals. Ask the children to use 'SUM' to calculate the total cost of 3 batches of biscuits. (Questions 10, 11)
**Outcome: children identify and enter the correct formulae into cells, modify the data, make predictions of changes and check them; children use SUM**

Ask the children to use the spreadsheet model to find out the answers to the questions on the extension sheet.
**Outcome: children learn to change the data and formulae in a spreadsheet to answer 'what if ...?' questions and check predictions**

**Learning objectives**
Pupils learn:

- That information held in spreadsheets can contain errors
- To be able to check for accuracy by looking closely at data
- To learn that spreadsheets can calculate costs and are useful when prices or amounts change
- To be able to enter a formula into a cell and use SUM to calculate totals
- To learn that a spreadsheet can be used to make calculations and explore mathematical models
- To be able to put a formula in a cell and copy formulae down a column

**Duration**
Half an hour to an hour of computer time for each pair of pupils, depending on how much time is available for discussion and the children's level of experience.

**The activity**
This activity was written with the Year 5 DT activity "Making Biscuits" in mind and the practical consideration of insufficient equipment (oven space, utensils etc) as well as the health and safety (hygienic work area, washing up, hot surfaces, supervision ratio etc) of an entire class cooking at the same time.

This activity was written as a complementary activity to Making Biscuits and is intended for use with a group of up to 12 children sharing 6 computers under the guidance of an IT competent adult such as a Learning Support Assistant.

Before children work with the spreadsheet they will need to understand simple formulae, be able to enter one into a cell and it would be helpful to them if they could copy a formula down a column.

**Adapting the Activity**
The activity can be broken down into smaller focussed tasks if the children do not have the necessary experience to work through the all the questions.

**Extending the Activity**
An extension sheet is provided.

**Referencing**

- QCA Scheme of Work for Information Technology, Unit 5C - Evaluating information, checking accuracy and questioning plausibility, Unit 5D - Introduction to spreadsheets and Unit 6B - Spreadsheet modelling
- National Curriculum for Information Technology, KS2 - 1a, 1b, 1c, 2a, 2b, 2c
- National Curriculum for Mathematics, KS2, AT1 - 1a, 2c, AT2 - 4a, AT4 - 2d
- 5-14 Guidelines for ICT - Collecting and Analysing, E, F