

## Simple Formulas: SUM and AVERAGE

60 minutes

ICT2: Introduction to other software packages and applications

Outcome M2.U1.3

### WHAT THIS LESSON DOES

Learn to create SUM and AVERAGE formulas using cell references in spreadsheets. Watch how totals and averages update automatically when source data changes and apply this to your project budget.

### CURRICULUM OUTCOMES

| Outcome | What the specification asks for                                  |
|---------|------------------------------------------------------------------|
| M2.U1.3 | Create and understand logical formulas using standard functions. |

### WHAT STUDENTS SHOULD BE ABLE TO DO

- Write formulas starting with equals and use cell references rather than typed values
- Build SUM and AVERAGE formulas over a range
- Watch results update when source data changes
- Add Total and Average Cost calculations to the project budget

### BEFORE THE BELL

- Optional time-saver: pre-create 05\_formula\_practice with headings and the five phone-case costs filled, and place a copy in each student 05\_budget folder.
- Print the Match the formula idea worksheet if using the pair check after Key concepts.
- Confirm students can open Project\_Portfolio / 05\_budget (or be ready to create those folders).
- Students need their existing 05\_project\_budget file in Project\_Portfolio / 05\_budget. Confirm spreadsheet access (Excel Online or Google Sheets). Have a plan for students missing the file (practice sheet first).
- Print or share the Match the formula idea worksheet if using the pair check.
- Optional: pre-create 05\_formula\_practice in 05\_budget with headings and the five phone-case costs already entered, then place a copy in each student folder or share a link so the class can jump straight to formulas. Students need spreadsheet access (Excel Online via onedrive.com or Google Sheets via drive.google.com).
- Students need their existing 05\_project\_budget from earlier lessons. Be ready to model a non-C2:C6 range on the board before independent practice.

## Simple Formulas: SUM and AVERAGE

### HOW THE LESSON RUNS

|               |              |                      |
|---------------|--------------|----------------------|
| <b>5 min</b>  | introduction | Introduction         |
| <b>5 min</b>  | content      | Key concepts         |
| <b>18 min</b> | activity     | Step-by-step task    |
| <b>4 min</b>  | content      | Common issues        |
| <b>20 min</b> | activity     | Independent practice |
| <b>4 min</b>  | content      | Reflection           |
| <b>4 min</b>  | summary      | Lesson summary       |

### TEACHING MOVES

- Model formula entry on the board or shared screen for the whole class.
- Lead a whole-class discussion when students change a value and observe the live update.
- Before independent practice, model one different-length range on the board (for example C2:C11), saying aloud how you stop above Total.
- Circulate during independent practice to check formula bars show =SUM(...) / =AVERAGE(...), not typed numbers.
- Use the phone-case example to demonstrate before students apply to their own budgets.

### WHAT TO WATCH FOR

- Omitting the equals sign at the start of a formula. Remind students to always begin with equals.
- Typing values directly instead of using cell references. Encourage clicking cells to build references.
- Hard-coding totals that do not update. Demonstrate changing source data to show the difference.
- Including the Total row inside the SUM range (circular reference). Stop on the last cost row.

### DIFFERENTIATION

- Support: Pair students who are struggling with those more confident during the step-by-step task.
- Support: Students missing 05\_project\_budget use the practice data in a new file with that name.
- Extension: Challenge students to add MIN and MAX formulas once the basic ones are complete, or a second average for one category only.