LESSON 40

Logical Formulas: IF

60 minutes | ICT2: Introduction to other software packages and applications | Outcome M2.U1.3

WHAT THIS LESSON DOES

You will discover how the IF formula lets a spreadsheet make decisions. By checking if costs exceed a threshold you set, your project budget will automatically flag items that are over budget using a simple three-part pattern.

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

- Explain the IF pattern: condition, value if true, value if false
- Write a simple IF that flags items over a threshold
- Adapt a worked IF pattern to project data
- Add a Flag column to the project budget that shows a short label such as Over budget when a cost is above your threshold

BEFORE THE BELL

- Print the worked sample table for students who benefit from a paper reference during the key concepts discussion.
- Print or display the matching worksheet (if_formula_parts) for a 2-minute pair check after Key concepts.
- Have a blank five-row budget template and an optional pre-filled IF_practice (A1:C6) ready for support students.
- Students need cloud access to Project_Portfolio/05_budget and their existing 05_project_budget spreadsheet from earlier spreadsheet lessons. Have a blank five-row budget template ready for anyone missing the file.
- Print or display the matching worksheet (if_formula_parts) for a 2-minute pair check. Optional: show the worked sample table on screen once before students open their own sheets.
- Students need Excel for the web or Google Sheets and their 05_project_budget file. Optional support: pre-load IF_practice with headings and A2:C6 sample data so weaker students begin at the formula. Optional: display the worked sample table while they type.
- No prep needed beyond readiness to model one non-sample IF (for example Cost in E, row 3, threshold 50).
- Students work in their existing 05_project_budget in class. Run the three checkpoints before fill-down. Spot-check thresholds so they are project-real, not copied blindly from the sample. Do not set the Flag column as homework.

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HOW THE LESSON RUNS

5 min	introduction	Introduction
7 min	content	Key concepts
14 min	activity	Step-by-step task
4 min	content	Common issues
20 min	activity	Your turn on the real budget
5 min	content	Reflection
5 min	summary	Lesson summary

TEACHING MOVES

- Model the IF formula on screen and invite whole-class discussion on the three parts before typing begins.
- Model one non-sample transfer (for example Cost in E, row 3, threshold 50) before independent work.
- Use the three checkpoints on the real budget: sticky note for letter and threshold, Flag heading, first-row IF checked, then fill-down and live cost edit.
- Circulate during independent practice to prompt students to justify their threshold choice.
- Address common issues as they appear by having students retype rather than edit pasted formulas.
- End with a quick show of hands to confirm flags update when costs change.

WHAT TO WATCH FOR

- Forgetting double quotes around text like Over budget, causing #NAME? errors; instruct students to use straight quotes.
- Misspelling IF or omitting parentheses; direct them to rebuild the formula from the pattern.
- Copying C2 and 40 onto a sheet where Cost is in another column; force the sticky-note letter and threshold first.
- Selecting a threshold without data context; ask for a one-sentence spoken explanation.

DIFFERENTIATION

- Support: Offer a template sheet with the practice data already entered for the step-by-step task so students start at the formula.
- Extension (early finishers or after class only): second flag style on IF_practice or threshold minus 10. Keep the main Flag column as in-class must-finish.
- Support: Allow paired work during the real-budget step for discussion of the pattern.