

DIGITAL VECTOR

Spreadsheet Quest!

A 12-mission Excel and computer-skills adventure

Grades 4 to 6

No experience needed

No prep

Works offline

Chromebook friendly

TEACHER GUIDE

Interactive activity	spreadsheet-quest-grade5.html, one self-contained file, nothing to install
This guide	Setup, pacing, full answer keys, standards alignment, observation checklist
Runs on	Chrome, Edge, Firefox, Safari. Desktops, laptops, Chromebooks, tablets
Student accounts	None. No logins, no data collection, no cost per student
Total teaching time	Roughly 4 to 6 hours, easily split into shorter sessions

1. Getting started

Spreadsheet Quest is a single HTML file. Students open it in a web browser and work through twelve missions at their own pace, earning XP and badges as they go. There is nothing to install, no account to create, and no internet connection required.

Three ways to hand it out

1. **Shared drive or network folder.** Drop the file in a folder students can read. They double-click to open.
2. **Your LMS.** Upload it to Google Classroom, Canvas, Schoology, or Seesaw as a file attachment. Students download and open.
3. **Flash drive or local copy.** Useful for computer labs with no network. Copy the file to each machine's desktop.

Chromebook note

Download the file to the Chromebook's Downloads folder first, then open it from the Files app. Opening straight from a cloud preview window will not run the interactive parts.

What students need to know first

Nothing. Missions 1 to 4 assume the student has never touched a computer: they cover finding the power button, clicking and tapping, using Enter and Backspace, and taking a tour of the Excel window. Students who already have those skills can start at Mission 5 without missing anything.

Progress and resets

XP and badges are held for the browser session only. Closing the tab clears everything, which means the same file can be reused across every class and every year with no cleanup. If students need to stop partway through, note which mission they finished so they can jump back to it from the mission map.

If your district blocks outside content

The activity loads two optional extras from the internet: a set of display fonts and a 3D graphics library. If either is blocked, the file detects it and switches to system fonts and 2D charts automatically. Nothing breaks and no instruction is lost.

Accessibility and differentiation

- All text is resizable with browser zoom. The layout reflows down to tablet width.
- Every interaction works with a mouse, a trackpad, or a touchscreen.
- Sound effects are short and non-essential. Muting the device loses nothing.

- Fast finishers can use the Practice Sandbox to build their own sheets, or replay Mission 6 with their own survey data.
- Students who need support can keep the Cheat Sheet open in a second tab as a reference.

2. The twelve missions

#	MISSION		SKILL FOCUS	TIME	XP
1	Hello, Computer!	ON-RAMP	Screen, keyboard, touchpad, power button	10 min	30
2	Click and Tap!	ON-RAMP	Single click, double click, drag	10 min	30
3	Hello, Keyboard!	ON-RAMP	Letter keys, Enter, Backspace, Space	15 min	40
4	Welcome to Excel!	ON-RAMP	Ribbon, name box, formula bar, cell pointer	15 min	40
5	What IS a Spreadsheet?	CORE	Rows, columns, cells, why grids help	20 min	50
6	Cell Addresses	CORE	Column letter plus row number, Battleship game	25 min	75
7	Type Like a Pro	CORE	Text vs numbers vs dates, alignment clues	25 min	75
8	Magic Formulas	CORE	Starting with =, operators, cell references	30 min	100
9	Super Functions	CORE	SUM, AVERAGE, MIN, MAX, COUNT	35 min	125
10	Picture Power!	CORE	Bar, pie, and line charts, choosing the right one	30 min	100
11	Lemonade Tycoon	CORE	Revenue, cost, profit, multi-step model	40 min	150
12	Final Boss: Data Detective	CORE	All five functions applied to one real problem	45 min	200

Suggested pacing

SESSION	MISSIONS	LESSON FOCUS
Session 1 45 min	1 to 4	Computer basics and the Excel window. Skip if the class is already confident.
Session 2 45 min	5 to 7	The grid, cell addresses, and entering clean data.
Session 3 60 min	8 and 9	Formulas and functions. The heaviest conceptual load. Consider a whole-class demo of Mission 8 first.
Session 4 45 min	10	Charts. Pair with a real class survey for transfer.
Session 5 60 min	11 and 12	Applied projects. Works well as a partner task with a share-out at the end.

Transfer to the real thing

The activity teaches concepts and formula syntax that carry directly into Excel, Google Sheets, and Numbers. After Mission 9, have students rebuild the wildlife rescue table in real spreadsheet software using the same five functions. After Mission 11, have them build their own profit tracker for a class fundraiser.

3. Answer keys

Missions 1 to 4 and Mission 6 are exploration and game based with no fixed answers. Everything else is listed below.

Mission 5: What IS a Spreadsheet? (quiz)

QUESTION	ANSWER
Which of these things would NOT fit in a spreadsheet cell?	A whole live elephant

Mission 6: Cell Addresses (quiz)

QUESTION	ANSWER
The cell at column C, row 5 is called what?	C5

The Battleship game generates a new random target each round, so there is no fixed key. Students need six correct hits in a row.

Mission 7: Type Like a Pro (class pizza party)

CELL	ENTRY	TEACHING POINT
A2	Margherita	Text, aligns left
B2	12	Number, aligns right
A3	Hawaiian	Text
B3	8	Number
A4	Veggie Supreme	Text with a space, still one entry
B4	6	Number

Mission 8: Magic Formulas (test scores)

Starting data: Marcus 5 and 10, Ava 8 and 10, Riley 12 and 8.

CELL	FORMULA	RESULT	TEACHING POINT
C2	=5+10	15	Typing numbers straight into a formula
C3	=A3+B3	18	First use of cell references

CELL	FORMULA	RESULT	TEACHING POINT
C4	=A4+B4	20	Repeating the pattern down a column
D2	=C2*2	30	Referring to a cell that already holds a formula
D3	=C3*2	36	Chained calculation

Mission 9: Super Functions (wildlife rescue center)

Starting data, food in pounds per week: Black Bear 8, Beaver 5, Raccoon 3, Bald Eagle 12, Porcupine 4, Bobcat 6, Coyote 25.

CELL	FORMULA	RESULT	WHAT IT ANSWERS
C9	=SUM(C2:C8)	73	Total food for all animals
C10	=AVERAGE(C2:C8)	10.43	Average per animal (accepts 10.4286)
C11	=MIN(C2:C8)	3	Smallest eater
C12	=MAX(C2:C8)	25	Biggest eater
C13	=COUNT(C2:C8)	7	How many animals

Mission 10: Picture Power! (quiz)

QUESTION	ANSWER
Which type of question is BEST answered with a bar chart?	Which ice cream flavor is most popular?

The survey numbers are student-editable, so the chart itself has no fixed key. Look for students who can explain what the tallest bar means.

Mission 11: Lemonade Tycoon

Starting data at 3 dollars per cup. Cost and cups sold: Mon 15 and 12, Tue 18 and 18, Wed 20 and 25, Thu 10 and 8, Fri 22 and 30.

CELL	FORMULA	RESULT	NOTE
E2	=C2*D2	36	Monday revenue
E3	=C3*D3	54	Tuesday revenue

CELL	FORMULA	RESULT	NOTE
E4	=C4*D4	75	Wednesday revenue
E5	=C5*D5	24	Thursday, the rainy day
E6	=C6*D6	90	Friday revenue
F2	=E2-B2	21	Monday profit
F3	=E3-B3	36	Tuesday profit
F4	=E4-B4	55	Wednesday profit
F5	=E5-B5	14	Thursday profit
F6	=E6-B6	68	Friday profit
E7	=SUM(E2:E6)	279	Total revenue
F7	=SUM(F2:F6)	194	Total profit

Discussion prompt

Thursday brought in the least money but was not the worst day for profit margin. Ask students why a business owner would want to see both revenue and profit rather than just one of them.

Mission 12: Final Boss, Data Detective

Ten students sold pancake breakfast tickets at 5 dollars each: Ava 12, Liam 7, Priya 24, Jack 9, Mei 15, Tom 11, Sofia 18, Noah 14, Zara 5, Kai 20.

CELL	FORMULA	RESULT	WHAT IT ANSWERS
C12	=SUM(B2:B11)	135	Total tickets sold
C13	=AVERAGE(B2:B11)	13.5	Average per student
C14	=MAX(B2:B11)	24	Most sold by one student
C15	=C12*5	675	Total money raised in dollars
C16	=COUNT(B2:B11)	10	How many students took part

Final question: the prize goes to **Priya**, who sold 24. =SUM(B2:B11)*5 is also accepted for C15.

Common student errors to watch for

Forgetting the equals sign so the cell shows text instead of a result. Typing SUM(B2, B11) with a comma instead of a colon, which adds only two cells. Including the total row inside its own range, which creates a circular reference. Using COUNT on a column of names and getting zero, which is a useful teaching moment about COUNT only counting numbers.

4. Standards alignment

CSTA K-12 Computer Science Standards, Level 1B (grades 3 to 5)

STANDARD	DESCRIPTOR	MISSIONS
1B-CS-01	Describe how internal and external parts of computing devices function to form a system	1, 2, 3
1B-CS-02	Model how computer hardware and software work together as a system	1, 4
1B-DA-06	Organize and present collected data visually to highlight relationships and support a claim	10, 11, 12
1B-DA-07	Use data to highlight or propose cause and effect relationships and predict outcomes	11, 12
1B-AP-09	Create programs that use variables to store and modify data	8, 9
1B-AP-11	Decompose problems into smaller, manageable subproblems	11, 12

ISTE Standards for Students

STANDARD	HOW THE ACTIVITY MEETS IT
1.5 Computational Thinker	Students collect, organize, and analyze data to identify patterns and solve problems using formulas and functions.
1.5c	Students break a multi-step problem into ordered calculations in Missions 11 and 12.
1.6 Creative Communicator	Students choose the right chart type for a message and interpret what a visualization shows.
1.1 Empowered Learner	Students navigate a self-paced mission map, use a reference sheet, and iterate in the practice sandbox.

Common Core connections, mathematics

STANDARD	CONNECTION	MISSIONS
4.OA.A.3 / 5.NBT.B.5	Multi-step problems with whole numbers, including multiplication	8, 11
5.NBT.B.7	Operations with decimals to hundredths, seen in the average results	9, 12
6.SP.B.5c	Summarizing a data set: measures of center, minimum, maximum, and count	9, 12
3.MD.B.3 / 4.MD.B.4	Drawing and interpreting scaled bar graphs to answer questions about a data set	10

A note on standards

Alignments are provided as a planning aid. Districts word their local standards differently, so check against your own scope and sequence before writing them into a lesson plan.

5. Assessment and observation

The activity is self-checking, so it works best as formative practice rather than a graded test. The checklist below is written for walking the room. Print one per student or use it as a class roster.

Observation checklist

- ☐ Names a cell correctly using column letter then row number (C5, not 5C)
- ☐ Knows text lines up left and numbers line up right, and can say why that matters
- ☐ Starts every formula with an equals sign without being reminded
- ☐ Chooses a cell reference over a typed number when the value might change
- ☐ Writes a range correctly with a colon, for example C2:C8
- ☐ Picks the right function for the question being asked
- ☐ Explains the difference between revenue and profit in their own words
- ☐ Chooses an appropriate chart type and justifies the choice
- ☐ Reads a value off a chart and states what it means in context
- ☐ Finds and fixes their own formula error without adult help

Exit ticket prompts

1. Write down the address of the cell in column D, row 7. How do you know?
2. Why does every formula have to start with an equals sign?
3. What is the difference between `=SUM(A1:A5)` and `=A1+A5`?
4. A shop took in 300 dollars and spent 210 dollars. What was the profit, and which formula would find it?
5. You want to show how many students like each of six lunch options. Which chart would you use, and why?

Extension projects

- **Real class survey.** Students collect their own data, enter it in a real spreadsheet, and build a chart with a written caption explaining the finding.

- **Run the numbers.** Students model a real school fundraiser: set a ticket price, estimate costs, and use formulas to find the break-even point.
- **Beat the boss.** Students design their own data mystery with a hidden answer and swap with a partner to solve.
- **Teach it back.** Students record a 60 second screencast explaining one function to a younger class.

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