

SIX PRACTICAL COURSES / 30 DAILY LESSONS

Skills for a changing world

Learn • Practise • Create • Explain • Reflect

Build confidence by making useful things, checking your work and explaining your thinking. Work at your own pace. Asking for help is part of learning.

My name or classroom nickname: _____

My start date: _____ My learning partner: _____

Week 1 | Computer confidence | pages 3-12

Find your way, organise your work and recover from mistakes.

Week 2 | Create and communicate | pages 13-22

Turn ideas into clear writing, pictures and presentations.

Week 3 | Data detectives | pages 23-32

Ask fair questions, check numbers and explain what a chart can tell you.

Week 4 | Coding explorers | pages 33-42

Plan instructions, run them, find bugs and improve your program.

Week 5 | Smart information users | pages 43-52

Ask good questions, check evidence and use digital tools responsibly.

Week 6 | Young problem-solvers | pages 53-62

Combine observation, planning, making and teamwork in a useful project.

Suggested pace: one course per week, five lessons of about 40 minutes. You may spread a course over longer. The original five-day Excel course is an optional companion, not part of these 30 lessons.

Print A4 portrait at 100% or Actual size. Each lesson uses two student pages. Answers are in the separate teaching guide.
Version: 11 October 2026.

HOW TO USE THIS WORKBOOK

Small steps, useful habits

Learn / 7 min

Read the idea and worked example. Explain it in your own words.

Practise / 8 min

Try three questions. Check with an adult or use the website feedback. Correct mistakes.

Create / 15 min

Make the project. Record your work or attach a separate sheet.

Explain / 5 min

Show how you know. A drawing or spoken explanation can help.

Reflect / 5 min

Notice an improvement and choose one small next step.

My three confidence levels

With help: I can do the task with prompts. Independently: I can do it and check my work. New task: I have used the skill in a different situation.

A checked box records your reflection; it is not a certificate or an automatic grade. Ask an adult to review your project evidence.

Work safely and keep your work

Use fictional examples, school-approved tools and adult help for real research. Keep passwords, addresses and private photographs out of practice work. Take breaks when you need them. For making tasks, use paper and light counters with an adult.

Online: sign in through Grade 4 home to save step records and practice scores. Written drafts stay in your browser. Guest work is separate from learner accounts. Download your notes and practical-tool files to keep a copy.

Course website: heliolearn.com/grade-4/skills/

COURSE 1 / COMPUTER CONFIDENCE / LESSON 1

Meet your digital workspace

Name: _____ Date: _____ Part A / Learn + practise

Today I can: Identify input, processing, output and storage in a familiar task.

Input sends information to a computer. Processing follows instructions. Output presents a result. Storage keeps work for later. One device can do more than one job: a touchscreen both shows output and accepts touch input.

Example: Typing CAT: the keyboard sends letters (input), the computer handles them (processing), the screen shows CAT (output), and saving keeps the document (storage).

Try it step by step

1. Point to a keyboard, screen and storage location with an adult.
2. Say what each part does when you draw a picture.
3. Type a short sentence in the file desk below.
4. Give the file a useful name, save it in Practice, then open it again.

Practise / try before checking

1. Which device sends typed letters into a computer?

A. Keyboard B. Speaker C. Printer

Answer: _____

2. Which action stores work for later?

A. Looking at the screen B. Saving a file C. Moving the pointer

Answer: _____

3. A touchscreen can be...

A. Only input B. Only output C. Both input and output

Answer: _____

COURSE 1 / COMPUTER CONFIDENCE / LESSON 1

Meet your digital workspace

Part B / Create + explain + reflect • Use another sheet if you need more space.

Create / make something useful

Draw and label your workspace. Add arrows showing input → processing → output; add a storage box. Use paper if a device is unavailable.

My project title: _____

Practice / useful file names	Projects / useful file names	Backup / useful file names
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

My project self-check / show evidence to an adult

- ☐ Label at least one input and one output
- ☐ Show where the work is saved
- ☐ Explain the job of each labelled part

Explain your thinking

What is the difference between seeing your work and saving it?

Reflect / what did I learn or improve?

My next small step: _____

My confidence: [] With help [] Independently [] Used in a new task

Optional stretch: Explain how a microphone and speaker have different jobs.

Adult or partner feedback: _____

COURSE 1 / COMPUTER CONFIDENCE / LESSON 2

Type, edit and undo

Name: _____ Date: _____ Part A / Learn + practise

Today I can: Correct text using the keyboard and check the result.

The cursor marks the editing position. Backspace removes the character before it; Delete usually removes the next character. Selecting text lets you replace it. Undo reverses a recent editing action.

Example: Draft: The cat is blu. Correction: put the cursor after u, type e, then read the whole sentence: The cat is blue.

Try it step by step

1. Type: I can check my work. Accuracy comes before speed.
2. Select one word and replace it with another.
3. On a Windows computer, try Ctrl+Z to undo an edit and Ctrl+S to save in your editor.
4. In the browser file desk, use its Save button. Reopen the file and compare the sentence.

Practise / try before checking

1. Where does Backspace usually remove a character?

A. Before the cursor B. After the cursor C. At the end of every line

Answer: _____

2. What should you do before replacing one word?

A. Close the file B. Select that word C. Delete the folder

Answer: _____

3. Copy accurately: I can check my work.

Answer: _____

COURSE 1 / COMPUTER CONFIDENCE / LESSON 2

Type, edit and undo

Part B / Create + explain + reflect • Use another sheet if you need more space.

Create / make something useful

Write three sentences about something you enjoy. Correct a deliberate spelling mistake, then save the corrected version.

My project title: _____

Practice / useful file names	Projects / useful file names	Backup / useful file names
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

My project self-check / show evidence to an adult

- ☐ Use spaces and sentence-ending punctuation
- ☐ Correct an error without deleting the paragraph
- ☐ Save and reopen the corrected text

Explain your thinking

How did you check accuracy without rushing?

Reflect / what did I learn or improve?

My next small step: _____

My confidence: [] With help [] Independently [] Used in a new task

Optional stretch: Replace a repeated word with a more precise one and explain your choice.

Adult or partner feedback: _____

COURSE 1 / COMPUTER CONFIDENCE / LESSON 3

Names that help you find files

Name: _____ Date: _____ Part A / Learn + practise

Today I can: Choose descriptive file names and recognise file types.

A file name tells you what the work contains. A folder groups files. An extension such as .txt or .xlsx gives a clue about the file type. Renaming an extension does not convert the contents.

Example: reading-survey.txt is easier to identify than newfile7.txt. A spreadsheet saved as reading-survey.xlsx remains a spreadsheet; changing its name to .jpg does not turn it into a photo.

Try it step by step

1. Compare the names newfile7.txt and garden-notes.txt.
2. In the file desk, save two short files with different descriptive names.
3. Select one saved file, open it and check the content.
4. Use Rename to improve one file name while keeping .txt in this practice desk.

Practise / try before checking

1. Which name best describes a plant observation?

A. thing.txt B. plant-height-week1.txt C. final-final.txt

Answer: _____

2. Which extension commonly identifies an Excel workbook?

A. .jpg B. .mp3 C. .xlsx

Answer: _____

3. Does renaming notes.txt to notes.jpg create a picture?

A. Yes B. No C. Only if the name is short

Answer: _____

COURSE 1 / COMPUTER CONFIDENCE / LESSON 3

Names that help you find files

Part B / Create + explain + reflect • Use another sheet if you need more space.

Create / make something useful

Plan names for a story, a survey and a drawing. Save two practice text files, then explain how you will find each one tomorrow.

My project title: _____

Practice / useful file names	Projects / useful file names	Backup / useful file names
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

My project self-check / show evidence to an adult

- ☐ Choose names that describe the contents
- ☐ Keep the correct file type
- ☐ Find the right file by its name

Explain your thinking

What two clues help you recognise a file?

Reflect / what did I learn or improve?

My next small step: _____

My confidence: [] With help [] Independently [] Used in a new task

Optional stretch: Design a naming rule for first drafts and improved versions.

Adult or partner feedback: _____

COURSE 1 / COMPUTER CONFIDENCE / LESSON 4

Folders and a safe saving routine

Name: _____ Date: _____ Part A / Learn + practise

Today I can: Organise files and make a separate backup copy.

Saving updates a file. A backup is an additional copy kept separately. Moving a file changes its location; it does not make an extra copy. Check both the file name and its folder.

Example: A story can live in Projects. A second copy in Backup is easier to identify if its name includes a version, such as story-v1.txt. A copy on the same device is useful practice, but does not protect against losing that whole device.

Try it step by step

1. Open a saved file in the browser desk.
2. Move it from Practice to Projects and find it again.
3. Make a copy in Backup and compare the two copies.
4. For real school files, ask an adult which approved backup location to use.

Practise / try before checking

1. Which action makes an extra copy?

A. Move B. Copy C. Rename

Answer: _____

2. What should you check before saving?

A. Only the font colour B. Only the computer brand C. File name and location

Answer: _____

3. Put the checking routine in order.

Write the letters in order: A. Check the content B. Open the saved file C. Save in the correct folder D. Choose a useful name

Answer: _____

COURSE 1 / COMPUTER CONFIDENCE / LESSON 4

Folders and a safe saving routine

Part B / Create + explain + reflect • Use another sheet if you need more space.

Create / make something useful

Organise your practice files into Practice, Projects and Backup. Write a four-step saving checklist on paper.

My project title: _____

Practice / useful file names	Projects / useful file names	Backup / useful file names
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

My project self-check / show evidence to an adult

- ☐ Find the project in the intended folder
- ☐ Keep an identifiable backup copy
- ☐ Reopen and check the saved content

Explain your thinking

Why is moving a file different from backing it up?

Reflect / what did I learn or improve?

My next small step: _____

My confidence: [] With help [] Independently [] Used in a new task

Optional stretch: Explain why a separately approved backup location can help if a device is lost.

Adult or partner feedback: _____

COURSE 1 / COMPUTER CONFIDENCE / LESSON 5

My organised learning portfolio

Name: _____ Date: _____ Part A / Learn + practise

Today I can: Complete a small task and demonstrate a reliable saving routine.

A portfolio is a collection of work that shows learning. Include a piece you improved and a short explanation. A useful portfolio is organised and understandable to someone else.

Example: Portfolio entry: title = My plant notes; work = three observations; improvement = I added centimetres to each measurement; location = Projects/plant-notes.txt.

Try it step by step

1. Choose one topic you know, such as plants or games.
2. Write a title and three facts in your own words.
3. Save, rename if needed, and organise the file in Projects.
4. Reopen it, make a backup, and explain the organisation to an adult.

Practise / try before checking

1. What best shows learning in a portfolio?

A. Many unnamed files B. A finished piece plus an explanation of an improvement C. Only a colourful cover

Answer: _____

2. You cannot find a file. What is a useful first step?

A. Check its likely folder and name B. Make ten new copies C. Delete the folder

Answer: _____

3. Before finishing a shared computer session, you should...

A. Leave your account open B. Save, check your work and sign out when appropriate C. Share your password

Answer: _____

COURSE 1 / COMPUTER CONFIDENCE / LESSON 5

My organised learning portfolio

Part B / Create + explain + reflect • Use another sheet if you need more space.

Create / make something useful

Create a mini portfolio with two text files and a contents note. Demonstrate opening the right file without guessing.

My project title: _____

Practice / useful file names	Projects / useful file names	Backup / useful file names
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

My project self-check / show evidence to an adult

- ☐ Use useful file names and folders
- ☐ Show a saved improvement
- ☐ Explain the saving and backup routine independently

Explain your thinking

Which routine will help you work independently next time?

Reflect / what did I learn or improve?

My next small step: _____

My confidence: [] With help [] Independently [] Used in a new task

Optional stretch: Teach the routine to a partner, then ask them to explain it back.

Adult or partner feedback: _____

COURSE 2 / CREATE AND COMMUNICATE / LESSON 1

Write for a real reader

Name: _____ Date: _____ Part A / Learn + practise

Today I can: Choose useful information for a particular audience.

An audience is the person or group receiving your message. A purpose is what you want the message to achieve. Choose words and details that help that audience.

Example: For a younger pupil: Bring a bottle of water for the garden visit. For a teacher planning the visit: Our group needs five minutes to collect bottles. The purpose changes the useful detail.

Try it step by step

1. Choose a reader: a classmate, younger pupil or teacher.
2. State the message in one clear sentence.
3. Add three useful facts; leave out unrelated details.
4. Read it aloud and replace one unclear word.

Practise / try before checking

1. Who is the audience for a welcome note to a new pupil?

A. The new pupil B. Only the printer C. Nobody

Answer: _____

2. Which instruction is clearest?

A. Bring that thing B. Bring a pencil and notebook C. Do the usual

Answer: _____

3. What should you remove from a short instruction?

A. Necessary steps B. The purpose C. Unrelated details

Answer: _____

COURSE 2 / CREATE AND COMMUNICATE / LESSON 1

Write for a real reader

Part B / Create + explain + reflect • Use another sheet if you need more space.

Create / make something useful

In the studio, write a welcome note for a new pupil. Include a title, three helpful details and a kind closing sentence.

My project title: _____

Part 1: title / ideas / drawing	Part 2: title / ideas / drawing	Part 3: title / ideas / drawing

My project self-check / show evidence to an adult

- ☐ Name or make the audience clear
- ☐ Include useful, accurate information
- ☐ Use respectful, understandable language

Explain your thinking

How did knowing the reader change your writing?

Reflect / what did I learn or improve?

My next small step: _____

My confidence: [] With help [] Independently [] Used in a new task

Optional stretch: Rewrite the same message for a parent and compare the details.

Adult or partner feedback: _____

COURSE 2 / CREATE AND COMMUNICATE / LESSON 2

Build a clear document

Name: _____ Date: _____ Part A / Learn + practise

Today I can: Organise a short document with a title, headings and readable text.

A title names the whole document. Headings group related information. Paragraphs separate ideas. Formatting should help a reader find and understand the message.

Example: Title: Our class garden. Heading 1: What we planted. Heading 2: How we care for it. Three short care steps are easier to follow than one long unbroken sentence.

Try it step by step

1. Start with a useful title in the studio.
2. Write one main idea per paragraph.
3. Use a short list for instructions and check the order.
4. Preview, revise, and download your text plan or copy it into your approved editor.

Practise / try before checking

1. What does a heading help the reader do?

A. Find a group of related information B. Change the facts C. Avoid reading entirely

Answer: _____

2. Which is easiest to follow for a procedure?

A. A random list B. Steps in the order they happen C. One very long sentence

Answer: _____

3. Arrange a simple writing process.

Write the letters in order: A. Save the checked version B. Read and improve it C. Write a draft D. Plan the message

Answer: _____

COURSE 2 / CREATE AND COMMUNICATE / LESSON 3

Make a useful poster

Name: _____ Date: _____ Part A / Learn + practise

Today I can: Combine a short message with a relevant visual.

A poster needs a clear main message, enough detail to act on, and a picture that supports the idea. Strong contrast helps readability. Use your own drawing or an image an adult confirms you may use.

Example: A reading-event poster might say Reading Together, Friday, classroom reading corner. A drawing of books supports the topic. A long unrelated story makes the action harder to find.

Try it step by step

1. Decide what the reader should know or do.
2. Write a short title and the essential details.
3. Sketch a relevant picture on paper; describe it in the studio.
4. View the poster from a short distance and simplify any crowded section.

Practise / try before checking

1. Which detail helps someone attend an event?

A. A random joke B. The time and place C. The designer's password

Answer: _____

2. Which picture choice is responsible?

A. Copy any image without checking B. Use your own drawing C. Use a classmate's private photo without asking

Answer: _____

3. What should the largest text usually communicate?

A. The main message B. Every sentence C. A hidden footnote

Answer: _____

COURSE 2 / CREATE AND COMMUNICATE / LESSON 3

Make a useful poster

Part B / Create + explain + reflect • Use another sheet if you need more space.

Create / make something useful

Design a paper poster encouraging a helpful classroom habit. Use the studio to plan the title, key details and image description.

My project title: _____

Part 1: title / ideas / drawing	Part 2: title / ideas / drawing	Part 3: title / ideas / drawing

My project self-check / show evidence to an adult

- ☐ Make one main message easy to identify
- ☐ Include the details needed to act
- ☐ Use a relevant, permitted picture and readable contrast

Explain your thinking

Why did you choose your picture and title?

Reflect / what did I learn or improve?

My next small step: _____

My confidence: ☐ With help ☐ Independently ☐ Used in a new task

Optional stretch: Ask a partner what they noticed first; revise if it was not the main message.

Adult or partner feedback:

COURSE 2 / CREATE AND COMMUNICATE / LESSON 4

Tell a story in three slides

Name: _____ Date: _____ Part A / Learn + practise

Today I can: Organise a short presentation with a beginning, evidence and ending.

Slides support your spoken explanation. Each slide needs one main idea. Keep text brief enough to read and use your voice to add detail.

Example: Slide 1: Our reading question. Slide 2: A chart of class votes. Slide 3: What we found and one question to explore next. The sequence helps a listener follow the reasoning.

Try it step by step

1. Write a title for each of three slides in the studio.
2. Give slide 1 a question or introduction.
3. Put evidence or an example on slide 2 and a conclusion on slide 3.
4. Use Preview slides, then rehearse the talk. If available, recreate it in an approved slide editor.

Practise / try before checking

1. What is a useful role for slide 2?

A. Evidence supporting the topic B. An unrelated game C. A copy of every sentence you will say

Answer: _____

2. Why keep slide text brief?

A. So there is no meaning B. So the audience can listen while seeing key ideas C. To avoid checking facts

Answer: _____

3. Arrange this presentation.

Write the letters in order: A. Explain the conclusion B. Show the evidence C. Introduce the question

Answer: _____

COURSE 2 / CREATE AND COMMUNICATE / LESSON 4

Tell a story in three slides

Part B / Create + explain + reflect • Use another sheet if you need more space.

Create / make something useful

Prepare a three-slide talk about a classroom improvement. Include one observation and a practical suggestion.

My project title: _____

Part 1: title / ideas / drawing	Part 2: title / ideas / drawing	Part 3: title / ideas / drawing

My project self-check / show evidence to an adult

- ☐ Use three slides with a clear order
- ☐ Support the suggestion with an observation
- ☐ Speak in your own words rather than reading every word

Explain your thinking

How does your evidence support your suggestion?

Reflect / what did I learn or improve?

My next small step: _____

My confidence: [] With help [] Independently [] Used in a new task

Optional stretch: Add a sentence about a limitation in your evidence.

Adult or partner feedback: _____

COURSE 2 / CREATE AND COMMUNICATE / LESSON 5

Present, listen and improve

Name: _____ Date: _____ Part A / Learn + practise

Today I can: Explain an idea and use respectful feedback to improve it.

Useful feedback describes something specific and suggests a change. Listening includes letting the speaker finish, checking understanding and responding kindly.

Example: Helpful: Your title is clear. I could not read the small labels; could you enlarge them? Less useful: It is bad. Specific feedback gives the creator something to act on.

Try it step by step

1. Rehearse a one-minute explanation of your project.
2. Ask a partner to say what they understood.
3. Request one specific suggestion and write it down.
4. Make one improvement and explain why you chose it.

Practise / try before checking

1. Which feedback is most useful?

A. Bad work B. The labels are small; please make them larger C. I do not care

Answer: _____

2. What should you do when a partner is speaking?

A. Interrupt every sentence B. Listen and wait for a suitable turn C. Look away and ignore them

Answer: _____

3. Must you accept every suggestion unchanged?

A. Yes, always B. No; consider it and explain your decision respectfully C. No; ignore all feedback

Answer: _____

COURSE 2 / CREATE AND COMMUNICATE / LESSON 5

Present, listen and improve

Part B / Create + explain + reflect • Use another sheet if you need more space.

Create / make something useful

Present your poster or slides to an adult or partner. Record one piece of feedback and an improved version in your portfolio.

My project title: _____

Part 1: title / ideas / drawing	Part 2: title / ideas / drawing	Part 3: title / ideas / drawing

My project self-check / show evidence to an adult

- ☐ Explain the main idea clearly
- ☐ Listen and respond respectfully
- ☐ Make or justify one thoughtful improvement

Explain your thinking

What changed after you listened to feedback?

Reflect / what did I learn or improve?

My next small step: _____

My confidence: [] With help [] Independently [] Used in a new task

Optional stretch: Ask a different listener to explain your message back to you.

Adult or partner feedback: _____

COURSE 3 / DATA DETECTIVES / LESSON 1

Ask a fair survey question

Name: _____ Date: _____ Part A / Learn + practise

Today I can: Choose a clear question and response rule.

A survey needs a clear question, understandable choices and a consistent rule. Tell respondents whether to choose one option. A question that pushes people towards an answer can distort the result.

Example: Fair: Which of these three activities would you choose for Friday? Choose one. Leading: Everyone loves drawing, so you choose drawing too, right?

Try it step by step

1. Choose a harmless classroom topic such as an activity preference.
2. Write a neutral question with three clear choices.
3. State one vote per person and keep the survey anonymous.
4. Test the question with an adult before collecting real responses. Use the fictional data lab to practise.

Practise / try before checking

1. Which wording is neutral?

A. Reading is best; choose it! B. Which activity would you choose? C. You must agree with me

Answer: _____

2. Why state one vote per person?

A. To make the rule consistent B. To force identical answers C. To collect addresses

Answer: _____

3. Which information is unnecessary for an anonymous activity survey?

A. Activity choice B. Number of votes C. Home address

Answer: _____

COURSE 3 / DATA DETECTIVES / LESSON 1

Ask a fair survey question

Part B / Create + explain + reflect • Use another sheet if you need more space.

Create / make something useful

Write an anonymous three-choice survey on paper. Ask an adult to check that the question is clear and fair.

My project title: _____

Category	Count	Chart / title / labels / scale
		
Total: _____		0

My project self-check / show evidence to an adult

- ☐ Ask one neutral question
- ☐ Give clear choices and a response rule
- ☐ Avoid unnecessary personal information

Explain your thinking

How might a leading question change your results?

Reflect / what did I learn or improve?

My next small step: _____

My confidence: [] With help [] Independently [] Used in a new task

Optional stretch: Explain what you would do if someone wanted an option not listed.

Adult or partner feedback: _____

COURSE 3 / DATA DETECTIVES / LESSON 2

Count carefully and clean data

Name: _____ Date: _____ Part A / Learn + practise

Today I can: Convert responses into accurate counts and notice errors.

A tally is a running count. Before drawing a conclusion, check for missing responses, duplicate entries and inconsistent category names. Correct only when you have evidence of the intended value.

Example: Fictional votes: Read, Draw, Read, Play, Draw, Read. Counts: Read 3, Draw 2, Play 1; total 6. Read and read refer to the same category in this example.

Try it step by step

1. Tally the six example votes on paper.
2. Compare your category counts with the original list.
3. Enter three category names and counts into the data lab.
4. Check the total against the number of responses. Investigate a mismatch before changing a value.

Practise / try before checking

1. How many Read votes are in the example?

Answer: _____

2. What is the total number of responses?

Answer: _____

3. You find the same response entered twice. What should you do?

A. Count it twice automatically B. Check the source and correct the duplicate C. Invent another vote

Answer: _____

COURSE 3 / DATA DETECTIVES / LESSON 2

Count carefully and clean data

Part B / Create + explain + reflect • Use another sheet if you need more space.

Create / make something useful

Make a clean table from: Chess, Art, Chess, Sport, Art, Chess, Sport, Art. Record one check you used.

My project title: _____

Category	Count	Chart / title / labels / scale
		
Total: _____		0

My project self-check / show evidence to an adult

- ☐ Count Chess 3, Art 3 and Sport 2
- ☐ Check that the total is 8
- ☐ Keep a note of any correction and its reason

Explain your thinking

Why check the original responses as well as the total?

Reflect / what did I learn or improve?

My next small step: _____

My confidence: [] With help [] Independently [] Used in a new task

Optional stretch: Create two incorrect category counts that still add to 8 and explain the problem.

Adult or partner feedback: _____

COURSE 3 / DATA DETECTIVES / LESSON 3

Totals and comparisons

Name: _____ Date: _____ Part A / Learn + practise

Today I can: Use totals and differences to answer data questions.

A total tells you how many responses there are altogether. A difference compares two counts. In a spreadsheet, a formula can update these results when the inputs change.

Example: Example: Reading 7, Drawing 5, Games 4. Total = $7 + 5 + 4 = 16$. Reading has $7 - 4 = 3$ more votes than Games.

Try it step by step

1. Enter the three example categories in the data lab.
2. Predict the total, then compare it with the displayed total.
3. Change Games from 4 to 6 and explain why the total changes.
4. Restore 4. In Excel, you can put headings in A1:B1, data in rows 2-4 and $=\text{SUM}(B2:B4)$ in B5.

Practise / try before checking

1. What is the original total?

Answer: _____

2. How many more votes does Reading have than Games?

Answer: _____

3. What is the new total if Games changes from 4 to 6?

Answer: _____

COURSE 3 / DATA DETECTIVES / LESSON 3

Totals and comparisons

Part B / Create + explain + reflect • Use another sheet if you need more space.

Create / make something useful

Use your clean survey table to write one total statement and two comparison statements. Check the arithmetic.

My project title: _____

Category	Count	Chart / title / labels / scale
Total: _____		0

My project self-check / show evidence to an adult

- ☐ Calculate the total correctly
- ☐ Use subtraction for a difference
- ☐ Match each statement to the correct categories

Explain your thinking

How did you predict the changed total without adding everything again?

Reflect / what did I learn or improve?

My next small step: _____

My confidence: [] With help [] Independently [] Used in a new task

Optional stretch: Find a different change to two categories that keeps the total unchanged.

Adult or partner feedback: _____

COURSE 3 / DATA DETECTIVES / LESSON 4

Choose and read a chart

Name: _____ Date: _____ Part A / Learn + practise

Today I can: Create a clearly labelled bar chart and interpret its scale.

A bar chart compares categories. Use a title, category labels and a numerical scale. Starting the value scale at zero helps represent bar lengths fairly. A total is not another response category.

Example: For Reading 7, Drawing 5 and Games 4, draw three bars from zero. Do not add a fourth Total bar: it combines the categories instead of representing another choice.

Try it step by step

1. Give the data lab an informative title.
2. Check that each category appears once and the numbers match your table.
3. Read the scale and compare the longest and shortest bars.
4. Change one count to see the chart update, then restore the original data.

Practise / try before checking

1. How many category bars should the example have?

A. Three B. Four including Total C. Six

Answer: _____

2. Why include a chart title?

A. To explain what the data is about B. To change the votes C. To hide the scale

Answer: _____

3. A chart shows 7, 5 and 4. Which is smallest?

A. Reading B. Drawing C. Games

Answer: _____

COURSE 3 / DATA DETECTIVES / LESSON 4

Choose and read a chart

Part B / Create + explain + reflect • Use another sheet if you need more space.

Create / make something useful

Create a chart of your survey, on paper or in the data lab. Write a sentence that compares two categories.

My project title: _____

Category	Count	Chart / title / labels / scale
		

Total: _____

My project self-check / show evidence to an adult

- ☐ Use an informative title and correct labels
- ☐ Represent counts accurately from zero
- ☐ Exclude the total from the categories

Explain your thinking

What would be misleading about treating Total as another activity?

Reflect / what did I learn or improve?

My next small step: _____

My confidence: [] With help [] Independently [] Used in a new task

Optional stretch: Explain how a missing or unclear scale could confuse a reader.

Adult or partner feedback: _____

COURSE 3 / DATA DETECTIVES / LESSON 5

Tell an honest data story

Name: _____ Date: _____ Part A / Learn + practise

Today I can: Support a conclusion with evidence and state a limitation.

Data can support a claim about the group you studied. A small classroom survey does not automatically describe everyone. Separate what you observed from what you predict.

Example: Supported: Reading received the most votes among the 16 responses in our example. Too broad: Every child everywhere prefers reading. The example only describes its respondents.

Try it step by step

1. Write the question and describe the group or fictional example used.
2. Choose a table or chart as evidence.
3. Write one supported conclusion and one limitation.
4. Present a suggestion, then explain what more you would need to know.

Practise / try before checking

1. Which conclusion is supported by the example?

A. Every child prefers Reading B. Reading received the most votes in this group C. Games is a bad activity

Answer: _____

2. What is a useful limitation?

A. We only asked one small group B. The title has letters C. We used numbers

Answer: _____

3. If two activities tie, you should...

A. Hide one result B. Report the tie clearly C. Invent a deciding vote

Answer: _____

COURSE 3 / DATA DETECTIVES / LESSON 5

Tell an honest data story

Part B / Create + explain + reflect • Use another sheet if you need more space.

Create / make something useful

Prepare a short data report with a question, table or chart, evidence-based conclusion and limitation.
Suggest a fair next step.

My project title: _____

Category	Count	Chart / title / labels / scale
		
Total: _____		0

My project self-check / show evidence to an adult

- ☐ Link the conclusion to actual counts
- ☐ State who or what the data represents
- ☐ Acknowledge a limitation or tie

Explain your thinking

What does your evidence show, and what does it not tell you?

Reflect / what did I learn or improve?

My next small step: _____

My confidence: [] With help [] Independently [] Used in a new task

Optional stretch: Plan how you could improve the survey before repeating it.

Adult or partner feedback: _____

COURSE 4 / CODING EXPLORERS / LESSON 1

Give precise instructions

Name: _____ Date: _____ Part A / Learn + practise

Today I can: Write and test an ordered set of instructions.

An algorithm is a sequence of steps for a task. Instructions must be precise enough for the person or computer following them. Test them from the stated starting point.

Example: On our grid the robot starts at the top-left, coordinate (0,0). Start, Right, Right, Right moves it to (3,0). Here coordinates increase rightwards and downwards.

Try it step by step

1. Draw or inspect the five-by-five grid.
2. Predict the position after each Right instruction.
3. Add Start and three Right blocks, then run the program.
4. Compare the path with your prediction; reset and correct the steps if needed.

Practise / try before checking

1. Starting at column 0, what column follows three Right moves?

Answer: _____

2. Which instruction is more precise?

A. Go over there B. Move one square right C. Do something

Answer: _____

3. Arrange a coding routine.

Write the letters in order: A. Compare the result with the goal B. Run it C. Build the program D. Plan the steps

Answer: _____

COURSE 4 / CODING EXPLORERS / LESSON 1

Give precise instructions

Part B / Create + explain + reflect • Use another sheet if you need more space.

Create / make something useful

Write a paper algorithm that moves a counter three squares right. Ask a partner to follow it exactly.

My project title: _____

	0	1	2	3	4
0	S			G	
1					
2					
3					
4					

My ordered instructions (Down increases the row):

My project self-check / show evidence to an adult

- ☐ State the starting position
- ☐ Give a complete ordered sequence
- ☐ Compare the actual path with the intended path

Explain your thinking

Why can the order of instructions matter?

Reflect / what did I learn or improve?

My next small step: _____

My confidence: [] With help [] Independently [] Used in a new task

Optional stretch: Find two different sequences that reach (2,2).

Adult or partner feedback: _____

COURSE 4 / CODING EXPLORERS / LESSON 2

Repeat a useful pattern

Name: _____ Date: _____ Part A / Learn + practise

Today I can: Replace repeated instructions with a fixed-count loop.

A loop repeats instructions. A fixed-count loop stops after its stated count. Read both the repeated action and the count before predicting the result.

Example: Repeat Down 3 has the same effect as Down, Down, Down. From (0,0), it reaches (0,3). In Scratch, repeat 3 repeats the blocks placed inside it three times.

Try it step by step

1. Build Start followed by three Down blocks and predict the endpoint.
2. Run and check the path.
3. Reset the program and use Start plus Repeat Down 3 instead.
4. Run again and compare the endpoint and number of written blocks.

Practise / try before checking

1. How many moves does Repeat Down 3 make?

Answer: _____

2. Which is equivalent to three Down blocks?

A. Repeat Down 3 B. Repeat Right 3 C. Down once

Answer: _____

3. Repeat an action 2 times, then 2 more times. How many actions is that?

Answer: _____

COURSE 4 / CODING EXPLORERS / LESSON 2

Repeat a useful pattern

Part B / Create + explain + reflect • Use another sheet if you need more space.

Create / make something useful

Create a repeated clap-and-tap pattern on paper. Write it once using a repeat count and once in full.

My project title: _____

	0	1	2	3	4
0	S				
1					
2					
3	G				
4					

My ordered instructions (Down increases the row):

My project self-check / show evidence to an adult

- ☐ Identify the repeating action or group
- ☐ Choose the correct repeat count
- ☐ Show that both versions have the same result

Explain your thinking

When does a repeat block make a program easier to read?

Reflect / what did I learn or improve?

My next small step: _____

My confidence: [] With help [] Independently [] Used in a new task

Optional stretch: Describe a pattern with two different actions inside each repeat.

Adult or partner feedback: _____

COURSE 4 / CODING EXPLORERS / LESSON 3

Events start actions

Name: _____ Date: _____ Part A / Learn + practise

Today I can: Identify the event that starts a program.

An event is something that triggers an action, such as pressing a button. Our robot program needs Start as its first block. In Scratch, a when green flag clicked block starts its attached script when the flag is clicked.

Example: A doorbell press is an event; the sound is an action. In the lab, Run triggers the program and the leading Start block marks where its instructions begin.

Try it step by step

1. Build Right, Right without Start and predict what will happen.
2. Run and read the explanation.
3. Add Start and move it to the top using the arrow controls.
4. Run again. Explain the difference between the trigger and the movement instructions.

Practise / try before checking

1. Which is an event?

A. A button being pressed B. A folder name C. A stored picture

Answer: _____

2. Where should Start go in this lab?

A. After every move B. At the beginning C. Only at the end

Answer: _____

3. In Scratch, what starts a script attached to when green flag clicked?

A. Clicking the green flag B. Renaming the project C. Closing the tab

Answer: _____

COURSE 4 / CODING EXPLORERS / LESSON 3

Events start actions

Part B / Create + explain + reflect • Use another sheet if you need more space.

Create / make something useful

Design two event-action pairs for an imaginary helpful classroom device. Use drawings and labels, without building electrical hardware.

My project title: _____

	0	1	2	3	4
0	S		G		
1					
2					
3					
4					

My ordered instructions (Down increases the row):

My project self-check / show evidence to an adult

- ☐ Name each event clearly
- ☐ Describe the action it triggers
- ☐ Explain when the action should happen

Explain your thinking

How is an event different from a movement instruction?

Reflect / what did I learn or improve?

My next small step: _____

My confidence: [] With help [] Independently [] Used in a new task

Optional stretch: Suggest a sensible response if the same event happens again.

Adult or partner feedback: _____

COURSE 4 / CODING EXPLORERS / LESSON 4

Make a decision with a condition

Name: _____ Date: _____ Part A / Learn + practise

Today I can: Predict an if/else decision from the current situation.

A condition is a check that can be true or false. An if/else instruction chooses one of two actions. The check must be made when the instruction runs.

Example: Today a wall is at (2,0). After moving right once, the robot is at (1,0). If right is clear, go right; else go down chooses Down because the wall blocks the next right square.

Try it step by step

1. Observe the wall and predict the safe path.
2. Build Start, Right, If right clear else Down.
3. Run and check that the robot finishes at (1,1).
4. Explain which branch was chosen and why. A blocked move leaves the robot in place.

Practise / try before checking

1. At (1,0), with a wall at (2,0), is the next right square clear?

A. Yes B. No C. Always

Answer: _____

2. Which action does the stated if/else choose there?

A. Right B. Down C. Three jumps

Answer: _____

3. When should a condition be checked?

A. Only when naming the program B. When the decision instruction runs C. Never

Answer: _____

COURSE 4 / CODING EXPLORERS / LESSON 4

Make a decision with a condition

Part B / Create + explain + reflect • Use another sheet if you need more space.

Create / make something useful

Draw a simple flowchart for If it is raining, take an umbrella; else wear a sun hat when appropriate. Discuss how a real decision may need more information.

My project title: _____

	0	1	2	3	4
0	S		#		
1		G			
2					
3					
4					

My ordered instructions (Down increases the row):

My project self-check / show evidence to an adult

- ☐ Write a condition that can be checked
- ☐ Show the two possible branches
- ☐ Explain the branch chosen in one example

Explain your thinking

Why does the same decision block sometimes choose a different action?

Reflect / what did I learn or improve?

My next small step: _____

My confidence: [] With help [] Independently [] Used in a new task

Optional stretch: Suggest what the robot should do if both possible directions are blocked.

Adult or partner feedback: _____

COURSE 4 / CODING EXPLORERS / LESSON 5

Debug a robot delivery

Name: _____ Date: _____ Part A / Learn + practise

Today I can: Find an error, test a correction and explain the improvement.

A bug is an error in a program. Debugging means finding and correcting it. Change one thing at a time when possible, then compare the new result with the intended goal.

Example: Goal: (3,3). Start, Repeat Right 3, Down reaches (3,1), so it needs two more Down moves. Start, Repeat Right 3, Repeat Down 3 reaches the goal.

Try it step by step

1. Predict where the example with one Down ends.
2. Run it and compare with the goal marker.
3. Correct the program using a repeat block or extra Down blocks.
4. Run again and describe the bug, correction and evidence that it worked.

Practise / try before checking

1. What row is reached after one Down from row 0?

Answer: _____

2. How many more Down moves are needed from row 1 to row 3?

Answer: _____

3. Which record best explains debugging?

A. It worked somehow B. The robot was two rows short; I added two Down moves and retested C. I changed everything without checking

Answer: _____

COURSE 4 / CODING EXPLORERS / LESSON 5

Debug a robot delivery

Part B / Create + explain + reflect • Use another sheet if you need more space.

Create / make something useful

Make a delivery program to reach (3,3). Save the program text in your portfolio with a short debugging note.

My project title: _____

	0	1	2	3	4
0	S				
1					
2					
3				G	
4					

My ordered instructions (Down increases the row):

My project self-check / show evidence to an adult

- ☐ Reach the stated goal from the start
- ☐ Use clear, working instructions
- ☐ Explain a tested correction or a deliberate test case

Explain your thinking

What evidence shows that your correction worked?

Reflect / what did I learn or improve?

My next small step: _____

My confidence: [] With help [] Independently [] Used in a new task

Optional stretch: Find a second working program and compare which is easier to understand.

Adult or partner feedback: _____

COURSE 5 / SMART INFORMATION USERS / LESSON 1

Ask a useful research question

Name: _____ Date: _____ Part A / Learn + practise

Today I can: Turn a broad topic into a question you can investigate.

A useful question tells you what you want to find out. Keywords are important words that help you look for relevant information. Begin with teacher-approved sources.

Example: Topic: trees. Focused question: How do tree roots help a tree? Useful keywords: tree roots functions. A page about decorating a tree may not answer that question.

Try it step by step

1. Choose a classroom topic and write what you already know.
2. Turn one uncertainty into a focused question.
3. Underline two or three useful keywords.
4. Read the fictional source cards and practise selecting information relevant to a claim.

Fictional source cards / compare the evidence

A. Class tally, Monday: Reading 7, Drawing 5, Games 4. Sixteen responses; one choice each. B. Personal preference: Drawing is best because I enjoy colours. C. Old poster: Games day was the most popular event at another school last year.

Claim to check: Reading received the most votes in the group described by Monday's tally. Which card directly supports this claim?

Practise / try before checking

1. Which question is most focused?

A. Tell me everything B. How do roots help a tree? C. Trees?

Answer: _____

2. Which keywords best match the roots question?

A. tree roots functions B. birthday cake C. every animal ever

Answer: _____

3. A result has a matching picture but unrelated text. Should you use it as evidence?

A. Yes, because the picture looks right B. No; check whether the information answers the question C. Always

Answer: _____

COURSE 5 / SMART INFORMATION USERS / LESSON 1

Ask a useful research question

Part B / Create + explain + reflect • Use another sheet if you need more space.

Create / make something useful

Make a research plan with one question, keywords and two types of sources you could ask an adult to help you find.

My project title: _____

My question or claim
_____Evidence / source / date
_____What I can conclude

My project self-check / show evidence to an adult

- ☐ Ask a focused question
- ☐ Choose relevant keywords
- ☐ Plan to use appropriate sources

Explain your thinking

How will you decide whether a source is relevant?

Reflect / what did I learn or improve?

My next small step: _____

My confidence: [] With help [] Independently [] Used in a new task

Optional stretch: Narrow the question further if it would take too long to answer.

Adult or partner feedback: _____

COURSE 5 / SMART INFORMATION USERS / LESSON 2

Fact, opinion and evidence

Name: _____ Date: _____ Part A / Learn + practise

Today I can: Distinguish a checkable claim from a personal preference.

A factual claim can be checked against evidence, although it may turn out to be wrong. An opinion expresses a preference or judgement. Evidence helps us decide whether a factual claim is supported.

Example: The library opens at 9 is a checkable claim. The library is the nicest room is an opinion. An official timetable can help check the opening-time claim.

Try it step by step

1. Read the example statements aloud.
2. Explain which statement could be checked and what evidence would help.
3. Use the fictional source cards to distinguish preference from a recorded count.
4. Write one factual claim and one opinion about a familiar topic.

Fictional source cards / compare the evidence

A. Class tally, Monday: Reading 7, Drawing 5, Games 4. Sixteen responses; one choice each. B. Personal preference: Drawing is best because I enjoy colours. C. Old poster: Games day was the most popular event at another school last year.

Claim to check: Reading received the most votes in the group described by Monday's tally. Which card directly supports this claim?

Practise / try before checking

1. Which is an opinion?

A. There are 12 books on this shelf B. This is the most exciting story C. The event starts at 10

Answer: _____

2. Is every factual claim automatically true?

A. Yes B. No; it still needs checking C. Only online claims are true

Answer: _____

3. What best checks a school event time?

A. A guess B. A relevant official notice C. The colour of the poster

Answer: _____

COURSE 5 / SMART INFORMATION USERS / LESSON 2

Fact, opinion and evidence

Part B / Create + explain + reflect • Use another sheet if you need more space.

Create / make something useful

Write four statements about a book or classroom activity. Label two as checkable claims and two as opinions; name evidence for one claim.

My project title: _____

My question or claim
_____Evidence / source / date
_____What I can conclude

My project self-check / show evidence to an adult

- ☐ Distinguish claims from preferences
- ☐ Avoid treating all claims as true
- ☐ Name evidence that could check a claim

Explain your thinking

Why is an opinion different from an incorrect factual claim?

Reflect / what did I learn or improve?

My next small step: _____

My confidence: [] With help [] Independently [] Used in a new task

Optional stretch: Find a sentence that mixes a fact and an opinion, and separate the parts.

Adult or partner feedback: _____

COURSE 5 / SMART INFORMATION USERS / LESSON 3

Check the source and compare

Name: _____ Date: _____ Part A / Learn + practise

Today I can: Use source, date and evidence to judge a claim.

Ask who made the information, when it was made, how they know and whether another suitable source agrees. Two copied versions of the same claim are not two independent pieces of evidence.

Example: A current school notice about this Friday is more relevant than last year's event poster. A second page repeating the old poster does not make its date current.

Try it step by step

1. Read the author, date or context on each fictional source card.
2. Select evidence that directly supports the claim about the recorded group.
3. Name a source that does not support the claim and explain why.
4. Write a conclusion limited to what the evidence shows.

Fictional source cards / compare the evidence

A. Class tally, Monday: Reading 7, Drawing 5, Games 4. Sixteen responses; one choice each. B. Personal preference: Drawing is best because I enjoy colours. C. Old poster: Games day was the most popular event at another school last year.

Claim to check: Reading received the most votes in the group described by Monday's tally. Which card directly supports this claim?

Practise / try before checking

1. Which date is most relevant for this Friday's event?

A. A current official notice B. Last year's poster C. A date from a different school

Answer: _____

2. Two pages copy the same unverified statement. Is that independent confirmation?

A. Yes B. No C. Only if the fonts differ

Answer: _____

3. Which question helps judge evidence?

A. Is the page colourful? B. How does the author know? C. Is the title in capitals?

Answer: _____

COURSE 5 / SMART INFORMATION USERS / LESSON 3

Check the source and compare

Part B / Create + explain + reflect • Use another sheet if you need more space.

Create / make something useful

Write a source-checking card: Who? When? What evidence? Does another suitable source agree? Apply it to the fictional cards.

My project title: _____

My question or claim

Evidence / source / date

What I can conclude

My project self-check / show evidence to an adult

- ☐ Identify relevant source information
- ☐ Check whether the evidence supports the claim
- ☐ Explain a limitation or missing detail

Explain your thinking

Why can two sources agree and still be wrong?

Reflect / what did I learn or improve?

My next small step: _____

My confidence: [] With help [] Independently [] Used in a new task

Optional stretch: Explain what you would do if two suitable sources disagreed.

Adult or partner feedback: _____

COURSE 5 / SMART INFORMATION USERS / LESSON 4

Protect privacy and ask for help

Name: _____ Date: _____ Part A / Learn + practise

Today I can: Choose safe responses to requests for personal information.

Personal information can identify or locate someone. Think before sharing names, addresses, passwords, photos or school details. If a message feels unsafe or confusing, stop and involve a trusted adult.

Example: An unexpected message says: Send your password to claim a prize. A safe response is to stop, avoid sharing or clicking, and tell a trusted adult. You do not need to reply.

Try it step by step

1. Read the pretend prize message; do not use a real account.
2. Identify the private information being requested.
3. Rehearse how to explain the concern to a trusted adult.
4. Create a reminder card using fictional information only.

Practise / try before checking

1. An unexpected message asks for your password. What should you do?

A. Send it quickly B. Stop and tell a trusted adult C. Post it publicly

Answer: _____

2. Before sharing a classmate's photo, you should...

A. Assume it is fine B. Check permission and school/adult guidance C. Add their address

Answer: _____

3. Someone is unkind online. What is a helpful next step?

A. Ask a trusted adult for help B. Share more private information C. Start a public argument

Answer: _____

COURSE 5 / SMART INFORMATION USERS / LESSON 4

Protect privacy and ask for help

Part B / Create + explain + reflect • Use another sheet if you need more space.

Create / make something useful

Create a Stop, Check, Ask card. Include three pieces of information to protect and a safe response to one pretend message.

My project title: _____

My question or claim
_____Evidence / source / date
_____What I can conclude

My project self-check / show evidence to an adult

- ☐ Identify private information
- ☐ Avoid sharing or following suspicious requests
- ☐ Know how to seek trusted adult support

Explain your thinking

What would you say to an adult if a message worried you?

Reflect / what did I learn or improve?

My next small step: _____

My confidence: [] With help [] Independently [] Used in a new task

Optional stretch: Explain why protecting a friend's information matters too.

Adult or partner feedback: _____

COURSE 5 / SMART INFORMATION USERS / LESSON 5

AI answers need human checking

Name: _____ Date: _____ Part A / Learn + practise

Today I can: Check a generated answer and take responsibility for your work.

AI systems generate outputs from patterns and instructions; a confident answer can still be wrong. People must check facts, calculations and suitability. Use an adult-led example and keep personal information out of prompts.

Example: Pretend AI answer: Four groups of six make 28. Check: $6 + 6 + 6 + 6 = 24$. The confident wording does not make 28 correct.

Try it step by step

1. Read the pretend answer without using a live AI account.
2. Check its arithmetic yourself or with counters.
3. Write the corrected answer and explain your evidence.
4. Discuss when an adult could use AI to suggest ideas and why people still need to review them.

Practise / try before checking

1. What is four groups of six?

Answer: _____

2. Does confident wording prove an AI answer is correct?

A. Yes B. No C. Only if it is long

Answer: _____

3. Which is appropriate for an adult-led prompt?

A. A child's home address B. A general question with no private details C. A password

Answer: _____

COURSE 5 / SMART INFORMATION USERS / LESSON 5

AI answers need human checking

Part B / Create + explain + reflect • Use another sheet if you need more space.

Create / make something useful

Make an AI checking checklist: check the question, verify facts or maths, look for unfair assumptions, and explain the final answer in your own words.

My project title: _____

My question or claim

Evidence / source / date

What I can conclude

My project self-check / show evidence to an adult

- ☐ Find and correct the example error
- ☐ Explain the evidence for the correction
- ☐ Protect privacy and take responsibility for the answer

Explain your thinking

What remains your responsibility when a tool helps you?

Reflect / what did I learn or improve?

My next small step: _____

My confidence: [] With help [] Independently [] Used in a new task

Optional stretch: Give an example of an AI suggestion that might be useful but still needs adult review.

Adult or partner feedback: _____

COURSE 6 / YOUNG PROBLEM-SOLVERS / LESSON 1

Notice and define a problem

Name: _____ Date: _____ Part A / Learn + practise

Today I can: Describe a problem using observations and a clear goal.

A useful problem statement says what is happening, who is affected and what improvement is wanted. Observe before choosing a solution. A guess about the cause needs checking.

Example: Observation: three pencils rolled off the desk during a task. Goal: keep the pencils within reach without rolling. This is more useful than Our desk is bad.

Try it step by step

1. Choose a small classroom problem that is safe to investigate.
2. Record what you actually observe without naming or blaming classmates.
3. Write who needs help and what a better result would look like.
4. Use the project planner to separate the problem, evidence and possible solution.

Practise / try before checking

1. Which is an observation?

A. The desk hates pencils B. Three pencils rolled off C. Everyone is careless

Answer: _____

2. When should you choose a solution?

A. Before considering the problem B. After understanding the problem and goal C. Without checking anything

Answer: _____

3. Which goal can you test?

A. Make everything perfect B. Keep five pencils from rolling off during a short trial C. Be the best forever

Answer: _____

COURSE 6 / YOUNG PROBLEM-SOLVERS / LESSON 1

Notice and define a problem

Part B / Create + explain + reflect • Use another sheet if you need more space.

Create / make something useful

Create a problem card with one observation, the person or group needing help, and a testable goal.

My project title: _____

My plan, drawing, table or evidence

My project self-check / show evidence to an adult

- ☐ Separate observations from guesses
- ☐ Describe a small manageable problem
- ☐ Write a goal that can be checked

Explain your thinking

How will you know whether the problem has improved?

Reflect / what did I learn or improve?

My next small step: _____

My confidence: [] With help [] Independently [] Used in a new task

Optional stretch: Suggest another possible cause before choosing a solution.

Adult or partner feedback: _____

COURSE 6 / YOUNG PROBLEM-SOLVERS / LESSON 2

Plan with time and a budget

Name: _____ Date: _____ Part A / Learn + practise

Today I can: Choose materials within a simple budget and organise tasks.

A constraint is a limit such as cost, time or materials. Estimate first, calculate, then check that the plan fits. A cheaper choice is useful only if it can do the required job.

Example: Pretend budget: 50 units. Two card sheets at 10 each and one tape roll at 15 cost $2 \times 10 + 15 = 35$. The remaining amount is $50 - 35 = 15$.

Try it step by step

1. Write the project goal and available time.
2. List materials and pretend prices; no purchase is needed.
3. Calculate the cost and compare it with the budget.
4. Divide the work into preparation, making, testing and tidying.

Practise / try before checking

1. What is the example total cost?

Answer: _____

2. How much remains from 50?

Answer: _____

3. Your plan exceeds the budget. What should you do?

A. Ignore the limit B. Revise materials or design and recalculate C. Hide an item's cost

Answer: _____

COURSE 6 / YOUNG PROBLEM-SOLVERS / LESSON 2

Plan with time and a budget

Part B / Create + explain + reflect • Use another sheet if you need more space.

Create / make something useful

Plan a paper model with a pretend budget of 50 units. Use the planner to record materials, cost, roles and time.

My project title: _____

My plan, drawing, table or evidence

My project self-check / show evidence to an adult

- ☐ Calculate the total correctly
- ☐ Keep the plan within the stated limits
- ☐ Break the work into manageable tasks

Explain your thinking

Which trade-off did you make in your plan?

Reflect / what did I learn or improve?

My next small step: _____

My confidence: [] With help [] Independently [] Used in a new task

Optional stretch: Plan an alternative with a budget of 40 and explain what changes.

Adult or partner feedback: _____

COURSE 6 / YOUNG PROBLEM-SOLVERS / LESSON 3

Make and test a paper bridge

Name: _____ Date: _____ Part A / Learn + practise

Today I can: Compare two paper designs using a simple fair test.

A fair comparison changes the feature being investigated while keeping other important conditions the same. Repeated trials help you notice variation. Record what happens, including an unexpected result.

Example: Compare flat and folded paper bridges using the same paper size, gap and type of small counter. Add one counter at a time. Record the count before the bridge no longer supports the load; do not use heavy objects.

Try it step by step

1. Ask an adult to set up a short safe gap between two stable supports.
2. Make one flat and one folded bridge from equal-sized paper.
3. Test with the same light counters and method, keeping hands clear of the falling counters.
4. Record the results; repeat if practical. Discuss what the test does and does not show.

Practise / try before checking

1. Which should stay the same in this comparison?

A. Paper size and gap B. Everything including the fold C. Only the colour of your pencil

Answer: _____

2. Why repeat a trial?

A. To guarantee your favourite wins B. To notice variation and check the result C. To avoid recording data

Answer: _____

3. An unexpected result should be...

A. Hidden B. Recorded and investigated C. Replaced with a guessed number

Answer: _____

COURSE 6 / YOUNG PROBLEM-SOLVERS / LESSON 3

Make and test a paper bridge

Part B / Create + explain + reflect • Use another sheet if you need more space.

Create / make something useful

Draw two bridge designs and record trial results in a small table. If making is unavailable, plan the test on paper and label it Not yet tested.

My project title: _____

My two bridge designs and fair-test notes	Design / Trial 1 / Trial 2
Only record actual results. Mark a plan: Not yet tested.	

My project self-check / show evidence to an adult

- ☐ State what changes and what stays the same
- ☐ Record actual results or clearly mark an untested plan
- ☐ Use evidence to compare the designs

Explain your thinking

What makes your comparison fair, and what might affect the result?

Reflect / what did I learn or improve?

My next small step: _____

My confidence: ☐ With help ☐ Independently ☐ Used in a new task

Optional stretch: Plan another test that changes only one design feature.

Adult or partner feedback:

COURSE 6 / YOUNG PROBLEM-SOLVERS / LESSON 4

Share roles and improve together

Name: _____ Date: _____ Part A / Learn + practise

Today I can: Work with a partner and use evidence to decide a next step.

Teams work better when people understand the goal and their responsibilities. Roles can rotate. Disagreement is a chance to compare reasons, listen and decide how to test an idea.

Example: One partner prepares materials, another records results, and both help interpret them. Next trial they swap roles. If they disagree about the stronger bridge, they compare the recorded tests.

Try it step by step

1. Agree the goal and two or three tasks with a partner or adult.
2. Choose roles and decide when to swap.
3. Use I noticed... and My reason is... to explain ideas.
4. Agree one change to test, record the result and tidy together.

Practise / try before checking

1. Why rotate roles?

A. So everyone can practise different responsibilities B. So nobody learns the task C. To hide mistakes

Answer: _____

2. Which response supports teamwork?

A. Only my idea matters B. Let us compare our reasons and test one change C. You are always wrong

Answer: _____

3. A teammate is stuck. What is helpful?

A. Do all their work without discussion B. Offer a hint and listen to what they need C. Ignore them

Answer: _____

COURSE 6 / YOUNG PROBLEM-SOLVERS / LESSON 4

Share roles and improve together

Part B / Create + explain + reflect • Use another sheet if you need more space.

Create / make something useful

Complete a small shared task or role-play one with an adult. Record roles, one disagreement handled respectfully and one improvement.

My project title: _____

My plan, drawing, table or evidence

My project self-check / show evidence to an adult

- ☐ Share clear responsibilities
- ☐ Listen and explain reasons respectfully
- ☐ Record a jointly agreed improvement

Explain your thinking

How did you make space for another person's idea?

Reflect / what did I learn or improve?

My next small step: _____

My confidence: [] With help [] Independently [] Used in a new task

Optional stretch: Explain how you would include a teammate who communicates in a different way.

Adult or partner feedback: _____

COURSE 6 / YOUNG PROBLEM-SOLVERS / LESSON 5

Show what you can do

Name: _____ Date: _____ Part A / Learn + practise

Today I can: Present a project with evidence, limitations and a next step.

A project explanation connects the problem, plan, action, evidence and improvement. Reflection describes what you learned and what you would try next. A project can teach you something even when the first design fails.

Example: Our folded bridge held more counters in these trials. We kept the gap and paper size the same. Folding accuracy varied, so next time we will mark equal folds before testing.

Try it step by step

1. Choose a project from this course or an earlier course.
2. Collect a plan, work sample and evidence of a test or revision.
3. Explain it to an adult using the problem → action → evidence → improvement sequence.
4. Use the three-level rubric honestly and choose one next learning goal.

Practise / try before checking

1. Which statement uses evidence responsibly?

A. Our design is best everywhere B. Our design held more counters in these trials C. Testing is unnecessary

Answer: _____

2. Arrange a project explanation.

Write the letters in order: A. Describe an improvement B. Show the evidence C. Explain the plan and action D. Describe the problem

Answer: _____

3. What is a useful reflection?

A. I learned nothing because the first try failed B. I found a weak part, changed it and will test again C. I will never change my plan

Answer: _____

COURSE 6 / YOUNG PROBLEM-SOLVERS / LESSON 5

Show what you can do

Part B / Create + explain + reflect • Use another sheet if you need more space.

Create / make something useful

Prepare a mini exhibition: one project, a short explanation, evidence, and a next-step card. Invite feedback from a trusted adult or classmate.

My project title: _____

My plan, drawing, table or evidence

My project self-check / show evidence to an adult

- ☐ Explain the connection between problem and solution
- ☐ Show evidence and acknowledge a limitation
- ☐ Describe an improvement and a realistic next goal

Explain your thinking

What can you now do independently, and where would help still be useful?

Reflect / what did I learn or improve?

My next small step: _____

My confidence: [] With help [] Independently [] Used in a new task

Optional stretch: Apply the same planning-and-testing process to a new small problem.

Adult or partner feedback: _____