

SIX EXPERIENCES / SUGGESTED SIX-WEEK PATHWAY

Skills to use, explain and grow

Justify trade-offs and document a reproducible method.

About 50 minutes per experience. Use one experience each week, or split it into shorter sessions. Grade labels are flexible starting points.

Your course map

1. Automate a safe repeated workflow - page 2
2. Communicate uncertainty honestly - page 4
3. Interpret a comparison without claiming causation - page 6
4. Compare search strategies - page 8
5. Evaluate errors across groups - page 10
6. Run a pilot and decide what changes - page 12

A useful learning routine

Read the goal and example. Follow the four steps. Try the three questions. Make the project, explain your choices and reflect. Spend roughly half the session making and explaining.

Name or classroom nickname: _____ Start date: _____

Learning partner: _____

Print A4 portrait at 100% or Actual size. These are paper workbooks, not fillable forms. Learner questions and teacher answers are in separate documents. Version: 12 October 2026.

EXPERIENCE 1 / DIGITAL CONFIDENCE

Automate a safe repeated workflow

Plan a bounded automation with a preview and recovery path. | About 50 minutes

Automation repeats instructions. A reliable workflow validates inputs, previews changes, limits its scope and records results.

Worked example: A plan to rename ten fictional image files first lists old and proposed names. It stops on duplicate names and keeps a mapping for reversal.

Follow the steps

1. Scope: Choose a small copied practice folder.
2. Preview: List proposed changes before applying them.
3. Validate: Check duplicates and unexpected file types.
4. Recover: Keep an original-to-new mapping and test a small batch.

Try these exercises

1. A preview finds two identical target names. What next?

A. Stop and resolve the collision | B. Delete both originals | C. Continue anyway

Answer: _____

2. Which evidence would best show this skill?

A. Copy an unrelated answer | B. Bound the scope and explain or demonstrate it | C. Say it is finished without checking

Answer: _____

3. Put the worked-example steps in order.

Write the letters in order. A. Recover | B. Validate | C. Preview | D. Scope

Answer: _____

EXPERIENCE 1 / CREATE, EXPLAIN AND REFLECT

Automate a safe repeated workflow

Write pseudocode and a preview table for renaming six fictional files. Do not run it on real school folders.

Worked example reference - explain it, then try your own project

STEP 1
Scope

STEP 2
Preview

STEP 3
Validate

STEP 4
Recover

My notes, drawing or dictated explanation (attach another sheet if needed):

Review your evidence

- ☐ Bound the scope
- ☐ Detect name collisions
- ☐ Explain recovery

What did I learn, change or need help with?

Next challenge: Add a test for an empty folder.

These ticks are a self-review. Ask an adult or partner to review what you can show.

EXPERIENCE 2 / CREATE AND COMMUNICATE

Communicate uncertainty honestly

Distinguish a measured result, estimate and unsupported guess. | About 50 minutes

Readers need to know how confident a claim should be. Use ranges or caveats only when they follow from a stated method.

Worked example: A task took 18, 20 and 22 minutes in three trials. A plan can allow about 20 minutes while noting that three trials may not capture all conditions.

Follow the steps

1. Measure: List the three observed times.
2. Summarise: Describe the typical result without hiding the range.
3. Qualify: State the small number of trials and conditions.
4. Recommend: Offer a practical next step with those limits.

Try these exercises

1. Which statement is most defensible?

A. It takes no time | B. It always takes exactly 20 minutes | C. These three trials took 18-22 minutes

Answer: _____

2. Which evidence would best show this skill?

A. Separate observations from estimate and explain or demonstrate it | B. Say it is finished without checking | C. Copy an unrelated answer

Answer: _____

3. Put the worked-example steps in order.

Write the letters in order. A. Recommend | B. Qualify | C. Summarise | D. Measure

Answer: _____

EXPERIENCE 2 / CREATE, EXPLAIN AND REFLECT

Communicate uncertainty honestly

Write a brief planning note using the three times. Label the estimate and supporting observations.

Worked example reference - explain it, then try your own project

STEP 1

Measure

STEP 2

Summarise

STEP 3

Qualify

STEP 4

Recommend

My notes, drawing or dictated explanation (attach another sheet if needed):

Review your evidence

- ☐ Separate observations from estimate
- ☐ Keep uncertainty visible
- ☐ Make an actionable recommendation

What did I learn, change or need help with?

Next challenge: Rewrite the note for a younger reader.

These ticks are a self-review. Ask an adult or partner to review what you can show.

EXPERIENCE 3 / DATA AND DECISIONS

Interpret a comparison without claiming causation

Describe an observed difference and possible confounding factors. | About 50 minutes

A difference between groups does not by itself prove a cause. Other conditions may differ.

Worked example: In a fictional study, a group with reminders completes 18 of 20 tasks, while another completes 14 of 20. The difference is 20 percentage points; the groups may differ in other ways.

Follow the steps

1. Read: Read the labels and values: Reminder: 18, Comparison: 14.
2. Represent: Compare the bars on a scale that starts at zero.
3. Calculate: Work through the calculation in the example; result: 20.
4. Interpret: Explain what the result means and what it does not establish.

Try these exercises

1. What is the percentage-point difference between 90% and 70%?

A. 20 | B. 22 | C. 19

Answer: _____

2. Which evidence would best show this skill?

A. Say it is finished without checking | B. Copy an unrelated answer | C. Use the supplied values accurately and explain or demonstrate it

Answer: _____

3. Put the worked-example steps in order.

Write the letters in order. A. Interpret | B. Calculate | C. Represent | D. Read

Answer: _____

EXPERIENCE 3 / CREATE, EXPLAIN AND REFLECT

Interpret a comparison without claiming causation

Report both completion rates and two alternative explanations. Propose a fairer comparison.

Worked example reference - explain it, then try your own project

Reminder		18
Comparison		14

Equal scale starts at 0; maximum 20. Fictional values.

My notes, drawing or dictated explanation (attach another sheet if needed):

Review your evidence

- ☐ Use the supplied values accurately
- ☐ Show a calculation or count with its meaning
- ☐ State a fair comparison or limitation

What did I learn, change or need help with?

Next challenge: Distinguish a 20 percentage-point difference from a relative percentage increase.

These ticks are a self-review. Ask an adult or partner to review what you can show.

EXPERIENCE 4 / COMPUTATIONAL THINKING

Compare search strategies

Explain when binary search is applicable. | About 50 minutes

Linear search checks items one by one. Binary search repeatedly narrows a sorted search space. It requires the ordering assumption.

Worked example: Find 14 in sorted [2,4,6,8,10,12,14,16]. Using lower middle: check 8, then 12, then 14.

Follow the steps

1. Set: Sorted list has eight values; target is 14.
2. Middle: Check 8; target is larger.
3. Narrow: Check 12 in the remaining upper range.
4. Find: Check 14; the target is found.

Try these exercises

1. What assumption does this binary search need?

A. All values are equal | B. No target value | C. Sorted input

Answer: _____

2. Which evidence would best show this skill?

A. Copy an unrelated answer | B. State the sorted-input requirement and explain or demonstrate it | C. Say it is finished without checking

Answer: _____

3. Put the worked-example steps in order.

Write the letters in order. A. Find | B. Narrow | C. Middle | D. Set

Answer: _____

EXPERIENCE 4 / CREATE, EXPLAIN AND REFLECT

Compare search strategies

Trace linear and binary search for 14. Count comparisons and state the midpoint rule.

Worked example reference - explain it, then try your own project

STEP 1
Set

STEP 2
Middle

STEP 3
Narrow

STEP 4
Find

My notes, drawing or dictated explanation (attach another sheet if needed):

Review your evidence

- ☐ State the sorted-input requirement
- ☐ Trace the same target fairly
- ☐ Count comparisons consistently

What did I learn, change or need help with?

Next challenge: Test a missing target and a one-item list.

These ticks are a self-review. Ask an adult or partner to review what you can show.

EXPERIENCE 5 / RESPONSIBLE TECHNOLOGY

Evaluate errors across groups

Look beyond an overall accuracy figure. | About 50 minutes

An overall result may hide different error rates in different groups. Evaluation needs context, adequate data and attention to consequences.

Worked example: In a fictional classifier test, Group A has 1 error in 10 cases and Group B has 4 in 10. Equal sample sizes do not make the error rates equal.

Follow the steps

1. Count: Record A: 1/10 errors and B: 4/10.
2. Calculate: A error rate is 10%; B is 40%.
3. Compare: The difference is 30 percentage points.
4. Investigate: Ask why and seek more evidence before deployment.

Try these exercises

1. What is Group B's error rate?

A. 10% | B. 4% | C. 40%

Answer: _____

2. Which evidence would best show this skill?

A. Calculate rates correctly and explain or demonstrate it | B. Say it is finished without checking | C. Copy an unrelated answer

Answer: _____

3. Put the worked-example steps in order.

Write the letters in order. A. Investigate | B. Compare | C. Calculate | D. Count

Answer: _____

EXPERIENCE 5 / CREATE, EXPLAIN AND REFLECT

Evaluate errors across groups

Write an evaluation note for the fictional results. Include group rates, sample-size limits and a question to investigate.

Worked example reference - explain it, then try your own project

STEP 1

Count

STEP 2

Calculate

STEP 3

Compare

STEP 4

Investigate

My notes, drawing or dictated explanation (attach another sheet if needed):

Review your evidence

- ☐ Calculate rates correctly
- ☐ Compare relevant error types
- ☐ Avoid calling a tiny test conclusive

What did I learn, change or need help with?

Next challenge: Explain how false positives and false negatives could have different effects.

These ticks are a self-review. Ask an adult or partner to review what you can show.

EXPERIENCE 6 / DESIGN AND LIFE SKILLS

Run a pilot and decide what changes

Use a small trial to learn before expanding. | About 50 minutes

A pilot tests a limited version of an idea. Decide what to measure, record unintended effects and choose whether to revise, stop or expand cautiously.

Worked example: A fictional book-swap pilot tries one class for one week. It records participation and misplaced books, then reviews both.

Follow the steps

1. Bound: Limit the pilot to one group and period.
2. Measure: Define participation and misplaced-book measures.
3. Observe: Record intended and unintended results.
4. Decide: Revise, stop or expand based on evidence.

Try these exercises

1. Why measure misplaced books as well as participation?

A. To notice an unintended problem | B. To make the report longer | C. To guarantee success

Answer: _____

2. Which evidence would best show this skill?

A. Say it is finished without checking | B. Copy an unrelated answer | C. Set a bounded scope and explain or demonstrate it

Answer: _____

3. Put the worked-example steps in order.

Write the letters in order. A. Decide | B. Observe | C. Measure | D. Bound

Answer: _____

EXPERIENCE 6 / CREATE, EXPLAIN AND REFLECT

Run a pilot and decide what changes

Plan a fictional book-swap pilot with two measures, a stop condition and a review date.

Worked example reference - explain it, then try your own project

STEP 1

Bound

STEP 2

Measure

STEP 3

Observe

STEP 4

Decide

My notes, drawing or dictated explanation (attach another sheet if needed):

Review your evidence

- ☐ Set a bounded scope
- ☐ Include unintended effects
- ☐ Connect the next decision to evidence

What did I learn, change or need help with?

Next challenge: Propose a change if participation rises but misplaced books also increase.

These ticks are a self-review. Ask an adult or partner to review what you can show.

KEEP THE LEARNING GOING

Explain your next step

Choose one work sample. Explain an improvement you made, the evidence you used and where you could use the skill next.

Support and safe practice

Use fictional examples and approved tools. Ask an adult for help with instructions and classroom materials. No public posting, live AI account, purchase or personal information is needed.

Online companion

<https://www.heliolearn.com/skills/grade-10/>

Use the web pages for controllable animations and automatic exercise feedback. New practice-space notes stay in the browser and do not sync to school accounts. Download notes before changing devices. Help: <https://www.heliolearn.com/skills/help/>

Curriculum context

Original enrichment activities with an editorial grade progression. These are not a complete examination-board syllabus or formally endorsed by the organisations below.

ISTE student standards: broad digital-learning context

<https://iste.org/standards/students>

UNICEF: transferable skills across childhood and adolescence

<https://www.unicef.org/lac/en/transferable-skills-development>

UNESCO: student AI competencies

<https://www.unesco.org/en/articles/ai-competency-framework-students>