

?# STEP-CAI User's Manual

S.T.E.P. (Simulation - Test - Exam - Practice) · C.A.I. (Computer-Assisted Instruction)

Programmed by: Douglas H Alexander · Copyright (c) 1989, 2026 Douglas H Alexander. All Rights Reserved.

Why STEP-CAI teaches the way it does

Learning through questions and answers is more effective than simply listening to a teacher explain a topic because it encourages active thinking and engagement. When learners are asked questions and work through answers, they actively process the information, identify gaps in their understanding, and remember concepts more effectively. This approach also provides immediate feedback and makes learning more personalized, helping students develop critical thinking and problem-solving skills rather than relying solely on memorization.

This is the ideal model for both Home Learning and in the Classroom.

One Lesson. Four Powers. Every Student Reached.

Write it once. Teach it four ways. Most learning platforms make you build a practice set, then a quiz, then an exam. STEP-CAI runs the same lesson in four modes - flip one switch and a single set of questions becomes:

Mode | What it is for

S - Simulation | A branching story where each choice leads somewhere different. Homework they will argue over. Can be played by a whole class at once, one student per station.

T - Test | Graded and guarded, with the answer explained the moment it is given. No timer.

E - Exam | Timed, shuffled, proctored, one attempt. The run whose result is meant to be trusted.

P - Practice | A study aid. The answer is already highlighted, you can step back, and nothing is recorded against you.

The lesson that teaches back. A wrong answer does not just lose a mark - it can send the student down a remediation detour that teaches the idea again, then returns them to where they

left off. Every question can carry its own "why you're right" and "why you're wrong" explanation.

A whole lesson from one topic, with AI. Type a subject and let AI draft the questions, answers and explanations, then edit anything you like. STEP-CAI checks first whether the library already teaches that topic and offers you what is there before it builds anything new.

Academic integrity, engineered in - not bolted on. Answers are checked on the server, so the correct answer never reaches the browser. One-time tokens make the back button and double-clicks useless for replaying a question. Exams shuffle the choices, enforce time limits, and allow exactly one attempt - spent the moment the paper is opened.

Everything is tracked. Nothing is extra work. Scores, weighted points, minutes on task, attempts and struggle notes are recorded automatically, for every student, every lesson,

every time.

It is free. Every account level is free. There is nothing to buy and no card to enter.

This manual covers the three kinds of users of STEPcAI:

1. Students - take Lessons: Simulations, Tests, Exams, and Practice.
2. Teachers - build lessons and questions, review results.
3. Administrators / Site operators - manage users and run the site.

Part 1 - Getting Started (all users)

1.0 Arriving at STEPcAI - the first three screens

Typing the address of the site brings you to the same place every time, and getting in is three screens with one button each:

1. The landing page (Default.aspx) - the STEPcAI name, what S.T.E.P. and C.A.I. stand for, why the whole program teaches by asking questions rather than by explaining at you, and the Software License Agreement and Terms of Use. Before you can go anywhere in the program you must tick the box to accept the agreement - the Continue button stays switched off until you do, and no screen will open until you have accepted (a bookmark saved to a page deep inside the site simply brings you back here to accept first). The box always starts unticked - it is never pre-checked for you, because until you sign in the site can't know who is at the keyboard, and an acceptance has to be a deliberate act by the actual person. You accept once per visit (the acceptance lasts for that browsing session), and again whenever the agreement changes; once you sign in, your acceptance is recorded to your account.

On this page you can:

- Read the full agreement - the link by the checkbox opens it on its own printable page (also at Menu -> Help -> Terms of Use).
- Continue - once the box is ticked, go on to the welcome page.
- Download User's Manual - this manual, as a PDF you can keep, read offline, or print.

You do not need an account to download it. It is the same manual as Menu -> Help.

2. The welcome page (pgIntro) - what STEPcAI actually does: the four lesson modes, letting AI build a lesson from a topic, class tracking, and the rest. One button: Continue.

3. The sign-in screen (pgLogin) - sign in, create a free account, or carry on as a guest. Guests can take Practice and Test lessons without an account; scores are only saved for people who are signed in, and exams always require signing in (see 2.5).

[Screenshot: The landing page. Continue goes on to the welcome; the manual downloads without an account.]

[Screenshot: The welcome page explains what STEPcAI does. One button: Continue.]

[Screenshot: The sign-in screen. Continue as Guest needs no account, and a guest's scores are not saved.]

After signing in you land on your home screen (pgHome), which greets you by name and shows a few large Start here cards chosen for who you are - a Guest, Student, Teacher or Admin. Everyone's first card is the same one: take or preview a lesson.

1.1 Creating an account

1. From the menu, choose Account -> Create an account (pgRegistration).
2. Fill in your name, username, e-mail, and password, then submit.

Your password must be at least 8 characters and include one CAPITAL letter and one number. Spaces and symbols are allowed too, and longer is stronger. It cannot be the same as your username, and a handful of passwords everybody tries first (password, 12345678 and the like) are refused. The same rule applies when you change your password later. If you already had an account before this rule existed, your old password still works - you will simply be asked to meet the rule next time you change it. You can also pick your school here (optional) - see 1.8.

3. Your account's status (Student, Teacher, Admin) determines which screens you can use. Teachers see extra tools that students never see. Registering makes you a Student for free; the Teacher level is granted by an Administrator. (A Teacher cannot grant it: a level that can hand itself out would spread on its own, and a Teacher can author lessons and see their answer keys.)

- Are you a teacher? Tick "I am a teacher - request teacher access" on the sign-up form. This does not make you a Teacher on the spot - it starts you as a Student and sends a request to an administrator, who reviews it and grants Teacher access. You'll be able to build lessons once it's approved. (An instant self-upgrade would let anyone walk into the teacher tools, so it is always a request, never automatic.)

4. On the Profile screen you can add a profile picture (a JPG, PNG, or GIF). Teachers can also tick Show my picture to students when a question has no video - then their photo appears in the lesson's video window whenever a question has no video of its own (see 2.3), giving the lesson a friendly face instead of an empty placeholder.

1.2 Signing in and out

- Choose Login/Logout... from the menu (pgLogin) and enter your username and password.
- The same menu item signs you out when you are done.

1.3 Forgot your username or password?

- Forgot your username? (pgLoginHelpUsername) - type the e-mail address on your account and we e-mail your username to it. Your password is not changed and nothing about your account is altered.

- Forgot your password? (pgLoginHelpPassword) - type your username and we e-mail a one-time reset link to the address on that account. Open the link and you choose a new password; the link works once and stops working after an hour. Simply asking for a reset changes nothing - your password only changes when somebody opens the link and sets a new one, so a reset e-mail you did not ask for is safe to ignore.

- For your safety both screens give the same reply every time, whether or not the account exists - so if nothing arrives, check the address (and your junk folder). E-mail must be set up by the administrator (see 4.x) for these to send.

- You can also change your e-mail address (pgLoginChangeEmail) or password (pgLoginChangePassword) at any time after signing in.

1.8 Your school

Everyone can record the school they attend or work for, so teachers can find the people at their own school. You set it on your Profile screen (and, optionally, when you register).

- Pick it from the list. Choose your school from the drop-down. If the list is long, use the

Filter by state box above it to narrow it down first.

- Don't see your school? Only teachers can add a new one - the first teacher from a school enters it once (name, type, district, address, and so on) with the "My school isn't listed - add it" link on their Profile, and everyone after that simply picks it from the list. This keeps one school from turning into five slightly-different copies. Students who can't find their school can leave it blank and choose it later, or ask their teacher to add it.

- Teachers can then open Menu -> Teach -> My School to see everyone at their school (see 3.x).

1.4 The screen layout

Every page shares the same frame: the STEPCAI banner, a drop-down Menu, the page title with a « Back link on its left (on every interior screen - it returns to wherever you came from), and a status/error line. If something goes wrong, the explanation appears in the red error label - errors are also logged for the administrator. Most screens also show a "How to use this screen" box at the bottom with directions for that page, and some actions show their result on a simple notice screen (pgMessage) with an OK button.

You can change the whole site's look from Menu -> Theme: Green (the default), Classic (the original look), Modern, Blue, or Black & White. Your choice is remembered for a year.

1.5 The Home screen and the Help menu

- The Home screen (pgHome) is where you land after signing in. It greets you by name and shows your Start here cards (see 1.0). The landing page you first arrived at (Default.aspx) is a different screen - the welcome with the manual download.

- Menu -> Help holds the reading material: What is STEPCAI? (pgIntro - the welcome page), Description (pgDescription), this User's Manual (pgManual), Contact Us (pgAboutContactUs - our e-mail and mailing address), Login Help, and About (pgAboutInfo).

- Getting the manual as a PDF. The landing page has a Download User's Manual button, free and without signing in. The PDF and the on-screen Help are built from the same source, so they never disagree.

[Screenshot: This manual, opened in the site from Menu -> Help -> User's Manual. The Print button prints the whole thing.]

1.6 Account levels, ads, and VIP

Every account level is free. The only paid extra is VIP, which hides the ads.

- The levels. Anyone is a Guest without signing in. Registering makes you a Student. An Administrator grants the Teacher level (see 1.1 for why a Teacher cannot grant it). Admin runs the site. Every one of them is free.

- Ads. The site carries advertising, which is what pays for it. There are three places they can appear - a left column, a right column, and a banner along the bottom - and they show on the content screens (lessons, the library, the info pages, the home hub). They are non-personalized and family-safe, since children use STEPCAI. To follow the ad network's rules they are kept off the purely functional screens - sign-in, registration, the message/notice page, error pages, and the password/e-mail-help screens.

- VIP - the one paid extra. A VIP is ad-free everywhere - no side columns and no bottom banner, on any screen - giving the full width of the page to the lesson. The only way to become one is to pay:

- Subscribe on the Membership & Ads screen for \$100 a year, paid through PayPal. The page states plainly that PayPal charges \$100 today and then automatically charges \$100 every year on the same date until you cancel; ads come off the moment the subscription goes through. Once you are a subscriber the page shows your renewal date and how much time is left on the current year. STEPCAI never sees or stores your card number - PayPal holds the card; the site keeps only PayPal's subscription id, the status, and the renewal date.

- Cancel anytime. A subscriber has a Cancel subscription button right on the Membership & Ads screen. Canceling stops all future yearly charges, but there is no refund - you keep VIP (ads stay off) until the year you already paid for runs out, and then the ads come back on their own. You can re-subscribe anytime. (If the owner has not yet connected PayPal's server keys, the button still cancels on STEPCAI's side and reminds you to also cancel it in your own PayPal account so the yearly charge truly stops.)

- No free grant and no administrator gift - the Manage Users screen cannot hand out VIP. Staff are not ad-free by their role, either: an Admin or Teacher who is not a paid VIP sees ads and can subscribe just like anyone else. Only a paid VIP (plus the live-Test/Exam and thin-page exceptions above) turns the ads off.

- Ads during a graded run. For everyone (VIP or not), all ads come off while anybody is taking a live Test or Exam, so nothing competes with the question in front of them - and a stray ad click can never pull a student out of a timed assessment. (Practice and Simulation keep their ads.)

- The Membership & Ads screen (pgSubscriptionChange) shows your level and your VIP status: a subscriber sees their renewal date, and everyone else sees the Subscribe button. If you are an Administrator it also carries the Grant Teacher access box.

Billing (site owner only). The owner account has one extra menu item, Billing (pgBilling), that nobody else can open - not even a regular Administrator. It shows the money side of VIP: the total collected, how many subscriptions are active, how many renew in the next 30 days, and the total broken down by state, by school, and by teachers vs students. Below that is the subscriber list (filterable by state and school) and a list of recent charges. No card numbers appear anywhere on it - PayPal holds the card; the screen shows only the status, the renewal date, the card brand and last four, and the amounts PayPal reports.

1.7 Getting around without a mouse, and with a screen reader

STEEPCAI is built to be usable by everybody, not only by people who can see the screen and hold a mouse steady.

- Keyboard. Everything can be reached with Tab (and Shift+Tab to go back); Enter or Space activates whatever has focus. Whatever is focused shows a clear outline, so you can always see where you are.

- Skip to content. Press Tab once on any page and the first thing to appear is a Skip to content link. It jumps straight past the banner and menu to the page itself - useful if you use a keyboard or a screen reader and do not want to walk through the menu on every page.

- Screen readers. Every page has a proper heading and a marked-out main content region, so you can jump by heading instead of reading from the top. Answer choices are announced with their own text, and the page is marked as English.

- Colour and contrast. All five themes were checked against the WCAG AA contrast standard. Black & White is the plainest if you find colour hard to read.

- Movement. If your device is set to reduce motion, STEPCAI turns off its animations.

- Text size. Use your browser's zoom (Ctrl and +, or pinch on a phone). The layout reflows rather than breaking.

On phones and tablets

STEPCAI notices when it is running on a small screen and switches to a compact version of the page that is easy to read and tap: a single column, a hamburger (☰) menu, and larger

buttons. There is no room for the side columns on a small screen, so only the bottom banner shows there - and it, too, comes off for a VIP and during a live Test or Exam. On a roomy screen (about 800×600 or larger - a desktop, or a tablet turned sideways) you get the full layout exactly as before. Tilting a phone or tablet switches between the two automatically. Administrators get a small screen-size preview drop-down at the very top (Normal / ☰ Tablet / Cell phone) to see how any page looks at each size without needing the actual device.

Part 2 - For Students: Taking a Lesson

2.1 Choosing a lesson

How STEPCAI is arranged - three words, and everything else follows:

> A Curriculum is made up of Lessons. A Lesson is made up of Questions.

A Lesson is the part you actually sit down and do - a single Simulation, Test, Exam, or Practice, with its own set of questions. Every Lesson is one of those four STEP types.

A Curriculum is the topic that holds a group of Lessons together. A "Fractions" Curriculum might contain a Practice, a Test, an Exam, and a Simulation - four Lessons under one topic. You

pick the Curriculum first, then choose a Lesson inside it to run.

1. From the menu choose Curriculums... (pgCurriculumsList). This first screen lists the Curriculums, each showing how many lessons it holds, which modes it contains (S/T/E/P), how many videos are inside, and its author and dates. Type in the Search box or click Show All to find one.

2. Click Open... on a Curriculum. The lesson list (pgLessonsList) then shows only that set's lessons; the set's name is at the top, with « All Curriculums to go back.

3. Narrow the list with the Mode drop-down and/or the Search box, then click Select... on a lesson to start it.

4. You only see lessons that are Public or that were assigned to a group you belong to - plus, for teachers, your own Unfinished ones.

5. Visitors coming from the Welcome page reach this same screen through the Browse Curriculums button (pgCurriculumsList).

[Screenshot: The Curriculum list. The S/T/E/P letters show which modes each Curriculum contains.]

2.2 The four lesson modes

Every lesson runs in one of four modes, set by the teacher who wrote it. What you experience depends on the mode:

Mode | Feedback | Rules

Simulation | None on decisions - no right or wrong | Relaxed - explore the story. Played alone, or as a team episode with the whole class (see 2.4)

Test | Immediately after each answer | Proctored (see 2.5)

Exam | Withheld until the very end | Fully proctored + timed + one attempt only

Practice | Immediately after each answer | Relaxed - correct answer shown by default - retake freely

Simulation is the odd one out and worth a sentence of its own: it is the only mode where the question is not "did you get it right?" but "what did you decide?" Station tasks inside a simulation do have right answers - they are how the ship earns what it does - but the story decisions never do.

2.3 Answering questions (Practice, Test, Exam)

1. Read the question and select one answer (up to six choices; choices 5 and 6 are usually "All of the Above" / "None of the Above").

- Practice mode already highlights the correct answer for you as a study aid - leave it as-is to confirm you understand, or click a different choice to test yourself.

2. Test and Practice: click OK (you must pick an answer first). Exam: there is no OK button - as soon as you click a choice it is recorded and you go straight to the next question (so a timed exam keeps moving).

3. In Practice and Test mode you immediately see whether you were right, along with the teacher's explanation. In Exam mode, all explanations are revealed together at the end.

- Exam timer. A bar at the top shows the time elapsed since you started and the exam's time limit (or "Unlimited time" if the teacher set no limit).

4. The lesson may adapt to you: if you miss a question, it may give you an easier "extra help" question before returning you to the main line. Answer it like any other question - it is there to help you master the idea.

5. When the questions run out, you get a printable Result Report - a clean page showing your

score, letter grade and percentage, the points, the time you took, and a question-by-question breakdown (each question, your answer, the correct answer, and a y/n). Click Print this report to print it. Every report is saved, so you can re-open and print it any time later from Menu -> Learn -> My Results (pgResults).

6. Finish a whole Curriculum - every graded lesson in it - and My Results shows the lesson with a ribbon. Open it for a Curriculum report that rolls up your best score on each lesson into one overall grade; if you passed (default 70%), it prints as a graduation certificate with a diploma ribbon, ready to hang on the wall.

Beside each question is a video window. If the question has an intro video it plays there; if it

has none, the window shows a placeholder - or your teacher's picture, when the teacher who wrote the lesson has added a profile photo and chosen to show it (see 1.1). Exam mode never shows intro videos.

[Screenshot: Practice mode. The correct answer is pre-selected as a study aid, and OK submits it.]

[Screenshot: Test mode. Nothing is pre-selected - pick a choice, then click OK to see how you did.]

2.4 Playing a Simulation

A Simulation is not a test with a story painted on it. It is a story you are inside of, told through the control panel of a station you are sitting at. Nothing you choose is marked right or wrong; what you choose is which story happens. Two students can play the same simulation and come away having lived through two different missions.

Simulations come in two shapes, and you can tell which one you are in within a few seconds of starting.

2.4a Playing on your own

The ordinary kind. You start it, you play it, it is yours.

1. Starting a Simulation lesson takes you to the Simulation screen (pgSTEPSimulation).
2. Choose your station - Captain, Science Officer, Navigator, Pilot, Engineer, Medical, Communications and many more (thirty are built in, and your teacher can add their own). Your station's control panel becomes your view for the whole mission.
3. Each scene shows story text and choice buttons placed on the control panel where your teacher put them. Read the story, press a button, see where it takes you.
4. In a crew mission you play the whole bridge yourself, one station at a time. A banner at the top of the panel always tells you which console you are sitting at and what it teaches - the Science station teaches science, the Pilot teaches physics, Communications teaches music.
 - A station task has a right answer. Get it right and the mission moves on; get it wrong and the game explains the idea so you can try again. A few genuinely dangerous mistakes (the warp core is about to breach and you feed it more power) can end the story badly - that is the point of them.
 - Once every station has reported correctly, the Captain's decision appears and you choose where the story goes next.
5. Stations can put work on each other: the Captain ordering warp speed can drop a task into the Pilot's queue - the ship does not jump until the formula is worked. A queued question is marked **PRIORITY** and must be answered before the story continues.
6. A choice with no next scene is an ending. The path you took is your outcome.
7. Want to stop early? Click Exit Simulation below the console - the story ends there, nothing is recorded, and you go back to the lesson list.

2.4b Playing as a crew - team episodes

Some simulations are marked team episodes. These are played by a whole class at once: one student per station, one shared story, and a clock that runs for everybody at the same time. They

feel much more like being in an episode of a television show than like taking a lesson.

1. Claim a station. Everyone opens the same lesson and picks a console. Only the stations this episode was actually written for are offered, and only one person can hold each one - a station somebody else has taken shows their name and cannot be clicked. Changed your mind? Change station puts your seat back and lets you pick again.
2. Wait in the lobby. You will see the crew arriving on your screen as they claim their consoles, with a star beside the Captain. The lobby also shows your mission code.
3. The Captain begins the mission. Only the student in the Captain's chair has the

Begin Mission button. The moment they press it, everybody's mission starts together - there is one clock from then on, and it is the same clock on all seven screens.

4. Then the story comes to you. You do not click through it. You sit at your post, and the mission calls on you when it needs you:

- A timed beat can bring something to your console minutes into the mission - a transmission arrives at Communications, a sensor reading at Science - while the rest of the crew is still dealing with the last thing.

- Another player's choice can hand the story to you. The Captain says "helm, plot an intercept course," and the story arrives at the Pilot's console.

- When it is not your turn you see standing by on your own console, with a line telling you what the ship is doing. That is normal, and it is not idle time - it is watching your shipmates work.

5. Earning what the ship does. When an order needs skill behind it, the mission puts a question in front of the station that has to do the work, and the ship waits. The Captain calls for warp; the Pilot gets a physics question; the whole bridge stands by until it is answered. Get it wrong and the question teaches you the idea and lets you try again - you are not punished for not knowing yet, but everyone is genuinely waiting on you.

6. The main viewer. One station is the big screen the class watches rather than a console anybody works at - often a projector at the front of the room. When Communications puts a transmission through, it plays there, for everybody.

7. Endings are shared. When the story reaches an ending it ends for the whole crew at once.

> If the Captain leaves, the mission pauses. The Captain's screen is what keeps the mission > clock running, so if that browser is closed the timed beats stop arriving until they come back.

> Everything already on screen still works. Keep the Captain's screen open for the whole episode.

2.4c Things on the simulation screen

- The video window fills the console while a mission video plays, then hides itself.

Double-click the picture to skip it.

- Live updates. The choice buttons are re-checked every few seconds, because a teacher - or

another student's action - can change them while you play. A button that changes blinks and makes a small sound. You can turn either off with the tick-boxes under the console.

- Exit Simulation ends your run. In a team episode it also gives your console back, so somebody else can take it.

2.5 The rules in Test and Exam mode (read before you start)

- Your answer is checked on the server - the correct answer is never sent to your browser.

- The back button, refresh, and double-clicking OK will not replay or redo a question; the page simply re-shows your current question.

- A proctor script runs in your browser: copying text and right-clicking are blocked, and switching tabs or windows is noted with a warning.

- Exam mode additionally: answer choices appear in a shuffled order, and questions may carry

a per-question time limit (running over counts the question as wrong, no matter what you picked).

- You must be signed in to take an exam. An exam is scored and recorded against your

account and may only be taken once, so it cannot be sat as a guest. Practice and Test are open to guests.

- An exam can only be taken once, and the attempt is used up the moment you open it - not when you hand it in. Opening the paper, reading the questions and closing the window still counts as your attempt, exactly as it would in an exam hall.

- If you genuinely lost your exam to a crash, a power cut or a dropped connection, ask your teacher - they can allow you another attempt. Your existing result and report are not deleted when they do.

2.6 Joining a class

- On My Classes (pgClass), type the join code your teacher gave you and click Join Class. Your teacher can then see your scores.

- Joining a class automatically upgrades a Free account to the Student level at no cost.
- The same screen shows the classes you belong to, your Curriculum history, and your time on lessons.

Part 3 - For Teachers: Building Lessons

3.1 Creating a lesson

1. From the menu choose Lessons -> New Lesson... (pgSTEPsCreate).
2. Enter the lesson name, pick a subject, confirm the teacher (pre-filled with your name), and set the class/grade. Required boxes left empty turn red.
3. If your subject isn't in the list, type it next to the Add button. STEPcAI checks for near-duplicates (e.g. "Pre Algebra" vs "Pre-Algebra") and will select the existing entry instead of creating a twin; genuinely new subjects are saved to the shared list so every teacher sees them.
4. Click OK to save. You'll land on the lesson list.

Two settings on this screen apply only to Simulations:

- Simulation theme - which set of station consoles the story uses: the Star Explorer starship bridge, or a themed set (Hospital, Crime Lab, TV Newsroom, Restaurant Kitchen, Courtroom, Wildlife Safari).

- Team episode - tick this to let a whole class play the lesson together, one student per station, started by the Captain. See 3.5e. Leave it unticked for the usual simulation, where one student plays every station in turn.

> These are set once, when the lesson is created. This screen builds a new lesson; it does not re-open an existing one. If you need to change a lesson's theme, its team-episode setting, or its mode after the fact, the quickest route today is Copy the lesson and create a fresh one with the settings you want.

3.2 Editing a lesson's questions

To change a lesson's questions after creating it, open its Curriculum, then click Edit... on the lesson's row in the list (pgLessonsList) - this opens its question list (pgSTEPQuestionList). Each row there shows the question's ID, a [Video] marker if it has a video, and the start of its text. The lesson list also gives teachers Copy (a full

duplicate of a lesson and all its questions - your backup) and Delete. Only the lesson's owner (or an Administrator) can delete it, you are asked "are you sure?", and it is smart to make a Copy first. A lesson's own settings (description, grade, class, visibility, and its mode - Practice, Test, Exam, or Simulation, which controls everything in Part 2) are set when you create it (pgSTEPSCreate).

3.2b Organizing lessons into Curriculums

On the first screen (pgCurriculumsList), teachers see a Maintain Curriculums box. There you can Create a new Curriculum (an empty set), and Add or Remove the lessons inside any set. A lesson may belong to several Curriculums at once, but it must always belong to at least one - so removing a lesson from its last Curriculum is not allowed (add it to another set first). A brand-new lesson you create is added to the Curriculum you are working in automatically.

Play lessons in a required order (optional). In the same box, tick "Play lessons in a required order" to make the Curriculum run as a guided sequence. When it is on, use the ? Up /

? Down buttons to arrange the lessons in the order you want. Then, when a student selects that

Curriculum, it does not show the lesson list - it starts the first lesson right away, and as each lesson finishes the next one begins automatically, in your order. After the last lesson the student sees the Curriculum summary report (and the graduation certificate if they passed). Leave the box unticked for the normal behavior, where the student sees the list and may pick any lesson in any order.

A required-order Curriculum is marked with a small "? Auto" badge in the Curriculum list, so students and teachers can tell at a glance which ones run automatically.

Save & quit / pick it up later. While taking a required-order lesson, the student sees a "? Save & quit for now (resume later)" link. Clicking it stops the sequence and remembers where

they were. The next time they select that Curriculum - even after signing out and coming back another day - it resumes at the lesson they left off on instead of starting over. (Progress is remembered at the lesson level: a partly-answered lesson restarts from its first question.)

3.2c Generate a whole Curriculum with AI (optional)

On the Create screen (pgSTEPSCreate) there is a "? Create a whole Curriculum with AI" box. Type a subject (and optionally a grade level and how many questions), and the app asks Claude to build a complete Curriculum for you: a Test, an Exam, and a Practice lesson - each with multiple-choice questions and explanations - plus an optional playable Simulation. The result is saved as a Private draft so you can review, edit, and then publish it.

- The AI is free for every teacher - you don't need a key. The site is funded by one master Claude key the owner sets once (in the server file secrets.config, or on Administration -> AI Settings (pgAITrials) as a fallback), so Generate with AI, the question helpers, and video picking all just work at no cost to you. You may paste your own key from console.anthropic.com on your Profile screen (pgProfile, the *Claude (AI) API Key* box) if you would rather bill your own Anthropic account, but you never have to. Keys

are

stored encrypted and never shown back.

- Generation may take up to a minute. Always review AI-made questions before using them - treat the draft as a first draft, not a finished lesson.

Base the AI questions on your own textbook (optional)

You can have the AI write questions from your own book or handout instead of its general knowledge. First upload the material on Lessons -> My Textbooks (pgTextbooks):

- Upload a PDF, Word (.docx), or plain-text file (up to 30 MB). The app pulls out the readable text and stores it under a name you choose; the original file is not kept. A scanned/image-only PDF has no text - save it as Word or text first.

- Back on the Create screen, the "Base questions on textbook" drop-down lists the textbooks

you have uploaded. Pick one and the AI writes every question strictly from that material; leave it on "(none)" to use the AI's general knowledge of the subject.

- Textbooks are private to you - only you see the ones you uploaded. Delete any you no longer

need from the My Textbooks list.

3.3 Writing questions

On the question editor (pgSTEPQuestion):

- Answer choices depend on the mode.

- In Test, Exam, and Practice you see six choices: the four you type, plus two built-in choices - "All of the Above" and "None of the Above" - that are always shown to the student automatically (rows 5 and 6, filled in for you). Tick the checkbox next to the correct answer (that can be one of your four, or one of the two built-ins). You may tick more than one - see More than one correct answer below.

- Only a Simulation shows all twenty choices and the per-choice "scene #" branch box - simulations do not use the "All/None of the Above" built-ins.

- Question text - what the student reads.

- Points - what this one question is worth (default 1). Make a harder question worth more and it counts for more. The score is the points earned out of the points available across the lesson, and the percentage comes from those - not from counting questions. See Part marks below for how a partly-right answer is paid.

- Minutes - a per-question time limit used only in Exam mode (0 = no limit). The exam's on-screen time limit is the sum of these across its questions; if every question is 0, the exam shows "Unlimited time."

- Rationale (Correct) and Rationale (Wrong) - the explanations students see after answering (or at the end of an Exam).

More than one correct answer

A question does not have to have exactly one right answer. Tick every box you are willing to accept, then use the How this question is marked card to say what the ticks mean:

Setting | What the student does | Use it when

Any ONE of the ticked answers (default) | Picks one answer as usual | A distractor turned out to be nearly right, or you want "None of the Above" accepted as well

The student must select EVERY ticked answer | Gets tick-boxes and is told how many to find

| The question genuinely has several answers

- "The question may have no correct answer." Tick Also accept "None of the Above". The student then earns the mark for your keyed answer or for None of the Above, so nobody is punished for spotting that the question is flawed. This is the setting to reach for when an answer is close to right but you are not sure it is right enough for every student.

- The card shows a running summary - "2 correct answers - the student needs any ONE of them" -

so you can see how many answers are correct as you tick.

- Exams are different, on purpose. Any ONE of these works everywhere. Every ticked answer applies to Test and Practice only: an Exam is timed and clicking an answer moves the student straight on, so there is no moment in which to tick a second box. Used in an Exam, such a question simply accepts any one of your ticked answers - the exam stays fast and no student is marked down for it.

Part marks

On a "must select EVERY answer" question the student is paid for what they found:

- Two answers are correct and they picked one -> they earn half the question's points.
- Three are correct and they picked two -> two thirds of the points.
- Picking anything that is not a correct answer scores 0 for the whole question, so

ticking every box on the screen never pays.

- Any ONE of these questions are all-or-nothing by their nature - one accepted answer is the answer - and so are ordinary single-answer questions. Nothing about them changed.

The "n of m correct" count still means questions answered fully right; the part marks show up in the points, and the percentage is worked out from the points. A student who found one of two answers on a 4-point question and then answered a 1-point question correctly scores

"1 of 2 correct, 3/5 points (60%)".

Use the question list (pgSTEPQuestionList) to see, edit, or remove a lesson's questions.

3.4 Branching and remediation (adaptive lessons)

Each question can specify where the lesson goes next:

- Next (Correct) - where a right answer leads.
- Next (Wrong) - where a wrong answer leads.
- Remediation - an "extra help" question to detour to on a wrong answer. After the detour, the student automatically rejoins the main lesson where they left off. A remediation question may have its own remediation, so a struggling student can be taken progressively deeper until the idea sticks. Remediation-only questions never appear in the normal flow.
- If no branch is set, the lesson simply proceeds to the next question in order.

This is how one lesson serves both confident and struggling students: the strong student takes

the short path; the struggling student gets targeted help without teacher intervention.

3.5 Building a Simulation

Building a simulation is writing a story, not writing a quiz. The most useful thing to know before you start is that a simulation is made of the same pgSTEPQuestion rows as everything else

- the "question" text is the story text, and the answer choices are the decisions - so everything you already know about the question editor still applies.

3.5a Decide what kind you are building

| Plays like | Set it up with

A branching story | One student, one console, choices lead to scenes | Leave every row's Role blank

A crew mission | One student plays every station in turn, then the Captain's decision |

Give rows a Role; one row per scene is Captain

A team episode | A whole class, one student per station, one shared clock | Give rows a Role and tick Team episode

3.5b Write the story

1. Create a lesson and set its mode to Simulation.

2. Write each scene as a question. The question text is the story; each choice is a decision.

A Simulation shows all twenty choices (no "All/None of the Above").

3. For each choice, set its Next Scene (choice 1 -> NextID1, and so on). Two choices may lead

to the same scene, and a choice with no next scene is an ending.

4. Give a station a job. Set a row's Role and give it a correct answer, and it becomes a station task: that console must get it right before the mission moves on. Fill in the two Rationale boxes - those are the teaching, and they are what the student reads whichever way they answer.

- Next (Wrong) is the dangerous-mistake path. Point it at a disaster scene and a wrong answer really does lose the ship; leave it empty and the student is simply taught the idea and allowed to try again. Use disaster scenes sparingly - they land much harder when rare.

5. Sticky buttons. In a solo simulation a choice slot you leave empty keeps whatever button was there on the previous scene, so a button that should stay put need only be written once. Type a single space to blank a slot deliberately. (Team episodes ignore this - every scene there starts with a clean panel, because consoles jump between unrelated scenes.)

3.5c Make it look like a control panel

- Simulation Buttons (pgSimButtonMap) - drag each choice button to where it belongs on the station artwork, so buttons line up with the panel instead of floating over it.

- Simulation Roles (pgSimRoles) - need a station that isn't built in? Type a name and upload

a background picture. It then appears in the station picker, the Buttons mapper and the Map.

- Lights & Sounds (pgSimGifs) - turn each console's little animated readouts on or off, and

decide which ones make noise.

- Videos - a question can play an intro video before it appears, and a choice can carry a tag like [video:clip.mp4] in its text to play a clip when pressed. The tag stays invisible.

3.5d The Simulation Map - where a simulation is really built

Simulation Map (pgSimFlow) shows the whole story as a flow chart: every scene, where each choice leads, and every ending. It is also where the four things that make a simulation more than

a branching story are set up.

Queue questions and triggers. A trigger says "when this choice is chosen, ask that

question."* It is how one station's action becomes another station's problem - the Captain orders warp, and the Pilot has to work the formula before the ship jumps. Choose Now to show it next or Queue to let it wait its turn.

Gates (team episodes). In a team episode a trigger also says at station - whose console the question appears at - which is what makes the Captain's order become the Pilot's problem while the rest of the bridge waits. You can write a gate two ways:

- Name the question when it has to be that one ("what is warp one?").
- Name only a subject - pick "(draw one from the practice pool)" as the question and choose a subject instead. A real question is then fetched from the practice pool at the moment it is needed, so the class meets a different one each time they play, and the gate keeps getting better as you add questions to that subject. If the pool is empty the gate is simply skipped and the story carries on.

Cross-machine effects. A student's click can rewrite a choice on another question - so when Science reports in, a new option appears on the Captain's console, live, within five seconds.

Timed events - the mission clock. This is what turns a simulation into an episode. A timed event happens a set number of minutes after the Captain starts the mission, whether or not anybody pressed anything:

Event	What it does
play a video	plays a clip
send a station to a question	takes one console to a scene - this is how you open a new thread mid-mission
show a line on the alert row	puts a message on screen ("YELLOW ALERT - all hands to stations")

Each one also names a station. Leave it on (every station) for something the whole bridge should see; name one station and only that student is interrupted - which is how the communications officer gets a message nobody else has yet.

Timed events need Team episode ticked. A shared clock needs a shared mission to start it.

3.5e Building a team episode

1. On New Lesson (pgSTEPsCreate) set the mode to Simulation and tick Team episode.
2. Write a scene for each console, giving every row its Role. The mission opens at the lowest-numbered Captain row, so write the Captain's opening scene first.
3. Give the Captain somewhere to wait. A row with no choices at all is a station at its post - there is nothing to press, and the screen simply waits to be called. That is how a console holds still between beats instead of running to the end of the story.
4. Add your timed beats on the Map, addressed to the stations that should receive them.
5. Add your gates so the orders that need skill behind them have to be earned.
6. Optionally include a Main Viewer station - the big screen the class watches rather than a console anybody works at. A choice carrying a [video:...] tag plays its clip there too, which is what makes "on screen" mean something.

> How the clock actually runs. There is no background service - the Captain's screen keeps
> the mission time. If the Captain closes their browser the timed beats stop arriving until
they
> return. Worth telling the class before you start.

A worked example ships with the app. Migrations\Seed_HalcyonDrift.sql builds *The Halcyon
Drift*, a seven-station team episode: an alert at 30 seconds, a transmission to
Communications at
one minute, a sensor reading to Science at two, and the helm handed to the Pilot at two and a
half
- with the warp jump gated behind a physics question. Run it, play it, then open it on the
Map and
take it apart to see how each piece was written.

3.5f Checking your work

- Preview as any station. Teachers and admins get a station drop-down inside the
simulation to
check button layouts against every background. On a crew mission it changes only the console
artwork - pick (Automatic) to follow the mission exactly as a student sees it. Students
never see this drop-down.
- Screen Control (pgScreenControl) lists every simulation screen playing right now and
lets
you type a value straight into one - the story text, any choice button, the alert line, the
console picture, or a video. It arrives within ten seconds. Useful for rescuing a stuck group
mid-lesson, and for testing a beat without waiting for the clock.
- Play the whole thing through at least once as a student before you give it to a class.

3.6 Reviewing results

Student results are stored per student per lesson: score, weighted points, minutes spent, and
a
"struggled" note recorded the first time a student misses a main-line question in a graded
mode.
Use the student/results screens to see who has taken what, how long it took, and which
concepts
gave trouble.

3.6b Exam attempts - giving a student another go

Teach -> Exam Attempts (pgExamAttempts) lists everyone who has opened one of your exams.
An admin sees them all; a teacher sees the exams they own.

- An exam may be taken once, and the attempt is spent the moment the paper is opened -
not when it is handed in. Without that, a student could open the exam, read every question,
close the window leaving no result behind, and open it again later.
- Each row shows who opened it, when, and whether they handed in or did not finish.
"Did not finish" is usually the one worth a second look.
- Allow another attempt lets that student sit the exam again. It deletes nothing - their
saved result and printable report stay exactly as they are - and the row records who allowed
the retake, so the decision is on file.
- Students are told to ask you if they lost an exam to a crash or a power cut.

3.7 Classes and join codes

- On My Classes (pgClass), type a class name and click Create Class. You get a short join code to hand out; any student who enters it joins your class.
- For each class you can generate a New Code (the old code stops working) or Delete the class.
- The same screen shows your students' scores (with a Download scores (CSV) button that opens in Excel) and each student's time on lessons, which you can Lock to freeze their time sheet.

3.8 Groups and private lessons

- On My Groups (pgGroups), create a named group, add students to it, and assign lessons to it.
- A Private lesson is visible only to the students in the group it is assigned to - this is how you give a lesson to one class period and not the whole world.
- Teachers may own up to 10 groups (delete an old one to make room); Admins have no limit. A group can hold any number of students and lessons.

3.9 Your school and the school directory

- Set your school on your Profile screen (see 1.8). As a teacher, if your school isn't in the list yet, use "My school isn't listed - add it" to enter it once with its full details (name, type, district, address, phone, and so on). It is then added, selected, and assigned to you, and every other teacher and student can pick it from the list from then on.
- My School (pgSchoolDirectory, on Menu -> Teach) shows everyone at your school - the students and the other teachers - and lets you filter to Everyone, Students only, or Teachers only. You only ever see your own school here; it is not a way to browse the whole site. If you haven't chosen a school yet, it points you to your Profile to do so.
- Duplicates happen when two teachers add the same school slightly differently - an administrator can tidy those up (see 4.1b).

Part 4 - For Administrators / Site Operators

4.1 User management

Users (pgUsers, Administrators only) lists accounts; set each account's status (Student, Teacher, Admin) to control what they can access, or reset a password.

- Filter by school. The drop-down above the list narrows it to one school (or to accounts with no school), and the selected person's school is shown with their details.
- Who can grant what. A regular Admin can set Free, Student, and Teacher, but not Admin - only the built-in Administrator (the owner's recovery login) can make someone an Admin, so one misused admin account cannot manufacture more admins. A Teacher cannot change anyone's level at all.
- Teacher requests. Anyone who ticked "I am a teacher" when they signed up is shown in the list with a [Teacher access requested] flag. To approve one, pick them and set their level to Teacher - the flag clears automatically. (The owner is also e-mailed when a request comes in.)
- The list order. The Guest marker and the site Admin are pinned to the top of the list (both starred and protected); everyone else follows in name order.

- Every level change is recorded and watched. Each change is written to an audit log, and the site owner is e-mailed automatically the moment anyone is raised to Teacher or Admin - so if an account is ever misused to promote friends, it cannot happen quietly.

- The first record (the site Admin) and the Guest marker row are protected and cannot be demoted or deleted; only the built-in Administrator can reset the site Admin's password.

4.1b Manage Schools

Manage Schools (pgSchools, on Menu -> Administration, Administrators only) tidies up the schools teachers have added. The list is sorted by city, then name, and the Filter by state box narrows it to one state.

- Add a new school - the button opens a blank form; fill in the details and save, and it joins everyone's picker right away.

- Edit a school's details (name, type, district, address, phone, website, principal).

- Hide a school so it drops out of everyone's picker - without deleting it, so any accounts

still pointing at it are unharmed. Un-hide it the same way.

- Merge duplicates - pick the duplicate and the school to keep; everyone at the duplicate is

moved to the keeper and the duplicate is hidden.

4.2 Utility screens

- Table Select / Table Edit (pgTableSelect / pgTableEdit) - a generic grid editor for looking at and fixing database tables directly. Use with care.

- Settings (pgSettings) - application options stored in tSettings. Administrators set the database connection here, the outgoing e-mail account (used for password-reset links and notices), and the product version number shown on the About page.

- Admin (pgAdmin) - administrative functions.

- All page errors are logged with the page, method, and message.

4.3 Installing and running the site

1. Requirements: Windows with IIS (or IIS Express), .NET Framework 4.8, SQL Server or MySQL, and Visual Studio (or MSBuild) to build.

2. Database: create an empty database named STEPcAI. You do not run a schema script by hand - the app builds and upgrades the whole schema itself: when you save a working connection on the Settings screen (below), it creates every table and column (all the embedded Migrations\ scripts, through the latest). A ready-made recreate script is also in Database\ (STEPcAI_Create_SqlServer.sql / STEPcAI_Create_MySQL.sql) if you prefer to run it in SSMS / MySQL Workbench.

3. Connection - no file editing needed. Sign in as an Administrator and open Menu -> Account

-> Settings (pgSettings). Pick the database type, paste the connection string, and click Test and Save - it is tried first and only saved if it connects, then the schema is built automatically. On a brand-new deploy where the connection is wrong, the site sends you to this

screen without a login (recovery mode), so you never have to hand-edit web.config.

4. Email (optional) - also on the Settings screen. Fill in the Email (outgoing mail) box (server, port, from-address, password) and click Save & Send Test. The password is stored encrypted in the database. This is what sends "forgot password" messages; set it up here rather than editing web.config.

5. Build: open STEPcAI.sln in Visual Studio and Build Solution (this is a .NET Framework

WebForms project - use MSBuild/Visual Studio, not dotnet build).

6. Testing aid: setting ShowTestModeButton to true in web.config appSettings shows a mode label and a "Test Button" on the lesson-run screen that cycles

Simulation -> Test -> Exam -> Practice for the current session only. Leave it false in production so students never see it.

7. Before any real deployment (see DEPLOYMENT.md for the full checklist): set the live connection on the Settings screen, set up email if you use it, confirm compilation debug="false" and ShowTestModeButton off, and set OwnerUserID to the id of the account that should always hold Admin.

> A note on what this manual does not contain. Nothing here describes how the site's

> secrets work - the recovery credentials, the keys that protect stored data, or the built-in

> administrator sign-in. Those are deliberately left out of a document written for students and

> teachers and published for download. They live with the site owner and in the deployment

> notes that never leave the server.

Appendix - Quick reference

I want to... | Go to

Get in from the front door | Landing page -> Continue -> welcome -> Continue -> sign in (1.0)

Download this manual as a PDF | Landing page -> Download User's Manual (no account needed)

Sign in / out | Menu -> Login/Logout (pgLogin)

Carry on without an account | Sign-in screen -> Continue as guest (Practice and Test only)

Register or edit my profile | Menu -> Account -> Create an account / My Profile

Take a lesson | Menu -> Learn -> Take a Curriculum (pgCurriculumsList -> pgLessonsList -> pgSTEPRun)

Organize lessons into Curriculums (teachers) | Menu -> Learn -> Take a Curriculum - Maintain Curriculums (pgCurriculumsList)

Play a simulation | Start a Simulation lesson (pgSTEPSimulation)

Play a simulation as a class, one student per station | Start a team episode; everyone claims a station, the Captain presses Begin Mission (2.4b)

Build a team episode | New Lesson -> mode Simulation + tick Team episode (3.5e)

Make something happen on a timer during a mission | Simulation Map -> Add a timed event (3.5d)

Make one station's order depend on another station's answer | Simulation Map -> Add a trigger, set at station (3.5d)

Draw a gate question from the shared pool | Simulation Map -> trigger -> (draw one from the practice pool) + a subject (3.5d)

Change what a student sees mid-mission | Menu -> Teach -> Simulation Tools -> Screen Control (pgScreenControl)

Join a class / see my scores | Menu -> Teach -> My Classes (pgClass)

Create a lesson | Menu -> Teach -> New Lesson (pgSTEPsCreate)

Edit lesson details / mode / visibility | Lesson list -> open the lesson (pgSTEPsCreate)

Write questions | Question editor (pgSTEPQuestion)

Position simulation buttons | Menu -> Teach -> Simulation Tools -> Simulation Buttons (pgSimButtonMap)

See the whole simulation as a map | Menu -> Teach -> Simulation Tools -> Simulation Map (pgSimFlow)

Add my own simulation station | Menu -> Teach -> Simulation Tools -> Simulation Roles (pgSimRoles)

Create a class / get a join code | Menu -> Teach -> My Classes (pgClass)

Make a group / assign private lessons | Menu -> Teach -> My Groups (pgGroups)

See the membership levels / hide the ads | Menu -> Account -> Membership & Ads (pgSubscriptionChange)

Subscribe to VIP (\$100/yr, hides all ads) | Membership & Ads -> Subscribe (PayPal)

See who is subscribed and how much came in (owner only) | Menu -> Billing (pgBilling)

Make someone a Teacher (Administrators only) | Membership & Ads - Grant Teacher access

Let a student retake an exam they lost to a crash | Menu -> Teach -> Exam Attempts (pgExamAttempts, 3.6b)

Accept more than one answer on a question | Question editor -> How this question is marked (3.3)

Set what a question is worth | Question editor -> Points (3.3)

Change the site's look | Menu -> Theme (Green is the default)

Manage users | Menu -> Users (pgUsers)

Recover a password | Menu -> Help -> Login Help (pgLoginHelpPassword)

Reach a person | Menu -> Help -> Contact Us (pgAboutContactUs)