

Red-Team Report

Could a student complete every task using only the materials supplied in the lesson package?

RELEASE DECISION

Ready after automated file, reading, deck, document, build, and live-route checks pass.

DISCOVERY INTEGRITY

Each lesson reveals only the evidence needed for its decision. Lesson 20 synthesizes the domain without inventing a single cause.

Audit gates

Gate	Release standard	Result
Durable idea	Every lesson names one 10-year takeaway and one of the four foundations.	PASS in authored package
Socratic sequence	Analogy image, observation questions, student rules, biology mapping, decision, defense, and handoff are present.	PASS in authored package
Closed loop	All required knowledge, evidence, definitions, visuals, and decision rules are inside the package.	PASS in authored package
Case integrity	Stable evidence IDs are used. No task requires invented or student-identifiable data.	PASS in authored package
Claim discipline	Each decision states what students may claim and what the evidence cannot prove.	PASS in authored package
Reading	Plain-language structured readings are supplied. Publication links are optional.	PASS in authored package
Alignment	Guided notes follow the deck roles and end by constructing the day's take-home.	PASS in authored package
Visual QA	Every lesson has separate analogy and biomedical illustrations with explicit educational labels.	PASS in authored package

Lesson-by-lesson dependency audit | Lessons 1 to 10

#	Take-home	Analogy	Evidence IDs	Decision	Handoff
1	A researchable question names a population, a factor...	A camera turns a wide scene...	EXP01-E1, EXP01-E2, EXP01-E3	Choose the researchable question and label its...	A researchable question names a population, a factor...
2	A falsifiable hypothesis links a defined change to...	A crash-test prediction names the change...	EXP02-E1, EXP02-E2, EXP02-E3	Choose the revision and identify the independent...	A falsifiable hypothesis links a defined change to...
3	The strongest design is the one that fits...	A tool wall has no single...	EXP03-E1, EXP03-E2, EXP03-E3	Choose the design rule and match the...	The strongest design is the one that fits...
4	Case-control studies efficiently study rare outcomes, but their...	A detective starts with a rare...	EXP04-E1, EXP04-E2, EXP04-E3	Choose the interpretation and cite the odds...	Case-control studies efficiently study rare outcomes, but their...
5	Cohorts establish time order, while twin comparisons estimate...	A movie follows events forward while...	EXP05-E1, EXP05-E2, EXP05-E3	Choose the defensible claim and name one...	Cohorts establish time order, while twin comparisons estimate...
6	Gene discovery combines broad scans, family structure, quality...	A citywide signal scan needs family...	EXP06-E1, EXP06-E2, EXP06-E3	Choose the next step and distinguish a...	Gene discovery combines broad scans, family structure, quality...
7	Effect size and confidence interval show magnitude and...	A forecast needs an estimate and...	EXP07-E1, EXP07-E2, EXP07-E3	Choose the interpretation and explain why the...	Effect size and confidence interval show magnitude and...
8	Many tests inflate false positives, so thresholds and...	Thousands of airport alarms require a...	EXP08-E1, EXP08-E2, EXP08-E3	Choose the report language and explain how...	Many tests inflate false positives, so thresholds and...
9	Orthogonal assays answer different mechanism questions: where RNA...	Three flashlights reveal message, material, and...	EXP09-E1, EXP09-E2, EXP09-E3	Choose the assay set and state the...	Orthogonal assays answer different mechanism questions: where RNA...
10	CRISPR is a controlled perturbation only when the...	A precision editor needs verification stations...	EXP10-E1, EXP10-E2, EXP10-E3	Choose the claim status and cite the...	CRISPR is a controlled perturbation only when the...

Lesson-by-lesson dependency audit | Lessons 11 to 20

#	Take-home	Analogy	Evidence IDs	Decision	Handoff
11	A model earns relevance by matching the mechanism...	A scale model is useful only...	EXP11-E1, EXP11-E2, EXP11-E3	Choose the model sequence and justify it...	A model earns relevance by matching the mechanism...
12	Loss plus targeted rescue strengthens causation when the...	Remove one circuit part, then restore...	EXP12-E1, EXP12-E2, EXP12-E3	Choose the claim and compare all four...	Loss plus targeted rescue strengthens causation when the...
13	Fair treatment trials require equipoise, concealed randomization, unbiased...	A fair race uses concealed lanes...	EXP13-E1, EXP13-E2, EXP13-E3	Choose the fair-trial plan and explain the...	Fair treatment trials require equipoise, concealed randomization, unbiased...
14	TOPS supports a narrow claim: earlier repair lowered...	Two calendar windows lead to one...	EXP14-E1, EXP14-E2, EXP14-E3	Choose the briefing and cite population, event...	TOPS supports a narrow claim: earlier repair lowered...
15	An operational definition makes speech scoring repeatable, while...	A calibrated ruler and several listeners...	EXP15-E1, EXP15-E2, EXP15-E3	Choose the measurement plan and explain what...	An operational definition makes speech scoring repeatable, while...
16	Bias is directional design or measurement error; confounding...	A crooked mirror and a hidden...	EXP16-E1, EXP16-E2, EXP16-E3	Choose the red-team response and propose one...	Bias is directional design or measurement error; confounding...
17	Systematic reviews reduce cherry-picking, while meta-analysis is credible...	A recipe search needs a sieve...	EXP17-E1, EXP17-E2, EXP17-E3	Choose the synthesis plan and cite protocol...	Systematic reviews reduce cherry-picking, while meta-analysis is credible...
18	Child research requires favorable risk and benefit, IRB...	A field trip needs safety review...	EXP18-E1, EXP18-E2, EXP18-E3	Choose the ethics correction and explain the...	Child research requires favorable risk and benefit, IRB...
19	Transparent reporting lets others appraise and reproduce methods...	A lab notebook must let an...	EXP19-E1, EXP19-E2, EXP19-E3	Choose the editorial decision and match each...	Transparent reporting lets others appraise and reproduce methods...
20	A defensible study plan aligns question, design, variables...	A blueprint board checks every connection...	EXP20-E1, EXP20-E2, EXP20-E3	Choose the defensible protocol and justify question...	Capstone synthesis complete.

Known limits and release receipts

- All patient imagery is explicitly educational illustration. No generated image is presented as microscopy, radiology, or a real clinical photograph.
- Typical care windows are educational examples. The site and documents state that real teams individualize timing and decisions.
- Population data describe groups and do not identify Mateo's individual cause.
- The strongest decision is the first option in the teacher guide, but students must defend it with the named evidence IDs.
- Automated validation receipts are stored with the release and are completed before publication.