Life Science: Biology

Original exam A, full-length form B and three-week preparation

Why these demands were selected

January 2026 moved through twins, an invasive aquatic plant, pest management and honeybees. Seven of ten clusters contained the word model or models. June averaged seven model-cued clusters; August averaged 7.5. Graph cues varied more across these small groups.

One January and five total forms. Two June 2026 items received universal credit and are excluded from topic occurrence counts. They remain visible as printed records. Cluster word cues include directions and questions.

Released forecast example

State design / administration guidance

Original exam A

Four sets, 8 multiple-choice and 4 written responses. Suggested time: 35–50 min; adjust to local conditions. Each selected response earns one local point. Each written response earns one point when the required components are present. Maximum 12 local points. Accept defensible alternative reasoning. Allow consistent follow-through where the local criterion assesses a new operation; annotate the originating error.

Full-length form B

Use the intact linked 2026-08 official booklet except 18. The insert preserves one response position and its maximum credit. Report the original-component subtotal and replacement result separately. State conversion charts are specific to the unmodified state form. Record prior exposure if students have used the released booklet in preparation.

Preparation and feedback

Use the six Studio sessions, then one new retrieval check per week. Use Form A as an independent transfer check after preparation. Form B is optional for full-length rehearsal. On return after absence, students can start with the re-entry line on the current week’s sheet. After testing, return to the first unsupported step in the student’s reasoning.

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Questions 1–6 • One point per selected response.

1 D • Oxygen change in bright versus dim jars with equal plant mass
The bright and dim setups differ in light while plant mass and starting conditions match.

2 B • Respiration can consume oxygen in darkness.
Plants can continue cellular respiration when light-dependent photosynthesis stops.

3 Written response / 1 local point
• Bright jars gained 2.4 mg/L while dark jars lost 0.8 mg/L.
• The measurements show net oxygen change. Oxygen production can exceed consumption in light even while respiration continues, so these data do not establish the claim.

4 D • The two root groups produced different numbers of surviving seeds.
Surviving offspring per plant is evidence about reproductive success.

5 C • Many deep-rooted seeds were carried into the population from another site.
Migration can shift frequencies independently of selection within the site.

6 Written response / 1 local point
• Deep-rooted plants left more surviving offspring on average, 8 compared with 3.
• Because root-depth differences are heritable, more descendants may carry the deep-root trait over generations; individual plants do not need to transform their inherited traits.

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Questions 7–12 • One point per selected response.

7 A • 1/2

Two of four equally likely allele combinations are Pp.

8 A • The purple parent contributed p and is Pp.

A pp offspring must receive p from both parents. A purple carrier has Pp.

9 Written response / 1 local point

• The expected phenotype ratio is 3 purple to 1 nonpurple, or P(purple) = 3/4 per offspring.
• Six purple offspring are possible in a small sample; for independent offspring the probability is $(3/4)^6$, about 0.178.

10 B • A five-species larger average gain in planted sections

The planted gain is 6 and the comparison gain is 1; their difference is 5.

11 C • Manipulate shading across similar sections and measure both temperature and species richness.

Manipulating shade and tracking the proposed intermediate variable helps distinguish mechanisms.

12 Written response / 1 local point

• Planting was associated with a larger average gain, 12 to 18 versus 12 to 13.
• Cooler water is consistent with a shade pathway, but planting could also change food or habitat. A controlled follow-up would distinguish those effects.

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Replacement scoring and retrieval-check keys

Form B replacement / 18 / 1 credits maximum

Award one local point when differential reproduction and inheritance are connected to increased frequency of tolerance across generations. A statement that each plant learned to survive flooding misses the population mechanism.

Public scoring materials for base form

Week 1 / retrieval check

In light, dissolved oxygen rises from 4 to 6 units. What can and cannot be inferred about plant activity?
There was net oxygen gain. This cannot establish that respiration stopped.

Week 2 / retrieval check

A purple carrier Pp is crossed with pp. Predict the phenotype ratio under complete dominance and explain.
Half Pp and half pp are expected, hence 1:1 purple to nonpurple across many offspring.

Week 3 / retrieval check

A trait is inherited but has no measured effect on offspring number. Which extra evidence would support selection?
Compare survival and actual reproductive output by trait under relevant conditions, allowing for migration or chance.

Department follow-up

BIO-C1 Connect ecosystem evidence to an outcome
What happens to oxygen as algae increase, and why does that matter to consumers?

BIO-C2 Explain population change over generations
Did one deer change during its life, or did a trait become more frequent across generations? What would distinguish these accounts?

BIO-C3 Defend a design judgment with its trade-off
Which benefit or cost mattered most to your decision? What change would reverse it?

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Use the independent exam only after practice, or document the order if using it diagnostically.

Which preparation sessions lead into each exam set?

A1 · Sunlight at the marsh / Studio session(s) 1,2

A2 · Seeds after a dry season / Studio session(s) 4

A3 · An inherited seed pattern / Studio session(s) 3

A4 · Restoring a stream bank / Studio session(s) 5,6

Likely reading of a partial response to investigate

A response uses a population trend to explain a change within individuals. Ask where inheritance enters the explanation.

Bridge rehearsal / worked feedback

A closed light jar gains 2 mg/L oxygen while a dark jar loses 1 mg/L. Does the dark jar alone determine respiration in light?

No. It estimates net change under dark conditions. Light measurements combine processes and their rates may differ by condition.

How to choose the next round

If the model or source was misread, return to the matching prep set and ask for a new representation. If the computation or claim is correct but support is missing, request one neutral explanation and give a parallel independent check. Keep the independent result separate from prompted work.