

MCAS Grades 5 and 8 Science and Technology/Engineering (STE) 2027 Revised Test Design Webinar

The Office of Student Assessment Services

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Presenters

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Logistics for This Session

- Use the Q&A feature to ask a question.
 - Type your question at any time, and we will answer some of the more common questions during the webinar.
 - Some answers to your questions may be covered during the presentation and others may be available on the [MCAS Grades 5 and 8 Assessment Transition webpage](#).
- This session is being recorded and will be available in about a week on the [MCAS Resource Center](#), along with the slides.
- Closed captioning has been enabled for participants who need it.
- This session is being interpreted into ASL. Our interpreting team will be onscreen with the presenters.
- Please be advised that DESE does not authorize attendees to record or to use AI transcription tools during the meeting nor does DESE endorse any unauthorized transcripts of its meetings created by third parties.

Slides for This Session

- Slides were emailed to participants before this session from MCASEvents@cognia.org.
- Slides are now being posted in the chat.
 - If you cannot access the slides in the chat, ask in the Q&A.
- In about a week, we will send the slides and a link to the recording to participants.

Today's Agenda

1. Timeline and Overview of Revised Tests
2. Performance Task Components
3. Revised Test Design
4. Resources and Updates
5. Questions and Answers

1. Timeline and Overview of Revised Tests

Grades 5 and 8 STE MCAS Transition Timeline

Timeframe	Activity
2021–2024	Research and Pilot Phase STE Performance Assessment Pilots were administered
Spring 2025 and Spring 2026	Field Test Phase Field test performance tasks were embedded in the spring operational computer-based tests
Spring 2027	Revised Operational Tests First operational year of revised test design

Overview of 2027 Test Design Revisions

- Grades 5 and 8 tests have the same design
- Test is made up of performance tasks; no longer contains discrete items or modules
- Tasks are based on a science phenomenon
- Tasks include:
 - Story scenes – include diverse characters engaging with the science phenomenon
 - Interactive simulation – students collect data and/or make observations
 - Test questions – both simulation-based and non-simulation-based items
 - Selected-response and constructed-response test questions

2. Performance Task Components

Science Storyline and Story Scenes

- Each task begins with a story scene that describes a science or engineering phenomenon.
- There are additional story scenes throughout the task that make up the storyline.
- Each question is related to the storyline, but questions can be answered without the story scenes.



Simulation Support

- Appears before first simulation item and as the “Help” tab with each simulation-based item
- Provides students with directions for the specific simulation

Passage ☆ Screen Zoom: User P Online

You will use a simulation for one or more of the following questions. Read the instructions to learn how to use the simulation. To review the instructions while in a question, click on “Help.”

How to Use the Simulation

- To make a trial:
 1. Click **+New** in a box at the top.
 2. Select settings using the controls at the bottom.
 3. Click **Start**.
- Up to five trials, labeled A through E, can be saved.
- To review the details of a trial, click on the trial.
- To change the trial, click **Rewind** and then select new settings.
- To watch the trial again, click **Rewind** and then click **Start**.
- To delete a trial, click on the trial and then click on the **X**.

The screenshot shows the simulation interface with several callouts:

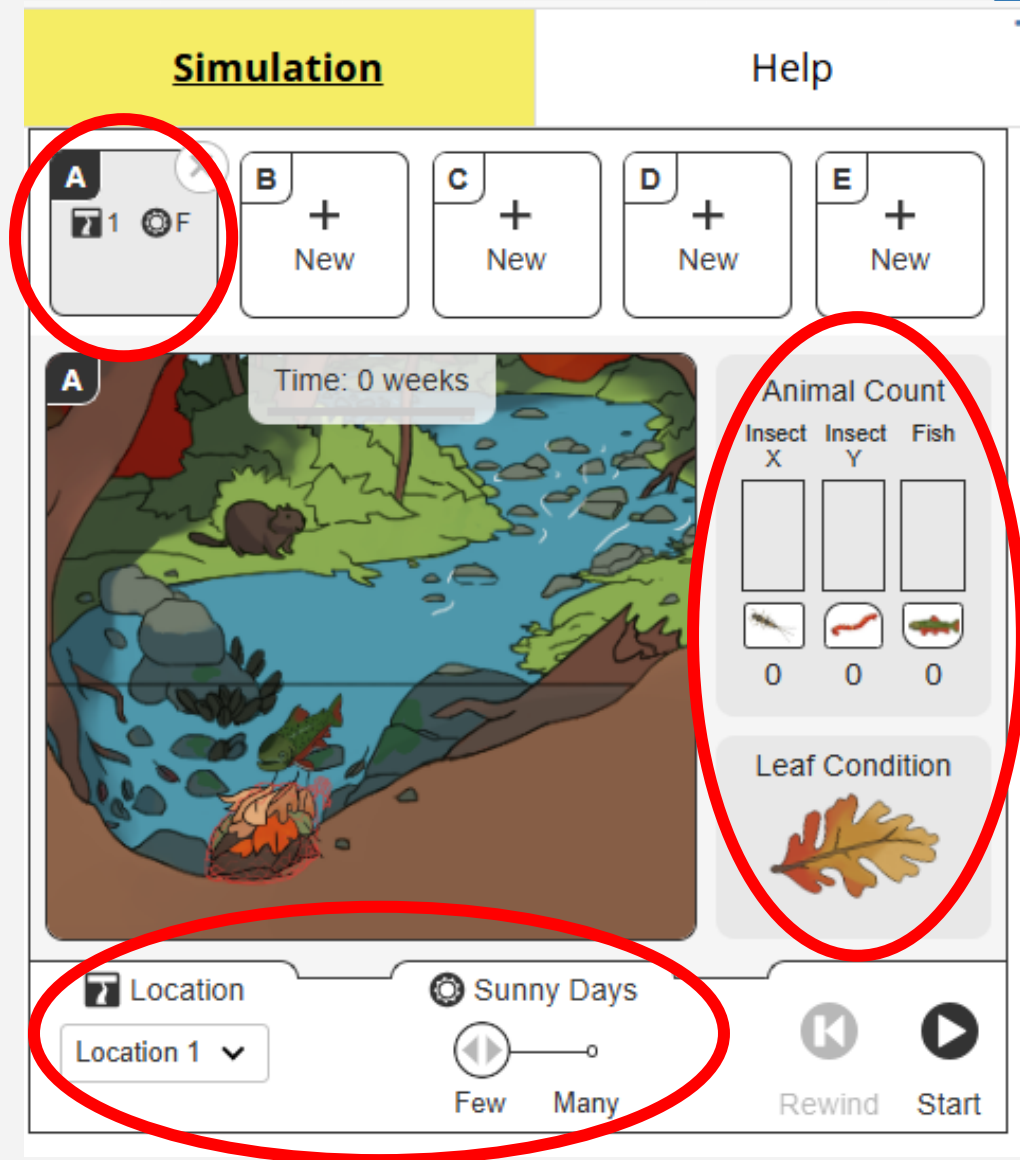
- Callout 1: "Click on **+New** to start a new trial." points to the "+ New" button in trial A.
- Callout 2: "Click on the **X** to delete the trial." points to the "X" icon in trial C.
- Callout 3: "Select from the drop-down menu to choose a **Location**." points to the "Location 1" dropdown menu.
- Callout 4: "Drag the slider left or right to choose **Few** or **Many Sunny Days**." points to the "Sunny Days" slider.

The simulation interface includes:

- Trial buttons: A (+ New), B (+ New), C (1 F), D (+ New), E (+ New).
- Simulation area: A landscape with a river, trees, and a fire. Time: 0 weeks.
- Animal Count: Insect X, Insect Y, Fish. Each has a counter and a corresponding icon.
- Leaf Condition: A visual representation of leaf color (green to yellow).
- Location: A dropdown menu showing "Location 1".
- Sunny Days: A slider between "Few" and "Many".
- Controls: Rewind and Start buttons.

Simulation

- Students interact
 - with one simulation in a task
 - with the simulation only in an associated test item
- Most simulations will have:
 - Inputs
 - Outputs
 - Saved models/trials



Simulation-based Item Example

- Simulation appears on the left side of the screen
- “Simulation Activity” with a goal and the simulation directions appear on the right side of the screen
- Question appears under the Simulation Activity

Simulation

A

7 1 F

23 0 9

B

7 2 F

0 6 1

C

7 1 M

13 0 6

D

7 2 M

0 9 5

E

+

New

A

Time: 3 weeks



Animal Count

Insect X	Insect Y	Fish
		
23	0	9

Leaf Condition



Location

Location 1

Sunny Days

Few Many

Rewind

Start

Perform the simulation activity and answer the question that follows.

Simulation Activity

Your Goal: Create multiple trials to determine the conditions in which the leaf breaks down the most.

For each trial:

1. Select Location 1 or 2 for **Location**.
2. Select Few or Many for **Sunny Days**.

Use the results from the simulation to answer the following question.

Question

Select from the drop-down menus to correctly complete the sentences.

Leaves in the mesh bags would break down the most in

Location 1

 when there are

few

 sunny days.

The matter from the leaves

is used by other organisms

 in the ecosystem.

Example of Item without Simulation

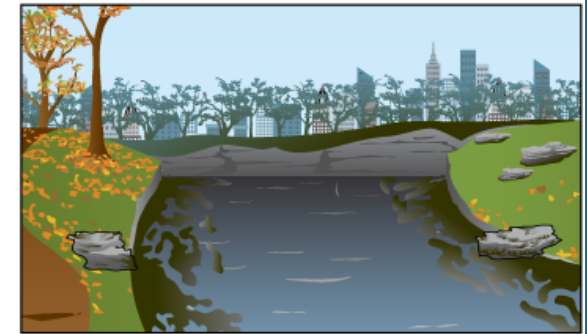
- Most items in a task will not include a simulation.
- These items do not require any information from the simulation.

Pictures from each location, 1 and 2, where the student and volunteer made their observations, are shown.

Location 1



Location 2



More algae were observed at location 2 than at location 1. Algae are organisms that perform photosynthesis. Which of the following **best** explains why more algae were observed at location 2 than at location 1?

Hide All

- ☐ (A) The river was wider at location 2.
- ☐ (B) There were fewer rocks in the river at location 2.
- ☐ (C) There was more air available near the river at location 2.
- ☐ (D) There was more sunlight shining on the water at location 2.

3. Revised Test Design

2027 Test Design: What Remains the Same

- Two test sessions
- Approximate total points on test
 - 2019-2026 Test: 54 pts. total
 - 2027 Test: 55 pts. total
- Item types
 - Selected response (SR)
 - Multiple choice
 - Multiple select
 - Technology-enhanced (inline choice, drag and drop, etc.)
 - Constructed response (CR)

2027 Test Items: What Remains the Same

- 2016 STE Framework

- All items continue to be aligned to the standards

- Reporting Categories

- Earth and space science; life science; physical science; technology/engineering

- Science Practices

- Investigations and questioning; mathematics and data; evidence, reasoning, and modeling

- Cognitive Skill Levels

- Understanding; applying; analyzing and evaluating

- Achievement Level Descriptors

- Exceeding; meeting; partial meeting; not meeting expectations

2027 Test Design: Points by Task

- Each test will have two sessions, each with 3 tasks
- Each individual task is worth a total of 11 points.
 - 6 1-pt selected-response test questions
 - 1 2-pt selected-response test question
 - 1 3-pt constructed-response test question
- The test consists of
 - 5 common (operational) tasks which will count toward a student's score (55 pts. total)
 - 1 field test task that will not count toward a student's score

4. Resources and Updates

Practice Test Updates

Practice tests for grades 5 and 8 STE are available on the [MCAS Resource Center](#)

- Computer-based test (CBT) versions (available now)
- Paper-based test (PBT) versions (coming soon)
- English-Spanish CBT and PBT versions (coming soon)

MCAS STE Resources

[Grades 5 and 8 STE Transition webpage](#)

- test design
- frequently asked questions (FAQs)

[Instructional Guidelines](#)

[Local-Level Classroom STE Performance Assessment Tasks](#)

[Student Assessment Updates](#)

5. Questions and Answers

Q & A

- We will answer some questions now.
- If we do not answer your question, please either email mcas@mass.gov or check the [STE Transition webpage](#).

THANK YOU

The Office of Student Assessment Services



[https://www.doe.mass.edu/
mcas/tdd/sci.html](https://www.doe.mass.edu/mcas/tdd/sci.html)



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