

MCAS Grade 5 Science and Technology/Engineering (STE) Paper-Based Practice Test Answer Key

The MCAS grade 5 Science and Technology/Engineering (STE) practice test is made of performance tasks reflecting the revised test design that will become operational in spring 2027. More information about the STE performance tasks can be found on the [MCAS Grades 5 and 8 Science and Technology/Engineering \(STE\) Transition](#) page.

Practice Performance Task 1

Item Number	Reporting Category	Standard	Science and Engineering Practice Category	Item Type*	Max Points	Correct Answer**
1	<i>Earth & Space Science</i>	5.ESS.2.1	None	SR	1	D,E
2	<i>Life Science</i>	5.LS.2.1	C. Evidence, Reasoning, and Modeling	SR	1	C;B
3	<i>Life Science</i>	5.LS.1.1	C. Evidence, Reasoning, and Modeling	SR	1	D
4	<i>Physical Science</i>	5.PS.1.3	C. Evidence, Reasoning, and Modeling	SR	1	D
5	<i>Life Science</i>	5.LS.2.1	B. Mathematics and Data	SR	2	Part A: C Part B: B;A;A
6	<i>Life Science</i>	5.LS.2.1	B. Mathematics and Data	SR	1	D
7	<i>Life Science</i>	3.LS.1.1	C. Evidence, Reasoning, and Modeling	SR	1	D
8	<i>Life Science</i>	3.LS.4.4	C. Evidence, Reasoning, and Modeling	CR	3	<i>see page 3</i>

Practice Performance Task 2

Item Number	Reporting Category	Standard	Science and Engineering Practice Category	Item Type*	Max Points	Correct Answer**
9	<i>Earth & Space Science</i>	5.ESS.2.1	C. Evidence, Reasoning, and Modeling	SR	1	D
10	<i>Physical Science</i>	5.PS.2.1	None	SR	1	D
11	<i>Life Science</i>	4.LS.1.1	C. Evidence, Reasoning, and Modeling	SR	1	A
12	<i>Life Science</i>	5.LS.2.1	C. Evidence, Reasoning, and Modeling	SR	2	Part A: A;B Part B: A;A
13	<i>Life Science</i>	4.LS.1.1	None	SR	1	B,E
14	<i>Life Science</i>	5.PS.1.3	C. Evidence, Reasoning, and Modeling	SR	1	B
15	<i>Earth & Space Science</i>	4.ESS.2.1	C. Evidence, Reasoning, and Modeling	SR	1	A;A
16	<i>Technology & Engineering</i>	3.ETS.1.2	A. Investigations and Questioning	CR	3	<i>see page 4</i>

Practice Performance Task 3

Item Number	Reporting Category	Standard	Science and Engineering Practice Category	Item Type*	Max Points	Correct Answer**
17	<i>Earth & Space Science</i>	4.ESS.3.1	C. Evidence, Reasoning, and Modeling	SR	1	A
18	<i>Earth & Space Science</i>	5.ESS.2.2	C. Evidence, Reasoning, and Modeling	SR	1	B,D
19	<i>Physical Science</i>	5.PS.1.4	C. Evidence, Reasoning, and Modeling	SR	1	B;B;A
20	<i>Technology & Engineering</i>	4.ETS.1.3	C. Evidence, Reasoning, and Modeling	SR	1	C
21	<i>Physical Science</i>	5.PS.1.2	A. Investigations and Questioning	SR	1	D
22	<i>Physical Science</i>	5.PS.1.1	C. Evidence, Reasoning, and Modeling	SR	2	Part A: B;A Part B: D
23	<i>Life Science</i>	5.PS.3.1	C. Evidence, Reasoning, and Modeling	SR	1	C
24	<i>Life Science</i>	4.LS.1.1	C. Evidence, Reasoning, and Modeling	CR	3	see pages 5–6

* STE item types are selected-response (SR) and constructed-response (CR).

** Pages 3–6 of this document provide sample student responses for constructed-response items.

Sample Student Responses for Constructed-Response Items

Item 8 Sample Student Work and Scoring Guide

Scoring Guide

Score	Description
3	The response demonstrates a thorough understanding of how changes in a habitat may affect the ability of organisms to survive and reproduce. The response correctly identifies whether an insect population would increase, decrease, or stay the same if there were fewer trees near the river and clearly explains the reasoning. The response also correctly identifies whether the fish population would most likely increase or decrease and clearly provides two reasons why the fish population would be affected.
2	The response demonstrates a partial understanding of how changes in a habitat may affect the ability of organisms to survive and reproduce.
1	The response demonstrates a minimal understanding of how changes in a habitat may affect the ability of organisms to survive and reproduce.
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.

Score Point 3

Part	Student Response
A	The population of mayflies would increase. Plants need sunlight to grow, so with more sun there are more plants and with more plants there would be more mayflies.
B	The trout population would increase because there would be more mayflies for them to eat.
C	The student's claim is correct that the river will be less healthy. Building a parking lot next to the river would add dirt and oil from the cars to the water so sunlight could not reach the aquatic plants, causing them to die

Score Point 2

Part	Student Response
A	The mayfly population will increase. There will be more sunlight, so more plants will grow that mayflies can eat.
B	There will be fewer trout because they can swim somewhere else.
C	The river will be less healthy because there might be too much sunlight now. Some plants might grow too much so there isn't space for all the normal things that live in the river.

Score Point 1

Part	Student Response
A	The mayfly population will decrease because the trout are eating them.
B	The population of trout will stay the same, since they do not need sunlight.
C	One piece of evidence would be if all the animals in the river died. They might die because a bunch of pollution gets in the water when they are making the parking lot.

Score Point 0

Part	Student Response
A	increase because there will be more of them
B	Decrease because lots of things eat trout
C	The student is wrong.

Item 16 Sample Student Work and Scoring Guide

Scoring Guide

Score	Description
3	The response demonstrates a thorough understanding of comparing solutions to a problem based on criteria and constraints. The response correctly identifies if a claim is correct and clearly explains the reasoning. The response correctly identifies the design that best meets the given criteria and clearly explains the reasoning. The response also clearly describes a constraint that will most likely need to be considered in the design.
2	The response demonstrates a partial understanding of comparing solutions to a problem based on criteria and constraints.
1	The response demonstrates a minimal understanding of comparing solutions to a problem based on criteria and constraints.
0	The response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.

Score Point 3

Part	Student Response
A	Yes, the amount of water should be constant if we want to test the barrier design. Having different amounts of water may give different results and you wouldn't be able to tell which design is better.
B	Design Z meets both criteria. It only uses 3 barriers and is a level 3 muddiness. Design X is a level 4 muddiness and Design Y uses 4 barriers.
C	They may need to build the barriers in a certain amount of time

Score Point 2

Part	Student Response
A	They are correct because in a fair test only one variable changes. Only the barriers should change.
B	Design Z because it has the least mud with only 3 barriers. The others had more mud or more barriers.
C	Preventing mud and soil from going into the lake.

Score Point 1

Part	Student Response
A	The student is correct because that is a good plan
B	Design Y is good cause not a lot of mud went into the lake
C	Cost. They only have so much money.

Score Point 0

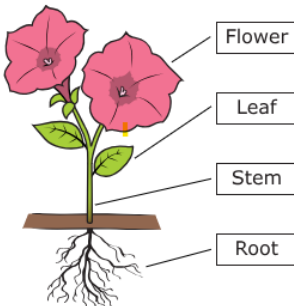
Part	Student Response
A	Water makes the soil muddy.
B	Design Z is best
C	rainfall

Item 24 Sample Student Work and Scoring Guide

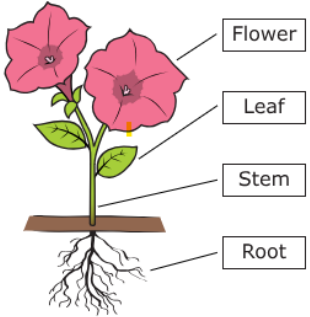
Scoring Guide

Score	Description
3	The response demonstrates a thorough understanding that plants have internal and external structures that support their survival. The response correctly completes a model of plant structures. The response correctly identifies the main process that occurs in a plant's leaves that uses water and clearly explains how this process is important to a plant's survival. The response also correctly identifies if a claim about plant stems is correct and clearly explains the reasoning.
2	The response demonstrates a partial understanding the plants have internal and external structures that support their survival.
1	The response demonstrates a minimal understanding that plants have internal and external structures that support their survival.
0	The response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.

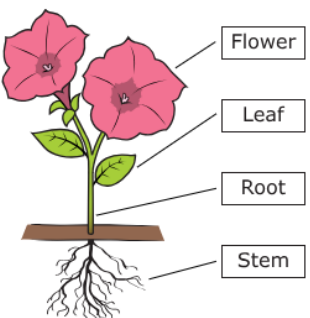
Score Point 3

Part	Student Response
A	
B	The process that occurs in the leaves is photosynthesis. This is when water and air and sunlight are made into food for the plant. Plants need food to survive.
C	The claim is incorrect. Without a stem the plant would die. The stem moves water from the roots to the leaves and flowers.

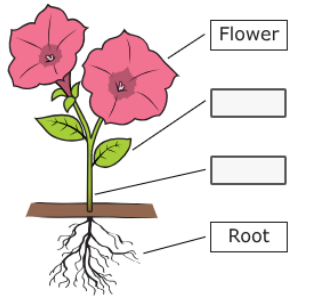
Score Point 2

Part	Student Response
A	 The diagram shows a plant with two pink flowers, green leaves, a central stem, and a root system. Labels with leader lines point to each part: Flower, Leaf, Stem, and Root.
B	Leaves need water and sun.
C	The stem is important because it supports the flower and leaves so the plant stands up to get sunlight.

Score Point 1

Part	Student Response
A	 The diagram shows a plant with two pink flowers, green leaves, a central stem, and a root system. Labels with leader lines point to each part: Flower, Leaf, Root, and Stem.
B	The process is making food in the leaves. Plants need energy from food to grow.
C	The claim is correct. Stems don't help plants survive

Score Point 0

Part	Student Response
A	 The diagram shows a plant with two pink flowers, green leaves, a central stem, and a root system. Labels with leader lines point to each part: Flower, an empty box, another empty box, and Root.
B	Roots get water for the plant
C	Flowers make seeds