Coherence and Alignment Among Science Curriculum, Instruction, and Assessment (CASCIA) Project

Grade 8 Unit 2: Gravity and Motion of Objects in the Solar System

Task 3 Prompt 1 Part A Scored and Annotated Anchor Set

March 2025

Grade 8 Unit 2: Gravity and Motion of Objects in the Solar System, Task 3 Prompt 1 Part A Scored and Annotated Anchor Set was developed with funding from the U.S. Department of Education under the Competitive Grants for State Assessments Program CFDA 84.368A. The contents of this paper do not represent the policy of the U.S. Department of Education, and no assumption of endorsement by the Federal government should be made.

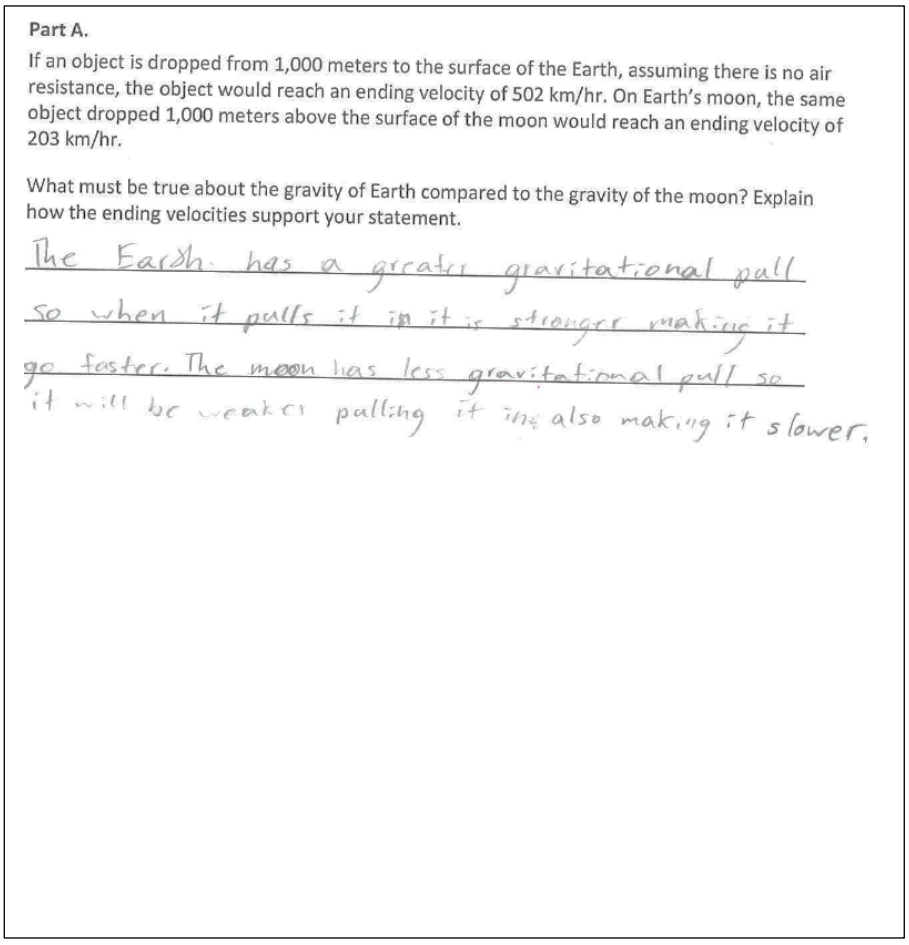
CASCIA Grade 8 EOU Assessment 2 Task 3: Earth's Solar System
Prompt 1 Part A Score Point 2

Prompt 1 Part A Rubric

Prompt	Score Point 0	Score Point 1	Score Point 2	Score Point 3	Score Point 4
Prompt 1 Part A.	No aspect of the response is correct	Response includes **one (1)** of the **two (2)** aspects	Response includes the following aspects: • Describes Earth's gravity as greater than the moon's gravity • Includes evidence based on lower ending velocity	NA	NA

Score Point 2 (2/2 aspects met)

- Part A
  - Includes a description that Earth's gravity is greater than the moon's gravity (i.e., The student states that "The Earth has a greater gravitational pull . . .").
  - Includes evidence that the ending velocity on the Earth is faster (i.e., The student response states that ". . . so when it pulls it (the object) in it is stronger making it go faster.").



Part A.

If an object is dropped from 1,000 meters to the surface of the Earth, assuming there is no air resistance, the object would reach an ending velocity of 502 km/hr. On Earth's moon, the same object dropped 1,000 meters above the surface of the moon would reach an ending velocity of 203 km/hr.

What must be true about the gravity of Earth compared to the gravity of the moon? Explain how the ending velocities support your statement.

The Earth has a greater gravitational pull so when it pulls it in it is stronger making it go faster. The moon has less gravitational pull so it will be weaker pulling it in also making it slower.

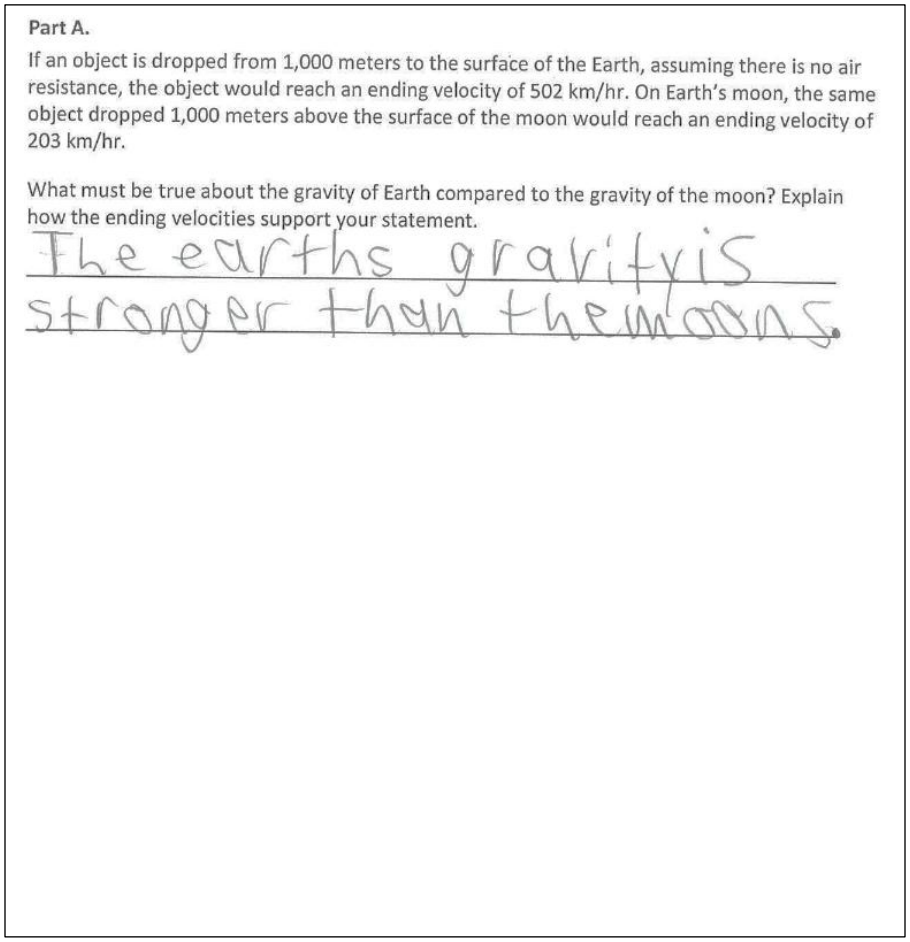
CASCIA Grade 8 EOU Assessment 2 Task 3: Earth's Solar System
Prompt 1 Part A Score Point 1

Prompt 1 Part A Rubric

Prompt	Score Point 0	Score Point 1	Score Point 2	Score Point 3	Score Point 4
Prompt 1 Part A.	No aspect of the response is correct	Response includes **one (1)** of the **two (2)** aspects	Response includes the following aspects: • Describes Earth's gravity as greater than the moon's gravity • Includes evidence based on lower ending velocity	NA	NA

Score Point 1 (1/2 aspects met)

- Part A
  - Includes a statement that Earth's gravity is greater than the moon's gravity.
  - Does **NOT** include evidence based on ending velocities.



Part A.

If an object is dropped from 1,000 meters to the surface of the Earth, assuming there is no air resistance, the object would reach an ending velocity of 502 km/hr. On Earth's moon, the same object dropped 1,000 meters above the surface of the moon would reach an ending velocity of 203 km/hr.

What must be true about the gravity of Earth compared to the gravity of the moon? Explain how the ending velocities support your statement.

The earths gravity is stronger than the moons.

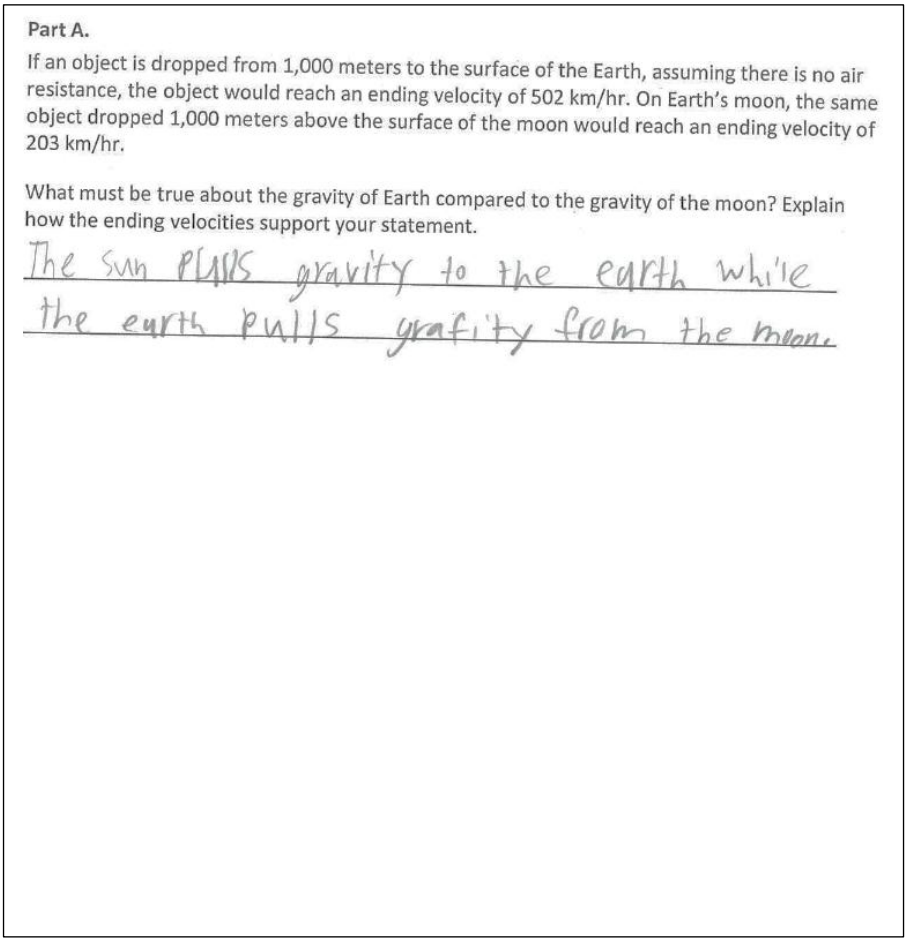
CASCIA Grade 8 EOU Assessment 2 Task 3: Earth's Solar System
Prompt 1 Part A Score Point 0

Prompt 1 Part A Rubric

Prompt	Score Point 0	Score Point 1	Score Point 2	Score Point 3	Score Point 4
Prompt 1 Part A.	No aspect of the response is correct	Response includes **one (1)** of the **two (2)** aspects	Response includes the following aspects: • Describes Earth's gravity as greater than the moon's gravity • Includes evidence based on lower ending velocity	NA	NA

Score Point 0 (0/2 aspects met)

- Part A
  - Does **NOT** include a description of Earth's gravity being greater than the moon's gravity.
  - Does **NOT** include evidence based on ending velocities.



Part A.

If an object is dropped from 1,000 meters to the surface of the Earth, assuming there is no air resistance, the object would reach an ending velocity of 502 km/hr. On Earth's moon, the same object dropped 1,000 meters above the surface of the moon would reach an ending velocity of 203 km/hr.

What must be true about the gravity of Earth compared to the gravity of the moon? Explain how the ending velocities support your statement.

The sun pulls gravity to the earth while the earth pulls grafity from the moon.