



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 1 Prompt 1 Parts A & B Scored and Annotated Anchor Set

March 2025

Grade 8 Unit 2: Gravity and Motion of Objects in the Solar System, Task 1 Prompt 1 Parts A & B 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.

All rights reserved. Any or all portions of this document may be reproduced and distributed without prior permission, provided the source is cited as: Coherence and Alignment Among Science Curriculum, Instruction, and Assessment (CASCIA) Project. (2025). *Grade 8 Unit 2: Gravity and Motion of Objects in the Solar System, Task 1 Prompt 1 Parts A & B Scored and Annotated Anchor Set*. Lincoln, NE: Nebraska Department of Education.

CASCIA Grade 8 EOU Assessment 2 Task 1: Orbiting Around

Prompt 1 Parts A & B Score Point 4

Prompt 1 Parts A & B Rubric

Prompt	Score Point 0	Score Point 1	Score Point 2	Score Point 3	Score Point 4
Prompt 1 Part A. & Part B.	No aspect of the response is correct	Response includes one (1) of the four (4) aspects	Response includes two (2) of the four (4) aspects	Response includes three (3) of the four (4) aspects	Response includes the following aspects: Part A - A: the planet's motion without gravity (straight line from the planet) - B: the actual orbit (dotted curved line) - C: the force of gravity (line from the planet to the sun) Part B - Describes that a planet would be pulled into the sun if it has no inertia

Score Point 4 (4/4 aspects met)

- Part A
 - Labels A as the planet's motion.
 - Labels B as the planet's orbit.
 - Labels C as the force of gravity.
- Part B
 - Describes that a planet would be pulled into the sun.

Write the corresponding letter for each of the labels below in the blank spaces in Figure 1.

A. Planet's motion without gravity
B. Actual orbit
C. Force of gravity

Figure 1. Planetary Orbit Around the Sun

Part B.

What would happen if the planet in Figure 1 had no inertia?

The planet would get pulled into the sun.

CASCIA Grade 8 EOU Assessment 2 Task 1: Orbiting Around

Prompt 1 Parts A & B Score Point 3

Prompt 1 Parts A & B Rubric

Prompt	Score Point 0	Score Point 1	Score Point 2	Score Point 3	Score Point 4
Prompt 1 Part A. & Part B.	No aspect of the response is correct	Response includes one (1) of the four (4) aspects	Response includes two (2) of the four (4) aspects	Response includes three (3) of the four (4) aspects	Response includes the following aspects: Part A - A: the planet's motion without gravity (straight line from the planet) - B: the actual orbit (dotted curved line) - C: the force of gravity (line from the planet to the sun) Part B - Describes that a planet would be pulled into the sun if it has no inertia

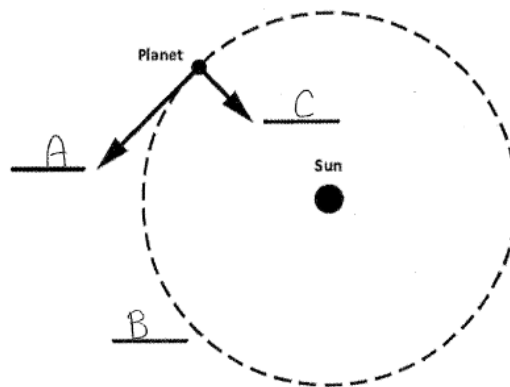
Score Point 3 (3/4 aspects met)

- Part A
 - Labels A as the planet's motion.
 - Labels B as the planet's orbit.
 - Labels C as the force of gravity.
- Part B
 - Does **NOT** describe that a planet would be pulled into the sun if it has no inertia (i.e., The student describes what would happen if there was no force of gravity in the system.).

Write the corresponding letter for each of the labels below in the blank spaces in **Figure 1**.

- A. Planet's motion without gravity
- B. Actual orbit
- C. Force of gravity

Figure 1. Planetary Orbit Around the Sun



Part B.

What would happen if the planet in **Figure 1** had no inertia?

The planet would float out in the
middle of space because there is no
gravity keeping it in its orbit.

CASCIA Grade 8 EOU Assessment 2 Task 1: Orbiting Around

Prompt 1 Parts A & B Score Point 2

Prompt 1 Parts A & B Rubric

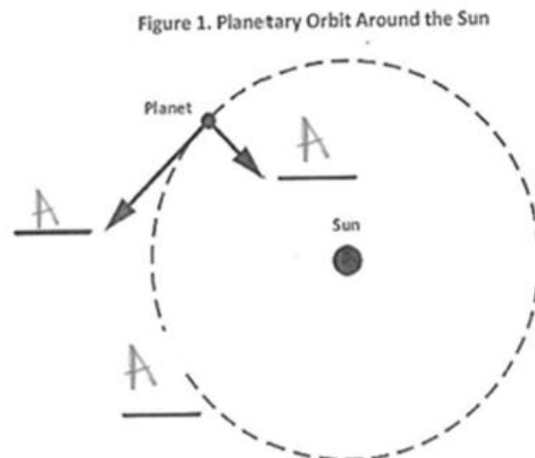
Prompt	Score Point 0	Score Point 1	Score Point 2	Score Point 3	Score Point 4
Prompt 1 Part A. & Part B.	No aspect of the response is correct	Response includes one (1) of the four (4) aspects	Response includes two (2) of the four (4) aspects	Response includes three (3) of the four (4) aspects	Response includes the following aspects: Part A - A: the planet's motion without gravity (straight line from the planet) - B: the actual orbit (dotted curved line) - C: the force of gravity (line from the planet to the sun) Part B - Describes that a planet would be pulled into the sun if it has no inertia

Score Point 2 (2/4 aspects met)

- Part A
 - Labels A as the planet's motion.
 - Does **NOT** label B as the planet's orbit.
 - Does **NOT** label C as the force of gravity.
- Part B
 - Describes that a planet would be pulled into the sun if it has no inertia (i.e., The student states that the planet "... would run right into the sun ...").

Write the corresponding letter for each of the labels below in the blank spaces in **Figure 1**.

- A. Planet's motion without gravity
- B. Actual orbit
- C. Force of gravity



Part B.

What would happen if the planet in **Figure 1** had no inertia?

it would run right into the sun
and collide.

CASCIA Grade 8 EOU Assessment 2 Task 1: Orbiting Around

Prompt 1 Parts A & B Score Point 1

Prompt 1 Parts A & B Rubric

Prompt	Score Point 0	Score Point 1	Score Point 2	Score Point 3	Score Point 4
Prompt 1 Part A. & Part B.	No aspect of the response is correct	Response includes one (1) of the four (4) aspects	Response includes two (2) of the four (4) aspects	Response includes three (3) of the four (4) aspects	Response includes the following aspects: Part A - A: the planet's motion without gravity (straight line from the planet) - B: the actual orbit (dotted curved line) - C: the force of gravity (line from the planet to the sun) Part B - Describes that a planet would be pulled into the sun if it has no inertia

Score Point 1 (1/4 aspects met)

- Part A
 - Labels A as the planet's motion.
 - Does **NOT** label B as the planet's orbit.
 - Does **NOT** label C as the force of gravity.
- Part B
 - Does **NOT** describe that a planet would be pulled into the sun (i.e., The student describes that the planet would not orbit the sun.).

Write the corresponding letter for each of the labels below in the blank spaces in Figure 1.

A. Planet's motion without gravity
B. Actual orbit
C. Force of gravity

Figure 1. Planetary Orbit Around the Sun

Part B.

What would happen if the planet in Figure 1 had no inertia?

The planet would not go in a straight orbit around the sun

CASCIA Grade 8 EOU Assessment 2 Task 1: Orbiting Around

Prompt 1 Parts A & B Score Point 0

Prompt 1 Parts A & B Rubric

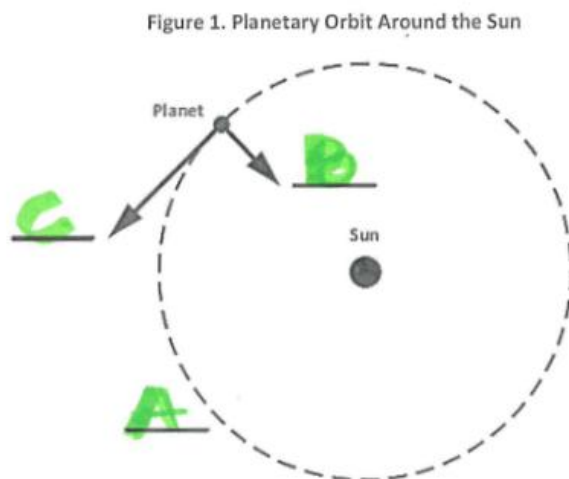
Prompt	Score Point 0	Score Point 1	Score Point 2	Score Point 3	Score Point 4
Prompt 1 Part A. & Part B.	No aspect of the response is correct	Response includes one (1) of the four (4) aspects	Response includes two (2) of the four (4) aspects	Response includes three (3) of the four (4) aspects	Response includes the following aspects: Part A - A: the planet's motion without gravity (straight line from the planet) - B: the actual orbit (dotted curved line) - C: the force of gravity (line from the planet to the sun) Part B - Describes that a planet would be pulled into the sun if it has no inertia

Score Point 0 (0/4 aspects met)

- Part A
 - Does **NOT** label A as the planet's motion.
 - Does **NOT** label B as the planet's orbit.
 - Does **NOT** label C as the force of gravity.
- Part B
 - Does **NOT** describe that a planet would be pulled into the sun.

Write the corresponding letter for each of the labels below in the blank spaces in Figure 1.

- A. Planet's motion without gravity
- B. Actual orbit
- C. Force of gravity



Part B.

What would happen if the planet in Figure 1 had no inertia?

It wouldn't orbit the sun.