# 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 3 Part B Scored and Annotated Anchor Set

**March 2025**

*Grade 8 Unit 2: Gravity and Motion of Objects in the Solar System, Task 3 Prompt 3 Part 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.

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

**Prompt 3 Part B Rubric**

| Prompt | Score Point 0 | Score Point 1 | Score Point 2 | Score Point 3 | Score Point 4 |
|---|---|---|---|---|---|
| **Prompt 3 Part B.** | No aspect of the response is correct | Response includes **one (1)** of the **two (2)** aspects | Response includes the following aspects:<br>• Atmosphere traps heat<br>• Uses evidence (i.e., loss of heat on Planet X) due to lack of atmosphere as evidence | NA | NA |

### Score Point 2 (2/2 aspects met)

- Part B
  - Describes that the atmosphere traps heat.
  - Includes evidence from a planet in our solar system (i.e., The student response includes, ". . . greenhouse affect, just like Venus.").

The following information relates to the Star Beta system in **Diagram 1**:

- **Planet X** is closest to Star Beta. **Planet X** has no atmosphere. During the day, the side facing Star Beta reaches temperatures of 500°C. At night, all the heat escapes into space. The temperature drops to −200°C.
- **Planet Y** has a thick atmosphere. All days on **Planet Y** are cloudy. The average daily temperature on this planet is 475°C.

Explain why Planet Y is hotter on average than Planet X, even though Planet Y is further from Star Beta. Use your knowledge of the characteristics of the planets in our solar system in your explanation.

Because of the thick atmosphere, Planet Y has a runaway green house affect, just like Venus. The heat gets trapped in the atmosphere and stays very hot all the time.

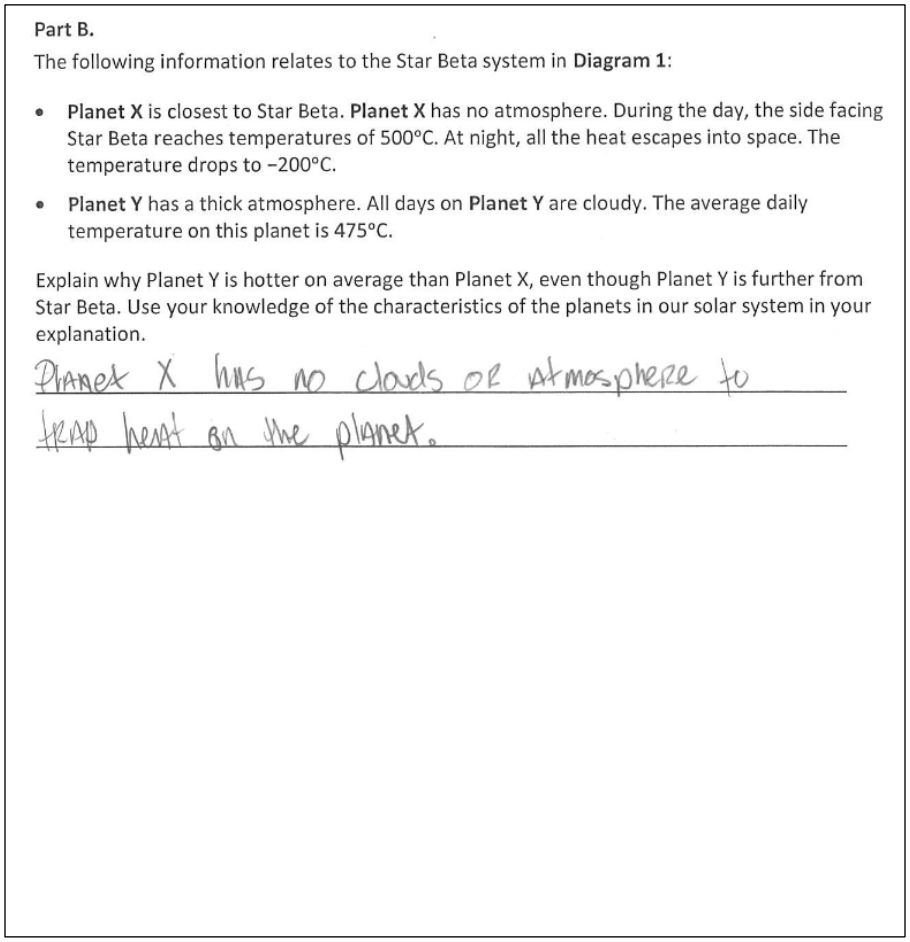
## CASCIA Grade 8 EOU Assessment 2 Task 3: Earth's Solar System
## Prompt 3 Part B Score Point 1

**Prompt 3 Part B Rubric**

| Prompt | Score Point 0 | Score Point 1 | Score Point 2 | Score Point 3 | Score Point 4 |
|---|---|---|---|---|---|
| **Prompt 3 Part B.** | No aspect of the response is correct | Response includes **one (1)** of the **two (2)** aspects | Response includes the following aspects:<br>• Atmosphere traps heat<br>• Uses evidence (i.e., loss of heat on Planet X) due to lack of atmosphere as evidence | NA | NA |

### Score Point 1 (1/2 aspects met)

- Part B
  - Includes a description that the atmosphere traps heat.
  - Does **NOT** include evidence from any planets in our solar system.



Part B.

The following information relates to the Star Beta system in **Diagram 1**:

- **Planet X** is closest to Star Beta. **Planet X** has no atmosphere. During the day, the side facing Star Beta reaches temperatures of 500°C. At night, all the heat escapes into space. The temperature drops to −200°C.
- **Planet Y** has a thick atmosphere. All days on **Planet Y** are cloudy. The average daily temperature on this planet is 475°C.

Explain why Planet Y is hotter on average than Planet X, even though Planet Y is further from Star Beta. Use your knowledge of the characteristics of the planets in our solar system in your explanation.

Planet X has no clouds or atmosphere to trap heat on the planet.

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

**Prompt 3 Part B Rubric**

| Prompt | Score Point 0 | Score Point 1 | Score Point 2 | Score Point 3 | Score Point 4 |
|---|---|---|---|---|---|
| **Prompt 3 Part B.** | No aspect of the response is correct | Response includes **one (1)** of the **two (2)** aspects | Response includes the following aspects:<br>• Atmosphere traps heat<br>• Uses evidence (i.e., loss of heat on Planet X) due to lack of atmosphere as evidence | NA | NA |

### Score Point 0 (0/2 aspects met)

- Part B
  - Does **NOT** include a description that the atmosphere traps heat.
  - Does **NOT** include evidence from any planets in our solar system.

**Part B.**

The following information relates to the Star Beta system in **Diagram 1**:

- **Planet X** is closest to Star Beta. **Planet X** has no atmosphere. During the day, the side facing Star Beta reaches temperatures of 500°C. At night, all the heat escapes into space. The temperature drops to −200°C.
- **Planet Y** has a thick atmosphere. All days on **Planet Y** are cloudy. The average daily temperature on this planet is 475°C.

Explain why Planet Y is hotter on average than Planet X, even though Planet Y is further from Star Beta. Use your knowledge of the characteristics of the planets in our solar system in your explanation.

The heat from Planet X can escape better since that area has gravity.