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 4 Parts A-C Scored and Annotated Anchor Set

March 2025

Grade 8 Unit 2: Gravity and Motion of Objects in the Solar System, Task 3 Prompt 4 Parts A-C 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.

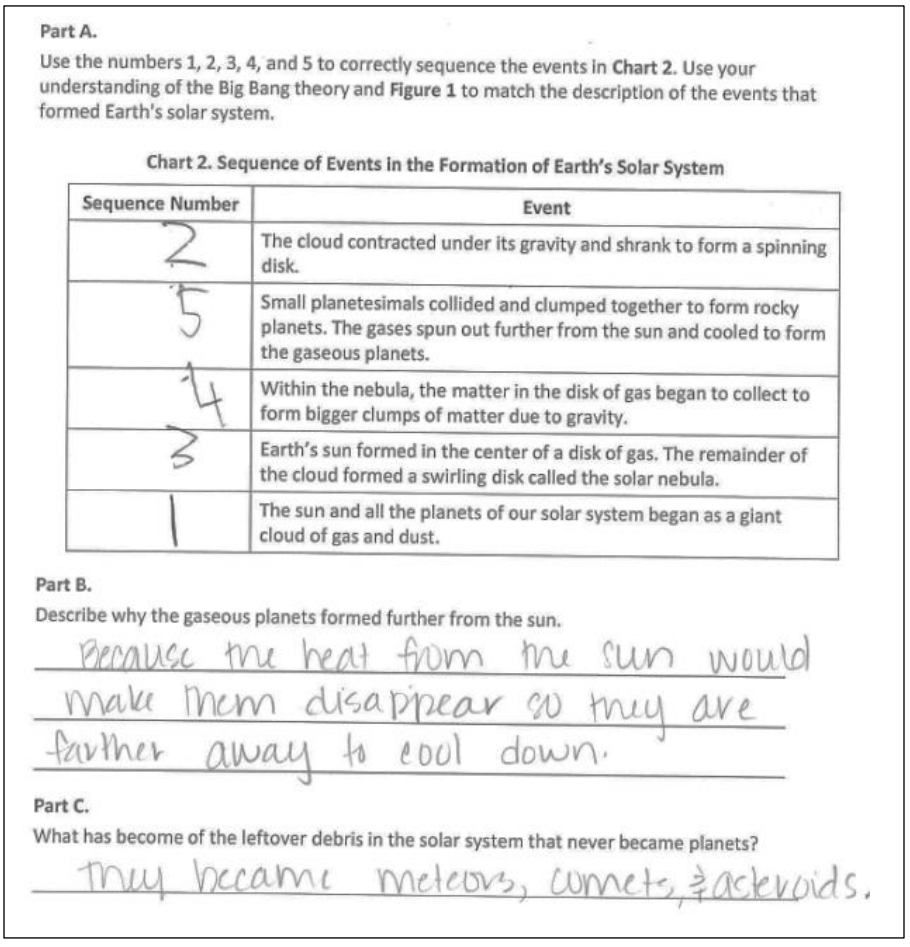
CASCIA Grade 8 EOU Assessment 2 Task 3: Earth's Solar System
Prompt 4 Parts A-C Score Point 3

Prompt 4 Parts A-C Rubric

Prompt	Score Point 0	Score Point 1	Score Point 2	Score Point 3	Score Point 4
Prompt 4 Part A., Part B., & Part C.	No aspect of the response is correct	Response includes **one (1)** of the **three (3)** aspects	Response includes **two (2)** of the **three (3)** aspects	Response includes the following aspects: **Part A** • Correct sequence of events as 2, 5, 4, 3, 1 **Part B** • Description of why the gaseous planets formed in the colder outer solar system **Part C** • Identifies what became of the materials that were not pulled to form planets (e.g., asteroids, comets, and meteoroids)	NA

Score Point 3 (3/3 aspects met)

- Part A
  - Correctly sequences events as 2, 5, 4, 3, 1.
- Part B
  - Describes why the gaseous planets formed in the colder outer solar system.
- Part C
  - Identifies what became of the materials that were not pulled to form planets (e.g., meteors, comets, asteroids).



Part A.

Use the numbers 1, 2, 3, 4, and 5 to correctly sequence the events in **Chart 2**. Use your understanding of the Big Bang theory and **Figure 1** to match the description of the events that formed Earth's solar system.

Chart 2. Sequence of Events in the Formation of Earth's Solar System

Sequence Number	Event
2	The cloud contracted under its gravity and shrank to form a spinning disk.
5	Small planetesimals collided and clumped together to form rocky planets. The gases spun out further from the sun and cooled to form the gaseous planets.
4	Within the nebula, the matter in the disk of gas began to collect to form bigger clumps of matter due to gravity.
3	Earth's sun formed in the center of a disk of gas. The remainder of the cloud formed a swirling disk called the solar nebula.
1	The sun and all the planets of our solar system began as a giant cloud of gas and dust.

Part B.

Describe why the gaseous planets formed further from the sun.

Because the heat from the sun would make them disappear so they are farther away to cool down.

Part C.

What has become of the leftover debris in the solar system that never became planets?

They became meteors, comets, & asteroids.

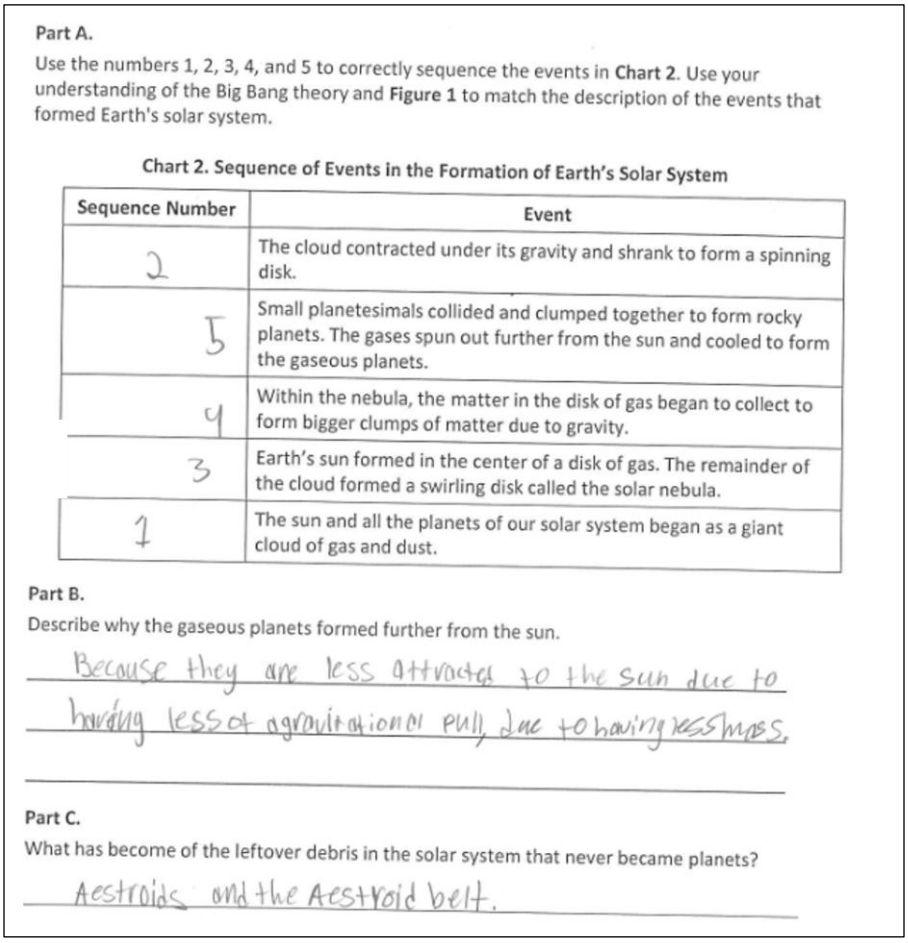
CASCIA Grade 8 EOU Assessment 2 Task 3: Earth's Solar System
Prompt 4 Parts A-C Score Point 2

Prompt 4 Parts A-C Rubric

Prompt	Score Point 0	Score Point 1	Score Point 2	Score Point 3	Score Point 4
Prompt 4 Part A., Part B., & Part C.	No aspect of the response is correct	Response includes **one (1)** of the **three (3)** aspects	Response includes **two (2)** of the **three (3)** aspects	Response includes the following aspects: **Part A** • Correct sequence of events as 2, 5, 4, 3, 1 **Part B** • Description of why the gaseous planets formed in the colder outer solar system **Part C** • Identifies what became of the materials that were not pulled to form planets (e.g., asteroids, comets, and meteoroids)	NA

Score Point 2 (2/3 aspects met)

- Part A
  - Correctly sequences events as 2, 5, 4, 3, 1.
- Part B
  - Does **NOT** describe why the gaseous planets formed in the colder outer solar system.
- Part C
  - Identifies what became of the materials that were not pulled to form planets (e.g., asteroids).



Part A.

Use the numbers 1, 2, 3, 4, and 5 to correctly sequence the events in **Chart 2**. Use your understanding of the Big Bang theory and **Figure 1** to match the description of the events that formed Earth's solar system.

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4	Within the nebula, the matter in the disk of gas began to collect to form bigger clumps of matter due to gravity.
3	Earth's sun formed in the center of a disk of gas. The remainder of the cloud formed a swirling disk called the solar nebula.
1	The sun and all the planets of our solar system began as a giant cloud of gas and dust.

Part B.

Describe why the gaseous planets formed further from the sun.

Because they are less attracted to the sun due to having less of a gravitational pull, due to having less mass.

Part C.

What has become of the leftover debris in the solar system that never became planets?

Aestroids and the Aestroid belt.

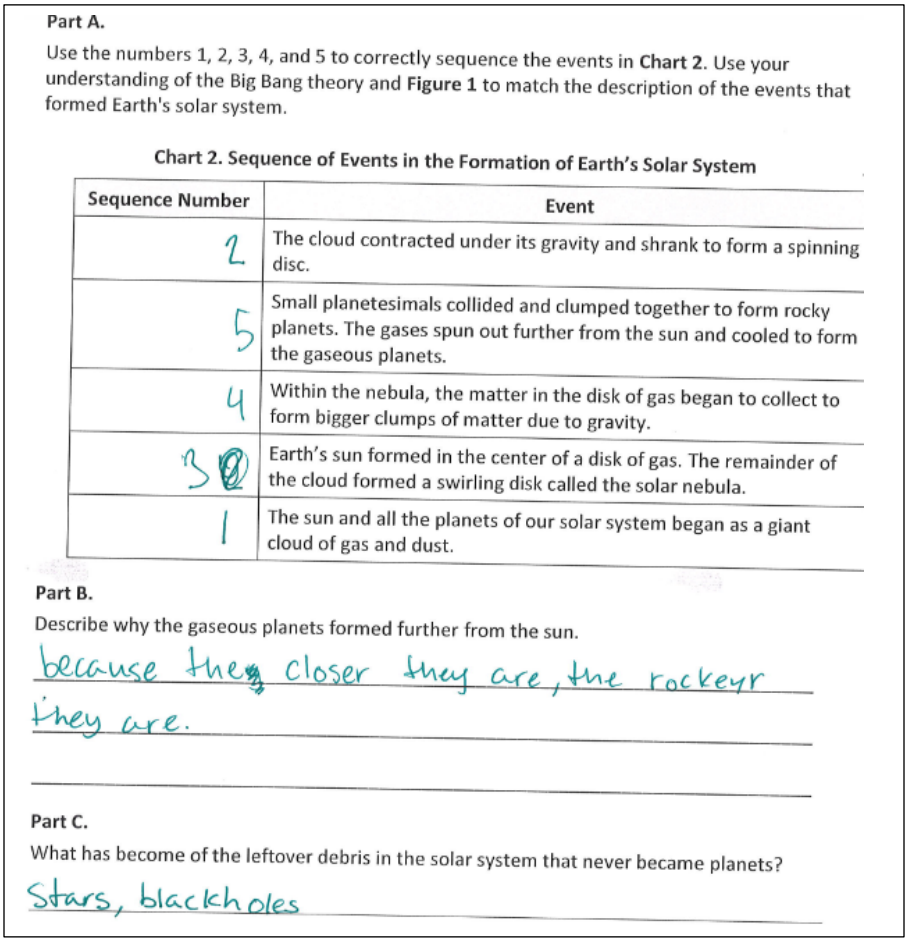
CASCIA Grade 8 EOU Assessment 2 Task 3: Earth's Solar System
Prompt 4 Parts A-C Score Point 1

Prompt 4 Parts A-C Rubric

Prompt	Score Point 0	Score Point 1	Score Point 2	Score Point 3	Score Point 4
Prompt 4 Part A., Part B., & Part C.	No aspect of the response is correct	Response includes **one (1)** of the **three (3)** aspects	Response includes **two (2)** of the **three (3)** aspects	Response includes the following aspects: **Part A** • Correct sequence of events as 2, 5, 4, 3, 1 **Part B** • Description of why the gaseous planets formed in the colder outer solar system **Part C** • Identifies what became of the materials that were not pulled to form planets (e.g., asteroids, comets, and meteoroids)	NA

Score Point 1 (1/3 aspects met)

- Part A
  - Correctly sequences the events as 2, 5, 4, 3, 1.
- Part B
  - Does **NOT** describe why the gaseous planets formed in the colder outer solar system.
- Part C
  - Does **NOT** identify what became of the materials that were not pulled to form planets (e.g., asteroids, comets, and meteoroids).



Part A.

Use the numbers 1, 2, 3, 4, and 5 to correctly sequence the events in **Chart 2**. Use your understanding of the Big Bang theory and **Figure 1** to match the description of the events that formed Earth's solar system.

Chart 2. Sequence of Events in the Formation of Earth's Solar System

Sequence Number	Event
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5	Small planetesimals collided and clumped together to form rocky planets. The gases spun out further from the sun and cooled to form the gaseous planets.
4	Within the nebula, the matter in the disk of gas began to collect to form bigger clumps of matter due to gravity.
3	Earth's sun formed in the center of a disk of gas. The remainder of the cloud formed a swirling disk called the solar nebula.
1	The sun and all the planets of our solar system began as a giant cloud of gas and dust.

Part B.

Describe why the gaseous planets formed further from the sun.

because they closer they are, the rockeyr they are.

Part C.

What has become of the leftover debris in the solar system that never became planets?

Stars, blackholes

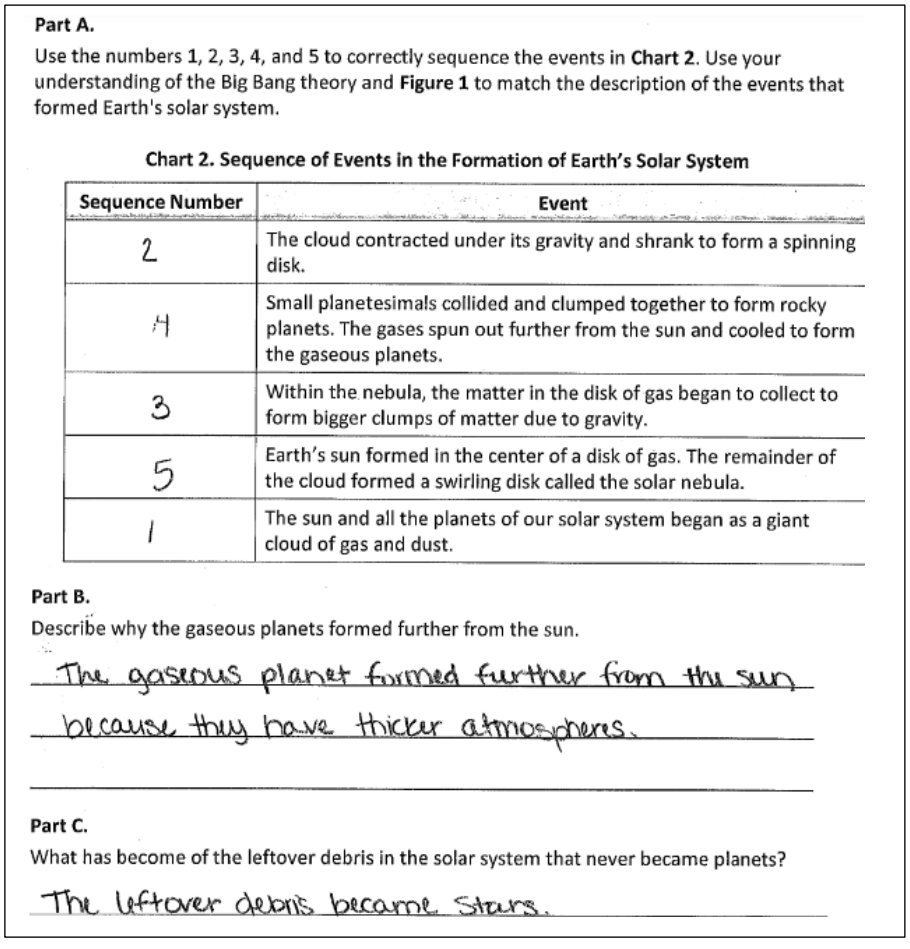
CASCIA Grade 8 EOU Assessment 2 Task 3: Earth's Solar System
Prompt 4 Parts A-C Score Point 0

Prompt 4 Parts A-C Rubric

Prompt	Score Point 0	Score Point 1	Score Point 2	Score Point 3	Score Point 4
Prompt 4 Part A., Part B., & Part C.	No aspect of the response is correct	Response includes **one (1)** of the **three (3)** aspects	Response includes **two (2)** of the **three (3)** aspects	Response includes the following aspects: **Part A** • Correct sequence of events as 2, 5, 4, 3, 1 **Part B** • Description of why the gaseous planets formed in the colder outer solar system **Part C** • Identifies what became of the materials that were not pulled to form planets (e.g., asteroids, comets, and meteoroids)	NA

Score Point 0 (0/3 aspects met)

- Part A
  - Does **NOT** sequence events as 2, 5, 4, 3, 1.
- Part B
  - Does **NOT** describe correctly why the gaseous planets formed in the colder outer solar system.
- Part C
  - Does **NOT** identify what became of the materials that were not pulled to form planets (e.g., asteroids, comets, and meteoroids).



Part A.

Use the numbers 1, 2, 3, 4, and 5 to correctly sequence the events in **Chart 2**. Use your understanding of the Big Bang theory and **Figure 1** to match the description of the events that formed Earth's solar system.

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3	Within the nebula, the matter in the disk of gas began to collect to form bigger clumps of matter due to gravity.
5	Earth's sun formed in the center of a disk of gas. The remainder of the cloud formed a swirling disk called the solar nebula.
1	The sun and all the planets of our solar system began as a giant cloud of gas and dust.

Part B.

Describe why the gaseous planets formed further from the sun.

The gaseous planet formed further from the sun because they have thicker atmospheres.

Part C.

What has become of the leftover debris in the solar system that never became planets?

The leftover debris became Stars.