

2026 MCAS Sample Student Work and Scoring Guide

Grade 8 Science and Technology/Engineering

Question 9: Constructed-Response

Reporting Category: Earth and Space Science

Practice Category: Evidence, Reasoning, and Modeling

Standard: [8.ESS.1.2](#) Explain the role of gravity in ocean tides, the orbital motions of planets, their moons, and asteroids in the solar system.

Item Description: Complete a model to show the force that keeps a planet in orbit around a star, and identify that force.

This item can be found in the released item sets on the [MCAS Resource Center](#).

Scoring Guide

Select a score point in the table below to view the sample student response.

Score	Description
2	The response demonstrates a thorough understanding of the role of gravity in the orbital motions of planets. The response correctly identifies the direction of the force and the type of force that keeps the planet in orbit.
1	The response demonstrates a partial understanding of the role of gravity in the orbital motions of planets.
0	The response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.

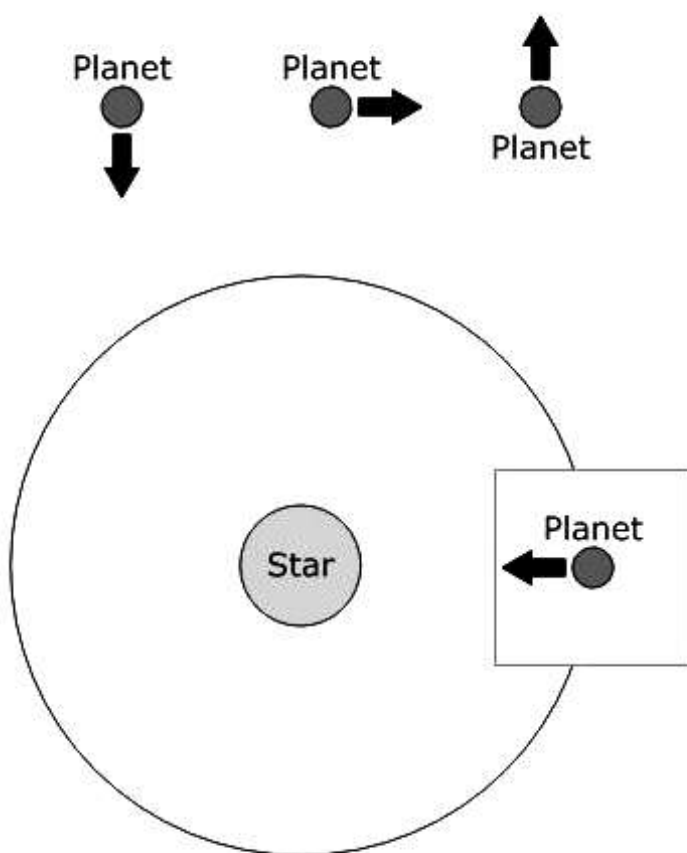
Score Point 2

This question has two parts.

A student is making a model of a planet orbiting a star. The student wants to show the force that acts on the planet to keep the planet in orbit around the star.

Part A

Drag and drop one planet with its force arrow into the box to represent the force that keeps the planet in orbit.

**Part B**

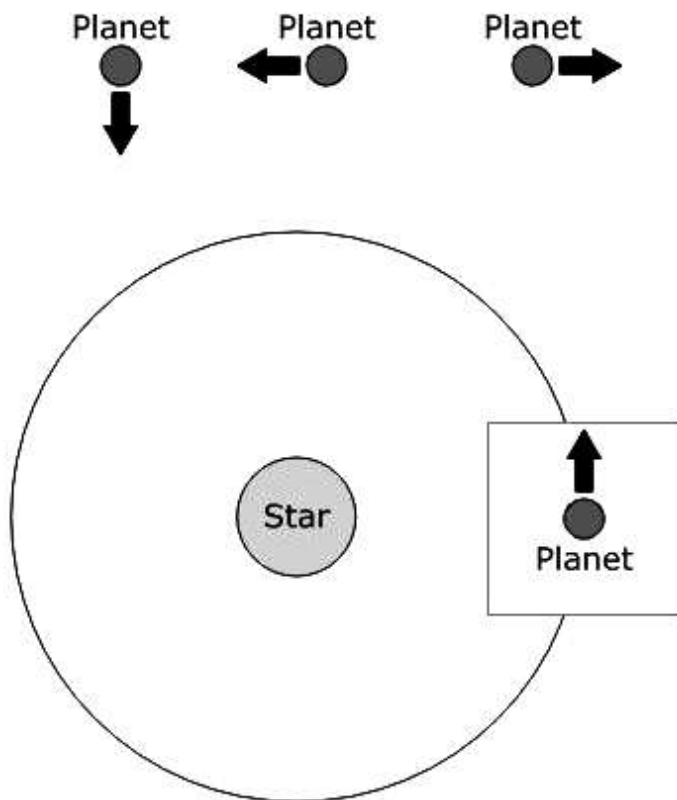
Identify the type of force that keeps the planet in orbit.

The force that keeps this planet in orbit is gravity.

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Score Point 1**Part A**

Drag and drop one planet with its force arrow into the box to represent the force that keeps the planet in orbit.

**Part B**

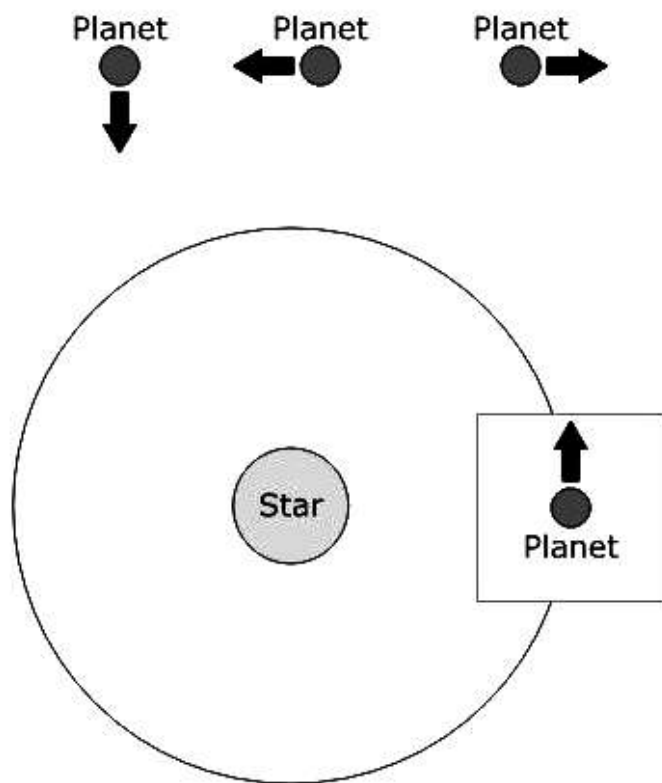
Identify the type of force that keeps the planet in orbit.

The force that keeps the planet in orbit around the star is a gravitational force

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Score Point 0**Part A**

Drag and drop one planet with its force arrow into the box to represent the force that keeps the planet in orbit.

**Part B**

Identify the type of force that keeps the planet in orbit.

The type of force that is upon the planet that is orbiting the star is push because it is going forward

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