

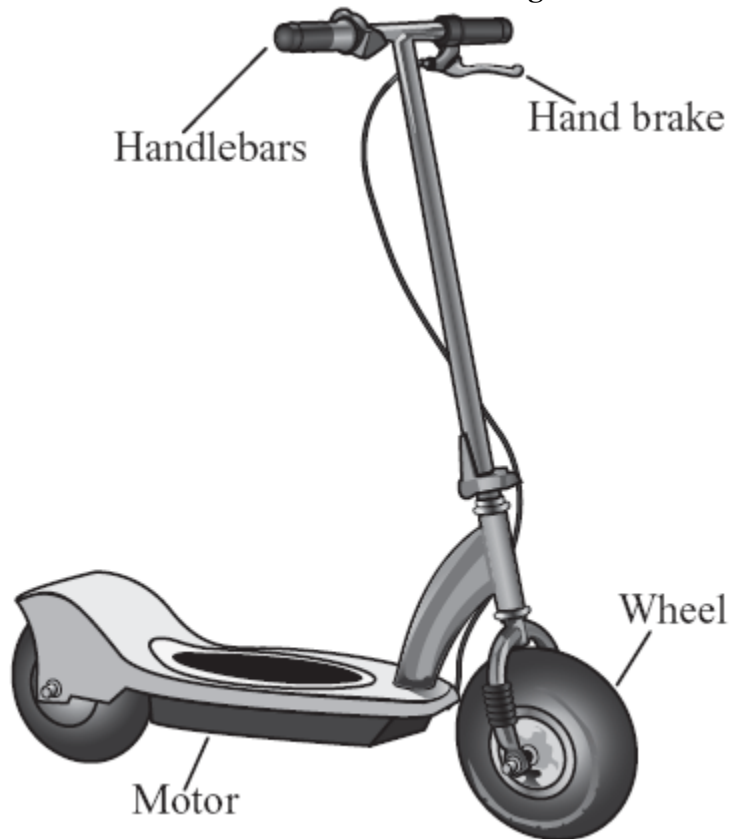
**Question 9:** Earth and Space Science

The planets in our solar system were formed mainly by one force. That same force affects the motion of the planets in our solar system.

Identify the force that is responsible for the formation of the planets in our solar system. Describe how the force you identified in part (a) formed the planets in our solar system. Describe **two** other examples of the effects this force has in our solar system.

**Question 19:** Technology/Engineering

Parts of a scooter are labeled in the diagram below.



Identify the subsystem (propulsion, guidance, control, or suspension) to which **each** of the four labeled parts belongs.

Identify **one** important property of the material used to make the wheel.

Explain why the property you identified in part (b) is important for the scooter.

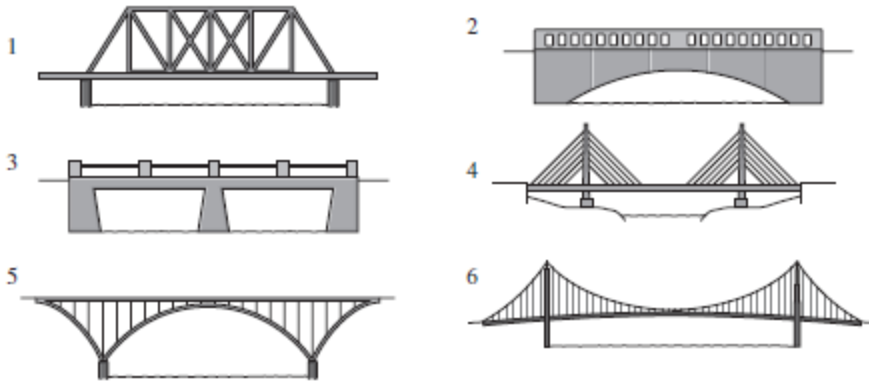
**DIRECTIONS**

Questions 18 and 19 are open-response questions.

- **BE SURE TO ANSWER AND LABEL ALL PARTS OF EACH QUESTION.**
- **Show all your work (diagrams, tables, or computations) in your Student Answer Booklet.**
- **If you do the work in your head, explain in writing how you did the work.**

Write your answer to question 18 in the space provided in your Student Answer Booklet.

**18** The figure below shows examples of bridges numbered 1 through 6.



- Identify **one** example from the figure that represents a type of arch bridge.
- Explain how an arch bridge is different from a beam bridge.
- Identify **one** example from the figure that represents a type of beam bridge.
- Explain how a beam bridge is different from a suspension bridge.

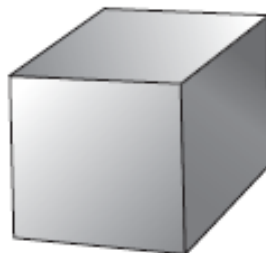
Write your answer to question 19 in the space provided in your Student Answer Booklet.

The process of removing salt from ocean water is called desalination. Some coastal cities use this process to obtain fresh water.

- Describe a simple process that can be performed in the laboratory to separate the salt from the water. Be sure to include an explanation of how each substance can be collected into its own separate container.
- What makes it possible to separate the solution into fresh water and salt?

Write your answer to question 38 in the space provided in your Student Answer Booklet.

- 38 Jorge was given the cube shown below and asked to determine the density of the cube. The material that the cube is made from is unknown.



- Identify the **two** properties of the cube that must be known in order for Jorge to determine the density of the cube.
- Describe how Jorge could measure **each** of the properties of the cube you identified in part (a). Be sure to identify any tools Jorge would use and describe how he would use them.
- Explain how the measurements you described in part (b) can be used to determine the density of the cube.

Write your answer to question 39 in the space provided in your Student Answer Booklet.

- 39 A forest ecosystem in New Hampshire contains a large area where berry plants grow naturally. The berry plants help some organisms in the forest survive and grow. Other organisms in the forest help the berry plants survive and grow.
- Describe **two** different ways that the berry plants help some organisms in the forest survive and grow.
  - Describe **two** different ways that other organisms in the forest help the berry plants survive and grow.