 Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Explain the way in which an astronaut’s weight varies on a journey to the moon.



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| --- | --- | --- | --- | --- |
| Know | |  | Apply  2  1 | |
| Ideas | |  |  |  |
| K1 | Mass and weight are different but related. Mass is a property of the object; weight depends upon mass but also on gravitational field strength. |  | A1 | Explain unfamiliar observations where weight changes. |
| A2 | Draw a force diagram for a problem involving gravity. |
| K2 | Every object exerts a gravitational force on every other object. The force increases with mass and decreases with distance. Gravity holds planets and moons in orbit around larger bodies. |  | A3 | Deduce how gravity varies for different masses and distances. |
| A4 | Compare your weight on Earth with your weight on different planets using the formula. |
|  | |  |  |  |
| Skill | |
| K3 | Use the formula: weight (N) = mass (kg) x gravitational field strength (N/kg). |  | A5 |  |
|  | |  |  |  |
| Facts | |
| K4 | g on Earth = 10 N/kg. On the Moon it is 1.6 N/kg. |  |  |  |
|  | |  |  |  |
| Key words | |
| K5 | **Weight:** The force of gravity on an object (N). |  | A6 |  |
| K6 | **Non-contact force:** One that acts without direct contact. |  |  |  |
| K7 | **Mass:** The amount of stuff in an object (kg). |  |  |  |
| K8 | **Gravitational field strength, g:** The force from gravity on 1 kg (N/kg). |  |  |  |
| K9 | **Field:** The area where other objects feel a gravitational force. |  |  |  |
| 3 | Extend |  |  |  |
| E1 | Compare and contrast gravity with other forces. |  |  |  |
| E2 | Draw conclusions from data about orbits, based on how gravity varies with mass and distance. |  |  |  |
| E3 | Suggest implications of how gravity varies for a space mission. |  |  |  |
| E4 |  |  |  |  |
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|  |  |  |  |  |
| E5 |  |  |  |  |
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