Name _____ Class_____Date_____

Skills Worksheet

Directed Reading A

Section: Gravity: A Force of Attraction

1. Why do astronauts on the moon bounce when they walk?

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2. The force of attraction between two objects that is due to their masses is

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THE EFFECTS OF GRAVITY ON MATTER

3. How can the force of gravity change the motion of an object?

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4. Why is all matter affected by gravity?

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5. The force that pulls you toward your pencil is the force of

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6. Since all objects are attracted toward each other because of gravity, why can't you see the objects moving toward each other?

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7. How are objects around you affected by the mass of Earth?

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NEWTON AND THE STUDY OF GRAVITY

8. What were the two questions that Sir Isaac Newton realized were actually two parts of the same question?

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9. What connection does legend say Newton made between the moon and a falling apple?

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10. Newton summarized his ideas about gravity in a law now called

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THE LAW OF UNIVERSAL GRAVITATION

11. What is stated by the law of universal gravitation?

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12. How does the law of universal gravitation explain why gravity between an elephant and Earth is greater than gravity between a cat and Earth?

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13 How does the law of universal gravitation explain why astronauts on the moon bounce when they walk?

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14. How does the gravitational force between objects that have small masses compare to the gravitational force between large objects?

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15. Why doesn't the sun's gravitational force affect you more than Earth's gravitational force does?

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16. How does the gravitational force between two objects that are close together compare to the gravitational force between two objects as they move farther apart?

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WEIGHT AS A MEASURE OF GRAVITATIONAL FORCE

_____ 17. The measure of the gravitational force on an object is its
- a. mass.
- b. force.
- c. weight.
- d. gravity.

_____ 18. A measure of the amount of matter in an object is
- a. mass.
- b. force.
- c. weight.
- d. gravity.

_____ 19. If an object is moved from Earth to a place with greater gravitational force,
- a. its mass will stay the same.
- b. its weight will stay the same.
- c. its mass will increase.
- d. its weight will decrease.

20. On Earth, why are the words *mass* and *weight* often used to mean the same thing?

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21. What is the SI unit of force?

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22. Why is weight measured in newtons?

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23. What is the main SI unit of mass?

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24. Besides the kilogram, what are two units often used to measure mass?

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