

8th Grade 1st Semester Exam Review

Answer each question below. Be sure to use complete sentences for each question.

1. Describe Newton's Third Law (action and reaction forces).
2. What is the difference between balanced and unbalanced forces acting on an object?
3. Describe how a net force is required to change the motion of an object depends on its mass.
4. Explain if an object subjected to balanced forces would change its motion.
5. Explain the relationship between mass and acceleration.
6. Explain how kinetic energy changes when either the mass or the speed (or both) of an object change.
7. Explain how energy is transformed from one type to another.
8. Explain the directly proportional relationship between distance and potential energy.
9. Explain the energy interaction when two objects interact at a distance.
10. Explain how larger masses affect gravitational forces.
11. Explain how the distance affects the strength of gravitational attraction.
12. Explain how gravitational interactions are (meaning attractive or repulsive).
13. Explain how relevant factors affect electrical forces and magnetic forces.

14. Explain the proportional relationship between electrical force and magnetic force.
15. Explain how the positional patterns of Earth and the sun cause seasons as a result of the tilt of Earth's axis.
16. Explain how the tilt of the Earth's axis causes the northern and southern hemispheres to have opposite seasons.
17. Explain how that the visible portion of the illuminated part of the moon changes as the location of the moon (relative to the Earth and sun) changes.
18. Explain how the positional patterns of the Earth, sun, and moon cause lunar and solar eclipses.
19. Explain how the scale of size and distance for the sun, moon, and Earth.
20. Explain how larger masses exert proportionally larger gravitational forces
21. Explain how distance affects the strength of gravitational attraction.
22. Explain how the force of gravity holds solar systems and galaxies together.
23. Explain how gravity causes orbital motion within solar systems and galaxies.
24. Explain how solar systems form from dust and gas drawn together by gravity.
25. Explain how celestial objects can be examined using observations collected from Earth- and space-based instruments and those observations have improved with technology.
26. Explain how models of varying scale are used to describe specific properties of solar system objects (e.g., surface features, object layers, orbital radii).

