

Science 8
Semester Review Guide Fall 2018

Force and Interactions

1. What is Newton's Third Law of Motion?
2. Why do forces come in pairs?
3. What are action-reaction forces?
4. Give 3 examples of Newton's Third Law of Motion.
5. What is a balanced force?
6. What is an unbalanced force?
7. Explain how an object can have balanced forces and be in motion.
8. What is net force?
9. How do size and shape affect the air resistance of an object?
10. What is Newton's First Law of Motion?
11. Give an example of Newton's First Law of Motion in everyday life.
12. What is Newton's Second Law of Motion?
13. Give an example of Newton's Second Law of Motion in everyday life.
14. What is the formula used in Newton's Second Law of Motion? (You should be able to solve this formula).
15. If mass is doubled, what happens to the force required to accelerate that object?
16. What is kinetic energy?
17. Give three examples of kinetic energy forms.
18. What are the variables used in the kinetic energy formula? (You should be able to recognize the kinetic energy formula and know the variables that affect kinetic energy in the formula).
19. What is the relationship between Kinetic Energy and mass? Kinetic Energy and velocity?
20. What is the Conservation of Mass/Energy?
21. If energy is neither created nor destroyed, what happens to it?
22. Give an example of how energy is transferred from one form to another.
23. What is potential energy?
24. Give 3 examples of potential energy forms.
25. How does a catapult show potential energy?
26. What two factors affect the force of gravity?
27. What is the relationship between magnetism and electricity?
28. How does an electromagnet work?
29. What is a magnetic field?
30. What are magnetic poles?
31. Which poles repel and which poles attract?
32. Where do magnetic fields start? (North or South Poles).
33. What type of force is a magnetic field?
34. Know the difference between an "attractive" and "repulsive" force.

Gravity and Space Systems

1. Why does the Earth have seasons?
2. Explain why the Northern and Southern Hemispheres have opposite seasons.
3. Why does the area around the equator stay the same temperature year round?
4. Why does the illuminated portion of the moon change?
5. What causes the moon to have phases?
6. Explain how a moon can be seen in the day and not at night.
7. What causes a lunar eclipse?
8. What causes a solar eclipse?
9. What is a solstice? (Know the dates they occur)
10. What is an equinox? (Know the dates they occur)
11. Explain the size and scale distance for the sun, moon, and Earth.
12. How does the force of gravity hold our solar system and galaxies together?
13. What causes orbital motion within our solar system and galaxies?
14. How do solar systems form?
15. What is the "Goldilocks Zone"?
16. Why do celestial bodies with smaller masses orbit around celestial bodies with larger masses?
17. What is the gravitational relationship between solar systems and galaxies?
18. Why is it difficult to show the scale of the planets in our solar system in a textbook (size and distance)?
19. Understand the size and scale difference between the sun, earth, and moon.
20. How do scientists gather information about possible planets in the Universe?