**Study Guide Quarter One Test**

**Simple Machines**

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| --- | --- | --- | --- | --- | --- |
| Type: Lever | Type: Screw | Type: Wheel and Axle | Type: Pulley | Type: Inclined Plane | Type: Wedge |
| Define: a bar that rotates around a fixed point  | Define: an inclined plane wrapped around a central cylinder | Define: a wheel that rotates around a central cylinder | Define: a rope or chain that move over a grooved wheel | Define: a sloped surface | Define: a movable inclined plane with a thick and thin end |
| Examples: 1. broom
2. hammer
3. See-saw
 | Examples: 1. Bottle cap
2. drill
3. bolt
 | Examples: 1. propeller
2. Radio dial
3. round door knob
 | Examples: 1. crane
2. elevator
3. seatbelt
 | Examples: 1. Windshield
2. Handicap ramp
3. Bottom of sink
 | Examples: 1. Ice scraper
2. End of nail
3. End of shovel
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1. List the types of simple machines, define them, and give three examples of each.
2. Machines make work easier by either
3. Multiplying the amount of force you exert

b. changing the direction of the force you exert

3. What is a simple machine? A machine that makes work easier to accomplish

4. What is the advantage of a simple machine? It reduces the amount of work needed to be done

5. What is a compound machine? A machine made up of more than one simple machine

6. What is kinetic energy? The energy of an object in motion

7. What is potential energy? The energy of an object associated with its position

8. What is mechanical energy? The total energy of an object from its motion and its position

9. Define inertia. The resistance of an object to change its motion

10. Explain the main idea of Newton’s first law. Objects at rest remain at rest unless acted upon by an unbalanced force

11. Explain the main idea of Newton’s Second Law. Describes the relationship among force, mass, acceleration

12. Explain the main idea of Newton’s Third Law. Forces occur in action/reaction pairs

13. Define Friction. The force that opposes motion between two surfaces that touch

14. Define Force. A push or pull

15. Define gravity. Force of attraction between matter

16. Define magnetic forces. Force that can either attract or repel an object without the objects touching

17. Explain why you need a larger force to start something moving that you do to keep something moving. Once the object is moving, the frictional force remains constant. The constant force is less than the maximum force needed to start the object moving

18. What factors influence frictional force? Give two examples. Types of surfaces, motion of surfaces, force pressing surfaces together/ Air resistance is a type of friction

19. If a hollow plastic ball and a solid metal ball are dropped from the same height in a vacuum with no air resistance, gravity is the only fore acting on the balls. What do you predict will happen? The balls will fall at the same rate

20. Which activity did you enjoy most during 1st quarter? Which activity did you learn the most first quarter?