ORCHIDS The International School

Grade 4 Science Worksheet:4 (DifficultyLevel:Difficult)

Name: _____ | Date: _____

Section 1: Multiple Choice Questions

Choose the correct answer:

1. Which of the following forces acts between two objects that are in contact with each other?
   a) Non-contact force
   b) Gravitational force
   c) Contact force
   d) Magnetic force
2. What type of force pulls objects towards the center of the Earth?
   a) Electromagnetic force
   b) Gravitational force
   c) Nuclear force
   d) Frictional force
3. The force that resists the motion of objects sliding against each other is called:
   a) Gravitational force
   b) Frictional force
   c) Air resistance
   d) Tension force
4. Which force causes an object to move in a curved path?
   a) Centripetal force
   b) Normal force
   c) Gravitational force
   d) Magnetic force
5. When a magnet pulls a metal object towards it, the force acting is called:
   a) Gravitational force
   b) Magnetic force
   c) Tension force
   d) Frictional force

Section 2: True or False

1. A force that pulls objects towards the Earth is called friction.

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2. Tension force is created when an object is stretched or pulled, like a rope in tug-of-war.
3. Air resistance always slows down the motion of objects moving through the air.
4. Friction is a non-contact force.
5. Magnetic force can attract or repel objects that have magnetic properties.

Section 3: Short Answer Questions

1. How do friction and gravity work together when you walk on the ground?
2. What are some real-world applications of magnetic force?
3. Explain how air resistance impacts a falling object.
4. Why is friction useful in activities like driving a car?
5. How does tension force affect a hanging object like a lamp on a chain?

Section 4: Match the Forces with Their Descriptions

Forces:

1. Magnetic force
2. Gravitational force
3. Friction
4. Tension force
5. Applied force

Descriptions:
a) The force that attracts or repels objects due to their magnetic properties.
b) The force between two surfaces that resists motion.
c) The force applied by a person to move an object.
d) The force that causes an object to fall toward the center of the Earth.
e) The force experienced when an object is pulled or stretched.

Section 5: Force in Action

Read the situation and identify the type of force involved:

1. A bicycle slows down when its brakes are applied.
2. A rocket experiences a force that pushes it upward as it launches.
3. A magnet pulls paper clips towards it.
4. A book slides across the table and eventually comes to a stop.
5. A person holds a rope tight during a tug-of-war.

Section 6: Fill in the Blanks

1. _____ is the force that resists the movement of objects sliding against one another.
2. _____ force makes objects fall toward the Earth.
3. When a rope is stretched tightly, it experiences _____ force.
4. A car moving on a road experiences _____ to slow it down.
5. The force that keeps the Earth in orbit around the Sun is _____.

Section 7: Long Answer Questions

1. Describe the difference between contact and non-contact forces, and provide two examples of each.
2. How does gravitational force affect objects of different masses?
3. Explain how magnetic forces work. How do magnets attract or repel each other?
4. What is the role of air resistance in the movement of a parachute?

Section 8: Apply Your Knowledge

1. If you were to design a roller coaster, how would you account for the effects of friction and gravity?

2. Think of a device in your house that uses tension force (e.g., a pull-cord or a hanging lamp). Explain how it works.

3. How would a magnet help in sorting materials in a recycling plant?

Section 9: Physics in Everyday Life

1. How does friction help you stop when you ride a bicycle?

2. Why is friction important in sports activities like running or playing basketball?

3. Describe a situation where magnetic forces can be used to lift or move objects.

Section 10: Essay Question

How do the forces of gravity, friction, and air resistance interact with each other when you ride a bike down a hill? Explain the role of each force in your movement and how they affect the speed and direction of your ride.