

## Grade 4 Science Worksheet:3 (DifficultyLevel: Difficult)

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### Section 1: Multiple Choice Questions

Choose the correct answer:

1. Which of the following forces is responsible for an object to move in a circular path?
  - a) Frictional force
  - b) Tension force
  - c) Centripetal force
  - d) Gravitational force
2. The force that causes a book to fall off a table is:
  - a) Gravitational force
  - b) Frictional force
  - c) Tension force
  - d) Magnetic force
3. Which force pulls objects towards the Earth?
  - a) Electromagnetic force
  - b) Gravitational force
  - c) Friction
  - d) Nuclear force
4. A person pushing a cart is an example of:
  - a) Magnetic force
  - b) Tension force
  - c) Applied force
  - d) Air resistance
5. The force between two objects that are in contact is known as:
  - a) Non-contact force
  - b) Contact force
  - c) Gravitational force
  - d) Magnetic force

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### Section 2: True or False

1. Gravitational force works between objects that are not in contact with each other.

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2. Magnetic force can only attract metals like iron.

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- Air resistance always causes a moving object to speed up.  
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  - Tension force is observed when a rope or string is pulled tightly.  
\_\_\_\_\_
  - Friction increases when two smooth surfaces are in contact.  
\_\_\_\_\_
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### Section 3: Short Answer Questions

- Describe how friction can be both helpful and harmful in daily life.  
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  - Explain how the force of gravity affects all objects equally.  
\_\_\_\_\_
  - What would happen if there was no friction between a car's tires and the road?  
\_\_\_\_\_
  - How does tension force help in activities like tug-of-war?  
\_\_\_\_\_
  - What is the role of air resistance in the movement of a parachute?  
\_\_\_\_\_
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### Section 4: Match the Forces with Their Description

#### Forces:

- Gravitational force
- Tension force
- Friction
- Air resistance
- Magnetic force

#### Descriptions:

- A force between electrically charged particles or magnets.
  - The force that pulls objects towards the center of the Earth.
  - The force that resists the motion of objects through air.
  - A force that acts when two surfaces rub against each other.
  - A force that acts on an object when it is stretched or pulled.
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### Section 5: Force in Action

Read the scenario and identify the type of force involved:

1. A person is pushing a box across the floor.  
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  2. A magnet attracts paper clips to it.  
\_\_\_\_\_
  3. A skydiver experiences resistance as they fall toward the Earth.  
\_\_\_\_\_
  4. A ball is dropped from a height and falls to the ground.  
\_\_\_\_\_
  5. A child pulls a sled up a snowy hill.  
\_\_\_\_\_
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### Section 6: Fill in the Blanks

1. \_\_\_\_\_ force makes a moving car slow down when the brakes are applied.
  2. The force that attracts objects toward the Earth is called \_\_\_\_\_.
  3. \_\_\_\_\_ force is responsible for holding objects in place when stretched or pulled.
  4. The force that resists the movement of objects through air is known as \_\_\_\_\_.
  5. The force between two objects that are in contact with each other is called \_\_\_\_\_.
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### Section 7: Long Answer Questions

1. Explain the difference between contact and non-contact forces, giving at least two examples of each.  
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\_\_\_\_\_
2. Describe how the force of friction can be reduced. Provide examples where reducing friction is useful.  
\_\_\_\_\_  
\_\_\_\_\_
3. How do gravitational and magnetic forces differ from each other? Explain with examples.  
\_\_\_\_\_  
\_\_\_\_\_
4. What happens when the force of air resistance is greater than the force of gravity acting on a falling object?  
\_\_\_\_\_  
\_\_\_\_\_

### **Section 8: Apply Your Knowledge**

1. In the design of airplanes, what strategies are used to reduce air resistance?  
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\_\_\_\_\_
  2. Imagine you are an engineer working on a car's tires. How would you design the tires to maximize grip using friction?  
\_\_\_\_\_  
\_\_\_\_\_
  3. If you were building a bridge, how would you account for the forces acting on it, such as tension and compression?  
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\_\_\_\_\_
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### **Section 9: Physics in Everyday Life**

1. How do magnets help in everyday devices like speakers, motors, and doorbells?  
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\_\_\_\_\_
  2. Why do objects fall to the ground when dropped? What force is responsible for this?  
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\_\_\_\_\_
  3. Why is friction essential in making walking possible? How does it help us in other activities?  
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\_\_\_\_\_
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### **Section 10: Essay Question**

Discuss how forces are involved in the movement of a bicycle. Explain the different types of forces acting on a moving bicycle, including friction, gravity, and air resistance. How do they affect the movement of the bicycle?