Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Pd: \_\_\_\_ **OBJECTIVE: 7.P.1.2**

**Balanced & Unbalanced Forces**

**Essential Question**: **How do balanced and unbalanced forces affect an object's motion?**

**What is Inertia?**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:** the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of any physical object to any \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in its state of motion, including changes to its speed and direction.

* Inertia tells us that we need a **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** to get an object to move or stop an object from moving.

**What is a Force?**

In science, a force is a **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** or a **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

* All forces have two properties: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	+ A **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** (N) is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ that describes the **\_\_\_\_\_\_\_\_\_\_\_\_\_** of a force.

**Example:**

•The student is **pushing** down on the chair, but the chair does not move.

•The floor is **balancing**the force by pushing on the chair.



The student is **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** down on the chair, but the chair does not move.

•The floor is **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**the force by pushing on the chair.

**Combining Forces**

More than one **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** often acts on an **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

* When all the forces acting on an object are **\_\_\_\_\_\_\_\_\_\_\_** together, you determine the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ on the object.
* An object with a net force \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ on it will change its state of **\_\_\_\_\_\_\_\_\_\_\_\_**.

**Forces in the Same Direction**

When **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** are applied in the **\_\_\_\_\_\_\_\_\_\_** direction, they are **\_\_\_\_\_\_\_\_\_\_\_\_\_** to determine the **\_\_\_\_\_\_\_\_** of the net force.

**Forces in Different Directions**

When two forces act in **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** directions, you \_\_\_\_\_\_\_\_\_\_\_\_\_ the **smaller** force from the **larger** force to determine the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

* The net force will be in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ as the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** force.



**Balanced Forces**

When the forces on an object \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ a \_\_\_\_\_\_\_\_\_\_\_\_\_ of \_\_\_\_\_\_\_\_\_, the forces are \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

•There is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in the \_\_\_\_\_\_\_\_\_\_\_ of the object.



**Unbalanced Forces**

When the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ on an object is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, the forces on the object are **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**.

Unbalanced forces produce a **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** of an object.

**PRACTICE**

**1. 2. Net Force:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
 350N**

ç

ç

 **200N**

**Net Force: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 10N**

ç

 **30N
 75N 4,**

ç

ç

ç

**3.**

ç

ç

 **75N 150N 10N
 Net Force:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Net Force:\_\_\_\_\_\_\_**

**Gravity**

Gravity is the force of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ between matter.

Gravity depends on: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Mass and Gravity**

The **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** an object the more it can **\_\_\_\_\_\_\_\_\_\_\_\_\_**objects to itself.

* For example, the Sun has a larger gravitational effect than the Earth.

**Distance and Gravity**

The **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** objects get from one another, the **\_\_\_\_\_\_\_** gravitational attraction can be found.

**Magnets**

A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: an object with a north and south pole that produces a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and exerts a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

A **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** is the force field that surrounds the magnet.

A **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** can cause objects to *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_* or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ without needing to touch the magnet!

**How do magnets affect motion?**

\_\_\_\_\_\_\_\_\_ poles will \_\_\_\_\_\_\_\_\_\_\_ or move \_\_\_\_\_\_\_\_\_\_\_\_ from one another.

\_\_\_\_\_\_\_\_\_\_\_\_ poles will \_\_\_\_\_\_\_\_\_\_\_ or move \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ one another.

**Example:**

****A **compass** uses the Earth’s magnetic field and magnets to help a person determine direction. The magnet’s poles will line up with the Earth’s north magnetic pole and south magnetic pole.