Physics 11

**Unit 4 – Newton’s Laws**

**Section 4.1: Newton’s First Law**

A force is defined as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

The units of force are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

There are four fundamental forces in nature. Every push or pull comes from one of these:

Newton’s First Law Says…

This is also called the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Inertia is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

The “units” of inertia are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Example:** Imagine you are racing around a track on a go-cart. List three times when you notice your inertia:

Here’s another way to phrase Newton’s First Law:

**Example:** Imagine a book sitting on a table. Draw the book and the forces acting on it. Does it have constant velocity?

**Example:** The book now falls off the table. As it falls, draw the book and the forces acting on it. Does it have constant velocity?

**Example:** A skateboard rolls along the ground with constant velocity. Draw the forces acting on it.