Physics 11

**Unit 5 - Forces**

**Section 5.1: Newton’s Universal Law of Gravitation**

Gravity is a force that attracts every pair of objects in the universe. Its strength depends on their \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

We can calculate how strong this force is (i.e. its \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_) using…

**Newton’s Universal Law of Gravitation**

**Example:** An astronaut at an altitude of 5000 km experiences a force of 215 N. What is the astronaut’s mass?

**Example:** Three objects, each with a mass of 10 kg, are placed in a straight line as shown below. What is the net force on the centre object due to the other two?

50 cm

40 cm