Name: _____   Date: _____

Division: _____

<div align="center">

Newton's Law of Universal Gravitation

Video Questions

</div>

1. According to the story, Sir Isaac Newton was sitting _____
   when _____ fell on his head. This lead him to conclude that something was
   _____ down toward the Earth.

2. Newton thought that the same force might affect farther objects, such as _____.

3. Eventually, he began looking for _____ that would help describe
   how all objects behave when affected by this force. He already knew that the magnitude of the force would
   be equal to the object's _____ times its _____.
   (Which comes from his _____.)

4. The first thing Newton would have to take into account was _____.
   The Moon is about _____ further from the _____ Earth
   than the apple would be. Newton concluded that the force between two objects _____
   as they get _____. It equates to the _____ of the
   distance between the two objects.

5. The other major piece of the equation was _____. Newton calculated that the greater the
   _____, the greater the _____.

6. Write Newton's initial version of the equation here:

   M = _____

   m = _____

   r = _____

   $$F \propto$$

7. The force between everyday objects had to be _____.
   To account for this, Newton added _____ to his equation. It was symbolized
   by _____.

8. The Law of Universal Gravitation then, is:

G = _____

M = _____

m = _____

r = _____

$$F_g = \text{————————}$$

9. British scientist _____ would eventually use his precision instrumentation to _____. He determined its value to be _____.

10. 50 years previously, _____ developed his own Three Laws relating to _____. Newton knew that _____ and _____ had to fit together.

11. Kepler stated that the _____ of planets were always _____, and that _____ was always at _____ of the _____. His second law stated that a _____ between a planet and the Sun will always _____ in the same _____.

12. The pull of planets on each other helped _____ explain what _____ didn't know.

13. Special planes used to simulate lower gravity are called _____.

14. Using Newton's Law of Universal Gravitation, NASA was able to _____. They found that it is equal to _____ which is approximately _____ percent of Earth's.