We try out best to control out environment, but not everything is always under out control. One of the best examples of this is throwing something, when we throw something, we are able to control the angle we throw it at as well as the speed we throw the object. When we throw something, it will create a perfect parabola, this is because the rate gravity acts on something is consistent. We cannot control the gravity around us when we throw an object. As seen on the graph on the right, whenever we throw something at 5m/s when thrown at 45 degrees you will always throw the farthest distance. However, every time you throw 5m/s on earth you will never reach the same distance as if you were to throw the same object on the moon. If you wanted to throw the same distance on the earth as you did on the moon you would need to throw 250% faster. This means if someone where to throw the furthest football throw of 27 meters on the moon with the same power they would have thrown 67.5 meters.

The same idea is also present with height, with the same speed, If you where to throw at 5m/s you would reach a maximum height of 1.27m high at 90 degrees you would reach a height of 1.28 m, however on the moon you would throw about 600% higher. A 7.81 m instead of 1.28. This is constant with the constant acceleration of gravity on both the moon and earth. The earths gravity is about 600% stronger than the moons gravitational pull.

Because Gravity is an acceleration this also changes how long something is in the air when thrown, on the moon something will stay in the air 6x longer than when thrown on the moon with the same speed. So in order to find how much longer an object will be throw in the air is take The earth heights and multiply it by how much more or less earths gravity compares to that planet. For example: earth gravity 9.8 is about 2.6 times stronger than mars