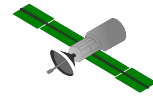


Satellites and CubeSats

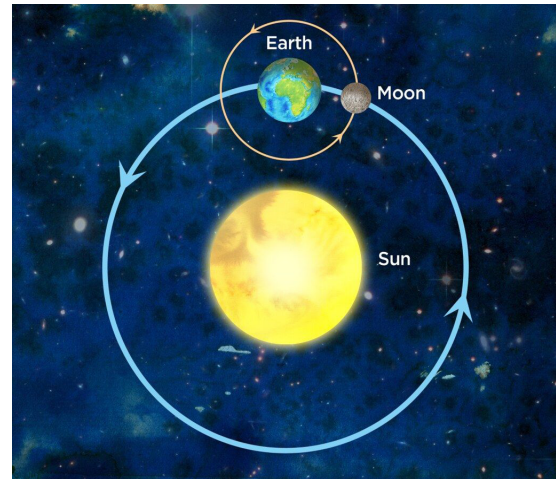
Teacher/Parent Guide



Physics: Objective 2

What is a satellite? A **satellite** is an object that orbits or revolves around a larger object. The moon is a satellite because it flies around the Earth, and the Earth is a satellite because it flies around the sun. Humans create and use satellites routinely, and they help us live our lives today.

So what is a CubeSat? A **CubeSat** is a very small satellite. A single-unit CubeSat has a volume of only 10^3 **cubic centimeters**. However, many of these “units” can be **put together** to make one larger CubeSat. Common United States standard configurations range from one unit (or “1U”) to a **54U**.



Physics: Objective 2

Identify external forces in a system and apply Newton’s laws graphically by using models such as free-body diagrams to explain how the motion of an object is affected, ranging from simple to complex, and including circular motion.

Free body diagrams are one of the first things that engineers employ to break down the forces acting on an object. It provides them with a starting point so that forces can be balanced and resolved.

Now let’s take a look at how these diagrams can be used to analyze the forces on a car and then a CubeSat. Please take a look at **Worksheet Tenth Grade Science by UASPACE** and try to make the free body diagrams. There is a separate key in this same folder.

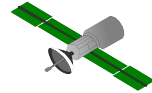
Name: _____

Teacher: _____

Date: _____



CubeSat: Free Body Diagram



Physics: Objective 2

For The University of Alabama, our CubeSat mission is to showcase NASA's drag sail technology in hopes to open doors in the future regarding safe de-orbiting. What makes this a unique challenge is the vast differences between space and Earth.

A CubeSat, like everything else, is subject to a number of forces, even in space. Free body diagrams are a useful tool to evaluate these forces. (Do not judge the artistic ability of the drawer please!)

Below, complete the free body diagram of a car in forward motion.

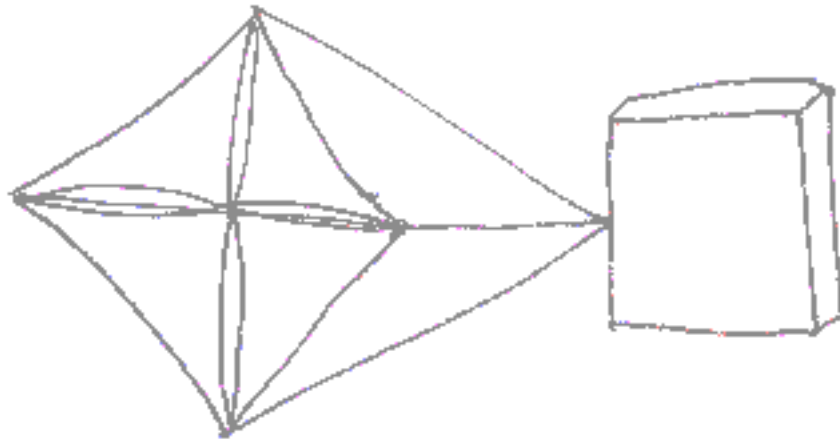


BONUS: Complete the free body diagram of a CubeSat (Hint: there is drag and gravity!).

Name: _____

Teacher: _____

Date: _____



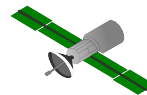
Name: _____

Teacher: _____

Date: _____



KEY: CubeSat: Free Body Diagram

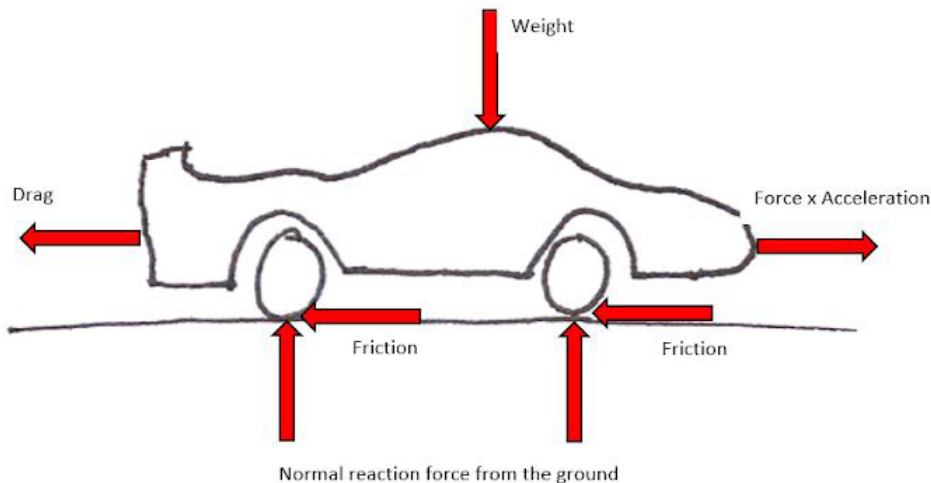


Physics: Objective 2

For The University of Alabama, our CubeSat mission is to showcase NASA's drag sail technology in hopes to open doors in the future regarding safe de-orbiting. What makes this a unique challenge is the vast differences between space and Earth.

A CubeSat, like everything else, is subject to a number of forces, even in space. Free body diagrams are a useful tool to evaluate these forces.

Below, draw a free body diagram of a car in forward motion.



BONUS: Draw a free body diagram of a CubeSat (Hint: there is drag and gravity!).

