Our aim is to identify how the internal environment of the Columbus module is regulated by machinery. This will be achieved by interpreting how exposure to sunlight will affect the environment and cause the fluctuation in results. From data collected, we will explore the casual relationship between the exposure to sunlight and the effect it has on the computer system that controls the temperature, pressure and humidity. We are doing this to get an insight in to the atmospheric management system.

The experiment will use the thermometer, barometer, hygrometer and the camera used to measure light in lumens. The thermometer will gather temperature in degrees Celsius, the barometer, pressure in Pascal Pa and the hygrometer humidity, measured as a percentage. Other sensors used include the gyroscope, magnetometer and the accelerometer. These are combined to create a representation of the location of the ISS based on an x, y and z axis. Consequently, this will allow us to determine why the changes in the internal environment are changing in relation to the position of the ISS. Two major tools for this experiment is the thermometer and hygrometer because it will measure the fluctuation in temperature in degrees Celsius and humidity in a percentage, allowing us to view the regulation of the atmosphere. Additionally, we can compare the temperature changes to humidity levels to understand why these are fluctuating. As stated previously, the barometer will measure pressure in Pascal Pa and we believe the pressure will fluctuate between 959 hPa and 1013 hPa.

Our prediction is when there is direct exposure to sunlight it will cause temperature and humidity to increase, causing the environmental control system to activate and regulate these, causing a fluctuation in atmospheric conditions. We believe in the sunlight the temperature will rise, in turn, creating a peak in humidity. The reason behind this is the rise in temperature will cause astronauts within the Columbus module to perspire and exhale water vapour. Hence, creating a peak in humidity and an obvious correlation between sunlight and how this affects the internal environment. We expect to see a slight drop in temperature of up to 2 degrees Celsius when there is no direct exposure to sunlight. Furthermore, we believe that the pressure will fluctuate between 959 and 1013 hPa based on where the ISS is in orbit. The pressure will increase when the temperature increases because the molecules in the air move faster and more frequently creating a greater force, therefore, this exerts an increase in pressure. Overall, we are measuring the change in the water molecules and temperature in the internal atmosphere and how temperature and humidity directly affect each other.

We will do this ….. to identify how the atmosphere is controlled.

Monitor changes using range, what times and where the iss is will allow us to determine this and which way the sunlight is coming from and how this affects the conditions