



Temperature Control System

Brainstorm and write your answers in your Mission Journal

Temperature Control

1. Review the clothes you and your classmates wear during each season of the year, both indoors and outdoors. How many degrees does the temperature have to change for you to switch from shorts to jeans, from bare hands to gloves, or to add a shirt over a bathing suit? What effect do sun, clouds, wind and your activity level have on the temperature choices you just made? What is the coldest temperature you ever experienced? The hottest? What is the number of degrees ($^{\circ}\text{F}$) between these two extremes? Besides your clothing, what other precautions did you take to protect your body?
2. Think back to a severe hot spell or cold snap your town has experienced. List the effects you remember it having on soil, plants, animals, buildings, water use and electrical use.
3. What different earthly environments (indoor and outdoor) could be uncomfortable—or actually dangerous—if we did not control the temperature our bodies were exposed to? What different ways do we have of controlling the temperature of these environments?
4. Research Mars facts. Will the Mars colony inhabitants be able to exist without special provisions on the surface of Mars? In their constructed Mars colony habitats?

Identify four "Mars Facts" that impact the design of a Temperature Control System and write them in your Mission Journal.

5. Design a Temperature Control System to protect the Mars colony inhabitants, their possessions and their equipment both in their habitats and on the surface of Mars. Sketch a blueprint of your design in your Mission Journal and include labels explaining how it will work.

