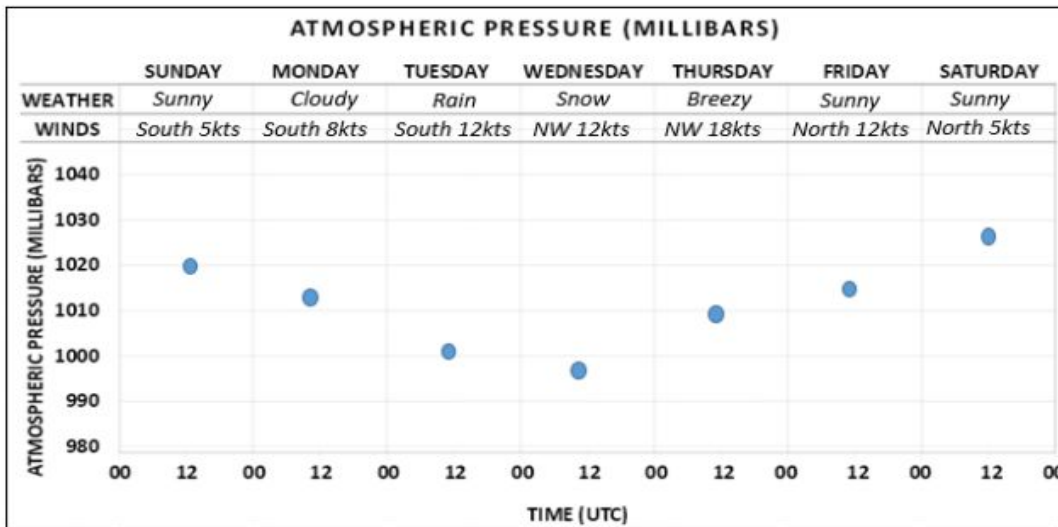


Scientific Tasks - Please use the data and information to complete the following tasks.

Task 1

<http://www-personal.umich.edu/~marsik/pressure/>



A. Using the weather graph shown above, describe the relationship between atmospheric pressure and weather. Use specific evidence from the graph.

B. What evidence presented on the weather graphs shown above provide one reason for the observation of rain on Tuesday but snow on Wednesday?

Task 2

Use the map to answer each set of questions. Write clearly and use complete sentences.

1.

- What kind of front is this?
- What temperature of air mass is North of this front?
- What temperature of air mass is South of this front?
- What kind of weather would you typically experience along this front?



Task 3

- What does the H stand for?
- What direction is the air moving in this area?
- Do they have dry or moist air?
- What do you predict the skies will look like in this area?



Task 4

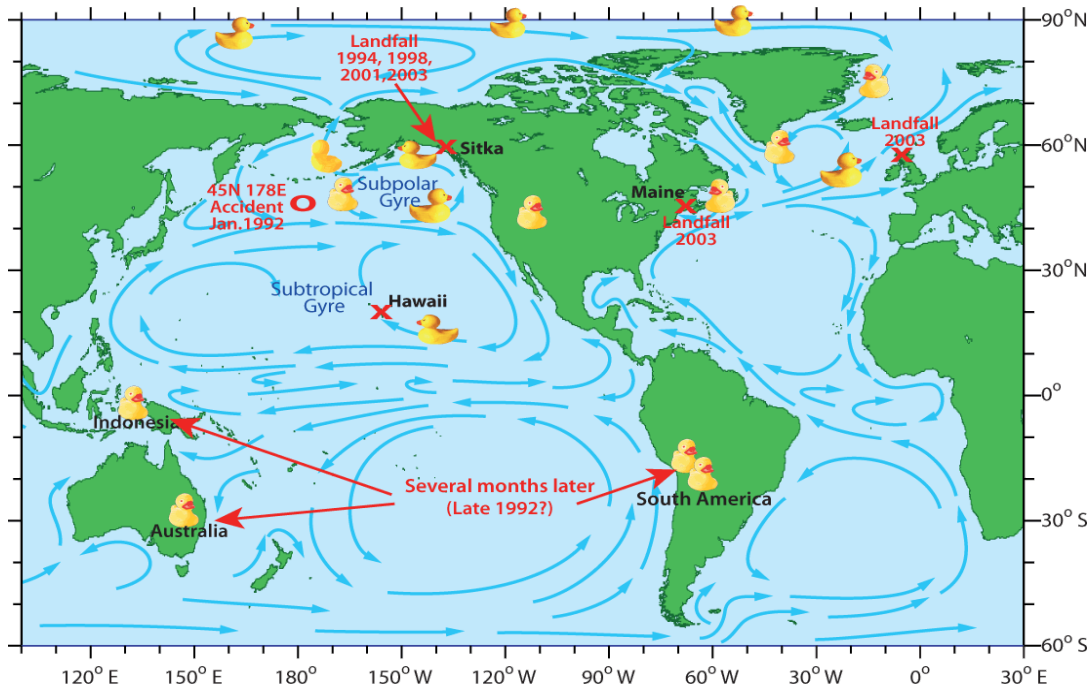
- What does the L stand for?
- What direction is the air moving in this area?
- Do they have dry or moist air?
- What do you predict the skies will look like in this area?



Task 5

15 years ago in 1992, rubber ducks—known as Friendly Floaties—were being shipped from Hong Kong to the US when three 40 foot containers fell into the Pacific Ocean after a storm. It sent nearly 30,000 rubber duckies out into the perilous waters.

Over the years the ducks have been found all over the world as seen in the diagram below.



<http://www.seos-project.eu/modules/oceancurrents/oceancurrents-c02-ws01-s.html>
(Accessed December 31, 2016)

Explain how these rubber ducks could possibly end up all over the world and describe how the unequal heating of the earth affects the ducks' movement.

Task 6

Use the information as evidence to construct your explanations.

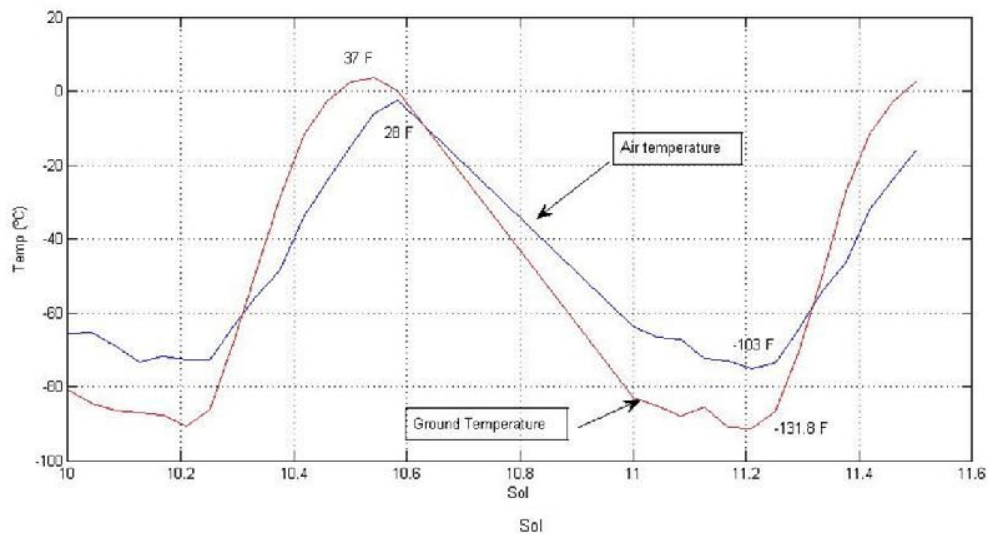


The planet Mars has a very thin atmosphere, nearly all carbon dioxide. Because of the low atmospheric pressure, and with little to no methane or water vapor to reinforce the weak greenhouse effect, Mars has a largely frozen surface that shows no apparent evidence of life.

Earth's atmosphere is made up primarily of water vapor and includes much smaller amounts of carbon dioxide, methane, and nitrous oxide. Earth's surface maintains an average of 59 degrees Fahrenheit (15 degrees Celsius).



GROUND AND AIR TEMPERATURE SENSOR



This graph shows the rise and fall of air and ground temperatures on Mars obtained by NASA's Curiosity rover. The data cover August 16 to August 17 (1 day and night) and were taken by the Rover Environmental Monitoring Station. Ground temperatures vary from as high as 37 degrees Fahrenheit (3 degrees Celsius) to as low as minus 131.8 degrees Fahrenheit (minus 91 degrees Celsius), showing large temperature changes from day to night. Air temperatures vary from as high as 28 degrees Fahrenheit (-2 degrees Celsius) to as low as minus 103 degrees Fahrenheit (-75 degrees Celsius), indicating, as expected, that variations in air temperatures are less extreme than ground temperature variations..

- a. Construct an explanation describing how energy and matter play a role in the extreme difference in temperature between night and day. Drawings can be used as part of your written explanation.

- b. Construct an explanation using energy and matter as evidence to describe why life can not exist on Mars like Earth. Drawings can be used as part of your written explanation.
