Transporting Natural Gas

Name_____

Background: Natural gas is an important source of energy for modern society. It is relatively clean-burning and abundant. Natural gas forms in a similar way to other fossil fuels and often in conjunction with oil or coal. It is a gas in its original state but may be liquefied by changes in temperature or pressure. Most natural gas is delivered in its gas state by pipeline in the United States. To get the gas to the international market the development of technology to liquefy the gas has grown. Liquefied gas is 600 times smaller in volume than the same amount of gas! Liquefied natural gas must be cooled to about -260° Fahrenheit, for shipping and storage. The liquefaction process makes it possible to transport natural gas to places natural gas pipelines do not reach and to use natural gas as a transportation fuel.

The problem: Natural gas must be changed from a gas to a liquid and then back to a gas to be transported and used. Here is a ship that carries natural gas.

https://www.energy.gov/fe/science-innovation/oil-gas/liquefied-natural-gas

Write down three questions you have about this design:

1.

2.

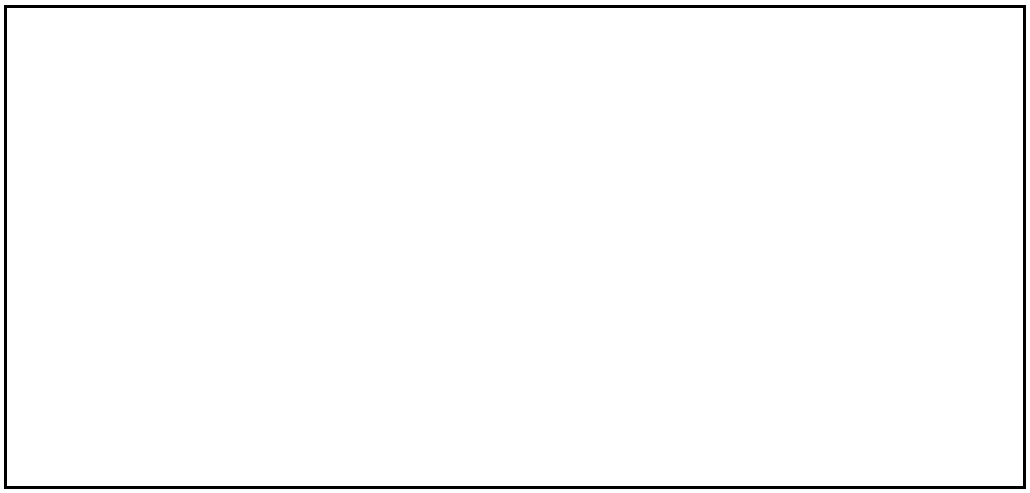
3.

Natural gas is too flammable to handle in a classroom setting so water will be used as a model of this technology. How does water change from one phase to another?

Listen as your teacher describes the process of water distillation.

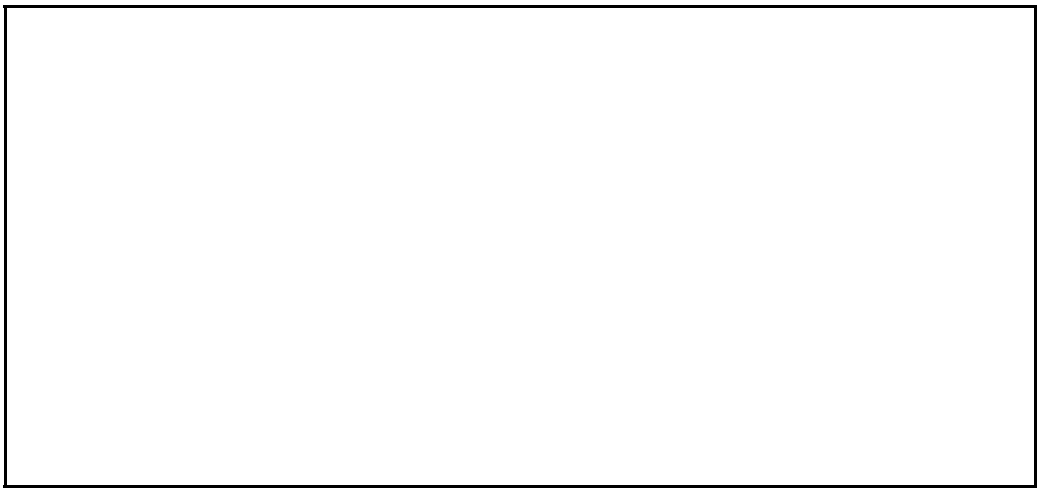
There are many ways to alter the distillation process. With your group work on a design that will most effectively transmit 100 mL of water from one beaker to another. Your success will be measured by the amount of water you get in the second tube.

1st design:



Results: Trial 1: _____mL in test tube

2nd design:



Trial 2: _____mL in test tube

Observe the classes results and data. Using evidence from your investigation, write an explanation.