

Name: _____ StudID#: _____

1) Think of a gas as a bunch of molecules buzzing around.

Note: Kinetic Energy of a body scales like Mass times Speed squared

$$(E = M/2 \cdot v^2)$$

Temperature is a measure of the energy of the individual particles in the gas

a) Gas A and B are both pure oxygen. The molecules in gas A have a higher speed than the ones in gas B. Which gas is hotter? _____

b) Gas A is pure hydrogen and B pure oxygen. Oxygen is 16 times the mass of hydrogen. The molecules in both gases have the same speed. Which gas is hotter? _____

c) Gas A (pure hydrogen) and B (pure oxygen) have the same temperature. In which gas is the speed of the molecules higher, in A or in B? _____

2) Objects that exceed a certain minimum speed will be able to leave the Earth. (A space probe to the planets needs a minimum speed to break away from Earth's gravity.)

Now use this argument for the gases from task 1:

a) Which gas in 1a) (A or B or neither) will more likely escape from Earth _____

b) Which gas in 1b) (A or B or neither) will more likely escape from Earth _____

c) Which gas in 1c) (A or B or neither) will more likely escape from Earth _____

Remember the moon! It has more or less gravity than Earth? _____

Will it be able to retain an atmosphere as well as the Earth does or not? Yes No

ONE MINUTE Paper:

3) List two main topics of today's class in one or two sentences.

4) Mention one or two issues that you have not understood from today's class.