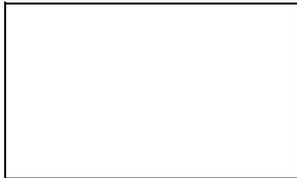


1. Draw a nanoscale representation of an element. Include a brief explanation of your picture.



Explanation:

2. Draw a nanoscale representation of a compound. Include a brief explanation of your picture.



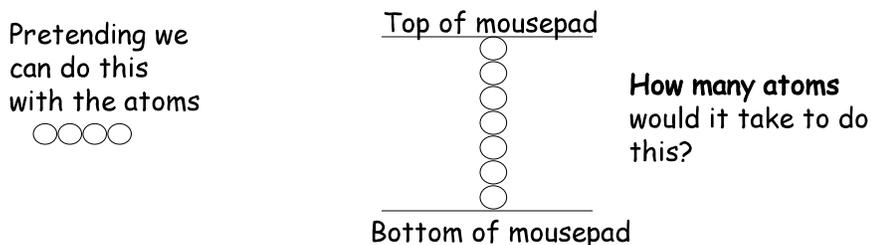
Explanation:

3. Draw a nanoscale representation of a mixture of a compound and an element. Include a brief explanation of your picture.



Explanation:

6. The mousepad for a computer is about 0.25 inches thick. Pretend you could place one atom on top of another to form a stack of atoms, one touching the next (see figure below). If you put one atom at the bottom of your mousepad and then put the next one on top of it and then another on top of it and so on, until you reached the top of the mousepad, how many atoms would you have? You may assume that a typical atom is a sphere with a diameter of 150 picometers.



7. An oxygen molecule, O_2 , at room temperature travels with an average speed of 440 m/s.
- Convert the molecule's speed to miles per hour using the factor-label method.
 - How many times faster or slower is this than your average speed while driving?

9. Convert your speed that you calculated in problem 8 (using the factor-label method) to
- mi/sec

 - m/sec (Note: m stands for meters, mi stands for miles.)
10. Convert your speed from problem 9 (using the factor-label method) to
- mi/min

 - mi/hr

 - km/hr