ATOMS, ELEMENTS & COMPOUNDS

1. Do you know the difference between atoms, molecules, elements, compounds & mixtures?

Give as much detail as to the nature and identity of the following substances by completing the table below.



|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Atom or molecule? | Element, compound or mixture | Physical state | Possible identity of substances present. |
| A | **Molecule** | **Element** | **Gas** | **O2, N2, Cl2, etc.**  |
| B | **Molecule** | **Compound** | **Gas** | **NH3** |
| C | **Atoms** | **Mixture** | **Gas** | **Any *two* noble gases, e.g. Ar, Ne** |
| D | **Atoms** | **Element** | **Gas** | **Any noble gas, e.g. Ar** |
| E | **Molecule** | **Compound** | **Gas** | **HCl, HBr, HI, CO, NO, etc.** |
| F | **Molecules** | **1x element 2x compound** | **Gas** | **NH3 HCl, HBr, HI, CO, NO, etc. O2, N2, Cl2, etc.** |
| G | **Molecules and Atoms** | **1x element 1x compound** | **gas** | **Any noble gas, e.g. Ar** **NH3** |
| H | **Atoms** | **Element** | **Solid** | **Any metal, e.g. Na, Mg, Fe, etc.** |

1. The diagram shows five particles of elements and compounds. Each circle represents an atom of an element. Match the pictures A to E to the following questions.



(a) Which particle picture represents a mixture of two compounds? \_**C**\_\_\_
(b) Which particle picture represents a pure compound? \_ **D**\_\_\_
(c) Which particle picture represents a mixture of an element and a compound? \_\_ **A** \_\_
(d) Which particle picture represents a pure element? \_\_ **B** \_\_
(e) Which particle picture represents a mixture of two elements? \_\_ **E** \_\_
(f) Which particle picture could represent pure water? \_\_ **D** \_\_
(g) Which particle picture could represent something dissolved in water? \_\_ **A** \_\_

1. The diagram below shows a sample of air. Identify the gases present and justify your choices.

