

Approximately 90 elements occur naturally on Earth, and in recent years, chemists have made more than 25 new elements. Based on their properties, all the elements can be divided into three classes: metals, non-metals, and metalloids.

PART 1 (Use the terms given below to complete the following statements.)

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|-------------|---------------------|-------------|------------------|
| • 1 | • brightly coloured | • good | • non-metals |
| • 11 | • brittle (X2) | • grey (X2) | • poor |
| • 17 | • ductile | • heat | • semiconductors |
| • 5 | • dull | • liquid | • shiny (X2) |
| • acids | • Earth | • malleable | • silver |
| • air/water | • electricity | • metals | • solids (X2) |

METALS

- ▶ make up most of the elements found on Earth
- ▶ most are shiny and grey or silver in colour (except gold and copper)
- ▶ they are good conductors of electricity and heat
- ▶ they are solid at room temperature (except mercury which is a liquid)
- ▶ most are malleable and ductile
- ▶ some react with air/water, but most react with acids

NON-METALS

- ▶ there are 17 elements in total
- ▶ they are grouped together mainly because they do not resemble metals
- ▶ 11 are gases, 5 are solids and 1 is a liquid (bromine)
- ▶ most solid non-metals are dull but some are brightly coloured (sulphur)
- ▶ the solid non-metals are brittle
- ▶ they are usually poor conductors of electricity and heat

METALLOIDS

- ▶ they have properties in between those of metals and non-metals
- ▶ they are solids at room temperature
- ▶ they conduct electricity but not very well - often referred to as semiconductors
- ▶ most are shiny and grey, but unlike a metal, are brittle

PART 2 (Answer the following questions on the back of this sheet or a separate sheet.)

1. Why do different elements have different properties? each one has a different # of protons, neutrons, electrons
2. How are all these elements organized?
3. What makes mercury different from other metal elements? liquid at room temperature
4. ~~Read "Some Common Elements" / P.183-185 and make some brief notes re characteristic physical and chemical properties for the elements iron (Fe), carbon (C), hydrogen (H), oxygen (O), sodium (Na), and chlorine (Cl).~~

in order of increase in atomic #
similar properties → same column (group)
same # of electron shells → same row (period)