


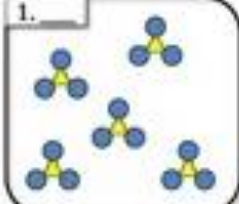

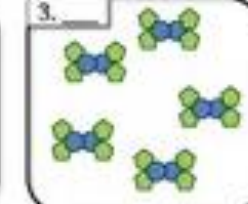
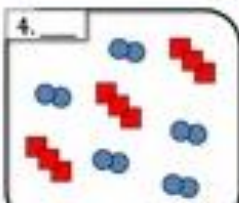
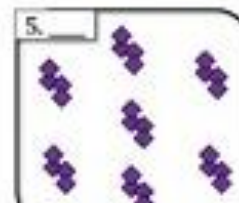
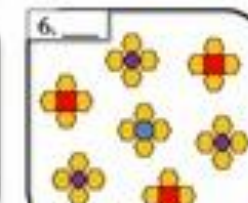

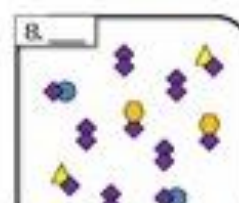

| | | | |
|---|--|--------|---------|
|  | FISICA & QUIMICA – 2º ESO Ficha Tema 3 | Grupo: | Nota: |
| Apellidos: | Nombre: | Fecha: | Faltas: |

1. Classify each of the following as elements (E), compounds (C) or Mixtures (M). Write the letter X if it is none of these.

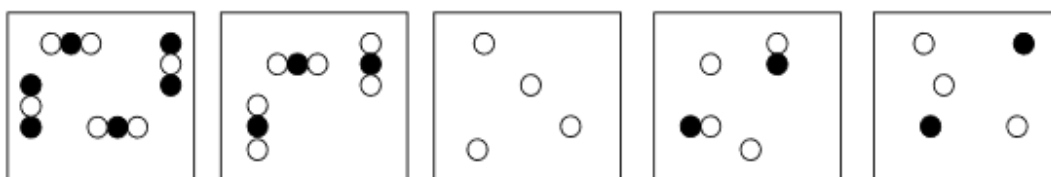
| | | |
|---|---|--|
| <input type="checkbox"/> Diamond (C) | <input type="checkbox"/> Water (H ₂ O) | <input type="checkbox"/> Dry Ice (CO ₂) |
| <input type="checkbox"/> Sugar (C ₆ H ₁₂ O ₆) | <input type="checkbox"/> Alcohol (CH ₃ OH) | <input type="checkbox"/> Baking Soda (NaHCO ₃) |
| <input type="checkbox"/> Milk | <input type="checkbox"/> Pail of Garbage | <input type="checkbox"/> Titanium (Ti) |
| <input type="checkbox"/> Air | <input type="checkbox"/> Ammonia (NH ₃) | <input type="checkbox"/> Iron (Fe) |
| <input type="checkbox"/> Sulfuric Acid (H ₂ SO ₄) | <input type="checkbox"/> Salt (NaCl) | <input type="checkbox"/> Popcorn |
| <input type="checkbox"/> Gasoline | <input type="checkbox"/> Energy | <input type="checkbox"/> Gold (Au) |
| <input type="checkbox"/> Krypton (K) | <input type="checkbox"/> Wood | <input type="checkbox"/> Electricity |
| <input type="checkbox"/> Bismuth (Bi) | <input type="checkbox"/> Bronze | <input type="checkbox"/> A dog |
| <input type="checkbox"/> Uranium (U) | <input type="checkbox"/> Ink | <input type="checkbox"/> Concrete |

- ▶ **ELEMENT (E)**
- ▶ **COMPOUND (C)**
- ▶ **MIXTURE of ELEMENTS (ME)**
- ▶ **MIXTURE of COMPOUNDS (MC)**
- ▶ **MIXTURE of ELEMENTS and COMPOUNDS (MEC)**

Directions: Correctly label each picture for what it is representing. Remember, each shape symbolizes an **element**. *If two different elements are connected*, then that object symbolizes a **compound**.

| | | |
|--|--|---|
| 1.  | 2.  | 3.  |
| 4.  | 5.  | 6.  |
| 7.  | 8.  | 9.  |

2. Match each diagram with its correct description. Diagrams will be used once.



A

B

C

D

E

___ Pure Element – only one type of atom present.

___ Mixture of two elements – two types of uncombined atoms present.

___ Pure compound – only one type of compound present.

___ Mixture of two compounds – two types of compounds present.

___ Mixture of a compound and an element.

3. Read each description and determine whether it is a pure substance or mixture. Then further classify the matter (element, compound, homogeneous mixture, heterogeneous mixture)

| Description | Pure Substance or Mixture? | Classification? |
|---|----------------------------|-----------------|
| 1. Chocolate syrup is added to milk and stirred | | |
| 2. Copper metal (used to make wires) | | |
| 3. Sand is added to water | | |
| 4. Distilled water | | |
| 5. Tap water | | |
| 6. Diamond | | |
| 7. Table sugar | | |

| | | |
|---|--|--|
| 8. Table sugar added to a cup of coffee and stirred | | |
| 9. Kool-aid is added to water | | |
| 10. Coca-cola | | |
| 11. Helium gas (used to inflate a balloon) | | |
| 12. Mercury metal (used in old thermometers) | | |
| 13. Hydrogen gas (an explosive gas) | | |
| 14. Trail mix (peanuts, pretzels and m&m's) | | |
| 15. The air we breathe | | |

Elements (pure substances):

1. A pure substance containing only one kind of _____.
2. An element is always uniform all the way through (homogeneous).
3. An element _____ be separated into simpler materials (except during nuclear reactions).
4. Over 100 existing elements are listed and classified on the _____.

Compounds (pure substances):

5. A pure substance containing two or more kinds of _____.
6. The atoms are _____ combined in some way. Often times (but not always) they come together to form groups of atoms called molecules.
7. A compound is always homogeneous (uniform).
8. Compounds _____ be separated by physical means. Separating a compound requires a chemical reaction.
9. The properties of a compound are usually different than the properties of the elements it contains.

Mixtures:

10. Two or more _____ or _____ NOT chemically combined.
11. No reaction between substances.
12. Mixtures can be uniform (called _____) and are known as solutions.
13. Mixtures can also be non-uniform (called _____).
14. Mixtures can be separated into their components by chemical or physical means.
15. The properties of a mixture are similar to the properties of its components.

Periodic Table of Elements

| Atomic # | | Symbol | | Name | | Atomic mass | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------|----|-----------|-------|------|----|-------------|-------|-----|----|---------------|-------|-----|----|-----------|-------|-----|----|------------|-------|-----|----|------------|-------|-----|----|------------|-------|-----|----|------------|-------|-----|----|--------------|-------|-----|----|-------------|-------|-----|-----|-------------|-------|-----|-----|-----------|-------|-----|-----|-------------|-------|-----|-----|-------------|-------|-----|-----|------------|-------|-----|-----|-------------|-------|-----|-----|------------|-------|----|----|---------|-------|
| 1 | H | Hydrogen | 1.0 | 2 | He | Helium | 4.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Li | Lithium | 6.9 | 4 | Be | Beryllium | 9.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | Na | Sodium | 23.0 | 12 | Mg | Magnesium | 24.3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | K | Potassium | 39.1 | 20 | Ca | Calcium | 40.1 | 21 | Sc | Scandium | 45.0 | 22 | Ti | Titanium | 47.9 | 23 | V | Vanadium | 50.9 | 24 | Cr | Chromium | 52.0 | 25 | Mn | Manganese | 54.9 | 26 | Fe | Iron | 55.9 | 27 | Co | Cobalt | 58.9 | 28 | Ni | Nickel | 58.7 | 29 | Cu | Copper | 63.5 | 30 | Zn | Zinc | 65.4 | 31 | Ga | Gallium | 69.7 | 32 | Ge | Germanium | 72.6 | 33 | As | Arsenic | 74.9 | 34 | Se | Selenium | 79.0 | 35 | Br | Bromine | 79.9 | 36 | Kr | Krypton | 83.8 |
| 37 | Rb | Rubidium | 85.5 | 38 | Sr | Strontium | 87.6 | 39 | Y | Yttrium | 88.9 | 40 | Zr | Zirconium | 91.2 | 41 | Nb | Niobium | 92.9 | 42 | Mo | Molybdenum | 95.9 | 43 | Tc | Technetium | 99.0 | 44 | Ru | Ruthenium | 101.0 | 45 | Rh | Rhodium | 102.9 | 46 | Pd | Palladium | 106.4 | 47 | Ag | Silver | 107.9 | 48 | Cd | Cadmium | 112.4 | 49 | In | Indium | 114.8 | 50 | Sn | Tin | 118.7 | 51 | Sb | Antimony | 121.8 | 52 | Te | Tellurium | 127.6 | 53 | I | Iodine | 126.9 | 54 | Xe | Xenon | 131.3 |
| 55 | Cs | Cesium | 132.9 | 56 | Ba | Barium | 137.3 | 72 | Hf | Hafnium | 178.5 | 73 | Ta | Tantalum | 180.9 | 74 | W | Tungsten | 183.8 | 75 | Re | Rhenium | 186.2 | 76 | Os | Osmium | 190.2 | 77 | Ir | Iridium | 192.2 | 78 | Pt | Platinum | 195.1 | 79 | Au | Gold | 196.9 | 80 | Hg | Mercury | 200.6 | 81 | Tl | Thallium | 204.4 | 82 | Pb | Lead | 207.2 | 83 | Bi | Bismuth | 208.9 | 84 | Po | Polonium | 209 | 85 | At | Astatine | 209 | 86 | Rn | Radon | 222 | | | | |
| 87 | Fr | Francium | 223 | 88 | Ra | Radium | 226 | 104 | Rf | Rutherfordium | 261 | 105 | Db | Dubnium | 262 | 106 | Sg | Seaborgium | 266 | 107 | Bh | Bohrium | 264 | 108 | Hs | Hassium | 277 | 109 | Mt | Mitnium | 268 | 110 | Ds | Darmstadtium | 271 | 111 | Rg | Roentgenium | 272 | 112 | Uub | Ununbium | 285 | 113 | Uut | Ununtrium | 289 | 114 | Uuq | Ununquadium | 289 | 115 | Uup | Ununpentium | 288 | 116 | Uuh | Ununhexium | 292 | 117 | Uus | Ununseptium | 294 | 118 | Uuo | Ununoctium | 294 | | | | |
| 57 | La | Lanthanum | 138.9 | 58 | Ce | Cerium | 140.1 | 59 | Pr | Praseodymium | 140.9 | 60 | Nd | Neodymium | 144.2 | 61 | Pm | Promethium | 145 | 62 | Sm | Samarium | 150.4 | 63 | Eu | Europium | 151.9 | 64 | Gd | Gadolinium | 157.3 | 65 | Tb | Terbium | 158.9 | 66 | Dy | Dysprosium | 162.5 | 67 | Ho | Holmium | 164.9 | 68 | Er | Erbium | 167.2 | 69 | Tm | Thulium | 168.9 | 70 | Yb | Ytterbium | 173 | 71 | Lu | Lutetium | 174.9 | | | | | | | | | | | | |
| 89 | Ac | Actinium | 227 | 90 | Th | Thorium | 232 | 91 | Pa | Protactinium | 231 | 92 | U | Uranium | 238 | 93 | Np | Neptunium | 237 | 94 | Pu | Plutonium | 244 | 95 | Am | Americium | 243 | 96 | Cm | Curium | 247 | 97 | Bk | Berkelium | 247 | 98 | Cf | Californium | 251 | 99 | Es | Einsteinium | 252 | 100 | Fm | Fermium | 257 | 101 | Md | Mendelevium | 258 | 102 | No | Nobelium | 259 | 103 | Lr | Lawrencium | 262 | | | | | | | | | | | | |

Legend:

- Alkali Metals (Orange)
- Alkaline Earth Metals (Light Blue)
- Transition Metals (Dark Blue)
- Other Metals (Light Green)
- Metalloids (Red)
- Nonmetals (Yellow)
- Noble Gases (Light Yellow)
- Lanthanoids (Light Purple)
- Actinoids (Light Orange)

States of Matter:

- C Solid (White)
- Hg Liquid (Light Blue)
- H Gas (Light Green)
- Rf Unknown (Light Purple)

Source: www.bbc.com/news/health-12345

Hidden in each group of letters below is the name of one element. Starting with the first letter in the name (in **BOLD**), draw a line from letter to letter until you trace out the name. There are no diagonal lines and lines will not cross. Record the name and symbol of the element in the space provided.

N L P U **C** H L D S T V O C I N M
 A O R I A R X E N E G Y M U E U
 R U Z N D B O X A L I X U R S I
 F L L E I U N S I M S O L A S T

1. _____ 2. _____ 3. _____ 4. _____

I R A **B** D B T D O U T I S O H P
 P M O R A O L A G N H T U R O S
 U I N I R C O F S T E A A T H A
 T S E M E P P L T P N N M O P R

5. _____ 6. _____ 7. _____ 8. _____

O F L U A **M** O L A R B T W R E V
 V L I S R E U M C H U O A M U I
 R I D O T I I B E L O R R O R L
 U C O N N E R R N I R B M U I T

9. _____ 10. _____ 11. _____ 12. _____

I C U F I G N N R H R O F R E N
 E R R Y U A A G I O B A O R H I
 M H N D E N M O U R O R R U T D
 O I T E S E Y L M A E D D I U M

13. _____ 14. _____ 15. _____ 16. _____

The First Forty Elements

- | | | | | | | | |
|---------------|--------|--------|--------|-------------|--------|--------|-------|
| Across | 12. Cu | 22. B | 32. K | Down | 9. Ga | 19. Se | 30. Y |
| 1. Li | 14. Rb | 24. Si | 33. N | 2. H | 10. He | 21. Mg | |
| 4. S | 17. Al | 26. Ni | 34. Zn | 3. Co | 12. C | 23. O | |
| 6. V | 18. Br | 27. P | 35. Ge | 4. Sc | 13. Cl | 24. Sr | |
| 8. Na | 20. Ne | 28. Ar | 36. Ca | 5. Ti | 15. Fe | 25. Be | |
| 11. F | 21. Mn | 31. Kr | | 7. Cr | 16. Zr | 29. As | |