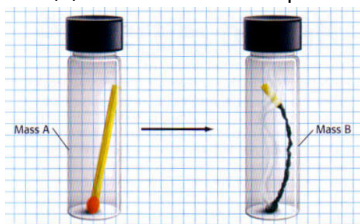


# CONSERVATION OF MASS

## EVIDENCE NOTEBOOK

### KEY IDEAS

- Conservation of mass. A match is ignited in a closed container by increasing the temperature to its ignition point. Would the system have more mass before (A) or after (B) the reaction? Explain why your answer is true:



- Define the law of conservation of mass:
- Diatomic elements are elements that form bonded pairs when in the elemental state. For instance, elemental hydrogen is H<sub>2</sub> (diatomic), while elemental argon is Ar (monatomic).
  - How many diatomic elements are there?
  - Name all of the diatomic elements (*you can take notes on the periodic table*).

|          |          |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |          |
|----------|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----------|
| 1<br>H   |          |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           | 2<br>He  |
| 3<br>Li  | 4<br>Be  |           |           |           |           |           |           |           |           |           |           | 5<br>B    | 6<br>C    | 7<br>N    | 8<br>O    | 9<br>F    | 10<br>Ne |
| 11<br>Na | 12<br>Mg |           |           |           |           |           |           |           |           |           |           | 13<br>Al  | 14<br>Si  | 15<br>P   | 16<br>S   | 17<br>Cl  | 18<br>Ar |
| 19<br>K  | 20<br>Ca | 21<br>Sc  | 22<br>Ti  | 23<br>V   | 24<br>Cr  | 25<br>Mn  | 26<br>Fe  | 27<br>Co  | 28<br>Ni  | 29<br>Cu  | 30<br>Zn  | 31<br>Ga  | 32<br>Ge  | 33<br>As  | 34<br>Se  | 35<br>Br  | 36<br>Kr |
| 37<br>Rb | 38<br>Sr | 39<br>Y   | 40<br>Zr  | 41<br>Nb  | 42<br>Mo  | 43<br>Tc  | 44<br>Ru  | 45<br>Rh  | 46<br>Pd  | 47<br>Ag  | 48<br>Cd  | 49<br>In  | 50<br>Sn  | 51<br>Sb  | 52<br>Te  | 53<br>I   | 54<br>Xe |
| 55<br>Cs | 56<br>Ba | 72<br>Hf  | 73<br>Ta  | 74<br>W   | 75<br>Re  | 76<br>Os  | 77<br>Ir  | 78<br>Pt  | 79<br>Au  | 80<br>Hg  | 81<br>Tl  | 82<br>Pb  | 83<br>Bi  | 84<br>Po  | 85<br>At  | 86<br>Rn  |          |
| 87<br>Fr | 88<br>Ra | 104<br>Rf | 105<br>Db | 106<br>Sg | 107<br>Bh | 108<br>Hs | 109<br>Mt | 110<br>Ds | 111<br>Rg | 112<br>Cn | 113<br>Nh | 114<br>Fl | 115<br>Mc | 116<br>Lv | 117<br>Ts | 118<br>Og |          |
|          |          | 57<br>La  | 58<br>Ce  | 59<br>Pr  | 60<br>Nd  | 61<br>Pm  | 62<br>Sm  | 63<br>Eu  | 64<br>Gd  | 65<br>Tb  | 66<br>Dy  | 67<br>Ho  | 68<br>Er  | 69<br>Tm  | 70<br>Yb  | 71<br>Lu  |          |
|          |          | 89<br>Ac  | 90<br>Th  | 91<br>Pa  | 92<br>U   | 93<br>Np  | 94<br>Pu  | 95<br>Am  | 96<br>Cm  | 97<br>Bk  | 98<br>Cf  | 99<br>Es  | 100<br>Fm | 101<br>Md | 102<br>No | 103<br>Lr |          |

- Write the following elements with proper symbols:

| Name     | Symbol | Name   | Symbol |
|----------|--------|--------|--------|
| Hydrogen |        | Helium |        |
| Argon    |        | Oxygen |        |
| Nitrogen |        | Iron   |        |

NAME: \_\_\_\_\_ DATE: \_\_\_\_\_ PERIOD: \_\_\_\_\_

**REVIEW**

*Try to answer the following questions before getting the answers from the lesson*

4. Write the chemical equation (in symbols) for the following reaction:

**Iron reacts with oxygen to produce iron (III) oxide**

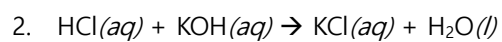
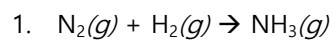
- a. Balance the equation above.
- b. Convert the following (*round answers off to the four significant figures*):
  - i. 4 moles of iron into grams
  - ii. 3 moles of oxygen into grams
  - iii. 2 moles of iron (III) oxide into grams
- c. Compare the total mass of the reactants to the total mass of the products:

**Iron reacts with oxygen to produce iron (III) oxide**

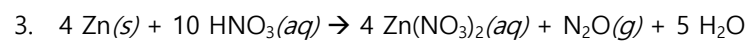
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**CHECKPOINTS**

Interpret the following chemical equations in terms of mass. Show that the law of conservation of mass is observed. *Show your work as you did in #4.*



NAME: \_\_\_\_\_ DATE: \_\_\_\_\_ PERIOD: \_\_\_\_\_



4. Oxygen is added to magnesium and yields magnesium oxide.