
PHYSICAL SCIENCE

Table of Contents

Scientific Method	1	Percentage Composition	53
Safety in the Laboratory	2	Writing Binary Formulas	54
Laboratory Equipment	3	Naming Binary Compounds (Ionic)	55
Using the Balance	4	Naming Binary Compounds (Covalent)	56
Measuring Length	5	Formulas With Polyatomic Ions	57
Measuring Liquids	6	Naming of Non-Binary Compounds	58
Reading Thermometers	7	Naming Compounds (Mixed)	59
Metrics and Measurements	8	Writing Formulas From Names	60
Unit Conversions and Factor-Label Method	9	Balancing Equations	61
Using Correct Units	10	Word Equations	62
Scientific Notation	11	Classifying Chemical Reactions	63
Calculations Using Significant Figures	12	Conservation of Mass	64
Density	13	Mass Relationships in Equations	65
Graphing of Data	14	Acid, Base or Salt	66
Determining Speed (Velocity)	15	pH	67
Calculating Average Speed	16	pH of Salt Solutions	68
Acceleration Calculations	17	Conductors and Electrolytes	69
Graphing Speed vs. Time	18	Effect of Dissolved Particles on Freezing and Boiling Points	70
Graphing Distance vs. Time	19	Concentration (Mass/Volume)	71
Gravity and Acceleration (I)	20	Concentration (% by Volume)	72
Gravity and Acceleration (II)	21	Concentration (% by Mass)	73
Force Diagrams	22	Solubility	74
Force and Acceleration	23	Naming Organic Compounds	75
Motion Matching	24	Drawing Structural Formulas	76
Heat Calculations	25	Isomers	77
Heat and Phase Changes	26	Organic Chemistry Crossword	78
Simple Machines	27	Wave Diagram	79
Types of Levers	28	Wave Velocity Calculations	80
Potential and Kinetic Energy	29	Sound and Music Crossword	81
Calculating Work	30	Reflection	82
Mechanical Advantage	31	Refraction	83
Calculating Efficiency	32	Light Rays and Convex Lenses	84
Calculating Power	33	Light Rays and Concave Lenses	85
Force and Work Crossword	34	White Light Spectrum	86
Substances vs. Mixtures	35	Light Matching	87
Homogeneous vs. Heterogeneous Matter	36	Magnetic Fields	88
Solutions, Colloids and Suspensions	37	Calculating Current	89
Physical vs. Chemical Properties	38	Calculating Voltage	90
Physical vs. Chemical Change	39	Calculating Resistance	91
Separation of Mixtures	40	Ohm's Law Problems	92
States of Matter Crossword	41	Calculating Power	93
Elements and Their Symbols	42	Calculating Electrical Energy and Cost	94
Elements Crossword	43	Series and Parallel Circuits	95
Parts of an Atom	44	An Electric Motor	96
Bohr Models	45	An Electric Generator	97
Properties of Metals and Non-metals	46	Transformers	98
Activity of the Elements	47	Electricity Crossword	99
Periodic Table Puzzle	48	Half-Life Calculations	100
Periodic Table Crossword	49	A Nuclear Reactor	101
Types of Chemical Bonds	50	Fuel Alternatives Crossword	102
Number of Atoms in a Formula	51	Answer Key	103-128
Gram Formula Mass	52		

SCIENTIFIC METHOD

Name _____

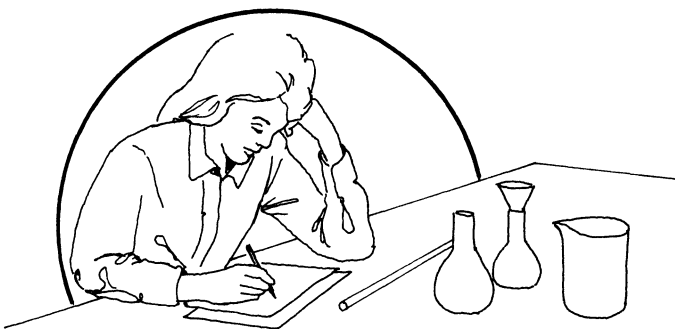
Put the following steps of the scientific method in the proper order.

- _____ Research the problem.
- _____ Observe and record.
- _____ Make a hypothesis.
- _____ Identify the problem.
- _____ Arrive at a conclusion.
- _____ Test the hypothesis.



Match the following terms with the correct definition.

- | | |
|---------------------|--|
| _____ 1. hypothesis | a) organised process used to test a hypothesis |
| _____ 2. control | b) an educated guess about the solution to a problem |
| _____ 3. variable | c) observations and measurements recorded during an experiment |
| _____ 4. experiment | d) a judgment based on the results of an experiment |
| _____ 5. conclusion | e) a logical explanation for events that occur in nature |
| _____ 6. theory | f) used to show that the result of an experiment is really due to the condition being tested |
| _____ 7. data | g) factor that changes in an experiment |

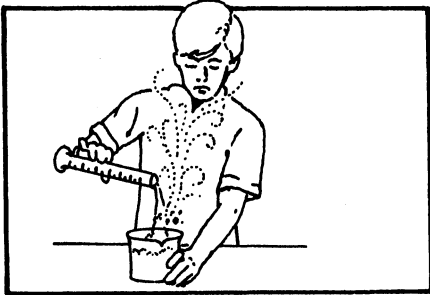


SAFETY IN THE LABORATORY

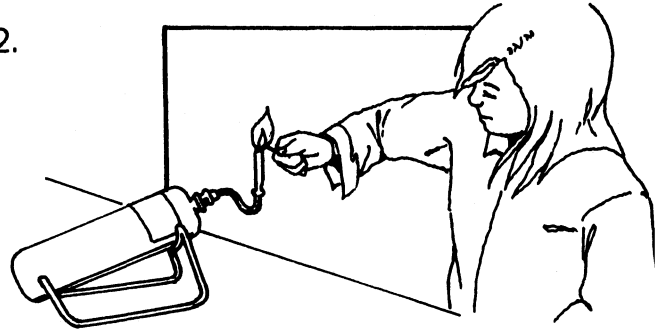
Name _____

What is wrong in the following pictures?

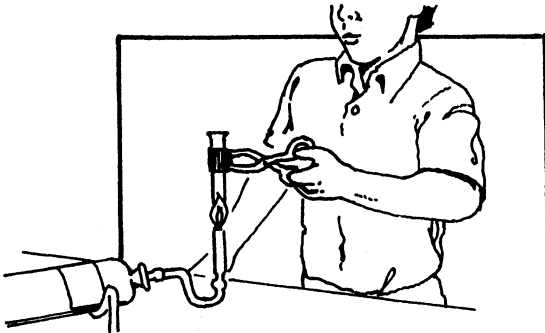
1.



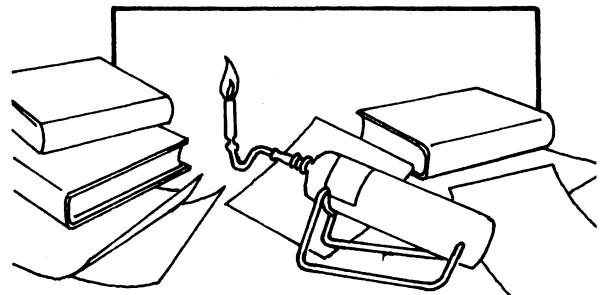
2.



3.



4.



5.



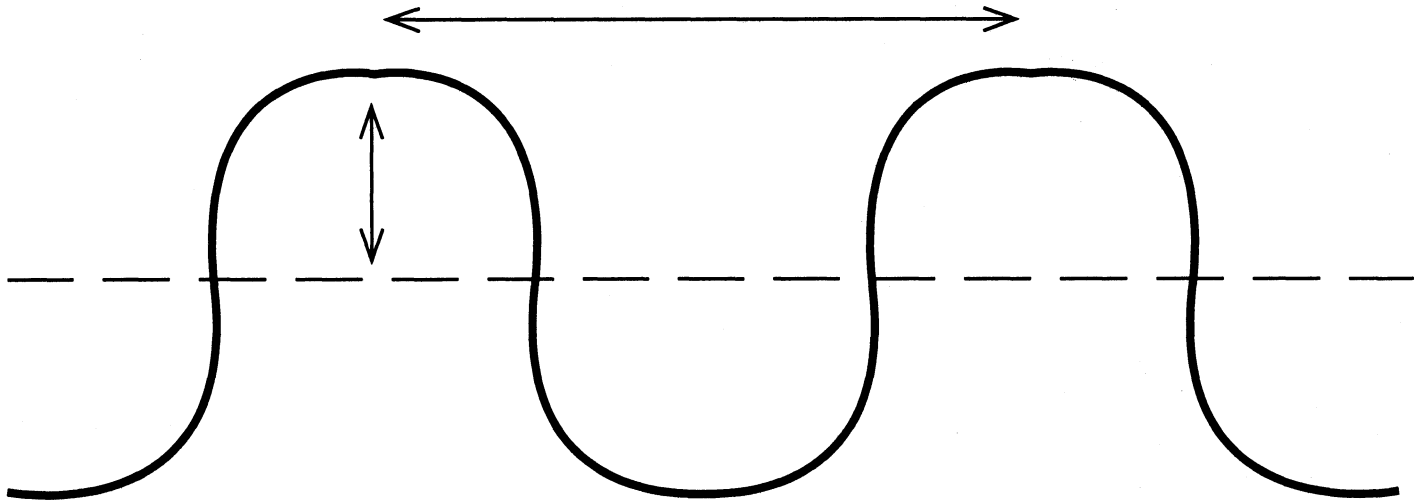
6.



WAVE DIAGRAM

Name _____

On the following diagram, place the following terms in their correct places: amplitude, wavelength, crest, trough, rest position.



Define the terms below.

amplitude _____

wavelength _____

crest _____

trough _____

WAVE VELOCITY CALCULATIONS

Name _____

$$\text{Velocity} = \text{Wavelength} \times \text{Frequency}$$

Solve the following problems.

1. A tuning fork has a frequency of 280 hertz, and the wavelength of the sound produced is 1.5 metres. Calculate the velocity of the wave.

2. A wave is moving toward shore with a velocity of 5.0 m/s. If its frequency is 2.5 hertz, what is its wavelength?

3. The speed of light is 3.0×10^8 m/s. Red light has a wavelength of 7×10^{-7} m. What is its frequency?

4. The frequency of violet light is 7.5×10^{14} hertz. What is its wavelength?

5. A jump rope is shaken producing a wave with a wavelength of 0.5 m with the crest of the wave passing a certain point 4 times per second. What is the velocity of the wave?
