

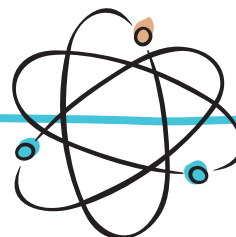
CHEMISTRY

Grades 5-8

STUDENT JOURNAL

This journal belongs to:





INSTRUCTIONS

This student journal accompanies *The Good and the Beautiful Chemistry* science unit. It contains all the worksheets and journal pages that are needed to complete the unit. Each child will need his or her own copy of the student journal.

Have each child take his or her time to create high-quality work as the activities and worksheets are completed. The children may enjoy looking back on their past discoveries when they've finished.

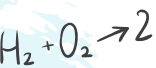
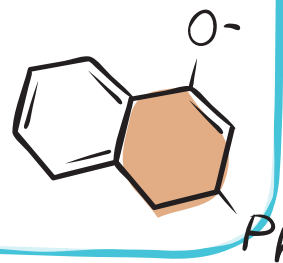
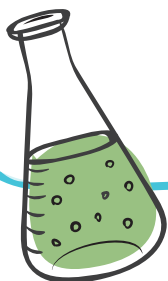
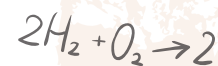
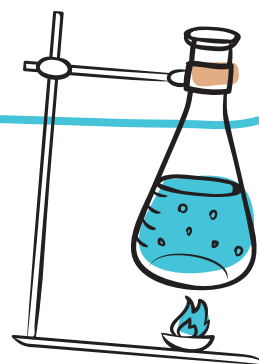
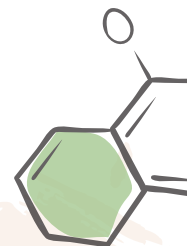


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THE PERIODIC TABLE OF ELEMENTS

1	1 IA	2	3	4	5	6	7	8	9							
1	1 H Hydrogen 1.00794	2 IIA	3	4	5	6	7	8	9							
2	3 Li Lithium 6.941	4 Be Beryllium 9.012182	11	12	19	20	21	22	23	24	25	26	27			
3	Na Sodium 22.98976	Mg Magnesium 24.3050	3	4	5	6	7	8	9	III B	IV B	V B	VI B	VII B	VIII B	VIII B
4	19 K Potassium 39.0983	20 Ca Calcium 40.078	21 Sc Scandium 44.95591	22 Ti Titanium 47.867	23 V Vanadium 50.9415	24 Cr Chromium 51.9962	25 Mn Manganese 54.93804	26 Fe Iron 55.845	27 Co Cobalt 58.93319							
5	37 Rb Rubidium 85.4678	38 Sr Strontium 87.62	39 Y Yttrium 88.90585	40 Zr Zirconium 91.224	41 Nb Niobium 92.90638	42 Mo Molybdenum 95.96	43 Tc Technetium 98.907	44 Ru Ruthenium 101.07	45 Rh Rhodium 102.9055							
6	55 Cs Cesium 132.9054	56 Ba Barium 137.327	57-71 lanthanoids	72 Hf Hafnium 178.49	73 Ta Tantalum 180.9478	74 W Tungsten 183.84	75 Re Rhenium 186.207	76 Os Osmium 190.23	77 Ir Iridium 192.217							
7	87 Fr Francium (223)	88 Ra Radium (226)	89-103 actinoids	104 Rf Rutherfordium (261)	105 Db Dubnium (262)	106 Sg Seaborgium (266)	107 Bh Bohrium (264)	108 Hs Hassium (277)	109 Mt Meitnerium (268)							

atomic number → 26

chemical symbol → **Fe**

name → Iron

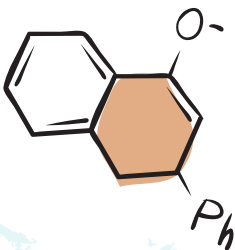
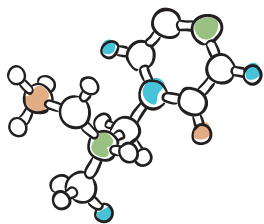
atomic mass → 55.845

STATE OF MATTER

SOLID **GAS**

LIQUID UNKNOWN

☼ radioactive elements



nonmetals

alkaline earth metals

alkali metals

transition metals

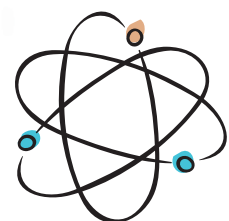


18
VIII A

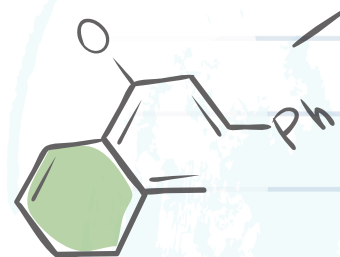
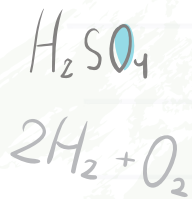
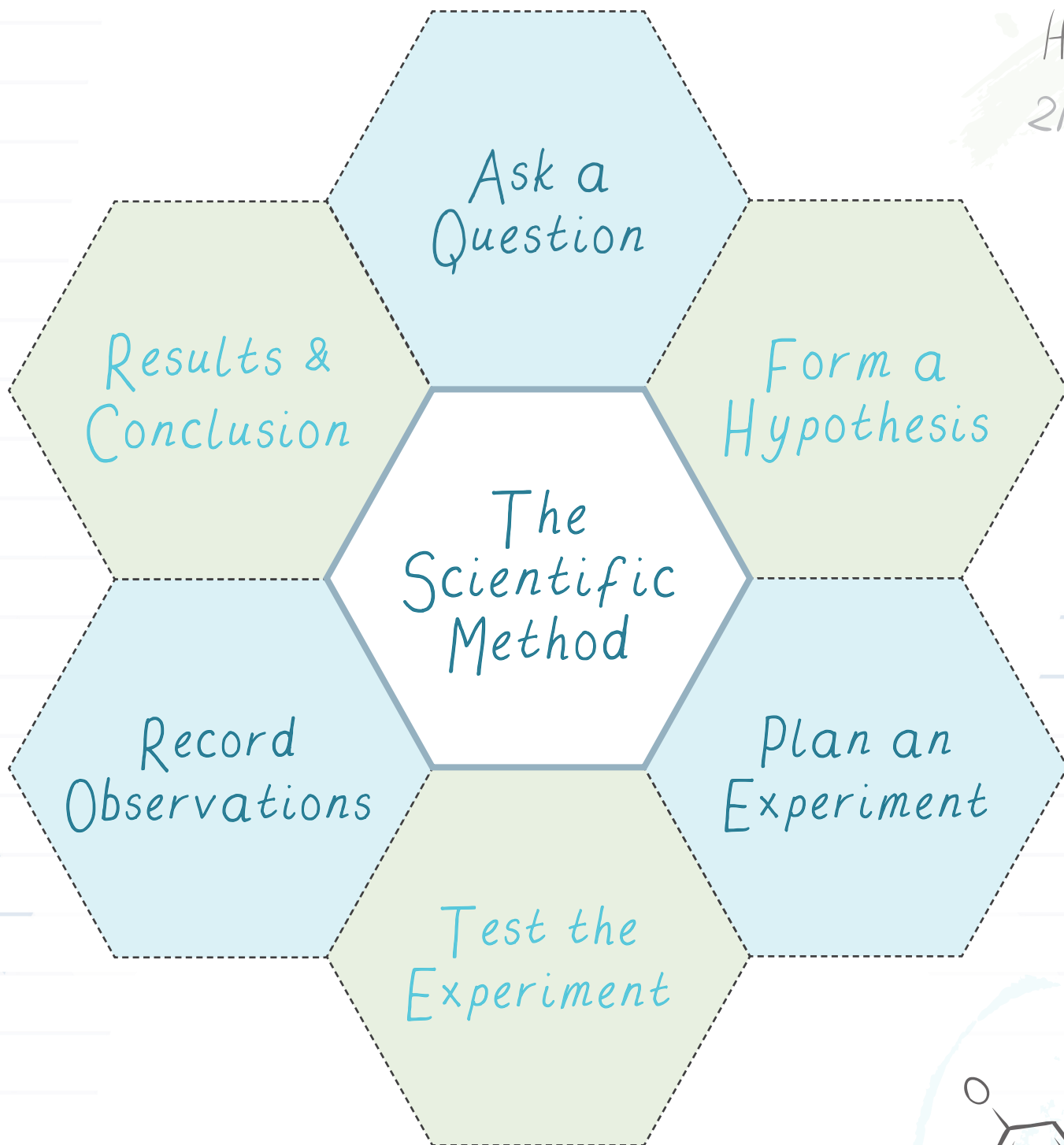
										2 He Helium 4.002602					
										13 III A	14 IV A	15 V A	16 VI A	17 VII A	
										5 B Boron 10.811	6 C Carbon 12.0107	7 N Nitrogen 14.0067	8 O Oxygen 15.9994	9 F Fluorine 18.998403	10 Ne Neon 20.1797
										13 Al Aluminum 26.98153	14 Si Silicon 28.0855	15 P Phosphorus 30.97696	16 S Sulfur 32.065	17 Cl Chlorine 35.453	18 Ar Argon 39.948
10 VIII B	11 IB	12 IIB	28 Ni Nickel 58.6934	29 Cu Copper 63.546	30 Zn Zinc 65.38	31 Ga Gallium 69.723	32 Ge Germanium 72.64	33 As Arsenic 74.92160	34 Se Selenium 78.96	35 Br Bromine 79.904	36 Kr Krypton 83.798				
46 Pd Palladium 106.42	47 Ag Silver 107.8682	48 Cd Cadmium 112.411	49 In Indium 114.818	50 Sn Tin 118.710	51 Sb Antimony 121.760	52 Te Tellurium 127.60	53 I Iodine 126.9044	54 Xe Xenon 131.293							
78 Pt Platinum 195.084	79 Au Gold 196.9665	80 Hg Mercury 200.59	81 Tl Thallium 204.3833	82 Pb Lead 207.2	83 Bi Bismuth 208.9804	84 Po Polonium 208.982	85 At Astatine 209.987	86 Rn Radon 222.018							
110 Ds Darmstadtium (271)	111 Rg Roentgenium (272)	112 Cn Copernicium (285)	113 Nh Nihonium (284)	114 Fl Flerovium (289)	115 Mc Moscovium (288)	116 Lv Livermorium (293)	117 Ts Tennessine (294)	118 Og Oganesson (294)							

63 Eu Europium 151.964	64 Gd Gadolinium 157.25	65 Tb Terbium 158.9253	66 Dy Dysprosium 162.500	67 Ho Holmium 164.9303	68 Er Erbium 167.259	69 Tm Thulium 168.9342	70 Yb Ytterbium 173.054	71 Lu Lutetium 174.9668
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)

 metalloids	 halogens	 lanthanoids
 post-transition metals	 noble gases	 actinoids



THE SCIENTIFIC METHOD CUTOUT



WHICH UNIT WOULD YOU USE?

Using the chart below, draw a line to match the object with its correct unit of measurement.

Common Metric Units of Measurement

Length		Volume (liquid)		Weight	
UNIT	ABBREVIATION	UNIT	ABBREVIATION	UNIT	ABBREVIATION
Nanometers	nm	Microliters	uL	Micrograms	mcg
Millimeters	mm	Milliliters	mL	Milligrams	mg
Centimeters	cm	Liters	L	Grams	g
Meters	m				



the liquid in eye drops

milligrams (mg)



powdered medicine measured in a pharmacy

liters (L)



the weight of a single human cell

milliliters (mL)



length of a line on a sheet of paper

micrograms (mcg)



orange juice in a carton

grams (g)



weight of a bag of sugar

centimeters (cm)

STATES OF MATTER

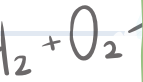
Write or draw at least 2-3 observations for each state of matter.

SOLID	LIQUID	GAS

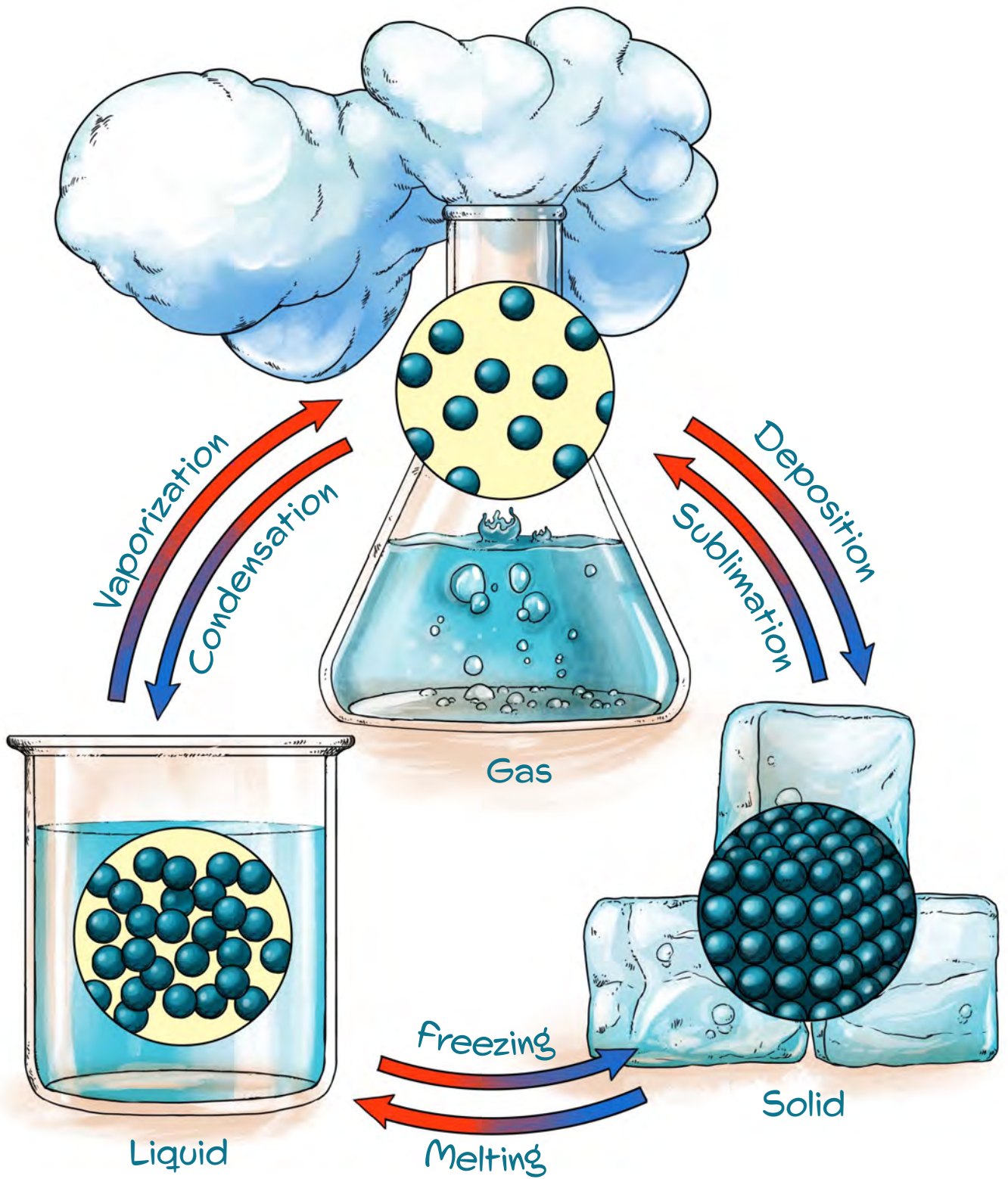


Draw what the particles would look like for each state if you could see them up close.

Solid	Liquid	Gas



TYPES OF PHASE TRANSITIONS





The Freezing Point of Water Experiment

Hypotheses

How do you think salt will affect water when we freeze it? Which do you think will freeze faster, pure water or saltwater? Which will require a lower temperature to freeze, pure water or saltwater?

Notes during my experiment:

Data Recordings

When recording data, be sure to include units: a.m., p.m., °C, or °F.

	Water	Water + 1 tsp Salt	Water + 2 tsp Salt	Water + 3 tsp Salt
Start Time:				
Time:				
Time:				
Time:				
Time:				
End Time:				



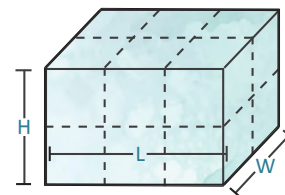
Physical and Chemical Properties

Solubility Data

	Sugar	Oil
What happens when we add this solute to water?		

Volume Data

Volume of a Rectangular Prism = Length x Width x Height



	Length	Width	Height
Rectangular Prism Volume			

The volume of your object (don't forget to write the unit): _____

Volume by Displacement Data

Volume by Displacement = Water level with object - Water level without object

	Volume of Water	Volume with Object	Volume of Object
What is your object? _____			

$$\text{Density} = \frac{\text{Mass}}{\text{Volume}}$$

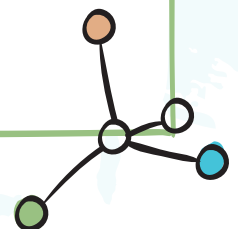
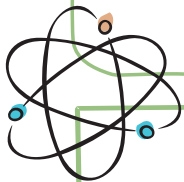
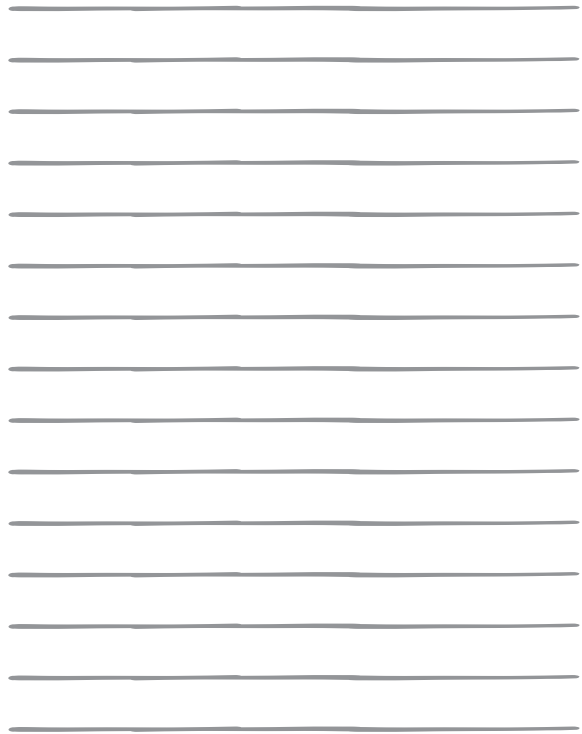
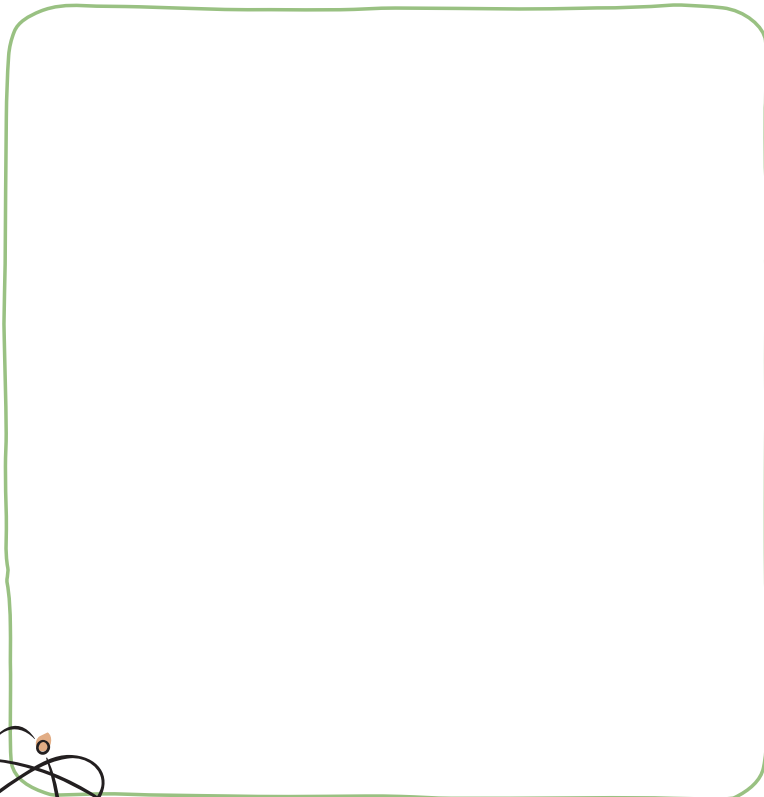
Density Data

	Mass of the Object	Volume of Object (from the previous experiment)	Density
What is your object? _____			



OPTIONAL ELEMENT STUDY

With your parent's permission, do research online or at a library on an element of your choice. In the square box, write the element symbol, full name, atomic number, and atomic mass, similar to the elements on the periodic table. On the lined spaces, write fun facts about your element. In the rectangular box at the bottom of the page, you may write more information, draw a picture, paste a printed picture, or glue items into this area that represent your element. If desired, repeat this activity for another element using the following page.



ART STUDY



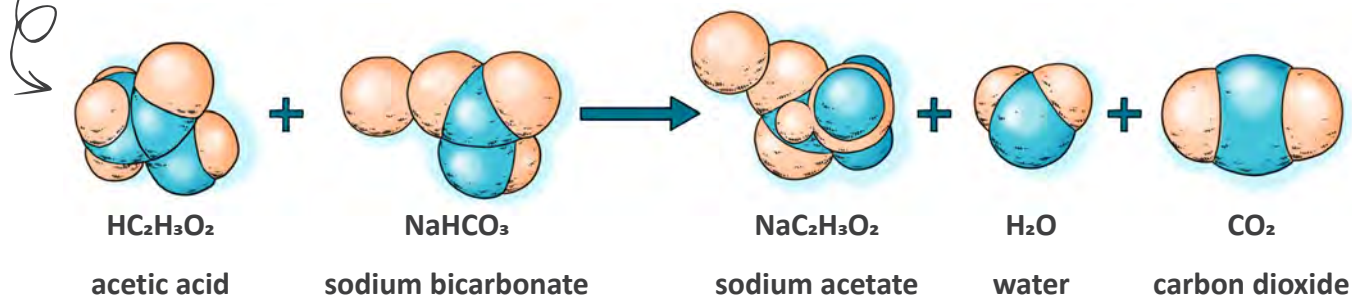
"Campfire Site, Yosemite" by Albert Bierstadt (1830–1902), 1873

→ Circle any chemical reactions you see in the painting. ←



Growing Foam Experiment

What happened?



Exploring the Law of Conservation of Mass

Total Number of Atoms							
Reactants				Products			
H	C	O	Na	H	C	O	Na

The formula below represents the reaction and is called a chemical equation.



When the number of atoms of each element is the same on both the reactant and product sides of the arrow, the chemical equation is balanced.

