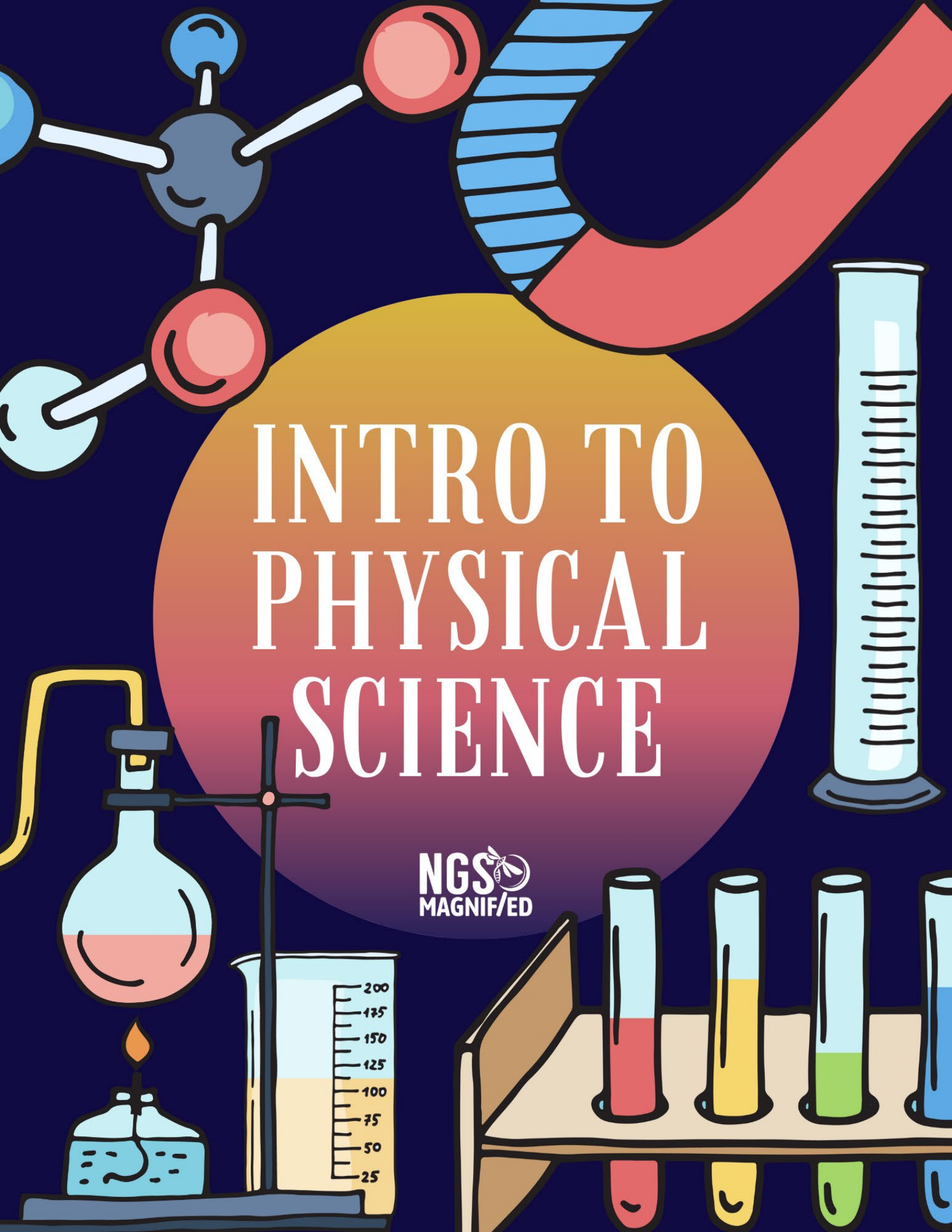
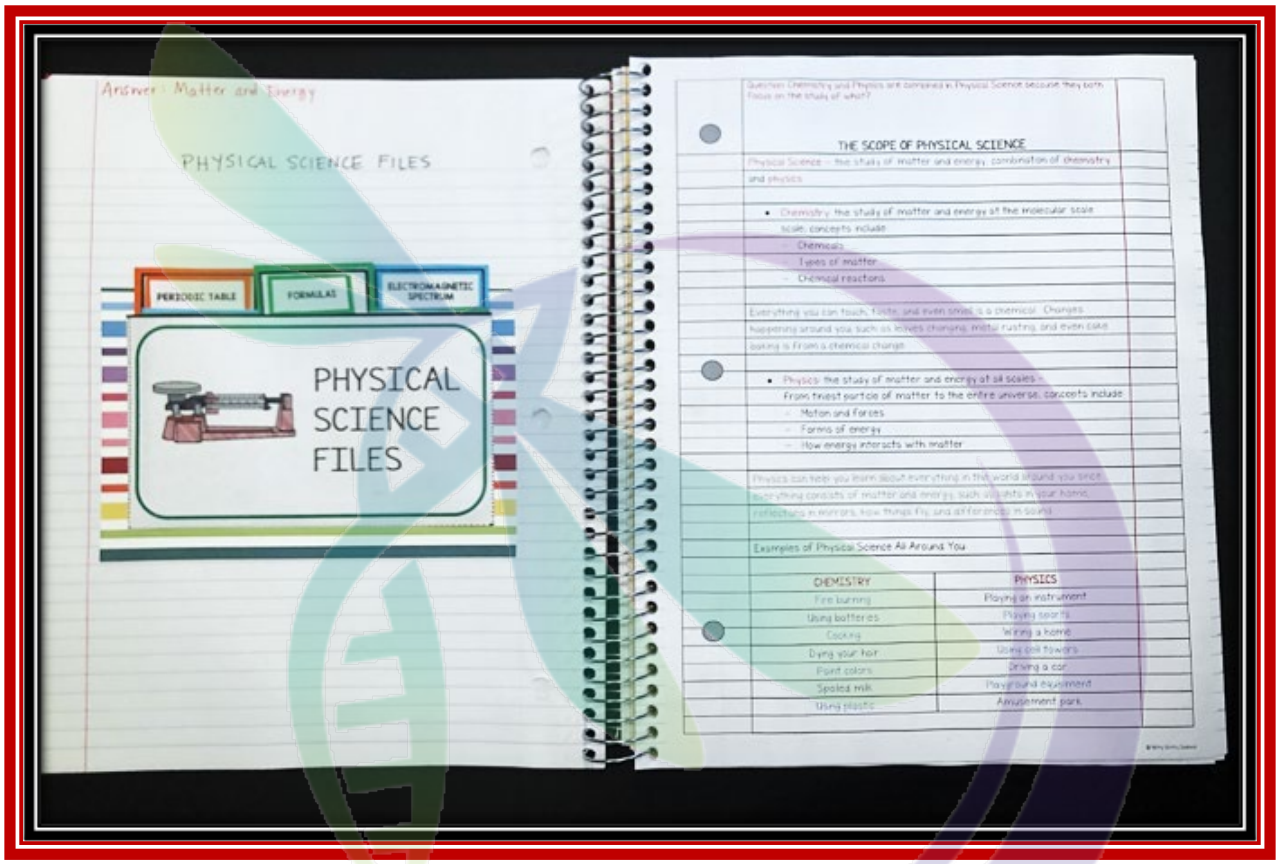

INTRO TO
PHYSICAL
SCIENCE
NGS
MAGNIFIED
200
175
150
125
100
75
50
25

Table of Contents: Intro to Physical Science

Description	Page #
Introduction	3
Section 1: The Scope of Physical Science	4
Physical Science Files (page 1)	5
Physical Science (page 2)	6
Quiz: The Scope of Physical Science	7
Section 2: Science Lab Safety	8
Lab Safety Contract	9
Lab Safety Symbol Activity	10
Quiz: Lab Safety	11
Section 3: Methods of Science and Technology	12
Steps of Technological Design Process Activity cut-outs	13
Steps of TDP Activity – Blackline	14
Steps of TDP Activity – Color	15
Steps of TDP Activity - Master Copy Answer Key	16
Quiz: Methods of Science and Technology	17
Answer Key	18
Contact and Copyright Information	19
Student Section Cover – Blackline	20
Teacher Notes	21–22

Section 1: The Scope of Physical Science



Instructions:

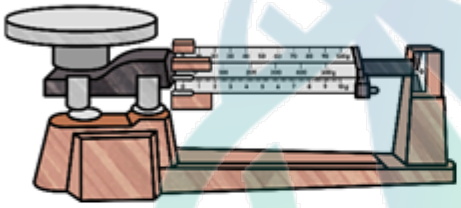
The Physical Science Reference section is really a page that students will be able to come back to as a reference guide. Add more pockets with other resources down the road if you would like!

All templates and reference materials are provided for the Physical Science Files along with a mini-quiz.

MULTIPLE LEARNING STYLES ADDRESSED WITH ORIGINAL ACTIVITIES – NO REPEATS!

Physical Science Files

Directions: Cut out the Physical Science File cards, pocket, and labels below. Paste the appropriate label on each file. Fold and paste the Physical Science File pocket into your Science Interactive Notebook. Place files in the pocket in order to be accessible when you need to use for a reference.



PHYSICAL SCIENCE FILES

PERIODIC TABLE OF THE ELEMENTS

1 IA	2 IIA	3 IIIB	4 IVB	5 VB	6 VIB	7 VIIB	8	9 VIIIB	10	11 IB	12 IIB	13 IIIA	14 IVA	15 VA	16 VIA	17 VIIA	18 VIIIA
1 H Hydrogen 1.0079																	2 He Helium 4.0026
3 Li Lithium 6.941	4 Be Beryllium 9.0122											5 B Boron 10.811	6 C Carbon 12.011	7 N Nitrogen 14.007	8 O Oxygen 15.999	9 F Fluorine 18.998	10 Ne Neon 20.179
11 Na Sodium 22.990	12 Mg Magnesium 24.305											13 Al Aluminium 26.982	14 Si Silicon 28.086	15 P Phosphorus 30.974	16 S Sulphur 32.065	17 Cl Chlorine 35.453	18 Ar Argon 39.948
19 K Potassium 39.098	20 Ca Calcium 40.078	21 Sc Scandium 44.956	22 Ti Titanium 47.867	23 V Vanadium 50.942	24 Cr Chromium 51.996	25 Mn Manganese 54.938	26 Fe Iron 55.845	27 Co Cobalt 58.933	28 Ni Nickel 58.693	29 Cu Copper 63.546	30 Zn Zinc 65.39	31 Ga Gallium 69.723	32 Ge Germanium 72.64	33 As Arsenic 74.922	34 Se Selenium 78.96	35 Br Bromine 79.904	36 Kr Krypton 83.80
37 Rb Rubidium 85.468	38 Sr Strontium 87.62	39 Y Yttrium 88.906	40 Zr Zirconium 91.224	41 Nb Niobium 92.906	42 Mo Molybdenum 95.94	43 Tc Technetium (98)	44 Ru Ruthenium 101.07	45 Rh Rhodium 102.91	46 Pd Palladium 106.42	47 Ag Silver 107.87	48 Cd Cadmium 112.41	49 In Indium 114.82	50 Sn Tin 118.71	51 Sb Antimony 121.76	52 Te Tellurium 127.60	53 I Iodine 126.90	54 Xe Xenon 131.29
55 Cs Cesium 132.91	56 Ba Barium 137.33	57-71 Lanthanide	72 Hf Hafnium 178.49	73 Ta Tantalum 180.95	74 W Tungsten 183.84	75 Re Rhenium 186.21	76 Os Osmium 190.23	77 Ir Iridium 192.22	78 Pt Platinum 195.08	79 Au Gold 196.97	80 Hg Mercury 200.59	81 Tl Thallium 204.38	82 Pb Lead 207.2	83 Bi Bismuth 208.98	84 Po Polonium (209)	85 At Astatine (210)	86 Rn Radon (222)
87 Fr Francium (223)	88 Ra Radium (226)	89-103 Actinide	104 Rf Rutherfordium (261)	105 Db Dubnium (262)	106 Sg Seaborgium (266)	107 Bh Bohrium (264)	108 Hs Hassium (277)	109 Mt Meitnerium (268)	110 Uun Ununnilium (281)	111 Uuu Unununium (272)	112 Uub Ununbium (285)	113 Uut Ununtrium (284)	114 Uuq Ununquadium (289)	115 Uup Ununpentium (288)	116 Uuh Ununhexium (291)	117 Uus Ununseptium	118 Uuo Ununoctium (294)

Lanthanide: La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu

Actinide: Ac, Th, Pa, U, Np, Pu, Am, Cm, Bk, Cf, Es, Fm, Md, No, Lr

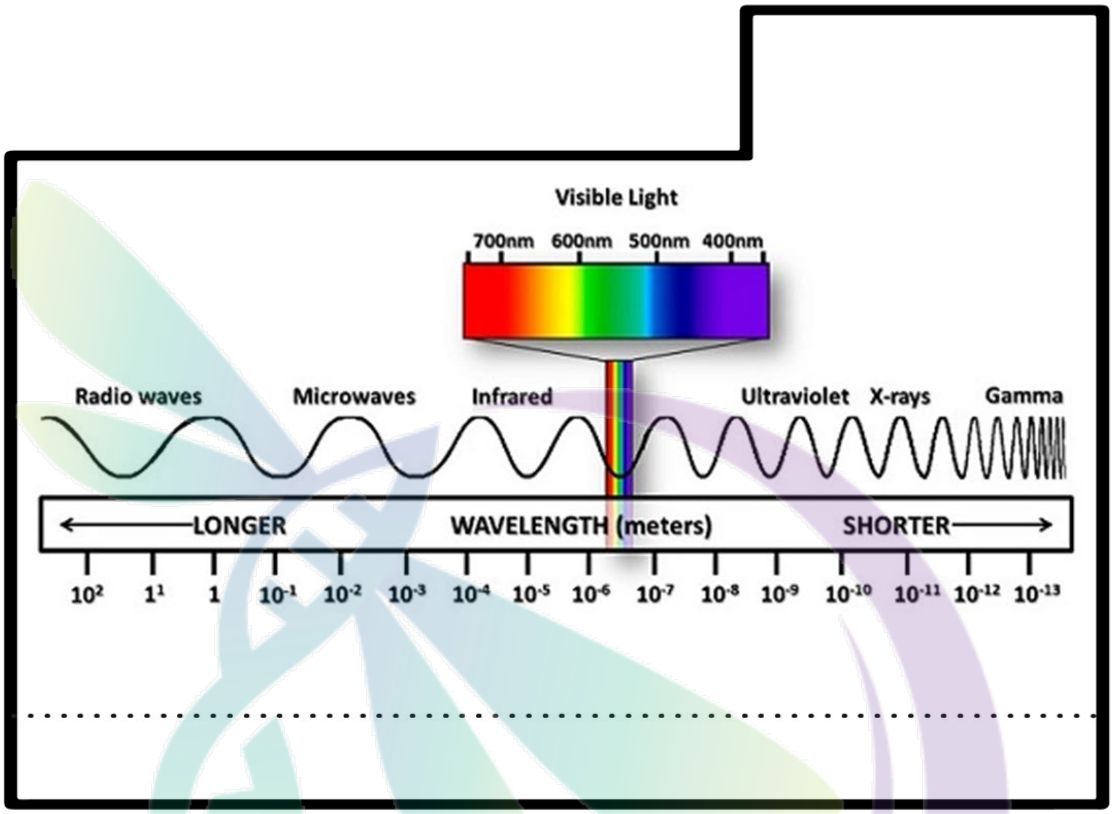
Electron Shells

1	K	2				
2	L	8	2	6		
3	M	18	2	6	10	
4	N	32	2	6	10	14
5	O	32	2	6	10	14
6	P	18	2	6	10	
7	Q	8	2	6		
8	R	2	2			

PERIODIC TABLE

ELECTROMAGNETIC SPECTRUM

FORMULAS



$$F = ma$$

F → Net Force
m → mass
a → acceleration

$$P = mv$$

P → Momemtum
m → mass
v → velocity

°C = (°F – 32) x 5 / 9

°F = (°C x 9 / 5) + 32

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

$$\text{Velocity} = \frac{\text{Distance}}{\text{Time}}$$

$$\bar{a} = \frac{v - v_0}{\Delta t}$$

a → acceleration
v → velocity
t → time
Δ → change in

Boyle's Law:

$$V_i \times P_i = V_f \times P_f$$

V_i → initial volume
V_f → final volume
P_i → initial pressure
P_f → final pressure

Mechanical Energy = PE + KE

PE → potential energy
KE → kinetic energy

Name_____ Date _____

Quiz: The Scope of Physical Science

Directions: Decide if the statement below is true or false. If true, write a T on the line, if false, correct the underlined word in order to make the statement true.

_____ 1. Both physics and chemistry study matter and energy.

_____ 2. Motion and forces are concepts studied in physics.

_____ 3. Everything you can touch, taste, and smell is a chemical.

_____ 4. How energy interacts with matter at a universal level is studied in chemistry.

_____ 5. Physics helps you learn about energy in your home such as lights and sound.

_____ 6. Physical science is a study combining physics and biology.

MINI QUIZZES INCLUDED FOR EACH SECTION

Name_____ Date _____

Quiz: The Scope of Physical Science

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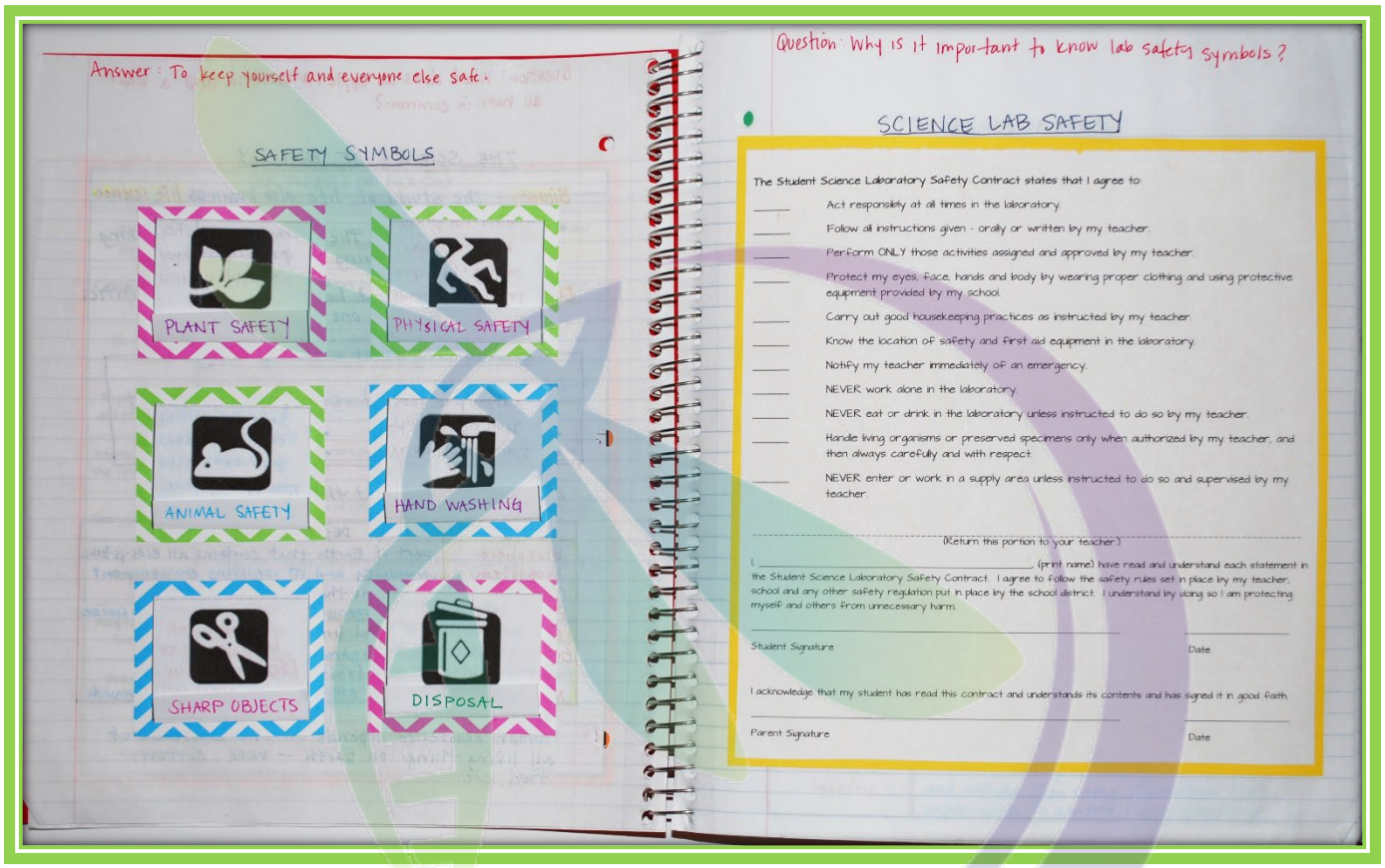
Section 2: Science Lab Safety

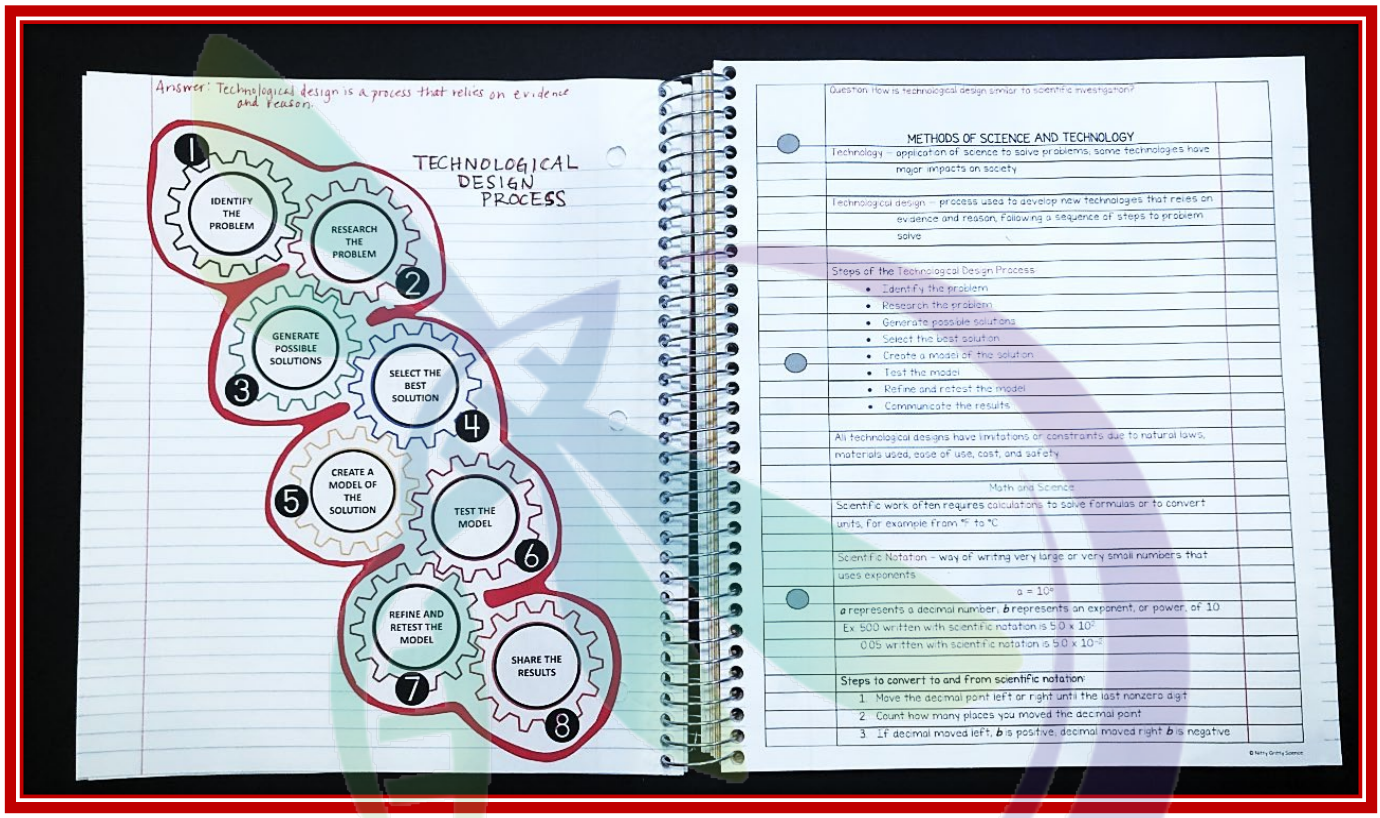


Instructions:

This is always a good thing to have in the Science Interactive Notebooks as a reminder to students that they signed a Lab Safety Contract and agreed to follow the safety guidelines.

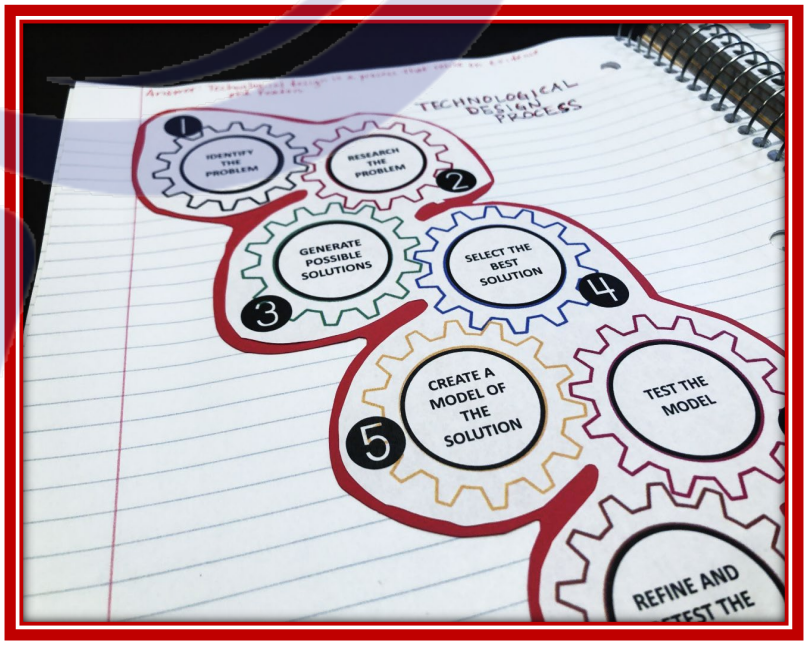
Attached is the Lab Safety Contract, Safety Symbol matchbooks and a mini-quiz.

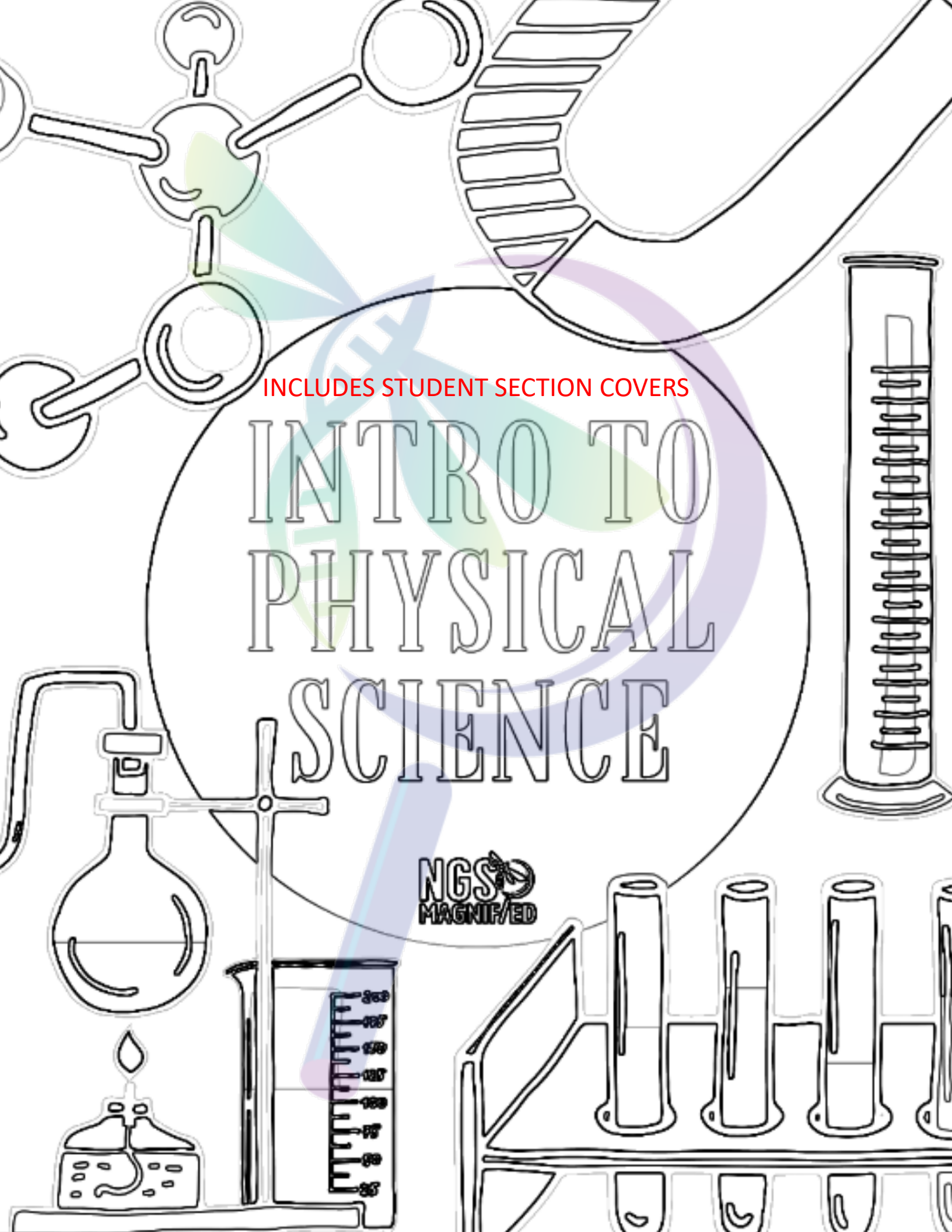
Section 3: Methods of Science and Technology



Instructions:

Students will determine the order of the Technological Design Process by placing steps in order on the gears. All templates and materials are provided for the Technological Design Process, along with a mini-quiz for this section.




INCLUDES STUDENT SECTION COVERS
INTRO TO PHYSICAL SCIENCE
NGS MAGNIFIED

Question: Chemistry and Physics are combined in Physical Science because they both focus on the study of what?

THE SCOPE OF PHYSICAL SCIENCE

Physical Science – the study of matter and energy; combination of chemistry and physics

- Chemistry: the study of matter and energy at the molecular scale; concepts include:
  - Chemicals
  - Types of matter
  - Chemical reactions

Everything you can touch, taste, and even smell is a chemical. Changes happening around you, such as leaves changing, metal rusting, and even cake baking are from a chemical change.

- Physics: the study of matter and energy at all scales – from tiniest particle of matter to the entire universe; concepts include:
  - Motion and forces
  - Forms of energy
  - How energy interacts with matter

Physics can help you learn about everything in the world around you since everything consists of matter and energy, such as lights in your home, reflections in mirrors, how things fly, and differences in sound

Examples of Physical Science All Around You:

CHEMISTRY	PHYSICS
Fire burning	Playing an instrument
Using batteries	Playing sports
Cooking	Wiring a home
Dying your hair	Using cell towers
Paint colors	Driving a car
Spoiled milk	Playground equipment
Using plastic	Amusement park

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