

3rd Grade Lesson Plan

Matter: Build a Word

Standards:

- 1.h. *Students know* all matter is made of small particles called atoms, too small to see with the naked eye.
 - i. Students know science experiments show that there are ore than 100 different types of atoms, which are presented on the periodic table of elements.

Suggested Time Allotment: 45 minutes

Pressed for Time: 30 minutes

Introduce matter, elements, and Periodic Table
List words recognized by students
Start "Build a Word" worksheet and allow students to finish it at home

Anticipatory set (engage):

What is pizza made of? Can you break it down into anything? (Dough, cheese, sauce, toppings) What are those made of? (Flour is made of eggs, water, milk) Can we go even smaller? What's the smallest part of pizza? What's that smallest part made of? All things in the universe are made of smaller parts.

Objective:

Increase students' familiarity with the Periodic Table, and names of common elements.

Background:

Matter is anything that has mass and takes up space, and can be found in three different states (gas, liquid, and solid). Since matter can neither be created nor destroyed, they can only change forms. For example, water can turn to ice, or steam. In both case matter isn't lost or gained, it simply changes form.

All matter on the planet, whether solid, liquid, or gas, is made of atoms. Atoms are the smallest indivisible piece of matter. All types of atoms are listed and organized by their physical properties on the Periodic Table of Elements. Whiles there are only about 100 elements (or types of atoms) these atoms can be combined to form molecules. Some commonly known molecules are salt (NaCl - one sodium atom (Na) and one chloride (Cl) atom), sand and glass (SiO₂), and water H_2O .

The Periodic Table of Elements lists familiar materials such as gold, silver, lead, oxygen, and neon. Therefore, these materials are elements. Materials like salt, water, sugar, and steel are not on the table, which means they are formed by putting atoms together to form molecules.



For each element on the Period Table there is a symbol, an atomic number, atomic mass, and more. While many names are long strange sounding names, most symbols are 1 or 2 letters (there are some elements that have been artificially created on a lab that have 3 letters). The first letter is always a capital letter, and the following are always lower case.

Vocabulary:

- Matter
- Atom

- Element
- Periodic Table of Elements

Modeling:

- 1. Introduce the term atom. If matter were cut into its smallest piece, it would be an atom. There are only about 100 types of atoms called elements.
- 2. Show students the classroom Periodic Table of Elements. Explain that all the known atoms in the world are on this chart. They are grouped in specific spots on the chart based on their physical properties. What makes up all matter? This cabinet full of ingredients. Similar to eggs, flour, milk, and water we have elements that make up all matter.
- 3. Write gold's number, name, and symbol on the board as an example. (Au #79)
- 4. Point out that symbols always begin with a capitol letter, followed by lower case.
- 5. List the elements that students recognize on the poster.
- 6. Introduce "Build a Word" worksheets.
- 7. Model how to find the symbol of each atom and write the letters of the symbol from left to right on the lines below.

Guided Practice:

- 1. Pass out a periodic table of elements to each pair of students.
- 2. In pairs or individually, students will complete Build a Word worksheet. (p. 20 in 3rd grade journal

Check for understanding:

What is an atom? Why isn't pizza on the periodic table? Can there be a pizza atom? Can there be a gold atom? What is the symbol for gold?

Independent Practice:

Have students complete the Matter Worksheet Crossword Puzzle (p. 22 in 3rd grade journal) To review concepts.

SCIENCE ST RS

MATTER



BUILD A WORD

Directions: Find the symbol of each element on the Periodic Table of Elements and write it in the box to create a word.

1.	Carbon	+	Ra Radium	+	B	=	(Cra	ıb	
2.		+		+		+		=		7)
	Flourine Fluorine		lodine		Sulfur Sulphur		Hydrogen			
3.		+		=				5		The state of the s
,	Selenium		Aluminum Aluminium					_		3
4.		+		=						
	Chlorine		Americium		-					
5.		+		+		=				
•	Barium		Sulfur Sulphur		Sulfur Sulphur					
6.		+		+		+		=		200
	Tungsten		Aluminum Aluminium		Ruthenium		Sulfur Sulphur			
7.		+		+		+		+		=
	Selenium		Aluminum Aluminium		lodine		Oxygen		Nitrogen	
8.		+		+		+		+		=
1	Phosphoru	S	Uranium		Flourine Fluorine		Flourine		Indium	

Periodic Table of the Elements

helium 2 4.002602	neon 10	Ne	20.1797	argon 18	Ā	39.984	krypton	36	¥	83.798	xenon	54	Xe	131.293	radon 86	R	[222]				
	fluorine 9	ш	18.9984	chlorine 17	ਹ	35.453	bromine	32	ă	79.904	iodine	23	_	126.9045	astatine 85	Ą	[210]				
	oxygen 8	0	15.9994	sulphur 16	တ	32.065	selenium	34	Se	78.96	tellurium	25	<u>e</u>	127.60	polonium 84	Po	[509]				
	nitrogen 7	z	14.00674	phosphorus	<u> </u>	30.97376	arsenic	33	As	74.9216	antimony	5	Sp	121.760	bismuth 83	ä	208.980				
					Si													ununquadium	114	Ond	[289]
					₹																
							zinc	30	Z	65.409	cadmium	48	ပ္ပ	112.411	mercury 80	무	200.59	ununpinm	112	Oub	[285]
	name	loq	weight				copper	53	చె	63.546	silver	47	Ag	107.8682	plog 62	Au	196.96655	roentgenium	Ξ	Bd	[272]
Key:	element name atomic number	symbol	atomic weight				nickel	28	ž	58.6934	palladium	46	Pd	106.42	platinum 78	풉	195.078	darmstadtium	110	Ds	[271]
																<u>_</u>					
							iron	56	Pe	55.845	ruthenium	4	2	101.07	osmium 76	Os	190.23	hassium	108	Hs	[569]
							manganese	52	Ā	54.93805	technetium	43	ည	[98]	rhenium 75	Re				В	
							chromium		ပံ	51.9961	Ε	45	ğ	95.94	tungsten 74	>	183.84	seaborgium	106	Sg	[266]
Metals Non-Metals Noble Gases							vanadium	23	>	50.9415	niobium	4	g	92.90638	tantalum 73	Ta	180.947	dubniur	105	g	[262]
Metals Non-M							titanium	55	F	47.867	zirconium	40	Ż	91.225	hafnium 72	Ξ	1.00794	ntherfordum	104	꿆	[261]
						_	scandium	2	သွ	44.95591	yttrium	33	>	88.90585	lutetium 71	Ľ	174.967	lawrencium	103	± Ľ	[262]
	beryllium 4	Be	9.012182	magnesium	Mg				Ca		strontium	38	Š	87.62	barium 56	Ва	137.327	radium	88	Ra	[226]
hydrogen 1.00794	lithium 3	=	6.941	sodium	Na	22.98977	potassium	6	¥	39.0983	rubidium	37	Rb	85.4678	caesium 55	Cs	132.90545	francium	87	ŗ	[223]

	ر Xp	_	E	_		
69 thulium			٤			
holmium erb		_	_			
dysprosium 66	٥	162.50	californium	86	ర	[251]
terbium 65	Д	158.9253	berkelium	26	BK	[247]
gadolinium 64	gg	157.25	curium	96	Ę	[247]
europium 63	En	151.964	americium	92	Am	[243]
samarium 62	Sm	150.36	plutonium	94	Pu	[244]
promethium 61	Pm	[145]	neptunium	83	ď	[237]
9	Š		_	92	-	238.0289
cerium prasedymium 58 59	Ā	140.90765	protactinium	91	Ра	231.0359
cerium 58	ဝီ	140.116	thorium	06	두	232.038
lanthanum 57	Гa	138.9055	actinium	88	Ac	

Notes: Elements with atomic weights in square brackets have no stable isotopes. Different sources list different atomic weights for elements. The difference arises from the dif-266. The most stable isotope appears have an atomic weight of 266 so we list that weight here. Roentgenium is still the unofficial name of element 111 but it is the one recommended by the IUPAC so we list it here instead of the generic 'unununium'. Aluminum, cesium, and sulfur are the American spellings for aluminium, caesium, and sulphur. fering atomic weights of various isotopes. We have tried to list the most stable isotope. For example, some sources list the atomic weight of seaborgium as 263 and others This table was downloaded from http://www.science-teachers.com/printable_periodic_tables.htm.

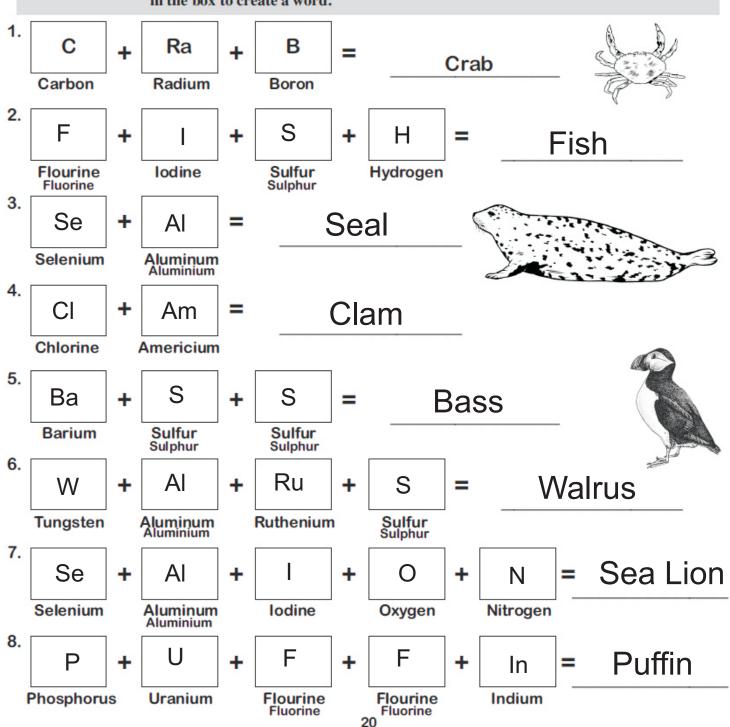
SCIENCE ST RS GRADE 3

MATTER



BUILD A WORD

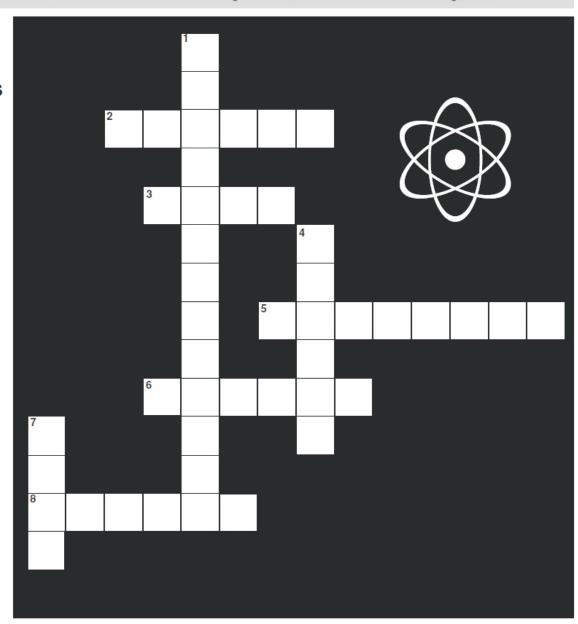
Directions: Find the symbol of each element on the Periodic Table of Elements and write it in the box to create a word.



MATTER WORKSHEET CROSSWORD PUZZLE

Directions: Use the words below to answer the questions and fill in the crossword puzzle.

ATOM
CARBON
ELEMENTS
GOLD
MATTER
OXYGEN
PERIODIC
TABLE
SILVER



ACROSS:

- 2. Number 6 on the Periodic Table (C)
- 3. A valuable metal (first place in the Olympics)
- 5. Types of atoms
- 6. Anything that takes up space
- 8. The atoms we need to breathe (number 8)

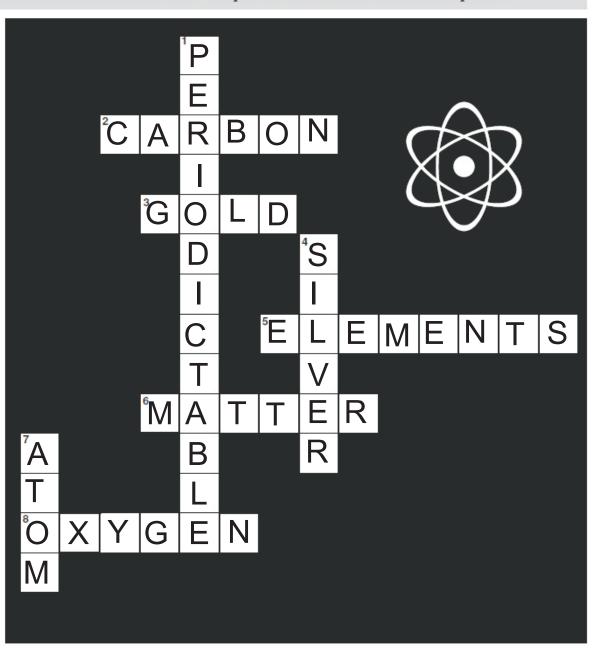
DOWN:

- A chart where all the types of atoms are listed
- 4. A valuable metal (second place in the Olympics)
- 7. The smallest piece of matter

MATTER WORKSHEET CROSSWORD PUZZLE

Directions: Use the words below to answer the questions and fill in the crossword puzzle.

ATOM
CARBON
ELEMENTS
GOLD
MATTER
OXYGEN
PERIODIC
TABLE
SILVER



ACROSS:

- 2. Number 6 on the Periodic Table (C)
- 3. A valuable metal (first place in the Olympics)
- 5. Types of atoms
- 6. Anything that takes up space
- 8. The atoms we need to breathe (number 8)

DOWN:

- A chart where all the types of atoms are listed
- 4. A valuable metal (second place in the Olympics)
- 7. The smallest piece of matter