Name _____ Date _____ Period _____

STARS AND THE PERIODIC TABLE

Purpose: to identify how stars and the periodic table of elements are connected.

Activity 1 – Elements in the Periodic Table

Walk around the room to find the articles that will help complete the questions below.

1A												3A	4A	5A	6A	7A	8A
1 H Hydrogen	2A																2 He Helium
3 Li Lithium	4 Be Beryllium											5 B Boron	6 C Carbon	7 N Nitrogen	8 O Oxygen	9 F Fluorine	10 Ne Neon
11 Na Sodium	12 Mg Magnesium	3B	4B	5B	6B	7B	8B			1B	2B	13 Al Aluminum	14 Si Silicon	15 P Phosphorus	16 S Sulfur	17 Cl Chlorine	18 Ar Argon
19 K Potassium	20 Ca Calcium	21 Sc Scandium	22 Ti Titanium	23 V Vanadium	24 Cr Chromium	25 Mn Manganese	26 Fe Iron	27 Co Cobalt	28 Ni Nickel	29 Cu Copper	30 Zn Zinc	31 Ga Gallium	32 Ge Germanium	33 As Arsenic	34 Se Selenium	35 Br Bromine	36 Kr Krypton
37 Rb Rubidium	38 Sr Strontium	39 Y Yttrium	40 Zr Zirconium	41 Nb Niobium	42 Mo Molybdenum	43 Tc Technetium	44 Ru Ruthenium	45 Rh Rhodium	46 Pd Palladium	47 Ag Silver	48 Cd Cadmium	49 In Indium	50 Sn Tin	51 Sb Antimony	52 Te Tellurium	53 I Iodine	54 Xe Xenon
55 Cs Cesium	56 Ba Barium	57-71 Lanthanides	72 Hf Hafnium	73 Ta Tantalum	74 W Tungsten	75 Re Rhenium	76 Os Osmium	77 Ir Iridium	78 Pt Platinum	79 Au Gold	80 Hg Mercury	81 Tl Thallium	82 Pb Lead	83 Bi Bismuth	84 Po Polonium	85 At Astatine	86 Rn Radon
87 Fr Francium	88 Ra Radium	89-103 Actinides	104 Rf Rutherfordium	105 Db Dubnium	106 Sg Seaborgium	107 Bh Bohrium	108 Hs Hassium	109 Mt Meitnerium	110 Ds Darmstadtium	111 Rg Roentgenium	112 Cn Copernicium	113 Uut Ununtrium	114 Uuq Ununquadium	115 Uup Ununpentium	116 Uuh Ununhexium	117 Uus Ununseptium	118 Uuo Ununoctium

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Lanthanides	57 La Lanthanum	58 Ce Cerium	59 Pr Praseodymium	60 Nd Neodymium	61 Pm Promethium	62 Sm Samarium	63 Eu Europium	64 Gd Gadolinium	65 Tb Terbium	66 Dy Dysprosium	67 Ho Holmium	68 Er Erbium	69 Tm Thulium	70 Yb Ytterbium	71 Lu Lutetium
Actinides	89 Ac Actinium	90 Th Thorium	91 Pa Protactinium	92 U Uranium	93 Np Neptunium	94 Pu Plutonium	95 Am Americium	96 Cm Curium	97 Bk Berkelium	98 Cf Californium	99 Es Einsteinium	100 Fm Fermium	101 Md Mendelevium	102 No Nobelium	103 Lr Lawrencium

1. Gold comes from _____.
2. There is more _____ than anything else!
3. How did the periodic table look 14 billion years ago? Explain why.

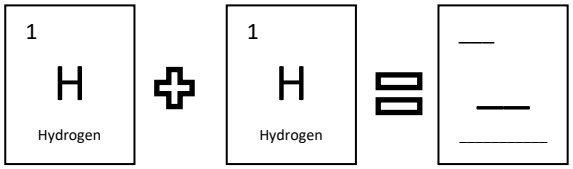
4. How long after the big bang were the first atoms created?

5. What were the first 2 elements?

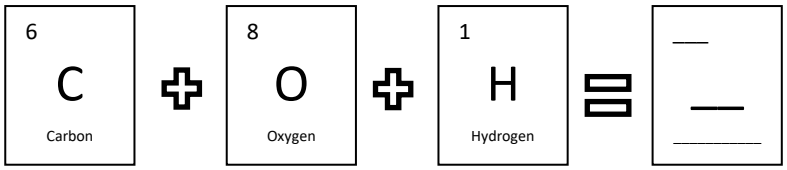
6. All of the hydrogen and helium was drawn together into big clouds called _____.
7. What does fusion do to atoms?

8. Fusion _____ stars is responsible for elements _____ through _____ on the periodic table.

9. Solve the Fusion example below



10. Solve the fusion example below



11. Correctly create our own fusion example (just like #9 and #10). ****Remember fusion created elements 3 – 26, so be careful.**

12. A star is going to need more _____ to make an atom that has more than _____ protons.

13. What is the most powerful explosion in the universe?

14. What causes a supernova?

15. How are stars and the periodic table of elements connected? Explain your answer using details and complete sentence.

Activity 2 – Star Clusters

1. There are two types of star clusters: _____ and _____
2. Most open clusters are _____, and very few are older than roughly _____ million years.
3. What force makes the stars in a cluster interact and sometimes cause stars to be "flung away?"
4. Most globular clusters are over _____ billion years old.
5. All the stars in a globular cluster are born at _____ _____ _____, and so they're the _____ _____.

6. Globular clusters have less heavy elements thus probably do not have _____