NOVA Video Questions: ***Hunting the Elements***

Name:

Per: **Seat #:**

http://www.pbs.org/wgbh/nova/physics/hunting-elements.html

1) Where does an element take its identity from?

2) How much gold (Au) is extracted per ton of rock ore?

3) How much does a gold (Au) bar weigh and how much is it worth?

4) Why is copper (Cu) so widely sought on the world market and New York Mercantile Exchange?

5) What is copper (Cu) combined with to make bronze?

6) What makes metals like Copper (Cu) conductive to electricity?

7) Bronze is an alloy. What is an alloy and why are they preferable at times?

8) How does the atomic arrangement of atoms lead to its crystal structure like was seen in the sample of bronze with gold (Au) and tin (Sn) atoms?

9) What is the atomic number and what does the atomic number indicate?

10) Most of the periodic table is made of what type of elements?

11) How did early chemists like Mendeleev classify the elements?

12) How is the periodic table structured with regard to elements with similar properties?

13) What makes noble gases stable?

14) Why is an alkali metal element like Sodium (Na) so reactive?

15) What does chlorine (Cl-) do for sodium (Na+)? What tasty substance is produced when this happens?

16) What powers explosions and fire?

17) What elements are basic to all living things?

18) Why is Carbon (C) so good for forming the structure of life?

19) What are at least three (3) other elements that are used for life functions and what are their uses?

20) Why are cyanobacteria from places like volcanic pools so important for the production of oxygen in our atmosphere?

21) What was the original element formed moments after the Big Bang? What then created higher order elements?

22) How does silicon shape our technological reality?

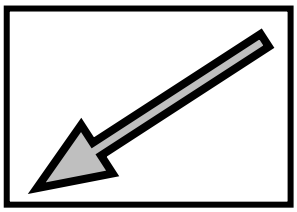
23) How are rare earth elements like neodymium (Nd) important to our technological world?

24) What is an isotope like Carbon-14

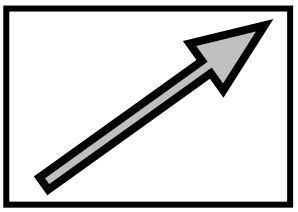
25) How can an isotope like Carbon-14 be used to date dead organisms?

26) What is an unstable radioactive isotope?

27) Why don't the man-made radioactive elements exist for very long?



PERIODIC TRENDS WAR GAME SHEET



PURPOSE

To review periodic table trends regarding the properties of elements

MATERIALS

1 die, index cards (marked with element symbols), Periodic Table (if needed)

INSTRUCTIONS

1) Have each member of your group roll the die provided. The person who rolls the highest value on the die is the dealer and will deal the cards to the rest of the people in the group.

2) The dealer deals the cards until each student has the same number of cards. Each student should have 7 cards per hand.

3) The dealer begins by throwing the die. The number on the die determines the trend being played:

1. Atomic Radius 2. Ionization Energy 3. Valence electrons (if a tie, roll the dice to break the tie!)
4. Electronegativity 5. Reactivity 6. Wild Card

4) After the trend has been determined, the dealer plays the first card. Play continues clockwise.

5) Each student will reveal the first card in their deck. The card with the highest value for the current trend wins. Each student in the group will attempt to determine the sequence of the card in increasing order or decreasing and document it in the table below – use > (greater than) signs or < (less than) signs. If your group is finding it difficult to come up with the correct sequence, ask assistance from your teacher. You can also use your periodic table.

6) The player who wins the round, becomes the next person to roll the die.

"DATA"

Round	Cards Dealt	Which Trend	Order	Sequence	Highest Card
1			Increasing		
2			Increasing		
3			Increasing		
4			Increasing		
5			Increasing		
6			Decreasing		
7			Decreasing		
8			Decreasing		
9			Decreasing		
10			Decreasing		