

Name _____ Date _____ Period _____

VIDEO GUIDE: NOVA – “Hunting the Elements”

PERIODIC TABLE OF THE ELEMENTS

- 1) How many different elements are there? _____
- 2) What is the symbol for gold? _____
- 3) What is gold's atomic number? _____
- 4) What are some unique properties of gold? _____
- 5) What process is used to separate gold atoms from crushed rock? _____
- 6) How much gold is harvested per ton of earth from the underground mine? _____



- 7) Gold does not share its electrons easily. Therefore, it is not very chemically reactive. What are two other metals that, like gold, don't react with other elements? _____
- 8) What is the worth (\$\$) of one 60-pound bar of gold? _____
- 9) Two rows above gold is the metal: _____; its symbol is: _____
- 10) In what objects / industries is copper used? _____
- 11) What are some unique properties of copper? _____

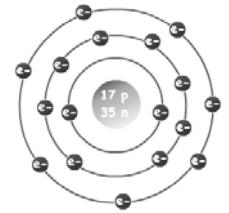
- 12) What is the symbol for tin? _____ What is its atomic number? _____
- 13) When copper and tin are mixed together, the alloy _____ is formed.



- 14) Why isn't copper alone used to make bells? _____
- 15) It is possible that the crack in the famous Liberty Bell was caused by too much _____
- 16) Metals form crystals, which means that they have an _____ of atoms.
- 17) Atoms with 1 proton are the element: _____; atoms with 2 protons are _____.
- 18) The number of protons in an atom is known as that element's _____.
- 19) The chemical symbol of each element is based on the element's name in which language? _____
- 20) More than 70% of the elements on the periodic table are _____.
- 21) Why are the noble gases called "noble"? _____

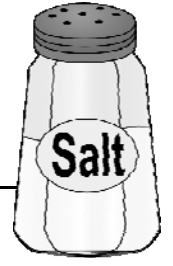
- 22) Which subatomic particles determine an element's reactivity? (circle correct answer)

PROTONS **NEUTRONS** **ELECTRONS**



- 23) How many electrons are in the first shell of electrons? _____ The second? _____
- 24) How many electrons do the noble gases have in their outermost shell? _____
- 25) How many electrons does chlorine have in its outermost shell? _____
- 26) What will an atom of chlorine do to complete its outer shell? _____

- 27) The alkali metals, such as sodium, have _____ electron in their outer shell.
- 28) What do the alkali metals do with that one electron? _____



29) How many e^- are in the outer shell of an oxygen atom? _____ So, it wants to gain _____.

30) **Nitrates** consist of three _____ atoms connected to one _____ atom.

31) **Oxygen** makes up _____ of our atmosphere.



Elements of Life:

32) Humans (& all living things!) are made up of mainly just _____ elements.

33) These elements (symbols only) are: _____.

34) From which bodily fluid can we harvest the element phosphorus? _____

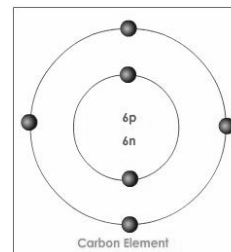
35) How many e^- are in the outer shell of a carbon atom? _____

So, it wants to gain _____.

36) What percent of a person's body is oxygen? _____

37) What are some "trace" elements necessary for the body? _____

38) Sodium is important for _____.



Elements of the Universe / Earth:

39) Atoms of hydrogen have one _____ and one _____.

40) Atoms of silicon have _____ protons, and _____ electrons.

41) Glass is made by melting what common substance? _____

42) The two elements found in sand are: _____

43) Some of the **rare earth elements** have been found to be useful in repelling which marine animals? _____



ISOTOPES:

44) All atoms of carbon have _____ protons. **Isotopes** of carbon have different number of _____.

45) Which isotope of carbon is used to determine the age of ancient remains? _____

46) It can be used to date artifacts up to _____ years old.

47) Atoms of **uranium** have _____ protons and _____ electrons.

48) The splitting of a uranium atom / nucleus is called _____.

49) A chain reaction begins with bombarding a sample of uranium atoms with one _____.

50) Atoms of **plutonium** have _____ protons and _____ electrons.

51) Some manmade elements only persist for _____ seconds.

