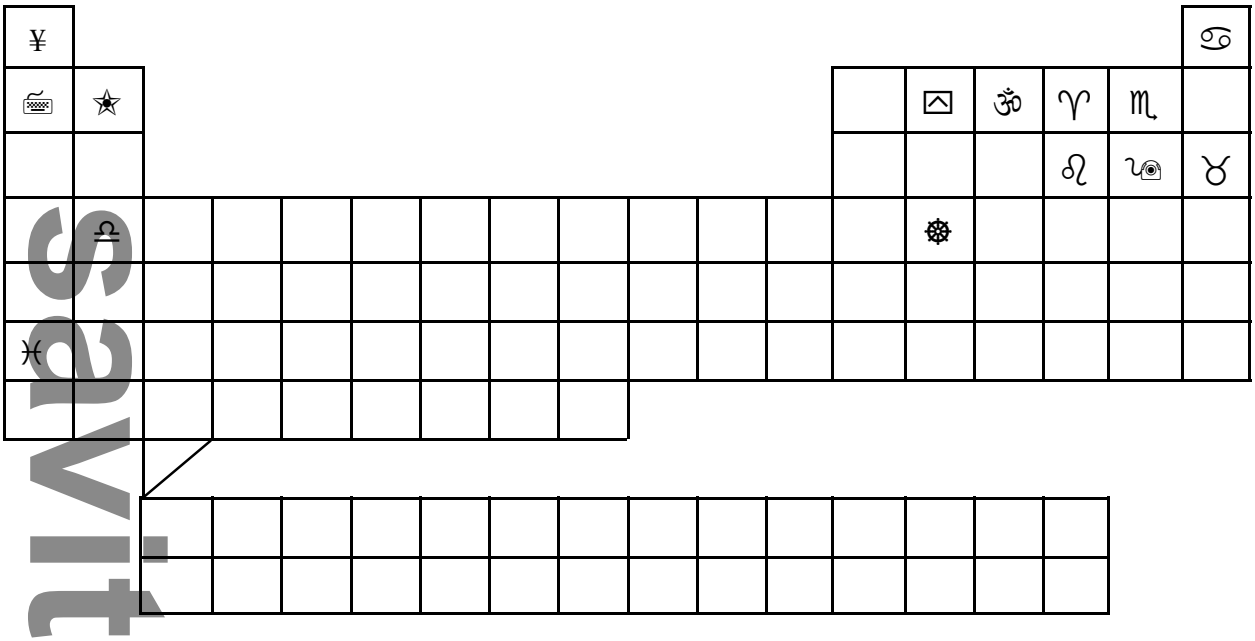
ELEMENTS AND THE PERIODIC TABLE

The following message was found in an alien spacecraft:



A chemist, (very much like you), on Earth quickly recognized the "message" as a representation of the periodic table showing the elements important to the alien life forms. Decode the message by using the actual symbols from your periodic table and then answer the following questions:

a. List the metals. _____

b. List the non-metals. _____

c. Are there any metalloids? _____

d. How many alkali metals are listed, and if so, what are their symbols? _____

e. Are there any halogens listed, and if so, what are their symbols? _____

f. Which is, (are), the most stable elements listed? _____

g. Give the symbol of the atom that will form an ion of charge (i) +2 _____
(ii) +4 _____
(iii) -4 _____

h. How many valence electrons are possible for the element represented by the symbol: ♋ ____

i. Draw a Lewis structure for the atom represented by the symbol: ♌

j. Draw the Bohr model for the atom represented by the symbol: ♏
(Assume that the atomic mass for this atom to be 37 amu.)

k. Give the symbol of the atom(s), above could form an ion which would be isoelectronic with the symbol: ♉ _____

l. If the an atom, given by the symbol ♒ and an atom given by the symbol ♏ were to combine:
(a) would they form an ionic or a covalent compound? _____
(b) show the formation of this compound, using Lewis structures:

m. Is their life form based on carbon or silicon? _____

n. Give the symbol(s) of the most reactive metal and non-metal listed in the periodic table above.

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