Name: _____ Block: _____ Sc10 Veenstra

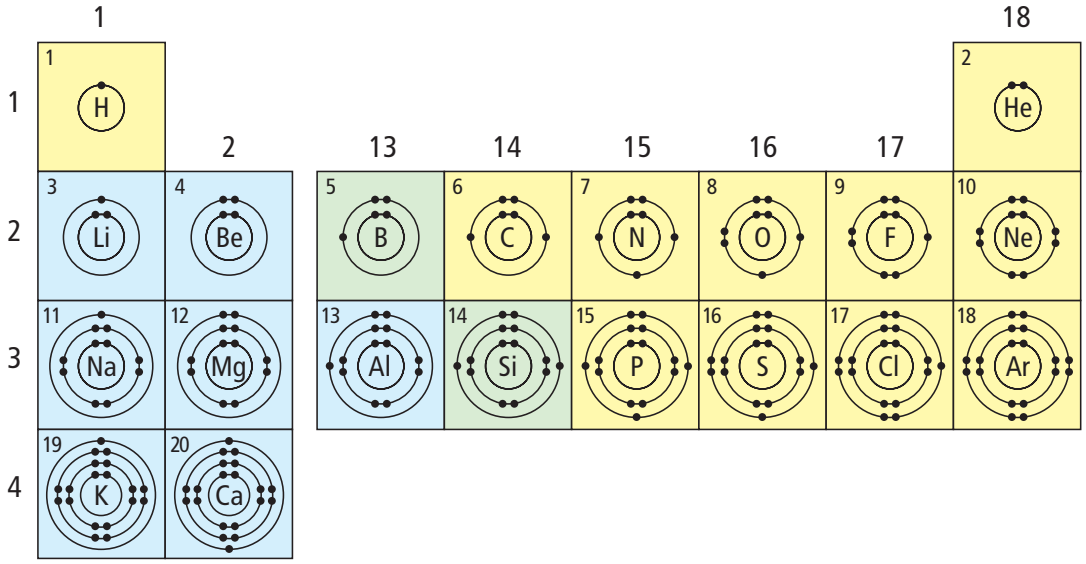
4.1 Atomic Theory Worksheet

1. Fill out the the following table:

Particle	Location	Mass (*Proton = 1*)	Charge

2. Draw a model of a boron atom with a mass number of 10. Include and label all the subatomic particles, and indicate the charge of all the subatomic particles.

4.1 Patterns in the periodic table worksheet



1. With your partner find as many patterns as possible.

4.1 Bohr Models Worksheet

1. Complete Q. 1-3 on p. 61 in the workbook

2. Draw the Bohr model diagram for each of the following compounds.

NaCl	**NH_3**	**F_2**
ionic or covalent?	ionic or covalent?	ionic or covalent?

4.1 Lewis Models Worksheet

1. Complete Q. 1-3 on p. 62 in the workbook

2. Draw Lewis diagrams for each of the following ionic compounds.

(a) sodium oxide, Na_2O (b) potassium chloride, KCl (c) magnesium bromide, $MgBr_2$

3. Draw Lewis diagrams for each of the following covalent compounds.

(a) chlorine, Cl_2 (b) phosphorus trifluoride, PH_3 (c) silicon tetrachloride, SiF_4

Worksheet 4-2(A): Writing Ionic formulas

Write the formula for the following ionic compounds. Check you answer on p. 6

1. calcium chloride
2. aluminum chloride
3. magnesium nitride
4. lithium chloride
5. hydrogen bromide
6. magnesium hydride
7. hydrogen iodide
8. sodium sulphide
9. potassium oxide
10. sodium hydride
11. hydrogen phosphide
12. cobalt (II) oxide
13. lithium sulphide
14. iron (III) oxide
15. iron (II) chloride
16. tin (IV) chloride
17. mercury (I) oxide
18. copper (II) sulphide
19. iron (III) chloride
20. silver iodide
21. hydrogen iodide
22. mercury (II) sulphide
23. ammonium bicarbonate
24. sodium permanganate
25. copper (I) sulphate
26. hydrogen sulphate
27. gold (I) hydroxide
28. hydrogen phosphate
29. sodium hydrogen sulphite
30. nickel (II) hydride
31. manganese (II) sulphide
32. calcium nitride
33. tin (II) nitrate
34. zinc carbonate
35. lithium perchlorate
36. potassium nitrate
37. vanadium (V) nitrate
38. hydrogen carbonate
39. copper (I) sulphide
40. barium phosphate
41. hydrogen nitrite
42. hydrogen chlorate
43. calcium hydrogen carbonate
44. potassium permanganate
45. ammonium phosphide
46. copper (II) carbonate
47. hydrogen acetate
48. lead (II) phosphate
49. chromium (II) bromide
50. aluminum nitrate

Worksheet 4-2(B): Naming Ionic formulas

Write the name for the following ionic compounds. Check you answer on p. 5.

1. $CaCl_2$
2. $AlCl_3$
3. Mg_3N_2
4. LiCl
5. HBr
6. MgH_2
7. HI
8. Na_2S
9. K_2O
10. NaH
11. H_3P
12. CoO
13. Li_2S
14. Fe_2O_3
15. $FeCl_2$
16. $SnCl_4$
17. Hg_2O
18. CuS
19. $FeCl_3$
20. AgI
21. HI
22. HgS
23. NH_4HCO_3
24. $NaMnO_4$
25. Cu_2SO_4
26. H_2SO_4
27. AuOH
28. H_3PO_4
29. $NaHSO_3$
30. NiH_2
31. MnS
32. Ca_3N_2
33. $Sn(NO_3)_2$
34. $ZnCO_3$
35. $LiClO_4$
36. KNO_3
37. $V(NO_3)_5$
38. H_2CO_3
39. Cu_2S
40. $Ba_3(PO_4)_2$
41. HNO_2
42. $HClO_3$
43. $Ca(HCO_3)_2$
44. $KMnO_4$
45. $(NH_4)_3P$
46. $CuCO_3$
47. HCH_3COO
48. $Pb_3(PO_4)_2$
49. $CrBr_2$
50. $Al(NO_3)_3$

Worksheet 4-2(C): Writing Covalent formulas

Write the formula for the following covalent compounds. Check you answer on p. 8

1. phosphorus trichloride
2. nitrogen dioxide
3. carbon monoxide
4. dinitrogen tetraoxide
5. oxygen gas
6. phosphorus trihydride
7. silicon tetrahydride
8. dinitrogen pentoxide
9. sulfur dioxide
10. chlorine dioxide
11. dichlorine monoxide
12. nitrogen triiodide
13. silicon dioxide
14. carbon tetrachloride
15. carbon disulfide
16. phosphorus pentachloride
17. iodine heptafluoride
18. diphosphorus trioxide
19. boron trifluoride
20. dicarbon hexahydride
21. bromine tetrahydride
22. hydrogen gas
23. oxygen difluoride
24. idoine tribromide
25. carbon diselenide
26. tetraphosphorus decasulphide
27. carbon dioxide
28. iodine trichloride
29. tetraiodine nonaoxide
30. arsenic trichloride
31. nitrogen trihydride
32. sulfur trioxide
33. sulfur hexafluoride
34. triphosphorus tetraoxide
35. nitrogen gas
36. silicon monocarbide
37. carbon tetraiodide
38. fluorine gas
39. dinitrogen pentaoxide
40. nitrogen monoxide
41. sulfur tetrafluoride
42. phosphorus pentabromide
43. carbon tetrahydride
44. dichlorine heptaoxide
45. iodine gas
46. diphosphorus tetraoxide
47. tricarbon octahydride
48. tetrasulphur dinitride
49. bromine gas
50. diphosphorus pentoxide

Worksheet 4-2(D): Naming Covalent formulas

Write the name for the following covalent compounds. Check you answer on p. 7

1. PCl_3
2. NO_2
3. CO
4. N_2O_4
5. O_2
6. PH_3
7. SiH_4
8. N_2O_5
9. SO_2
10. ClO_2
11. Cl_2O
12. NI_3
13. SiO_2
14. CCl_4
15. CS_2
16. PCl_5
17. IF_7
18. P_2O_3
19. BF_3
20. C_2H_6
21. BrH_4
22. H_2
23. OF_2
24. IBr_3
25. CSe_2
26. P_4S_{10}
27. CO_2
28. ICl_3
29. I_4O_9
30. $AsCl_3$
31. NH_3
32. SO_3
33. SF_6
34. P_3O_4
35. N_2
36. SiC
37. CI_4
38. F_2
39. N_2O_5
40. NO
41. SF_4
42. PBr_5
43. CH_4
44. Cl_2O_7
45. I_2
46. P_2O_4
47. C_3H_8
48. S_4N_2
49. Br_2
50. P_2O_5

4.3 Balancing Chemical Equations Worksheet

1) ____N_2+____H_2 → ____NH_3

2) ____ $KClO_3$ → ____ KCl + ____ O_2

3) ____ NaCl + ____ F_2 → ____ NaF + ____ Cl_2

4) ____H_2+____O_2 → ____H_2O

5) ____ $Pb(OH)_2$ + ____ HCl → ____ H_2O + ____ $PbCl_2$

6) ____ $AlBr_3$ + ____ K_2SO_4 → ____ KBr + ____ $Al_2(SO_4)_3$

7) ____CH_4+____O_2 → ____CO_2 +____H_2O

8) ____ C_3H_8 + ____ O_2 → ____ CO_2 + ____ H_2O

9) ____ C_8H_{18} + ____ O_2 → ____ CO_2 + ____ H_2O

10) ____ $FeCl_3$ + ____ NaOH → ____ $Fe(OH)_3$ + ____NaCl

11) ____ P + ____O_2 → ____P_2O_5

12) ____ Na + ____ H_2O → ____ NaOH + ____H_2

13) ____ Ag_2O → ____ Ag + ____O_2

14) ____ S_8 + ____O_2 → ____ SO_3

15) ____ CO_2 + ____ H_2O → ____ $C_6H_{12}O_6$ + ____O_2

16) ____K+____$MgBr_2$ → ____KBr+____Mg

17) ____ HCl + ____ $CaCO_3$ → ____ $CaCl_2$ + ____H_2O + ____ CO_2

18) ____ HNO_3 + ____ $NaHCO_3$ → ____ $NaNO_3$ + ____ H_2O + ____ CO_2

19) ____ H_2O + ____ O_2 → ____ H_2O_2

20) ____ NaBr + ____ CaF_2 → ____ NaF + ____ $CaBr_2$

Definition Chart for Chapter 4

Term	Verb	General Category	Specific Characteristics/ Function
atom			
electrons			
protons			
neutons			
nuclear charge			
atomic number			
Bohr Model			
stable octet			

valence electrons			
ion			
ionic compounds			
covalent compounds			
Lewis Model			
lone pair			
polyatomic ion			
multivalent			

subscript			
chemical reaction			
reactants			
products			
Conservation of mass			
Conservation of atoms			
word equation			
skeleton equation			
balanced equation			
coefficient			