

## Molecular and Ionic Compounds Practice Worksheet

## 1. Name the following molecular compounds.

- |                           |                                  |                   |                               |
|---------------------------|----------------------------------|-------------------|-------------------------------|
| a) $\text{PCl}_4$         | <u>phosphorus tetrachloride</u>  | f) $\text{SiO}_2$ | <u>silicon dioxide</u>        |
| b) $\text{CCl}_4$         | <u>carbon tetrachloride</u>      | g) $\text{CO}$    | <u>carbon monoxide</u>        |
| c) $\text{NO}_2$          | <u>nitrogen dioxide</u>          | h) $\text{CO}_2$  | <u>carbon dioxide</u>         |
| d) $\text{N}_2\text{F}_2$ | <u>dinitrogen difluoride</u>     | i) $\text{Cl}_2$  | <u>chlorine gas</u>           |
| e) $\text{P}_4\text{O}_6$ | <u>tetra phosphorus hexoxide</u> | j) $\text{SeF}_4$ | <u>selenium tetrafluoride</u> |

## 2. Write formulas for the following molecular compounds.

- |                             |  |                           |  |
|-----------------------------|--|---------------------------|--|
| a) dichlorine monoxide      | <u><math>\text{Cl}_2\text{O}</math></u>  | f) diphosphorus pentoxide | <u><math>\text{P}_2\text{O}_5</math></u> |
| b) dinitrogen tetrafluoride | <u><math>\text{N}_2\text{F}_4</math></u> | g) nitrogen tribromide    | <u><math>\text{NBr}_3</math></u>         |
| c) sulfur hexafluoride      | <u><math>\text{SF}_6</math></u>          | h) boron trifluoride      | <u><math>\text{BF}_3</math></u>          |
| d) arsenic pentabromide     | <u><math>\text{AsBr}_5</math></u>        | i) selenium hexachloride  | <u><math>\text{SeCl}_6</math></u>        |

## 3. Name the following ionic compounds.

- |                             |                             |                         |                          |
|-----------------------------|-----------------------------|-------------------------|--------------------------|
| a) $\text{KBr}$             | <u>potassium bromide</u>    | e) $\text{CuI}$         | <u>copper (I) iodide</u> |
| b) $\text{FeCl}_3$          | <u>iron (III) chloride</u>  | f) $\text{K}_2\text{S}$ | <u>potassium sulfide</u> |
| c) $\text{NiCl}_2$          | <u>nickel (II) chloride</u> | g) $\text{CaCO}_3$      | <u>calcium carbonate</u> |
| d) $\text{Na}_3\text{PO}_4$ | <u>sodium phosphate</u>     | h) $\text{LiNO}_3$      | <u>lithium nitrate</u>   |

## 4. Indicate whether the compounds are ionic or molecular. Then name the compounds.

- |                                 |              |                                      |
|---------------------------------|--------------|--------------------------------------|
| a) $\text{Cu}(\text{OH})_2$     | <u>_____</u> | <u>copper (II) hydroxide</u>         |
| b) $\text{N}_2\text{S}_3$       | <u>_____</u> | <u>dinitrogen trisulfide</u>         |
| c) $\text{P}_4\text{S}_{10}$    | <u>_____</u> | <u>tetra phosphorus deca sulfide</u> |
| d) $(\text{NH}_4)_2\text{SO}_4$ | <u>_____</u> | <u>ammonium sulfate</u>              |
| e) $\text{Sr}_3(\text{PO}_4)_2$ | <u>_____</u> | <u>strontium phosphate</u>           |
| f) $\text{SI}_6$                | <u>_____</u> | <u>sulfur hexa iodide</u>            |
| g) $\text{PbF}_4$               | <u>_____</u> | <u>lead (IV) fluoride</u>            |
| h) $\text{AuCl}_3$              | <u>_____</u> | <u>gold (III) chloride</u>           |
| i) $\text{SO}_3$                | <u>_____</u> | <u>sulfur trioxide</u>               |
| j) $\text{Cr}(\text{NO}_3)_2$   | <u>_____</u> | <u>chromium (II) nitrate</u>         |
| k) $\text{Cu}_3\text{N}$        | <u>_____</u> | <u>copper (I) nitride</u>            |
| l) $\text{Au}_2\text{O}_3$      | <u>_____</u> | <u>gold (III) oxide</u>              |
| m) $\text{SnF}_2$               | <u>_____</u> | <u>tin (II) fluoride</u>             |

## 5. Indicate whether the compounds are ionic or molecular. Then write the formula for the following compounds.

- |                            |              |  |
|----------------------------|--------------|--|
| a) potassium sulfide       | <u>_____</u> | <u><math>\text{K}_2\text{S}</math></u>         |
| b) tin(II) sulfide         | <u>_____</u> | <u><math>\text{SnS}</math></u>                 |
| c) dinitrogen trioxide     | <u>_____</u> | <u><math>\text{N}_2\text{O}_3</math></u>       |
| d) iron(III) carbonate     | <u>_____</u> | <u><math>\text{Fe}_2(\text{CO}_3)_3</math></u> |
| e) silver oxide            | <u>_____</u> | <u><math>\text{Ag}_2\text{O}</math></u>        |
| f) strontium nitride       | <u>_____</u> | <u><math>\text{Sr}_3\text{N}_2</math></u>      |
| g) disulphur decafluoride  | <u>_____</u> | <u><math>\text{S}_2\text{F}_{10}</math></u>    |
| h) rubidium bromide        | <u>_____</u> | <u><math>\text{RbBr}</math></u>                |
| i) zinc phosphate          | <u>_____</u> | <u><math>\text{Zn}_3\text{PO}_4</math></u>     |
| j) nickel(III) phosphate   | <u>_____</u> | <u><math>\text{NiPO}_4</math></u>              |
| k) manganese(V) fluoride   | <u>_____</u> | <u><math>\text{MnF}_5</math></u>               |
| l) magnesium hydroxide     | <u>_____</u> | <u><math>\text{Mg}(\text{OH})_2</math></u>     |
| m) ammonium nitrate        | <u>_____</u> | <u><math>\text{NH}_4\text{NO}_3</math></u>     |
| n) copper(I) sulfate       | <u>_____</u> | <u><math>\text{Cu}_2\text{SO}_4</math></u>     |
| o) chromium(III) phosphate | <u>_____</u> | <u><math>\text{CrPO}_4</math></u>              |

# Naming Worksheet E: Putting it All Together

Key  
E.

## Show Formulas for the Following Compounds

calcium iodide	$\text{CaI}_2$
sodium carbonate	$\text{Na}_2\text{CO}_3$
calcium hydride	$\text{CaH}_2$
Nitrogen trihydride	$\text{NH}_3$
magnesium nitrate	$\text{Mg}(\text{NO}_3)_2$
Lead (II) iodide	$\text{PbI}_2$
calcium hydroxide	$\text{Ca}(\text{OH})_2$
potassium carbonate	$\text{K}_2\text{CO}_3$
Beryllium sulfide	$\text{BeS}$
chromium(II) phosphide	$\text{Cr}_2\text{P}_2$
chromium(III) hydroxide	$\text{Cr}(\text{OH})_3$
nickel(II) carbonate	$\text{NiCO}_3$
aluminum oxide	$\text{Al}_2\text{O}_3$
tin(IV) sulfate	$\text{Sn}(\text{SO}_4)_2$
titanium(IV) sulfide	$\text{TiS}_2$
chromium(III) phosphide	$\text{CrP}$
sodium sulfate	$\text{Na}_2\text{SO}_4$
lithium hydroxide	$\text{LiOH}$
lithium phosphate	$\text{Li}_3\text{PO}_4$
Potassium carbonate	$\text{K}_2\text{CO}_3$
copper(II) sulfate	$\text{CuSO}_4$
zinc nitrate	$\text{Zn}(\text{NO}_3)_2$
hydrogen phosphate	$\text{H}_3\text{PO}_4$
sodium hydroxide	$\text{NaOH}$
tetraphosphorus decoxide	$\text{P}_4\text{O}_{10}$
strontium oxide	$\text{SrO}$
gallium phosphate	$\text{GaPO}_4$
magnesium sulfate	$\text{MgSO}_4$
disulfur dichloride	$\text{S}_2\text{Cl}_2$
Magnesium phosphate	$\text{Mg}_3(\text{PO}_4)_2$

## Show Names or Formulas for the Following Compounds

$\text{Cu}_2\text{CO}_3$	copper (I) carbonate
$\text{CH}_4$	methane
$\text{K}_3\text{PO}_4$	potassium phosphate
$(\text{NH}_4)_2\text{CO}_3$	ammonium carbonate
$\text{H}_2\text{SO}_4$	dihydrogen sulfate
$\text{K}_2\text{CO}_3$	potassium carbonate
$\text{PbO}$	lead (II) oxide
$\text{SF}_6$	sulfur hexafluoride
$\text{NO}$	nitrogen monoxide
$\text{CO}$	carbon monoxide
$\text{HCl}$	hydrogen chloride
$\text{CO}_2$	carbon dioxide
$\text{NO}_3$	nitrogen trioxide
$\text{Fe}_2\text{Se}_3$	iron (III) selenide
$\text{HF}$	hydrogen monofluoride
$\text{CS}_2$	carbon disulfide
$\text{NO}_2$	nitrogen dioxide
$\text{PCl}_5$	phosphorus pentachloride
$\text{MgCO}_3$	magnesium carbonate
$\text{AlCl}_3$	aluminum chloride
$\text{BaSO}_4$	barium sulfate
$\text{NH}_4\text{OH}$	ammonium hydroxide
$\text{Sr}(\text{NO}_3)_2$	strontium nitrate
$\text{FeO}$	iron (II) oxide
$\text{Fe}(\text{OH})_3$	iron (III) hydroxide
$\text{BaBr}_2$	barium bromide
$\text{NH}_4\text{Cl}$	ammonium chloride
$\text{Mg}_3(\text{PO}_4)_2$	magnesium phosphate
$\text{Al}_2\text{O}_3$	aluminum oxide
$\text{Ti}_3\text{N}$	titanium (I) nitride