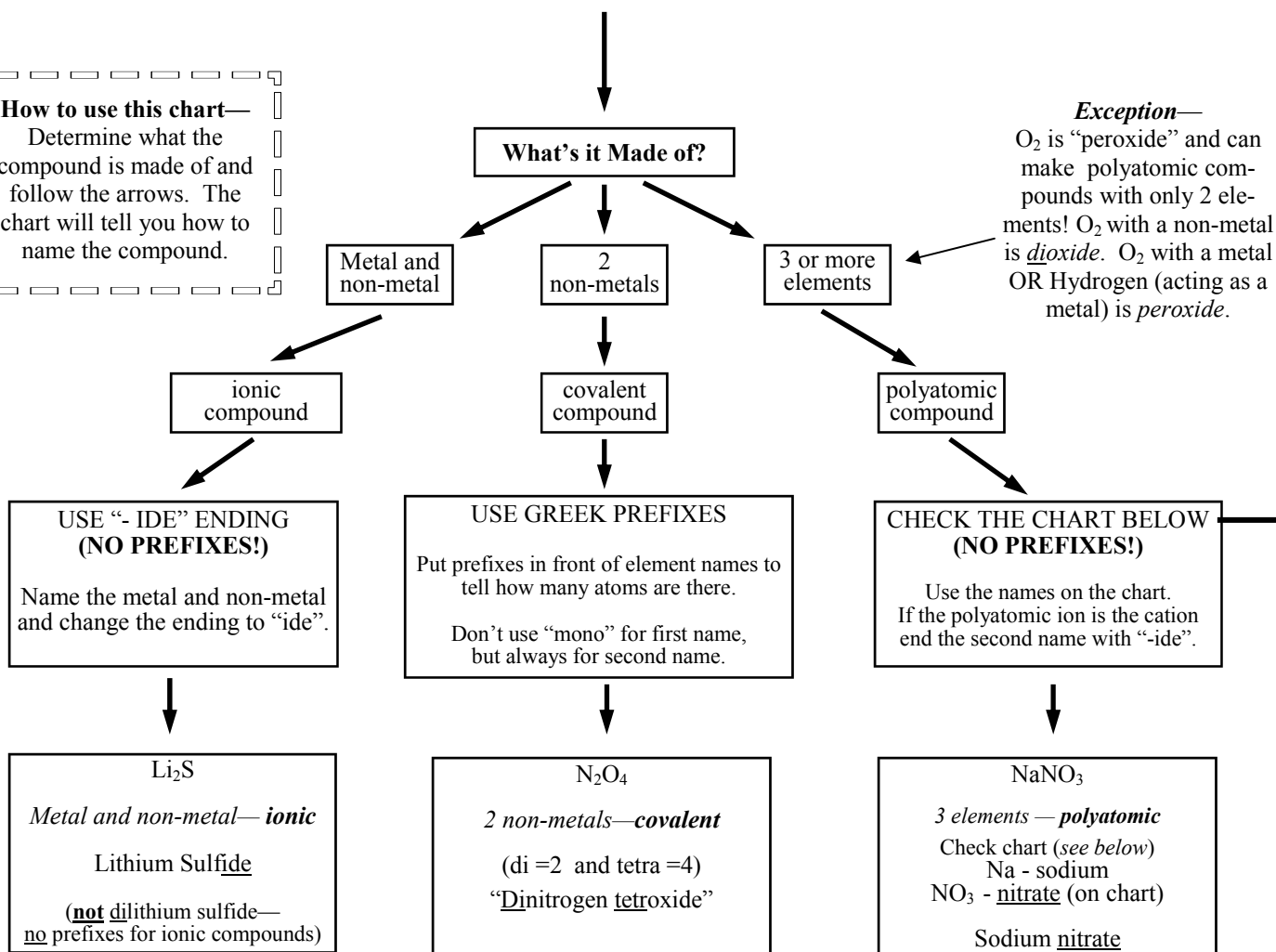


Naming Compounds

How to use this chart—
Determine what the compound is made of and follow the arrows. The chart will tell you how to name the compound.

Exception—
O₂ is “peroxide” and can make polyatomic compounds with only 2 elements! O₂ with a non-metal is dioxide. O₂ with a metal OR Hydrogen (acting as a metal) is peroxide.



Why are ionic compounds so easy to name? Because most ionic compounds can only form one way, using the oxidation numbers. In covalent compounds, though, non-metals can sometimes combine in multiple ways (carbon monoxide; carbon dioxide). So, covalent compounds use prefixes.

Greek Prefixes

Mono - 1	Hexa - 6
Di - 2	Hepta - 7
Tri - 3	Octa - 8
Tetra - 4	Nona - 9
Penta - 5	Deca - 10

How to remember prefixes:

Monorail – one rail train
Monocle – glasses for one eye; single lens (Colonel Klink).

Dilemma – struggle between 2 choices.

Tricycle – 3 wheels

Pentagon – 5 five sided military building in Washington, D.C.

Octopus – 8 legs

Decade – 10 years

Transition Metals Can Have More Than One Oxidation Number

Iron (II) has an oxidation number of 2+
Iron (III) has an oxidation number of 3+.
When naming them you must specify WHICH ONE.

FeO—Iron (II) oxide
Fe₂O₃— Iron (III) oxide

Polyatomic Ions

Oxidation #	Name	Formula
1+	ammonium	NH ₄ ⁺
1-	acetate	C ₂ H ₃ O ₂ ⁻
2-	carbonate	CO ₃ ²⁻
2-	chromate	CrO ₄ ²⁻
1-	hydrogen carbonate	HCO ₃ ¹⁻
1+	hydronium	H ₃ O ⁺
1-	hydroxide	OH ¹⁻
1-	nitrate	NO ₃ ¹⁻
2-	peroxide	O ₂ ²⁻
3-	phosphate	PO ₄ ³⁻
2-	sulfate	SO ₄ ²⁻
2-	sulfite	SO ₃ ²⁻

Name: _____

Ch. 19:4

Period: _____

<u>Metal or Non-metal?</u>	<u>Ionic or Covalent?</u>	<u>Name These Ionic Compounds</u>	<u>Use the Polyatomic Ion Chart on the front of the worksheet to name these Polyatomic Ions:</u>
<i>M N</i> Iron Oxide	<u>Ionic</u>	MgF ₂ Magnesium Fluor- <u>ide</u>	HCO ₃ ¹⁻ <u>Hydrogen carbonate</u>
Barium Chloride	_____	Li ₂ O Lithium Ox- _____	SO ₄ ²⁻ _____
Carbon Dioxide	_____	NaCl Sodium Chlor- _____	O ₂ ²⁻ _____
Magnesium Oxide	_____	K ₂ O Potassium Ox- _____	SO ₃ ²⁻ _____
Aluminum Fluoride	_____	CaS _____ Sulf- _____	NO ₃ ¹⁻ _____
Nitrogen Tribromide	_____	BeI ₂ _____ Iod- _____	NH ₄ ⁺ _____
Chromium Fluoride	_____	AlBr ₃ _____ Brom- _____	CrO ₄ ²⁻ _____
Potassium Oxide	_____	CaF ₂ _____	OH ¹⁻ _____
		MgO _____	PO ₄ ³⁻ _____
		LiCl _____	CO ₃ ²⁻ _____

<u>Define these Greek Prefixes</u>			<u>Name These Covalent Compounds</u>
Penta = _____	Tetra = _____	1. CO ₂	A. Carbon monoxide
Nona = _____	Hexa = _____	2. C ₂ O ₄	B. Carbon dioxide
Mono = _____	Hepta = _____	3. C ₃ O ₅	C. Dicarbon monoxide
Octa = _____	Deca = _____	4. CO	D. Tricarbon pentoxide
Tri = _____	Di = _____	5. C ₂ O	E. Dicarbon tetroxide
		6. CO ₈	F. Carbon octoxide
			Si ₂ O ₃ Disilicon ____ oxide
			N ₃ Cl ₄ ____ nitrogen tetrachloride
			SO ₂ Sulfur ____ oxide
			PO ₅ Phosphorous ____ ox ____
			S ₂ F ₄ ____ sulfur ____ fluor ____

<u>Name these Polyatomic Compounds (Remember — no prefixes!)</u>	<u>Classify and Name These Compounds</u>	
	<u>Ionic, Covalent, or Polyatomic</u>	<u>Name</u>
CaSO ₄ Calcium _____	1. BaCl ₂ <u>Ionic</u>	<u>Barium chloride</u>
K ₂ CO ₃ _____ carbonate	2. CO _____	_____
CuNO ₃ Copper (I) _____	3. Ag ₂ O _____	_____
NH ₄ Cl _____ chloride	4. K ₂ SO ₄ _____	_____
Mg(NO ₃) ₂ Magnesium _____	5. MgBr ₂ _____	_____
K ₃ PO ₄ Potassium _____	6. SO ₃ _____	_____
Li ₂ (CrO ₄) Lithium _____	7. P ₂ O ₄ _____	_____
Mg(OH) ₂ M _____ H _____	8. Be(CrO ₄) _____	_____
Al(PO ₄) A _____ P _____	9. LiF _____	_____
K(NO ₃) _____	11. CO ₂ _____	_____
Ca ₂ SO ₃ _____	12. OF ₂ _____	_____