

2019-2020 Optional Honors Chemistry Assignment



In preparation for honors chemistry, I recommend (optional) that you complete and memorize the following sets of flashcards prior to the start of the course. The flashcards will **not** be a grade, as they are only a study aid to help you with rote memorization. This assignment is designed to facilitate your transition into chemistry and is representative of the most basic prerequisite knowledge that you will need entering the class. This assignment is strongly recommended, but it will not be a grade. Expect bimonthly quizzes over this information.

Flashcards Instructions: You will see a list of what needs to be on the flashcards. For elements and polyatomic ions, put the symbol on one side and the name on the other. If you already know certain elements, then do not make the flashcards for those elements. Feel free to use Quizlet or any other resources. Be sure to study and memorize your cards during the summer. You will be expected to know the below information for the entire year on every assessment.

Element Names and Symbols Flashcards

Directions: Write the element symbol on one side and the name on the other.

Example Flashcard:

Gallium	Ga
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Elements and Symbols List

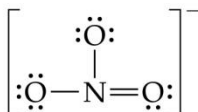
Hydrogen	H	Iron	Fe	Tungsten	W
Helium	He	Cobalt	Co	Platinum	Pt
Lithium	Li	Nickel	Ni	Gold	Au
Beryllium	Be	Copper	Cu	Mercury	Hg
Boron	B	Zinc	Zn	Thallium	Tl
Carbon	C	Gallium	Ga	Lead	Pb
Nitrogen	N	Germanium	Ge	Bismuth	Bi
Oxygen	O	Arsenic	As	Radon	Rn
Fluorine	F	Selenium	Se	Radium	Ra
Neon	Ne	Bromine	Br	Uranium	U
Sodium	Na	Krypton	Kr		
Magnesium	Mg	Rubidium	Rb		
Aluminum	Al	Strontium	Sr		
Silicon	Si	Yttrium	Y		
Phosphorous	P	Zirconium	Zr		
Sulfur	S	Palladium	Pd		
Chlorine	Cl	Silver	Ag		
Argon	Ar	Cadmium	Cd		
Potassium	K	Tin	Sn		
Calcium	Ca	Antimony	Sb		
Scandium	Sc	Tellurium	Te		
Titanium	Ti	Iodine	I		
Vanadium	V	Xenon	Xe		
Chromium	Cr	Cesium	Cs		
Manganese	Mn	Barium	Ba		

Polyatomic Ion Flashcards

Directions: Write the polyatomic ion symbol on one side and the name on the other.

Example Flashcard:

$\text{Cr}_2\text{O}_7^{2-}$	dichromate
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Polyatomic ions are groups of multiple atoms that have a charge (positive or negative). The symbols shown below tell you what elements are in the ion, how many atoms of each, and the charge. For example, NO_3^- contains a nitrogen atom, three oxygen atoms, and the entire group has a charge of -1.

Memorization Hints: Polyatomic Ions

- If you have two ions with similar names and the only difference is the number of oxygen atoms in your ion:
 - ite** means smaller number of O
 - ate** means larger number of O
- Hypo- (smallest) and Per- (largest) are used if there are four ions with similar names and different numbers of oxygen.

Positive Polyatomic Ions

1+

Ammonium (NH_4^+)

Hydronium (H_3O^+)

2-

Carbonate (CO_3^{2-})

Chromate (CrO_4^{2-})

Dichromate ($\text{Cr}_2\text{O}_7^{2-}$)

Sulfate (SO_4^{2-})

Sulfite (SO_3^{2-})

Negative Polyatomic Ions

1-

Acetate ($\text{C}_2\text{H}_3\text{O}_2^-$)

Chlorate (ClO_3^-)

Chlorite (ClO_2^-)

Cyanide (CN^-)

Hydrogen carbonate/bicarbonate (HCO_3^-)

Hydroxide (OH^-)

Hypochlorite (ClO^-)

Nitrate (NO_3^-)

Nitrite (NO_2^-)

Perchlorate (ClO_4^-)

Permanganate (MnO_4^-)

Iodate (IO_3^-)

3-

Phosphate (PO_4^{3-})

Phosphite (PO_3^{3-})

Additional Polyatomic Ions: The following polyatomic ions may appear on exams; however, you do not need to memorize them. I recommend you at least familiarize yourself with the ions.

1-

Dihydrogen phosphate (H_2PO_4^-)

Hydrogen Sulfite or bisulfite (HSO_3^-)

Thiocyanate (SCN^-)

Hypobromite (BrO^-)

Bromite (BrO_2^-)

Bromate (BrO_3^-)

Perbromate (BrO_4^-)

Hypoiodite (IO^-)

Iodite (IO_2^-)

Periodate (IO_4^-)

2-

Hydrogen Phosphate (HPO_4^{2-})

Oxalate ($\text{C}_2\text{O}_4^{2-}$)

Peroxide (O_2^{2-})

Silicate (SiO_3^{2-})

3-

Arsenate (AsO_4^{3-})

Borate (BO_3^{3-})