

Activity 3 - Letters to Words

Activity

Ions and Neutral Atoms

- Arrange your jigsaw pieces into four groups: **metals**, **non-metals**, **polyatomic ions** (ions with more than one atom in them), and **electrons**.
- In your notebook, make a list of the ions in the **metals** group. Put the charge for that ion next to each name you list. Make a list of the ions in the **non-metals** group. Put the charge next to each name there as well.
- What do you notice about all the ions in the **metals** group? The **non-metals** group?
- Find a **sodium ion**, a **calcium ion**, and an **iron (III) ion** in your jigsaw pieces.
- Describe how you would make each of the ions into a neutral atom again.
- Find a **bromide ion** and an **oxide ion**. Describe how you would make each of these ions into neutral atoms again also.

Compounds of metals and nonmetals

- Use your jigsaw pieces to make **sodium chloride** (this is the common salt used in cooking).
- The chemical formula for sodium chloride is **NaCl**. This is because one **sodium ion** fits onto one **chloride ion** with no gaps left. Write down the name and formula of sodium chloride in your notebook.
- Make and note the names and formulas for **potassium chloride**, **sodium iodide** and **sodium fluoride** (the ingredient found in most toothpaste!).
- Make and note the names and formulas for **calcium oxide** and **lead sulfide**.
- Create two compounds of your own using a **metal** and a **nonmetal**. Make and note the names and formulas of your new compounds.

Compounds with polyatomic ions

- Make and note the name and formula for **zinc carbonate**. Note that *three* different atoms make up this compound.
- Make and note the names and formulas for **lead sulfate**, **potassium nitrate** and **ammonium chloride**.
- Note all the different atoms for each of the compounds in the previous question.
- Create two additional compounds of your own using a **polyatomic ion**. Make and note the names, formulas, and different atoms for each of your new compounds.

Compounds with subscripts

- Use your jigsaw pieces to make **sodium oxide**. Describe which pieces and how many you used of each to make this compound.
- Use your jigsaw pieces to make **copper chloride**. Describe which pieces you used and how many of each.
- Make and note the names and formulas for **aluminum oxide**, **iron (III) oxide** and **aluminum sulfate**.
- Create two additional compounds of your own using positive ions and negative ions with different numbered charges from each other. (*Example: combine an ion with a +2 charge with an ion with a -1 charge or combine an ion with a +3 charge with an ion with a -1 charge*). Note the names and formulas of your two new compounds.