## Your task

Combine the positive and negative ions in the table below to write 15 correct formulae.
In a chemical formula you need to:

- have an equal number of positive charges and negative charges
- write the symbol for each ion without its charges
- write the symbol for a polyatomic ion inside brackets, if you need two or more of that ion
- write the number of each ion needed as a subscript to the right of its symbol.

Five formulae have been done for you. Make sure you understand why they are correct before starting.

|  | $\mathrm{Cl}^{-}$ | $\mathrm{OH}^{-}$ | $\mathrm{NO}_{3}{ }^{-}$ | $\mathrm{O}^{2-}$ | $\mathrm{SO}_{4}^{2-}$ |
| :--- | :---: | :---: | :---: | :---: | :---: |
| $\mathrm{K}^{+}$ | KCl |  |  | $\mathrm{K}_{2} \mathrm{O}$ |  |
| $\mathrm{NH}_{4}^{+}$ |  | $\mathrm{NH}_{4} \mathrm{OH}$ |  |  |  |
| $\mathrm{Mg}^{2+}$ |  |  | $\mathrm{Mg}\left(\mathrm{NO}_{3}\right)_{2}$ |  |  |
| $\mathrm{Al}^{3+}$ |  |  |  |  | $\mathrm{Al}_{2}\left(\mathrm{SO}_{4}\right)_{3}$ |

## Formulae of ionic compounds - practice

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| :--- | :---: | :---: | :---: | :---: | :---: |
| $\mathrm{K}^{+}$ | KCl | KOH | $\mathrm{KNO}_{3}$ | $\mathrm{~K}_{2} \mathrm{O}$ | $\mathrm{K}_{2} \mathrm{SO}_{4}$ |
| $\mathrm{NH}_{4}^{+}$ | $\mathrm{NH}_{4} \mathrm{Cl}$ | $\mathrm{NH}_{4} \mathrm{OH}$ | $\mathrm{NH}_{4} \mathrm{NO}_{3}$ | $\left(\mathrm{NH}_{4}\right)_{2} \mathrm{O}$ | $\left(\mathrm{NH}_{4}\right)_{2} \mathrm{SO}_{4}$ |
| $\mathrm{Mg}^{2+}$ | $\mathrm{MgCl}_{2}$ | $\mathrm{Mg}(\mathrm{OH})_{2}$ | $\mathrm{Mg}\left(\mathrm{NO}_{3}\right)_{2}$ | MgO | $\mathrm{MgSO}_{4}$ |
| $\mathrm{Al}^{3+}$ | $\mathrm{AlCl}_{3}$ | $\mathrm{Al}(\mathrm{OH})_{3}$ | $\mathrm{Al}\left(\mathrm{NO}_{3}\right)_{3}$ | $\mathrm{Al}_{2} \mathrm{O}_{3}$ | $\mathrm{Al}_{2}\left(\mathrm{SO}_{4}\right)_{3}$ |

## Formulae of ionic compounds - practice - ANSWERS

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| $\mathrm{K}^{+}$ | KCl | KOH | $\mathrm{KNO}_{3}$ | $\mathrm{~K}_{2} \mathrm{O}$ | $\mathrm{K}_{2} \mathrm{SO}_{4}$ |
| $\mathrm{NH}_{4}^{+}$ | $\mathrm{NH}_{4} \mathrm{Cl}$ | NH 4 OH | $\mathrm{NH}_{4} \mathrm{NO}_{3}$ | $\left(\mathrm{NH}_{4}\right)_{2} \mathrm{O}$ | $\left(\mathrm{NH}_{4}\right)_{2} \mathrm{SO}_{4}$ |
| $\mathrm{Mg}^{2+}$ | $\mathrm{MgCl}_{2}$ | $\mathrm{Mg}(\mathrm{OH})_{2}$ | $\mathrm{Mg}\left(\mathrm{NO}_{3}\right)_{2}$ | MgO | $\mathrm{MgSO}_{4}$ |
| $\mathrm{Al}^{3^{+}}$ | $\mathrm{AlCl}_{3}$ | $\mathrm{Al}(\mathrm{OH})_{3}$ | $\mathrm{Al}\left(\mathrm{NO}_{3}\right)_{3}$ | $\mathrm{Al}_{2} \mathrm{O}_{3}$ | $\mathrm{Al}_{2}\left(\mathrm{SO}_{4}\right)_{3}$ |

