The Periodic Table – properties of Group 2 elements – student sheet

In this experiment you will be observing and interpreting the changes when drops of solutions of various anions are added to drops of solutions of Group 2 element cations. Students must wear eye protection.

Procedure
- Cover the worksheet with a clear plastic sheet.
- Put one drop of magnesium solution into each box in the magnesium ions row.
- Repeat using calcium solution in the next row, then strontium solution in the next row and barium solution in the last row.
- Add one drop of fluoride solution to each drop in the fluoride ions column. Observe what happens.
- Repeat step 4 using each of the other solutions of anions in the subsequent columns. Observe each reaction carefully and record your observations.

	Fluoride ions	Chloride ions	Bromide ions	Iodide ions	Hydroxide ions	Sulfate ions	Carbonate ions
Magnesium ions							
Calcium ions							
Strontium ions							
Barium ions							

Question

What explanations can you give for your observations?

Health, safety and technical notes

- Read our standard health and safety guidance here https://rsc.li/3LNbkfo
- Students must wear suitable eye protection (Splash resistant goggles to BS EN166 3).
- Magnesium nitrate, $MgNO_3.6H_2O(aq)$, 0.5 mol dm^{-3}. Calcium nitrate, $Ca(NO_3)_2.4H_2O(aq)$, 0.5 mol dm^{-3}, Strontium nitrate, $Sr(NO_3)_2$ 0.5 mol dm^{-3}. $4H_2O(aq)$ and Barium nitrate, $Ba(NO_3)_2$, 0.2 mol dm$^{-3,}$ are skin/eye irritants (see CLEAPSS Hazcard HC059b, HC019b, HC019d, HC011).
- Sodium hydroxide solution, $NaOH(aq)$, 1 mol dm^{-3} is CORROSIVE (see CLEAPSS Hazcard HC091a).

- Sodium carbonate, Na2CO3.10H_2O, 0.5 mol dm^{-3} is an IRRITANT (see CLEAPSS Hazcard HC095a).
- Sodium sulfate, Na_2SO_4, 0.5 mol dm^{-3}, Sodium chloride, NaCl(aq), 0.5 mol dm^{-3}, Sodium fluoride, NaF(aq), 0.5 mol dm^{-3}, Potassium iodide, KI(aq), 0.2 mol dm^{-3} and Potassium bromide, KBr(aq), 0.2 mol dm^{-3}, are of low hazard (see CLEAPSS Hazcard HC098b, HC047b, HC089, HC047b).