***Chemical reactions*** Planning ahead and equipment list

## Investigation 1: Synthesis reaction

In this investigation, students will perform a synthesis reaction involving hydrogen and oxygen gas to produce water.

Equipment needed per group:

* safety glasses
* 2 Borosilicate test tubes
* test tube rack
* 2 M hydrochloric acid (3 mL)
* 5 mL measuring cylinder
* 2 cm magnesium ribbon
* Bunsen burner
* matches
* wooden splint
* cobalt chloride paper (optional)
* atomic model kit (or just the parts required: 8 x balls with one hole, 4 x balls with 2 holes, 8 bonds)

## Investigation 2: Decomposition reaction

In this investigation, students will perform a decomposition reaction of copper carbonate.

Equipment needed per group:

* safety glasses
* small spatula
* copper (II) carbonate solid
* test tube
* test tube rack
* Bunsen burner
* matches
* test tube tongs
* heatproof mat
* taper or wooden splint

## Investigation 3: Single displacement reaction

In this investigation, students will perform a single displacement reaction involving iron and copper sulfate solution.

Equipment needed per group:

* safety glasses
* 100 mL beaker
* 1.0 M copper (II) sulfate solution (25 mL)
* iron nail
* 50 mL measuring cylinder
* tweezers
* sandpaper
* paper towel

## Investigation 4: Double displacement reaction

In this investigation, students will perform a double displacement reaction involving barium chloride and sodium sulphate, which will also form a precipitate.

Equipment needed per group:

* personal protective equipment
* 2 test tubes
* test tube rack
* 0.1 M barium chloride solution (1 mL)
* 0.1 M sodium sulfate solution (1 mL)

## Investigation 5: Chemical reactions test

Equipment needed per group (including teacher demonstration)

* safety glasses
* gloves
* small piece of steel wool
* pair of tongs
* heatproof tile
* Bunsen burner
* matches
* 0.1 M calcium chloride solution (1 mL)
* 0.1 M sodium phosphate solution (1 mL)
* manganese dioxide powder
* 3% hydrogen peroxide solution (2 mL)
* zinc granules
* 1 M sulfuric acid (2 mL)
* small piece of aluminium foil
* 0.5 M copper (II) chloride solution (10 mL)
* measuring cylinder or disposable pipettes
* 2–5 large test tubes
* test tube rack
* small spatula
* taper
* sulfur powder
* crucible
* tripod
* pipe clay triangle
* small piece of aluminium foil
* stirring rod
* tripod
* pipe clay triangle
* stirring rod