Reaction 1. Combustion of Butane gas

Spark the igniter.
Light the flame on the Bunsen burner.

Not much to see, but it is hot!

Reaction 2.
Combustion of candle wax
Demonstration

Burn a candle, check mass of a candle
at the start, and at the end.

Reaction 3.
Decomposition of water
Use the Hoffmann Apparatus.
Learn the tests for each gas.
Carbon Dioxide, Oxygen, and Hydrogen.

Get some of each gas and test each one.

Reaction 4. Synthesis of water

Capture some hydrogen gas and test it.
The toot is proof that it is $H_{2(G)}$
Stick your pinky into the tube,
feel the water?
That's the water you made!

Reaction 5. Combustion of wood

Light a piece of wood on fire, observe.

Wood is not a pure substance with a formula. It's a chained molecule of different length chains, of oxygenated hydrocarbons.

Reaction 6. Synthesis of a copper oxide

Get a piece of copper wire, heat it up in the hottest part of the Bunsen burner flame

What color does the wire turn?
By color you will know which type of copper oxide formed.

Reaction 7.
Aluminum + copper (II) chloride solution

Put one piece of foil (torn into smaller pieces) into about 75 mL of blue solution. Swirl.

Wait 3-5 minutes to evaluate & observe.

Reaction 8. Iron + copper (II) sulfate solution

Put about 1 inch of the solution
into a small test tube,
carefully insert an iron nail into the tube.

Wait 3-5 minutes to evaluate & observe.

Reaction 9. Aluminum + potassium chloride

Put about 1 inch of the solution
into a small test tube, carefully insert
an aluminum nail into the tube.

Wait 3-5 minutes to evaluate & observe.

Reaction 10. Ionization of potassium nitrate

Put 40 mL of deionized water into a
100 mL beaker. Measure the start temp
of the water: NEAREST 10th degree!

Add a scoop of salt, stir, check the final temp.
Do not get this into your mouth!

Reaction 11. Combustion of ethanol
This oxygenated hydrocarbon will combust ON TOP of some lithium chloride salt.

The flame color is due to moving electrons emitting spectra (remember?)
The color has nothing to do with combustion.

Reaction 12. Synthesis of magnesium oxide

Spiral some metal around your pencil.
Mass your crucible + magnesium metal.

Flame on!

When cool, mass the crucible again, think!
Do not get this into your mouth!

Reactions 14, 15, 16, 17
4 double replacement reactions.

Put three drops of each solution into a watch glass. Observe over the black tables, and THEN over white paper as well (make sure you see any precipitates).

14. sodium phosphate + silver nitrate

15. sodium hydroxide + copper (II) sulfate

16. cobalt (II) nitrate + sodium hydroxide

17. rubidium bromide + ammonium nitrate

Reaction 18.
Decomposition of copper (II) carbonate

Heat about $^{1}/_{2}$ inch of powder in
a DRY test tube.

As the reactant changes color,
test the gas with a burning splint.

Reaction 19.
The combustion of methane.

This is really important, but all you do
is light the Bunsen burner
so the gas can burn.

Reaction 20.
Magnesium & Hydrochloric Acid

Put about 1 inch of this strong acid into a large test tube. Put the metal bits into an empty tube, invert metal into the acid. Catch the invisible gas; test it with a flame!

Reaction 21.
Zinc + $HCl_{(AQ)}$

File 2 sides of a penny (as shown) and put penny into 25 mL of 2 M hydrochloric acid (be careful).

The reaction will finish by tomorrow.