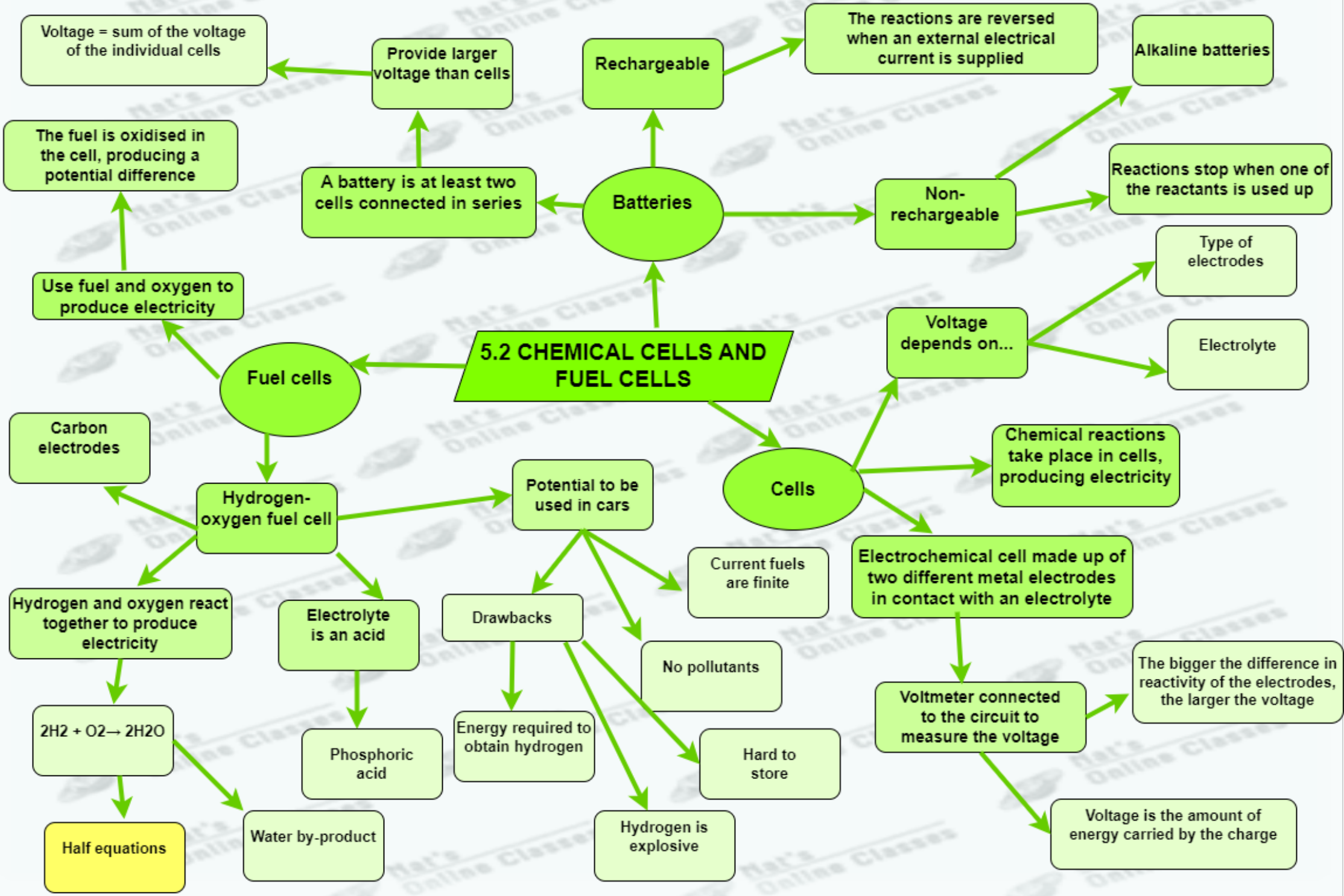
5.2 CHEMICAL CELLS AND FUEL CELLS
Batteries
Rechargeable
The reactions are reversed when an external electrical current is supplied
Provide larger voltage than cells
Voltage = sum of the voltage of the individual cells
A battery is at least two cells connected in series
Non-rechargeable
Alkaline batteries
Reactions stop when one of the reactants is used up
Fuel cells
Use fuel and oxygen to produce electricity
The fuel is oxidised in the cell, producing a potential difference
Cells
Voltage depends on...
Type of electrodes
Electrolyte
Chemical reactions take place in cells, producing electricity
Electrochemical cell made up of two different metal electrodes in contact with an electrolyte
Voltmeter connected to the circuit to measure the voltage
The bigger the difference in reactivity of the electrodes, the larger the voltage
Voltage is the amount of energy carried by the charge
Hydrogen-oxygen fuel cell
Carbon electrodes
Hydrogen and oxygen react together to produce electricity
2H2 + O2→ 2H2O
Half equations
Water by-product
Electrolyte is an acid
Phosphoric acid
Potential to be used in cars
Drawbacks
Energy required to obtain hydrogen
Hydrogen is explosive
Hard to store
No pollutants
Current fuels are finite