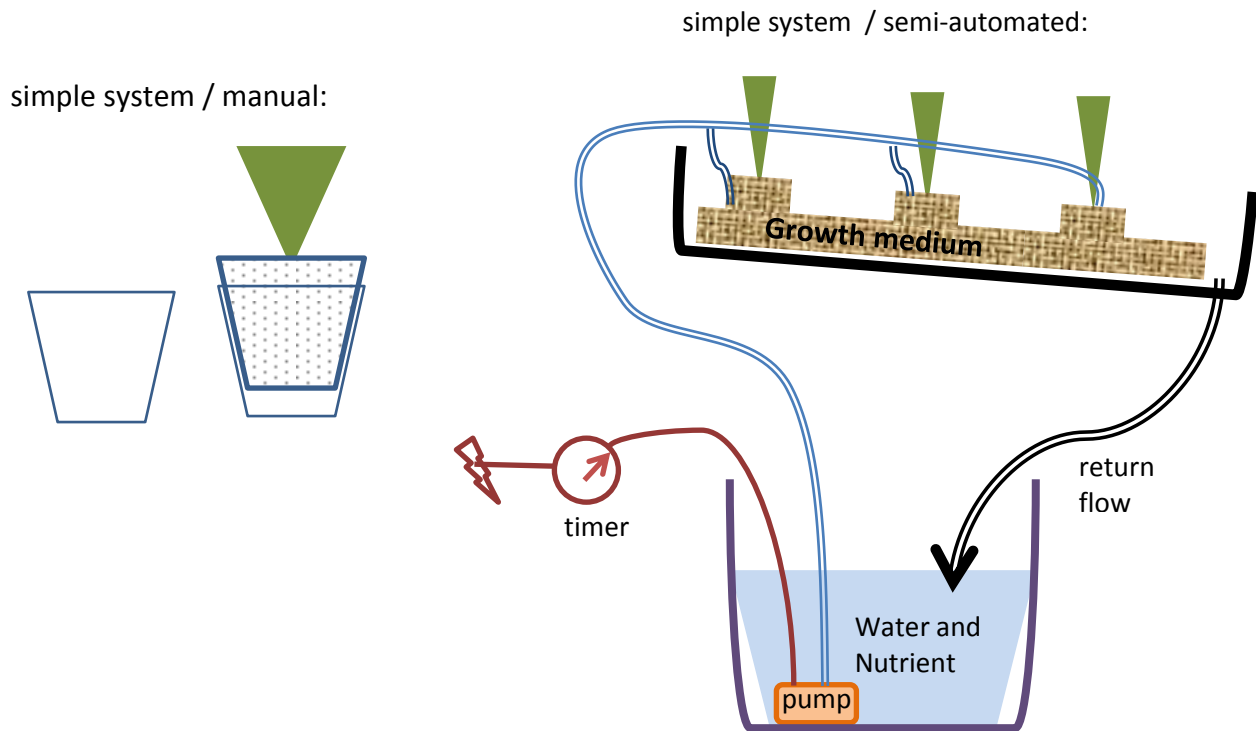


Hydroponics = growing terrestrial plants without soil.



Growth media = any insert porous material such as perlite, rock wool, furnace filter, vermiculite, sand, expanded clay, sheep's wool, coco fiber, none (suspended in net pot), etc.

Different methods of water/nutrient **delivery**: subirrigation (ie ebb & flow), top irrigation, aerosol (NASA), fog.

Success is all about the Nutrient:

- Mix your own, or
- Buy premixed formula – choose one that has multiple components and hence different recipes for different life stages (seedling vs aggressive growth) and type of desired growth (vegetative vs fruiting)

Plants receive Carbon, Hydrogen and Oxygen from water and air. There are 13 additional Essential Nutrients that are needed:

Primary Nutrients include Nitrogen (N), Phosphorus (P), Potassium (K)

Secondary Nutrients include Sulfur (S), Calcium (Ca), Magnesium (Mg)

Micronutrients include Zinc (Zn), Iron (Fe), Copper (Cu), Manganese (Mn), Boron (B), Molybdenum (Mo), Chlorine (Cl)

Trick to remember nutrients in order of importance: **C H O P K N S Ca Fe Mg B Mn Cu Zn Mo Cl**

“The See (C) HOPKiNS (name) CaFe is Managed By Mine CuZins, Mo and Claude”

Stir nutrient and water together, then adjust the pH.