

In glycolysis, a chain of ten reactions, under the control of different enzymes, takes place to produce pyruvate from glucose.

ATP is utilised at two steps

- first in the conversion of glucose into glucose 6-phosphate
- second in the conversion of fructose 6-phosphate to fructose 1, 6-bisphosphate

The fructose 1, 6-bisphosphate is split into dihydroxyacetone phosphate and 3-phosphoglyceraldehyde (PGAL)

NADH + H+ is formed from NAD+

when 3-phosphoglyceraldehyde (PGAL) is converted to 1, 3-bisphosphoglycerate (BPGA).

Two redox-equivalents are removed (in the form of two hydrogen atoms) from PGAL

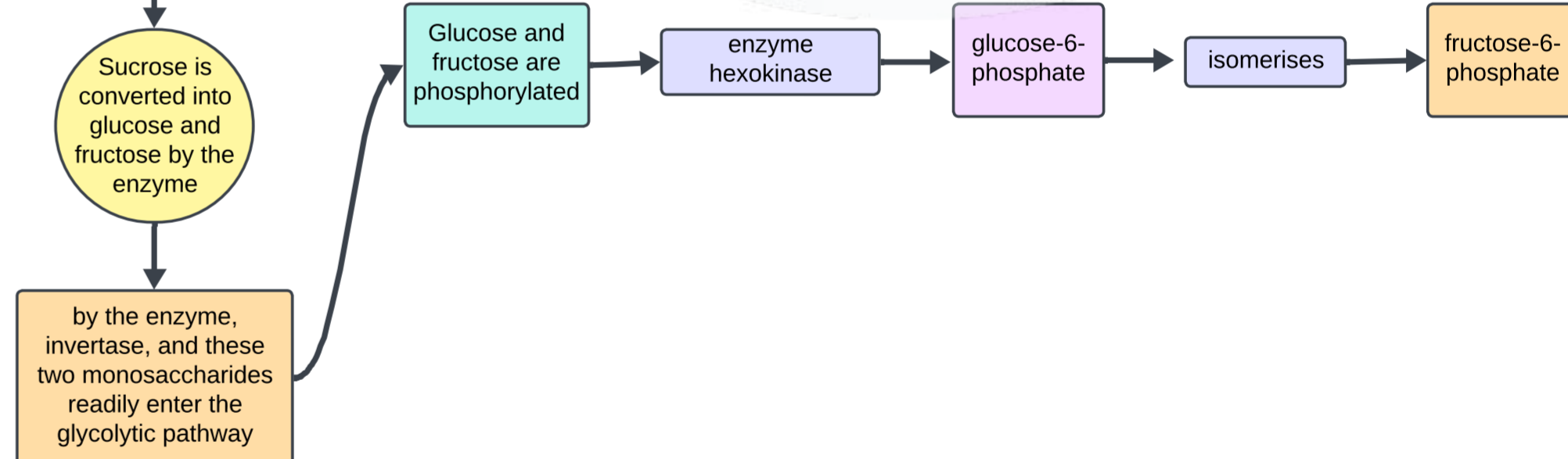
transferred to a molecule of NAD+

PGAL is oxidised and with inorganic phosphate to get converted into BPGA

The conversion of BPGA to 3-phosphoglyceric acid (PGA), is also an energy yielding process

conversion of PEP to pyruvic acid

also yields ATP



Red Notes (Resindica.com)



GROWTH

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Catabolic

Anabolic

growth is accompanied by metabolic processes

that occur at the expense of energy

for example, expansion of a leaf is growth

Growth can be defined as an irreversible permanent increase in size of an organ or its parts or even of an individual cell.

PLANT GROWTH AND DEVELOPMENT [GROWTH]

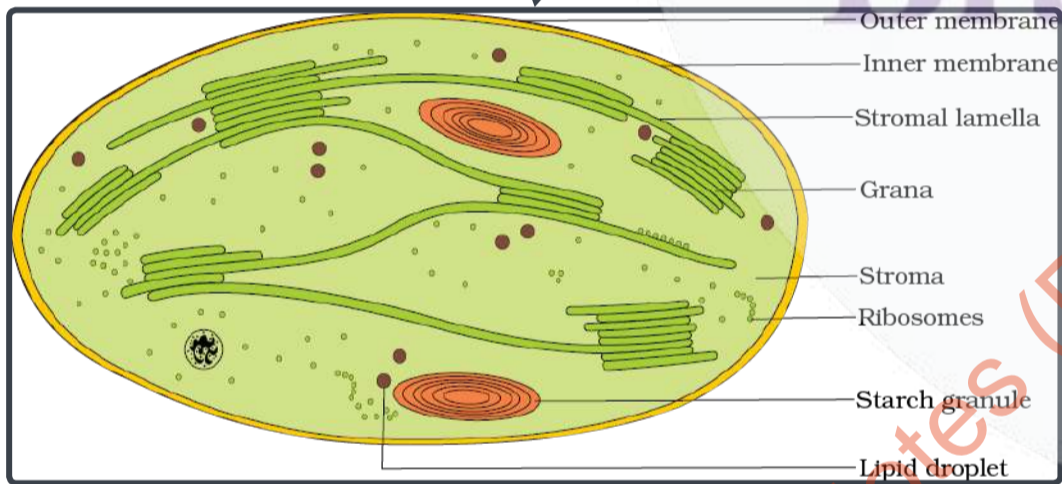
Growth is regarded as one of the most fundamental and conspicuous characteristics of a living being

WHERE DOES PHOTOSYNTHESIS TAKE PLACE

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WHERE DOES PHOTOSYNTHESIS TAKE PLACE?

It takes place in the green leaves of plants but it does also in other green parts of the plant



the mesophyll cells in the leaves have a large number of chloroplasts

chloroplast align themselves along the walls of mesophyll cells such that they get optimum incident light

within chloroplast there is a membranous system

consisting of grana, stroma lamellae and matrix stroma

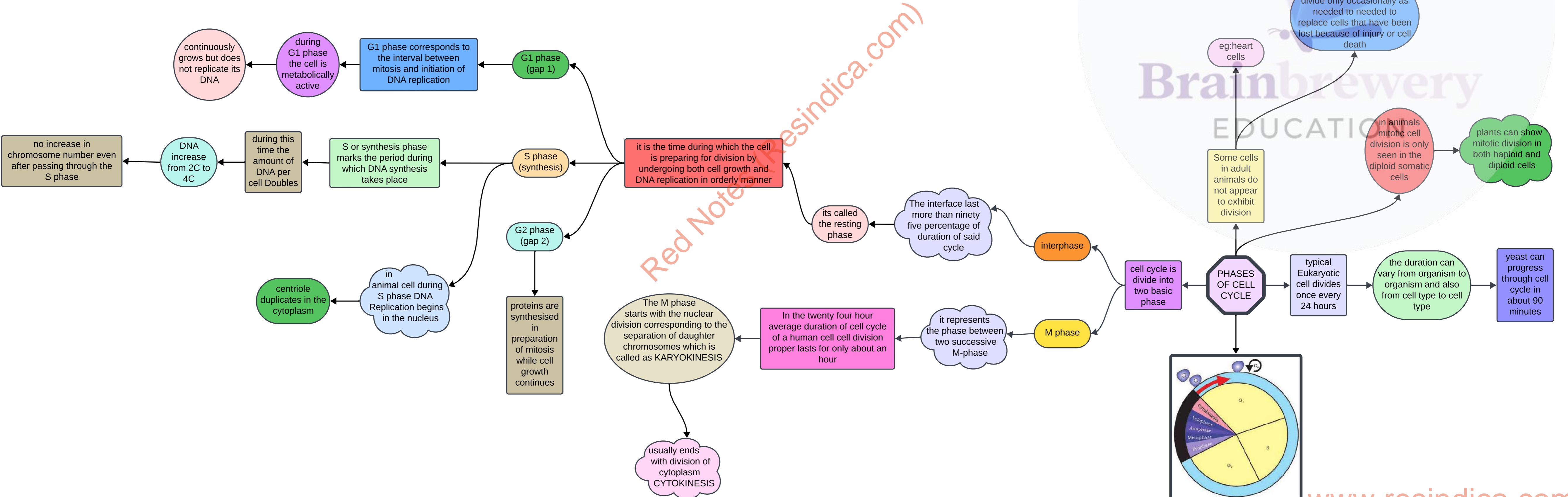
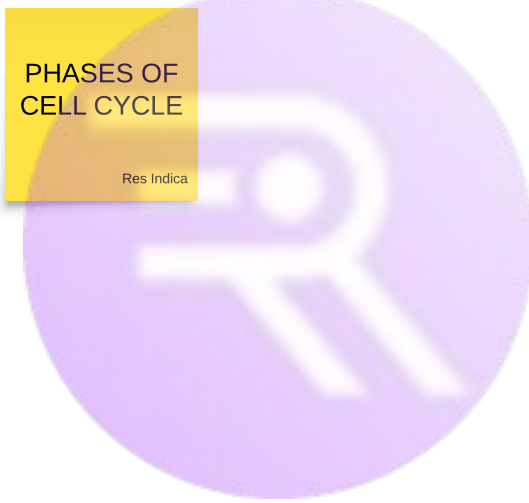
there is clear division of labour within the chloroplast

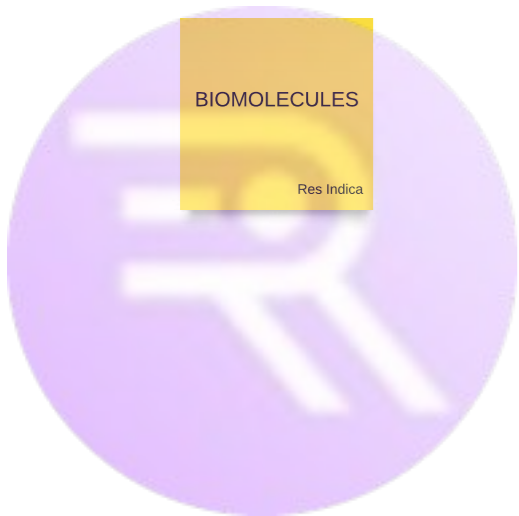
membrane system is responsible for trapping light energy and for synthesis of ATP and NADPH

in stroma enzymatic reactions synthesise sugar which in turn forms starch

the former set of reactions since they are directly light driven are called light reaction or photochemical reaction

the latter are not light driven but are dependant on their products of light reaction ATP and NADPH hence known as dark reactions or carbon reactions





Water constitutes 70-90% of cells. Proteins are 10-15%, nucleic acids are 5-7%, carbohydrates are 3%, lipids are 2% and the rest 1% are ions

The inorganic constituents can be estimated by analysing the ash formed after burning a tissue completely.

BIOMOLECULES

include both micromolecules and macromolecules

micromolecules e.g. amino acids, nitrogenous bases, fatty acids, sugar, etc.

macromolecules carbohydrates, proteins, lipids and nucleic acids.

All the macromolecules are homo or heteropolymers of various simple compounds

Nucleic acids- Nitrogenous bases, sugar and phosphate

Fats- Fatty acids and glycerol

Carbohydrates (Polysaccharides)- Polymer of simple sugars, e.g. glucose, fructose

Protein- Polymer of amino acids

Living organisms are made up of organic as well as inorganic substances

For analysing the organic constituents of living tissue, we mix it with CCl_3COOH (Trichloroacetic acid) and make a slurry by grinding.

We get two fractions

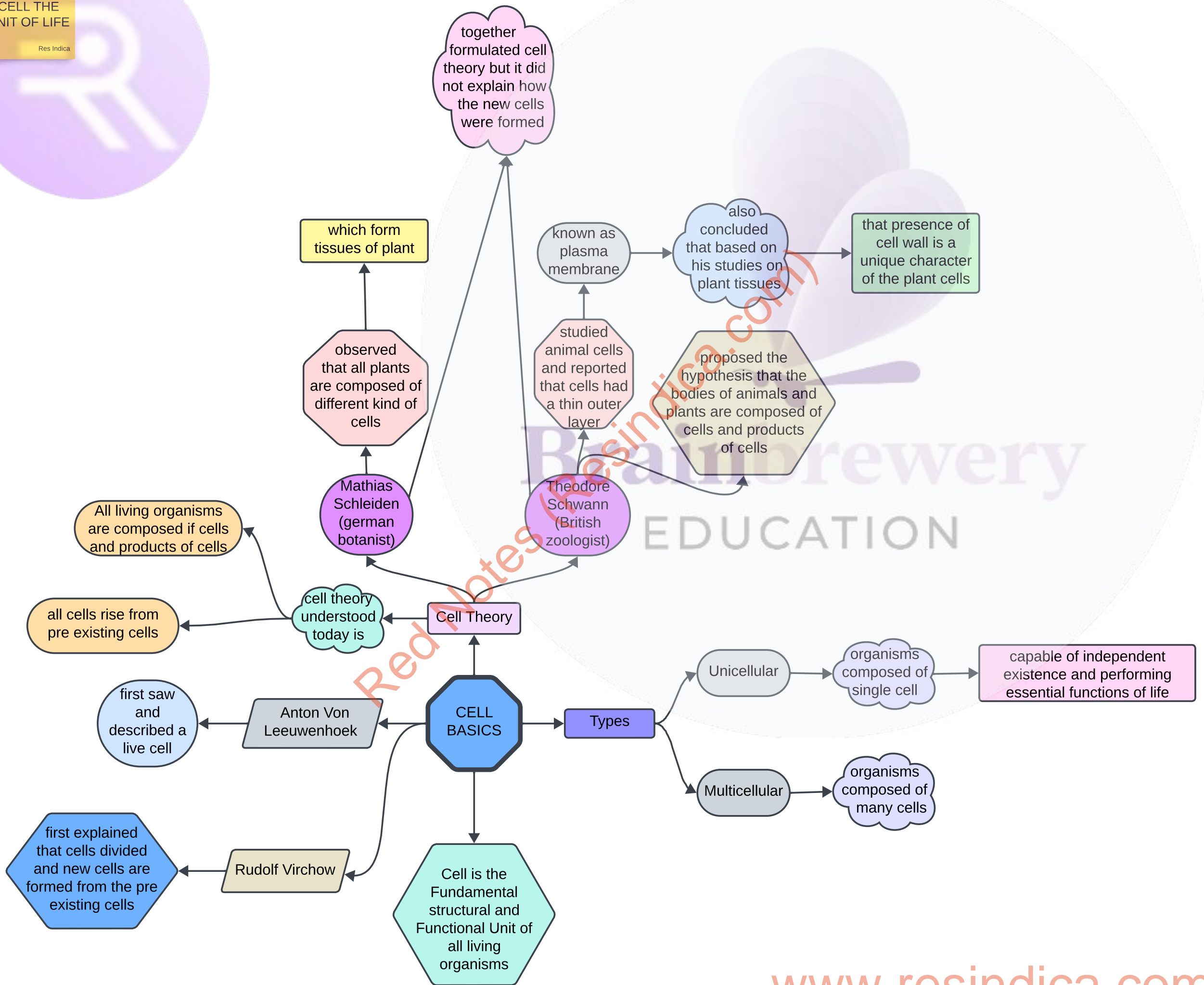
Acid insoluble fraction

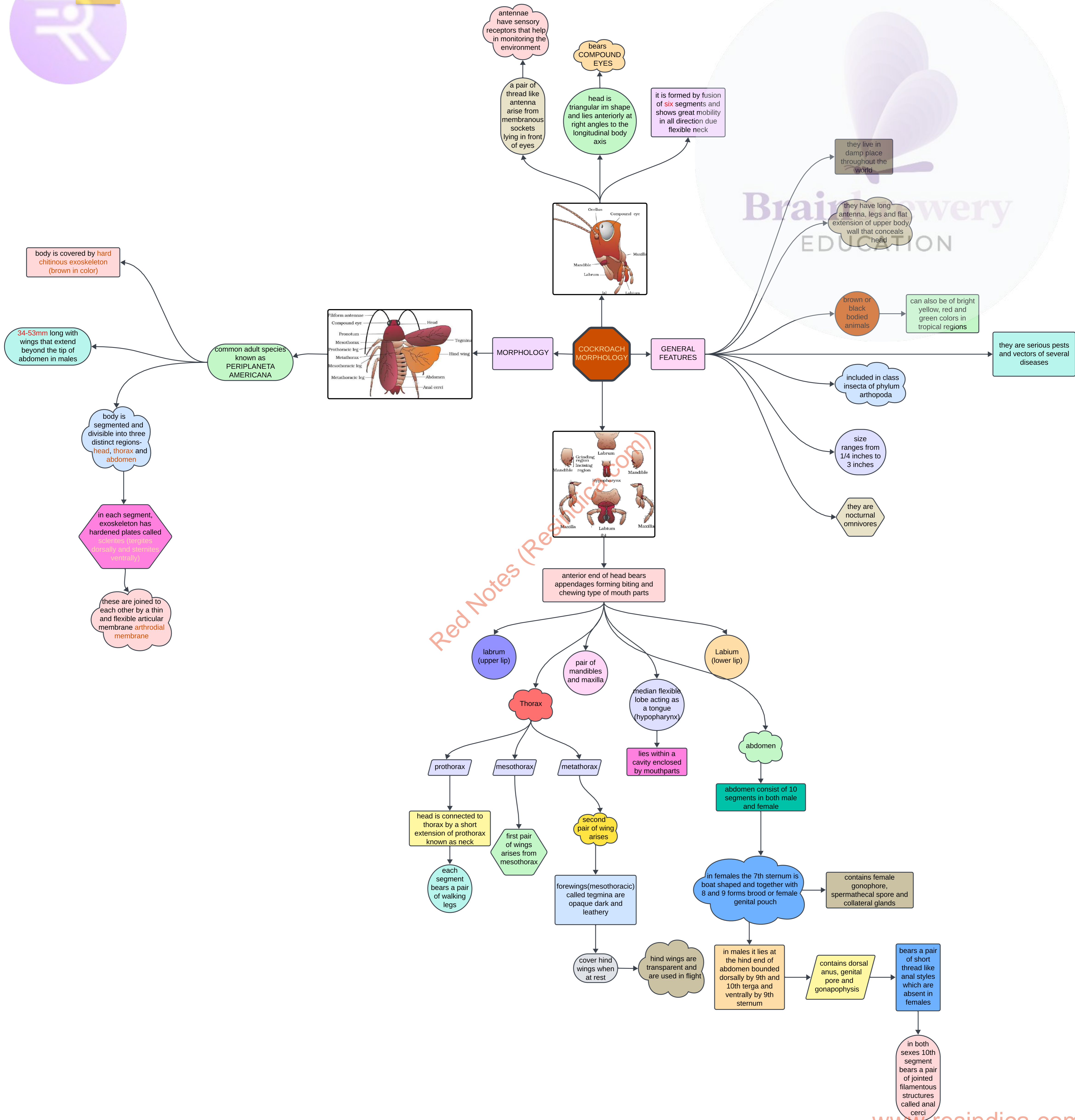
Acid soluble fraction

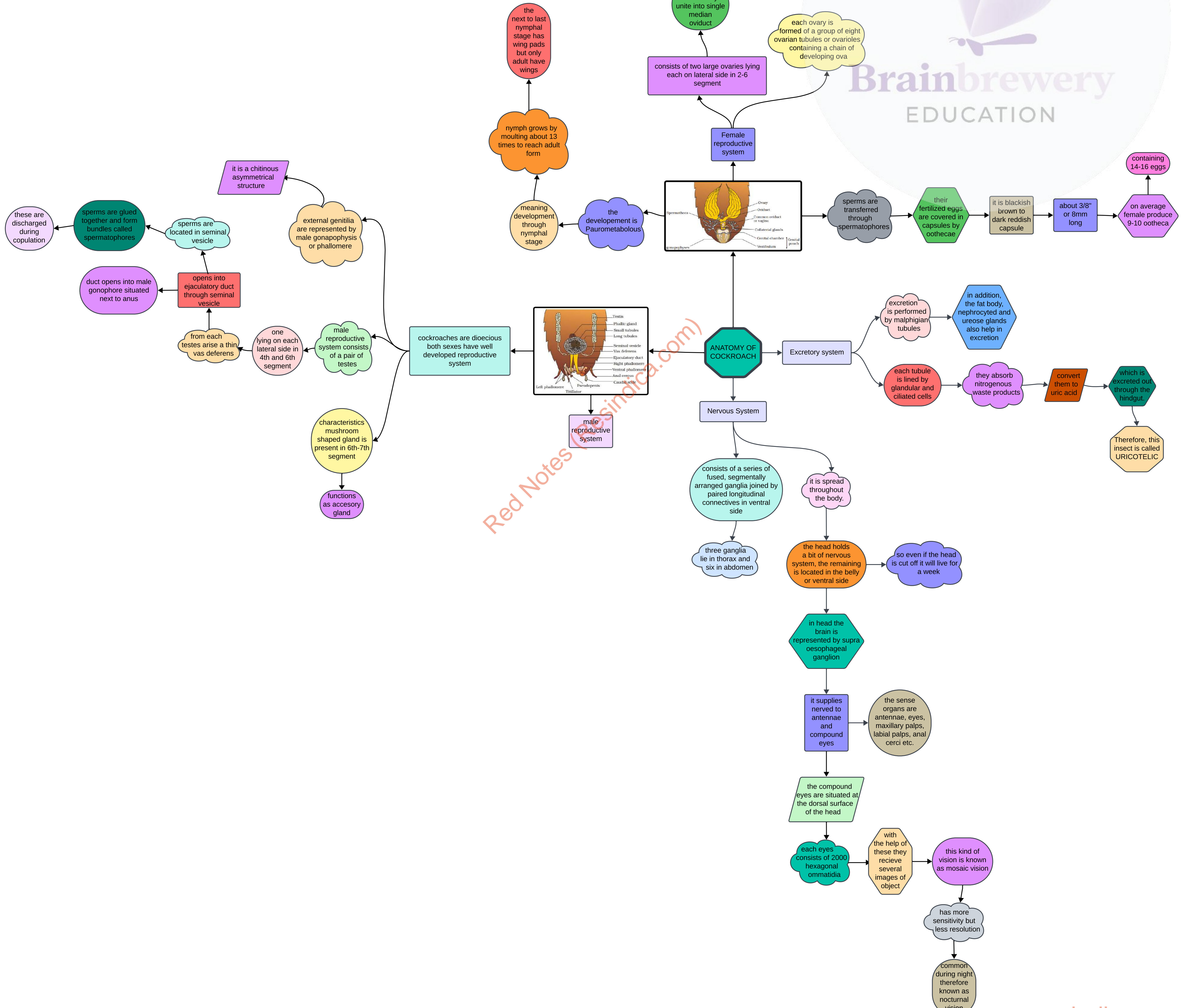
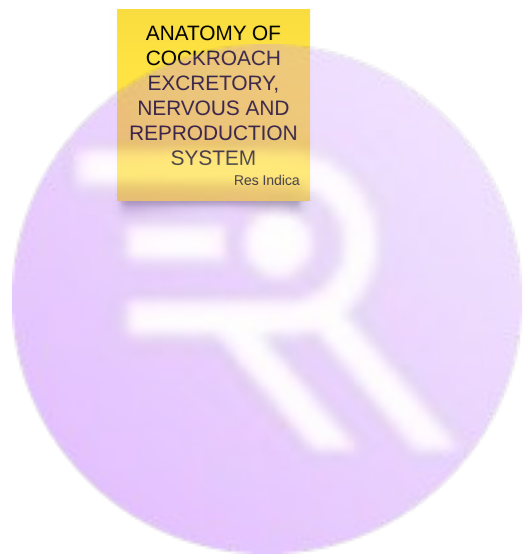
Polymeric macromolecules (mol wt. >10 thousand Da) and also lipid (a component of the cell membrane and form water-insoluble vesicles on fragmentation)

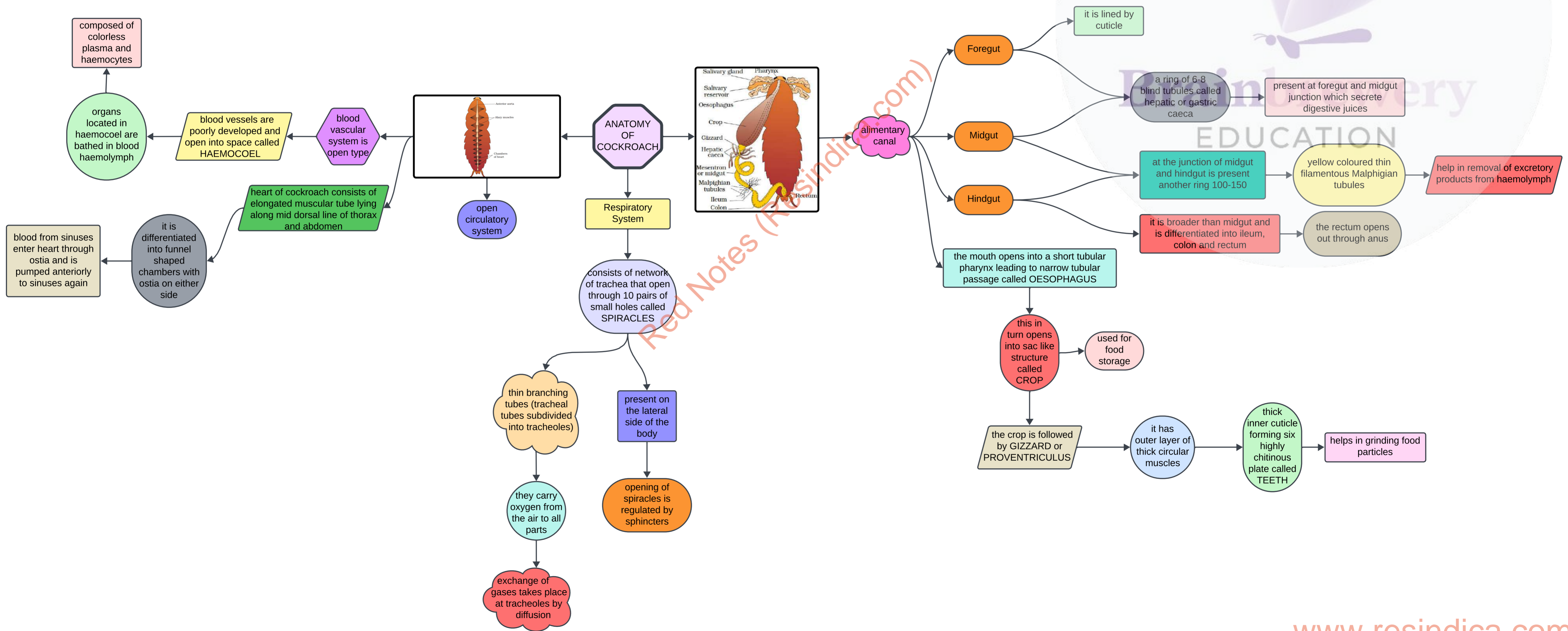
Organic micromolecules (biomolecules) (mol wt. 18-800 Da) and inorganic compounds,

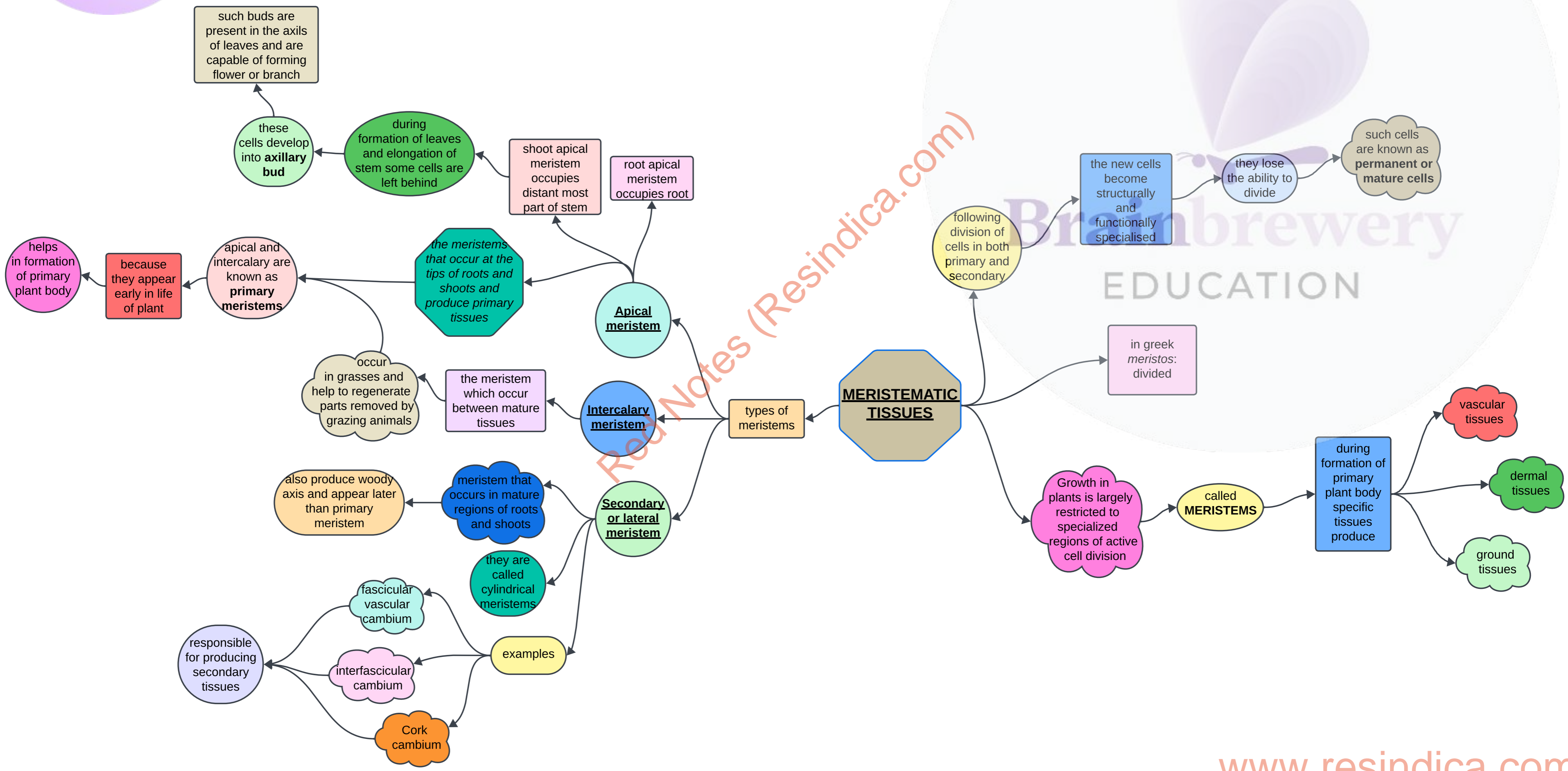
e.g. phosphate, sulphate, etc. It mostly accounts for the cytoplasm





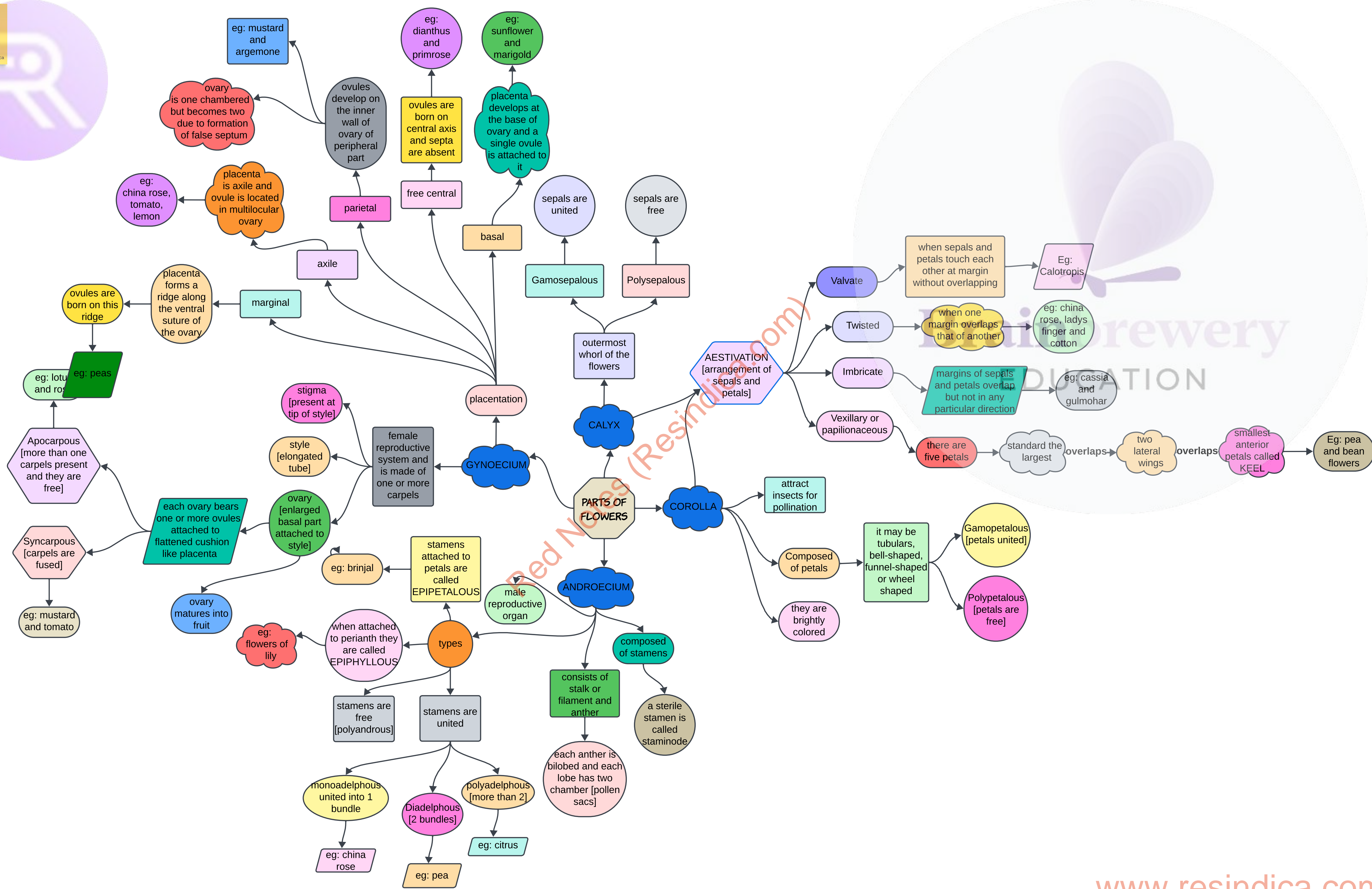






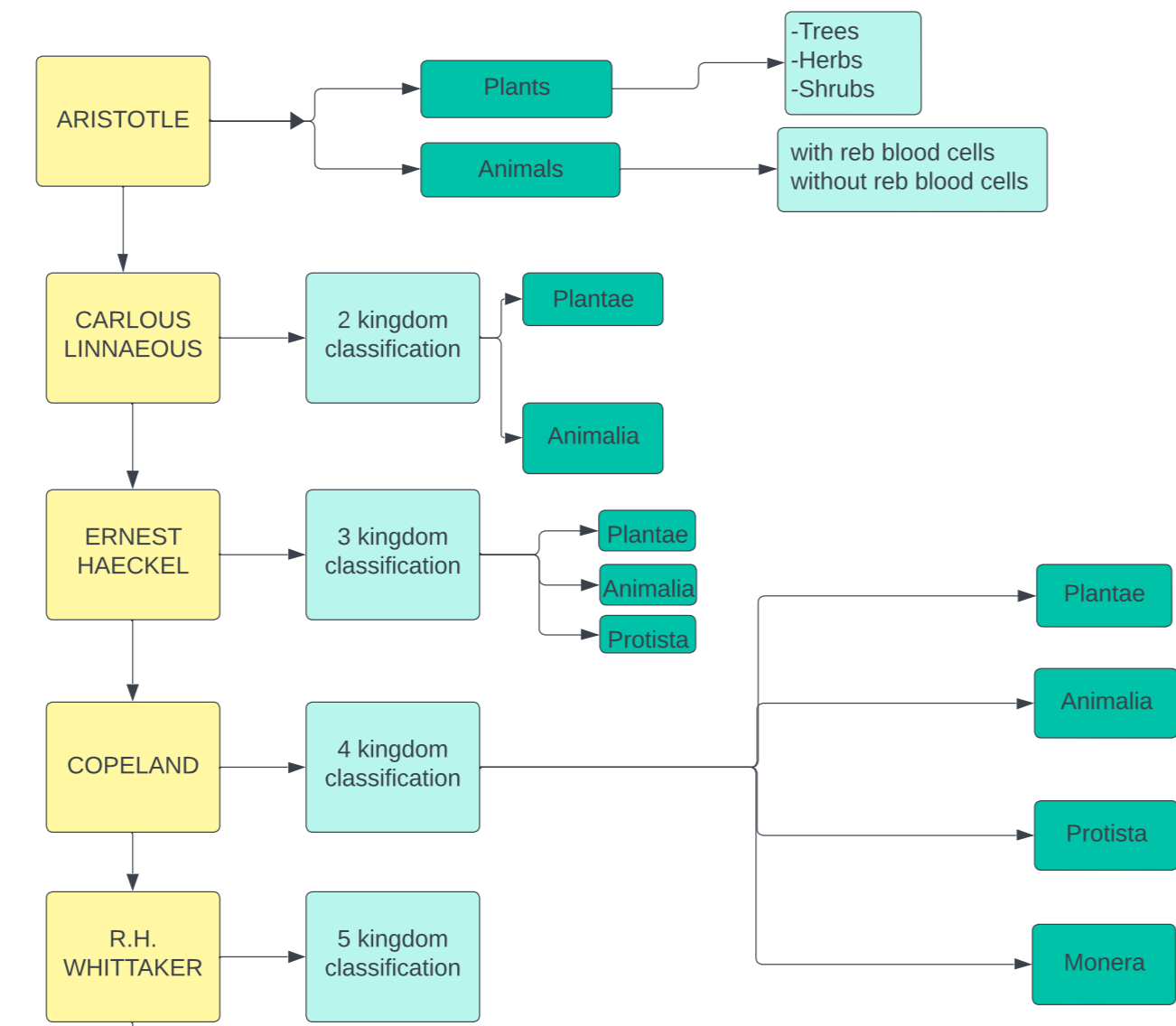
PARTS OF FLOWERS

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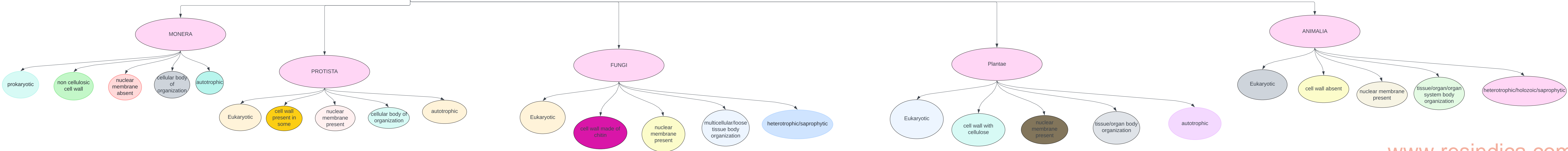
BIOLOGICAL CLASSIFICATION



CRITERIAS FOR CLASSIFICATION

- Cell structure, type, size and nuclear membrane
- Body of organization
- Mode of nutrition
- Reproduction
- Phylogenetic Relationship

FIVE KINGDOMS

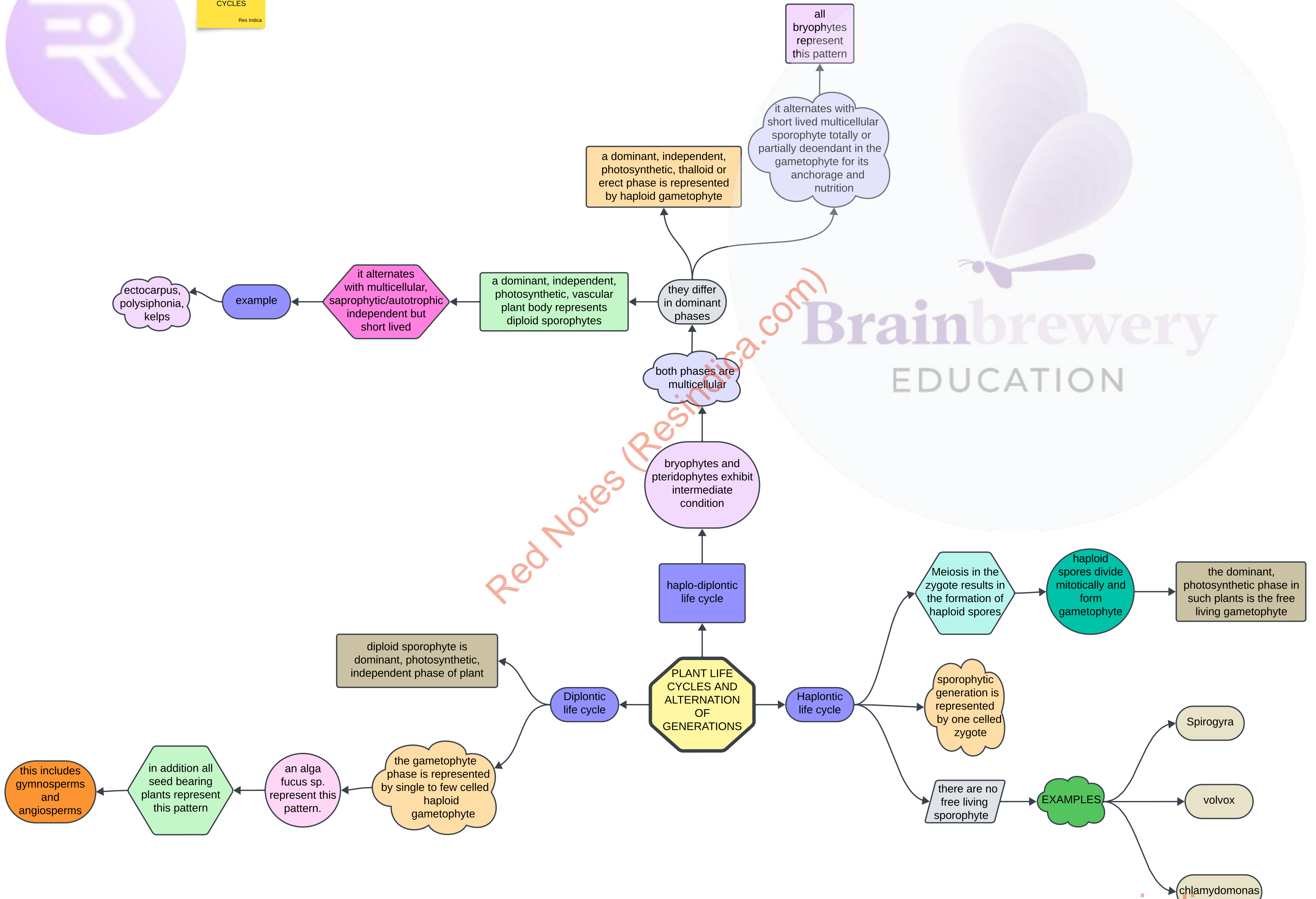


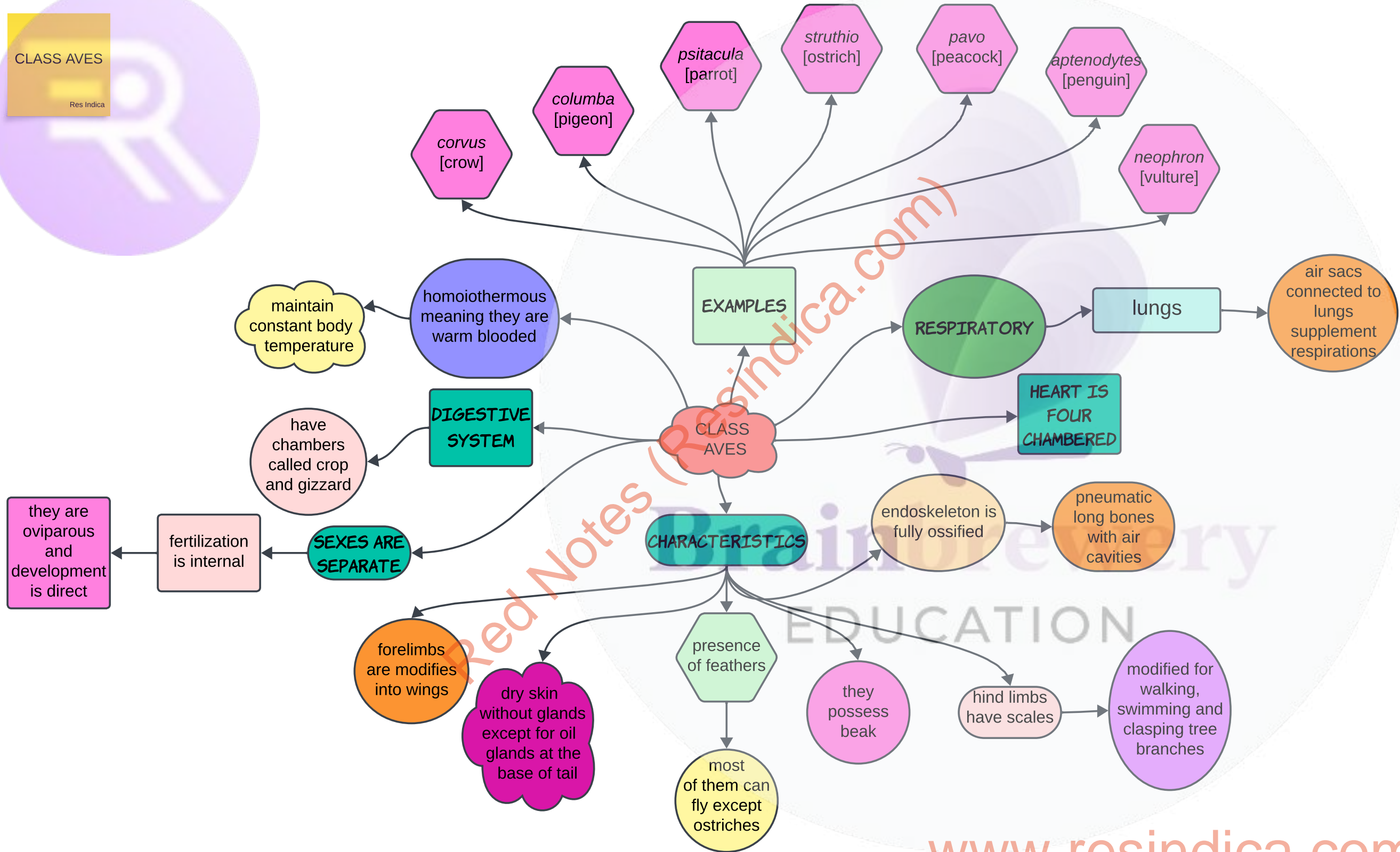
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ALTERNATION OF GENERATION AND PLANT LIFE CYCLES
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DIVERSITY
IN THE
LIVING
WORLD
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