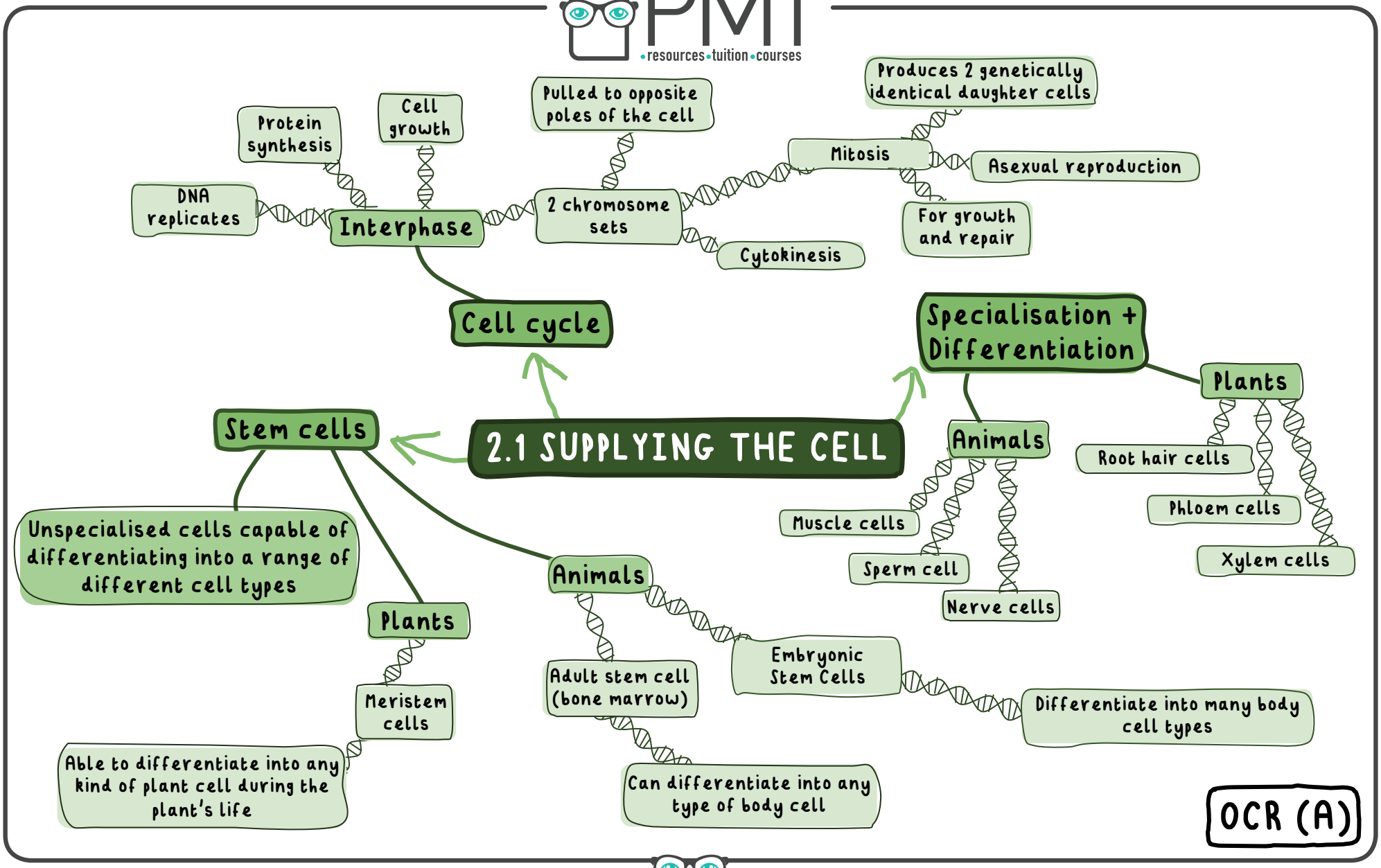
PMT
resources tuition courses
2.1 SUPPLYING THE CELL
Cell cycle
Interphase
DNA replicates
Protein synthesis
Cell growth
2 chromosome sets
Pulled to opposite poles of the cell
Cytokinesis
Mitosis
Produces 2 genetically identical daughter cells
Asexual reproduction
For growth and repair
Stem cells
Unspecialised cells capable of differentiating into a range of different cell types
Plants
Meristem cells
Able to differentiate into any kind of plant cell during the plant's life
Animals
Adult stem cell (bone marrow)
Can differentiate into any type of body cell
Embryonic Stem Cells
Differentiate into many body cell types
Specialisation + Differentiation
Animals
Muscle cells
Sperm cell
Nerve cells
Plants
Root hair cells
Phloem cells
Xylem cells
OCR (A)

2.1 SUPPLYING THE CELL

Diffusion

The net spreading out of particles from a high concentration to a lower concentration (down their concentration gradient)

Factors that affect diffusion rate
- Membrane surface area
- Concentration gradient
- Temperature

Substances
- Glucose
- Water
- Oxygen

Active Transport

Against concentration gradient

Requires energy from respiration

e.g. absorption of ions in plant roots

e.g. absorption of sugar in the small intestine

Both passive processes

Osmosis

The net movement of water molecules from a region of high concentration to a region of low concentration through a partially permeable membrane

Water potential
- Tendency of water to move from one area to another

Plant
- In hypertonic solution – plant cell becomes turgid

Animal
- In hypotonic solution – animal cell will become shrivelled
- In hypertonic solution –animal cell will burst

OCR (A)