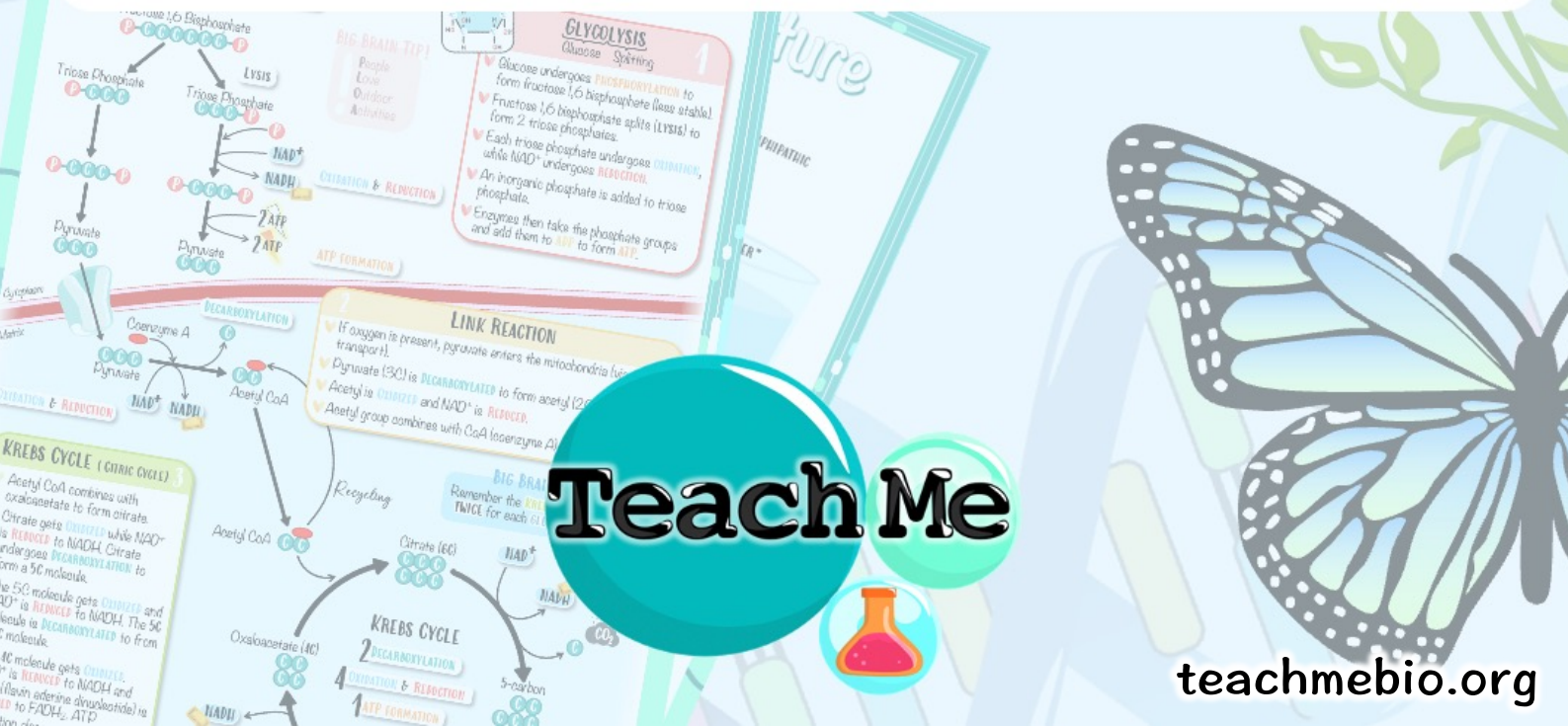


TeachMe

STUDY NOTES

B3.2 CELL SPECIALIZATION (HL)



Cell Specialization (HL)

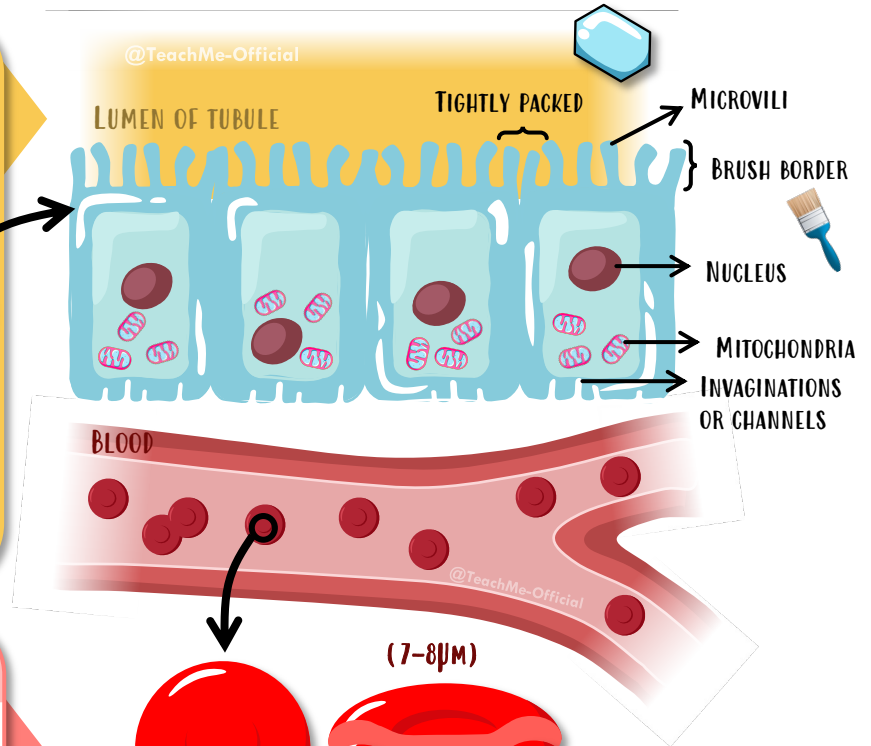
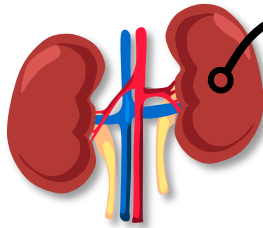
We explore how some cells *specialized* in order to become more efficient at their task;

1 - KIDNEY - (PROXIMAL CONVOLUTED TUBULES)

Closely stacked cube-shaped cells (space efficient)

Tiny projections called **MICROVILLI** (brush border) protrude into lumen of tubules in which fluid flows. Increase surface area of the cell for better absorption.

Large numbers of mitochondria. Allows **ACTIVE TRANSPORT** of ions and other substances.



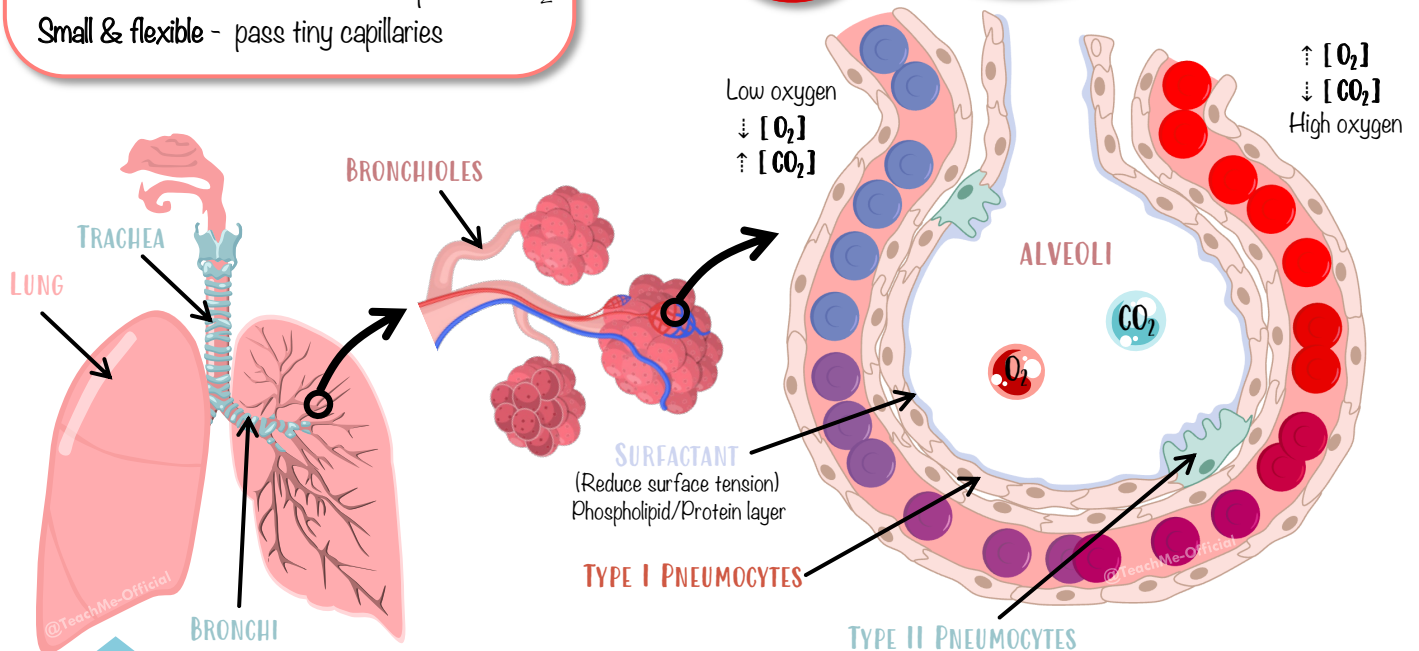
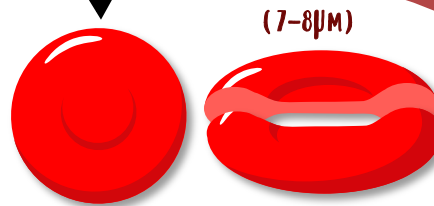
2 ERYTHROCYTE (RBC)

Hemoglobin - to carry oxygen

Biconcave shape - efficient for gas exchange

No mitochondria or nucleus - more space (for O_2)

Small & flexible - pass tiny capillaries



3 - LUNGS - ALVEOLAR CELLS

Thin walls - small diffusion distance

Blood supply - efficient collection

Surface area - maximum diffusion

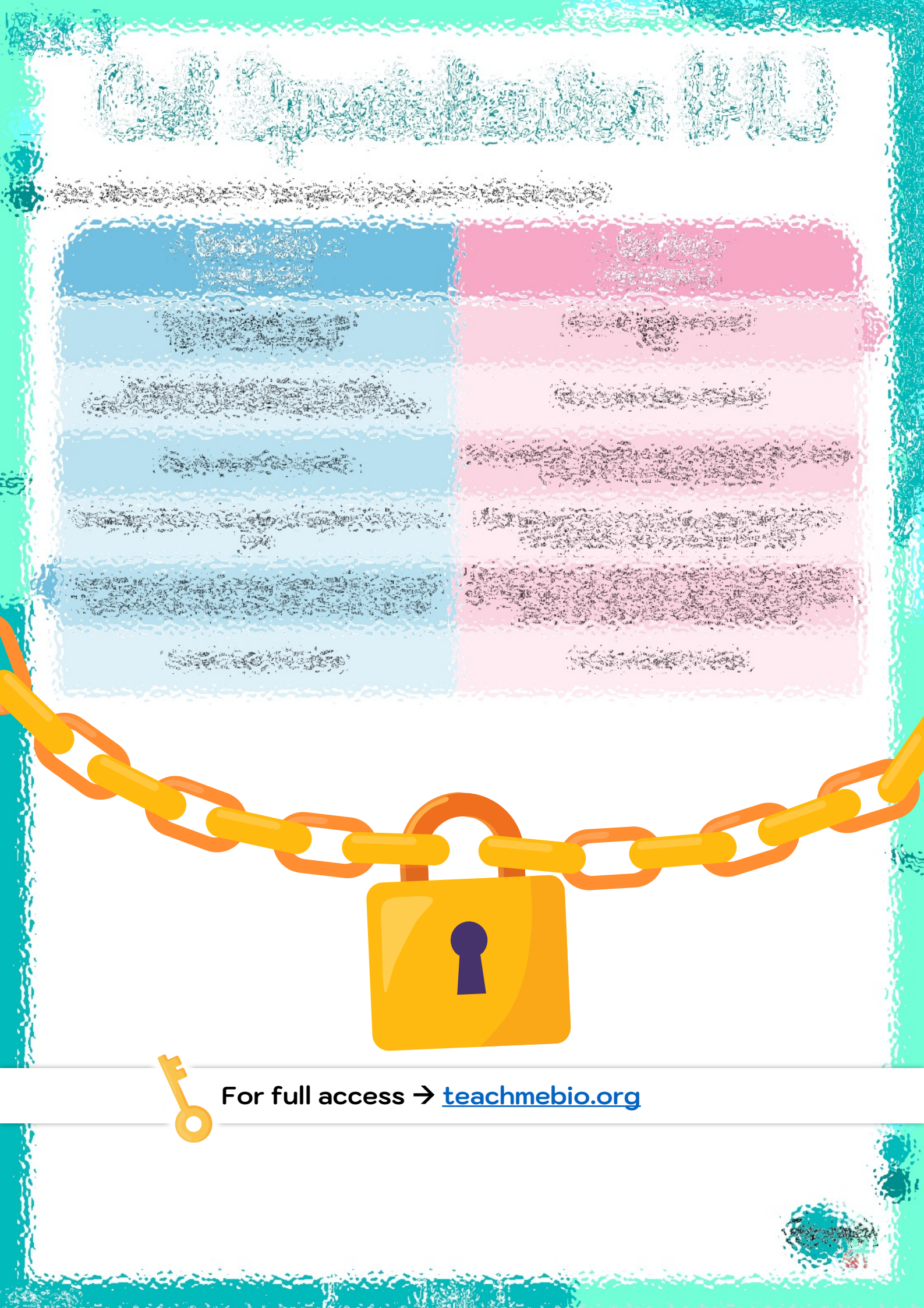
Tightly joint cells - prevent fluid enter

TYPE I	TYPE 2
Majority (95%)	Minority (5%)
Smaller (flat)	Larger (cube)
- Small diffusion distance	- More space for organelles such as secretory vesicles
Gas exchange	Secretes surfactant
Can't divide	Can divide to replace type I

Microvilli orientated to inside of alveoli. Larger surface area.



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