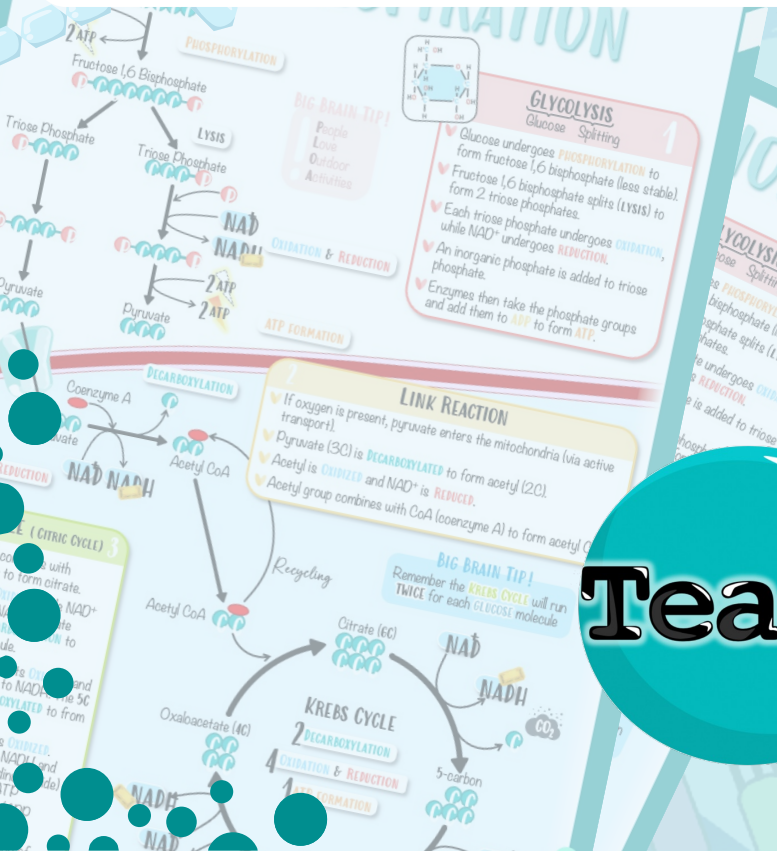
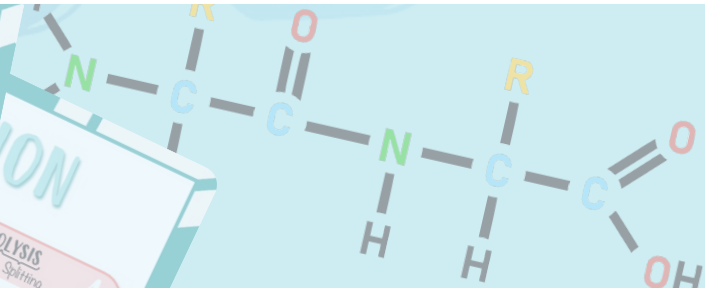
TeachMe

STUDY NOTES

Chapter 4 - Cell Membranes & Transport

Membrane Transport





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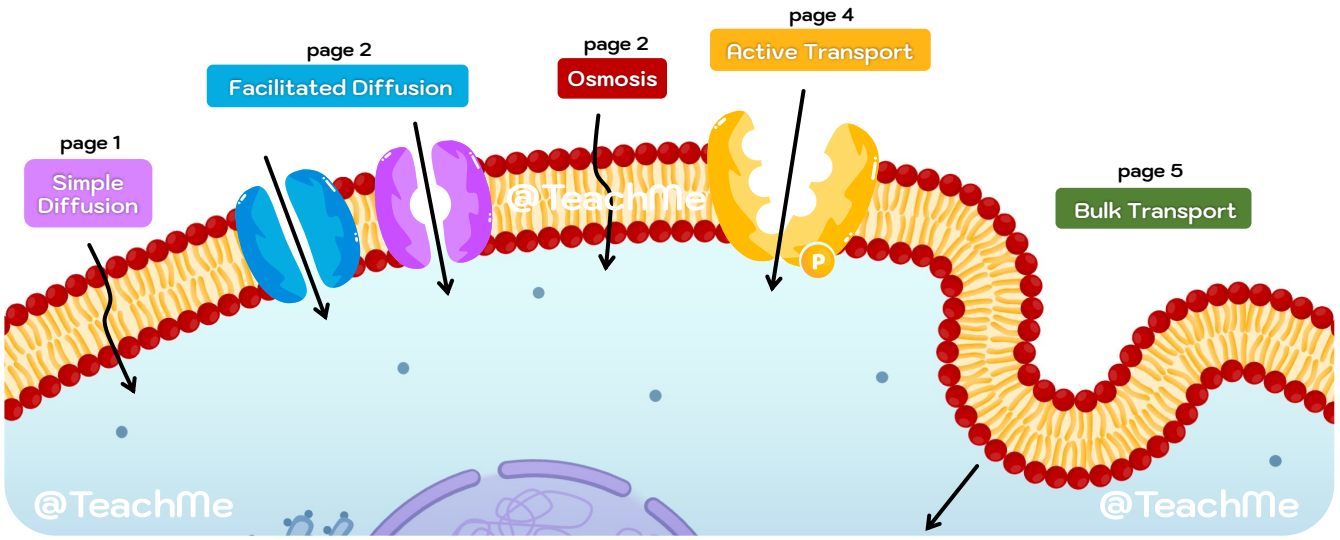
Membrane Transport

Membrane transport is the movement of substances **across** the **cell membrane**.

There are two main types:

Passive transport – movement of substances without energy (ATP), usually down their concentration gradient.

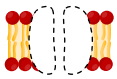
Active transport – movement of substances using energy (ATP), often against their concentration gradient.



Simple Diffusion

The **net movement** of a substance from a region of its ***higher*** concentration to a region of its ***lower*** concentration <u>without</u> the need for transport proteins or cellular energy (ATP).

<u>Key features:</u>

Transport Proteins	Concentration Gradient	ATP requirement
		ATP

Example – Cells produce CO_2 as a byproduct of cellular respiration to make ATP, this causes a high concentration of CO_2 to accumulate into the cell. It will diffuse out of the cell as air is expulsed during expiration. Inspiration then brings in O_2, which will diffuse into the cell as it gets used up during cellular respiration.

<u>Typical substances:</u>

Small

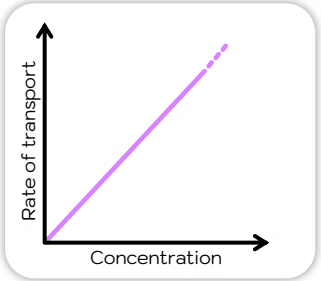

Non-polar (hydrophobic)

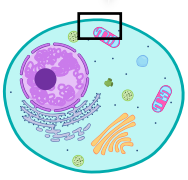
Gases

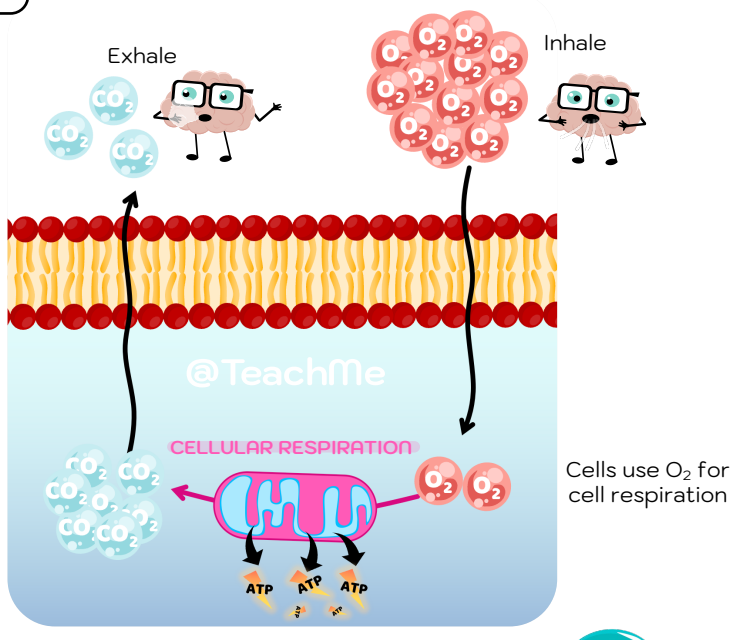
Lipids (hormones)

<u>Rate Of Diffusion:</u>

- Steepness of the concentration gradient
- Temperature 🥵🥶
- Nature of molecule (E.g., Size, polarity)
- Surface area

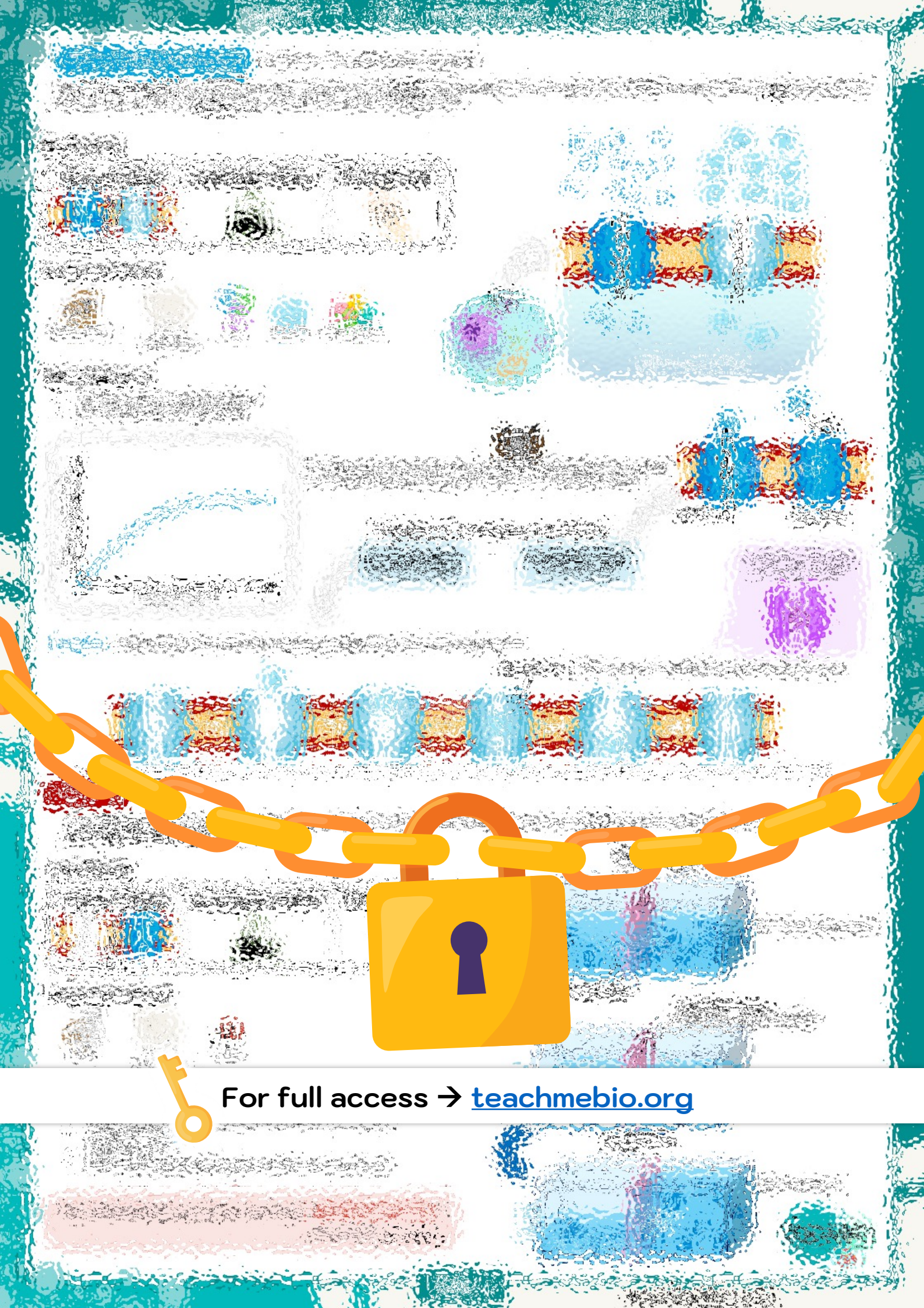






Cells use O_2 for cell respiration

Cells produce CO_2 as a byproduct



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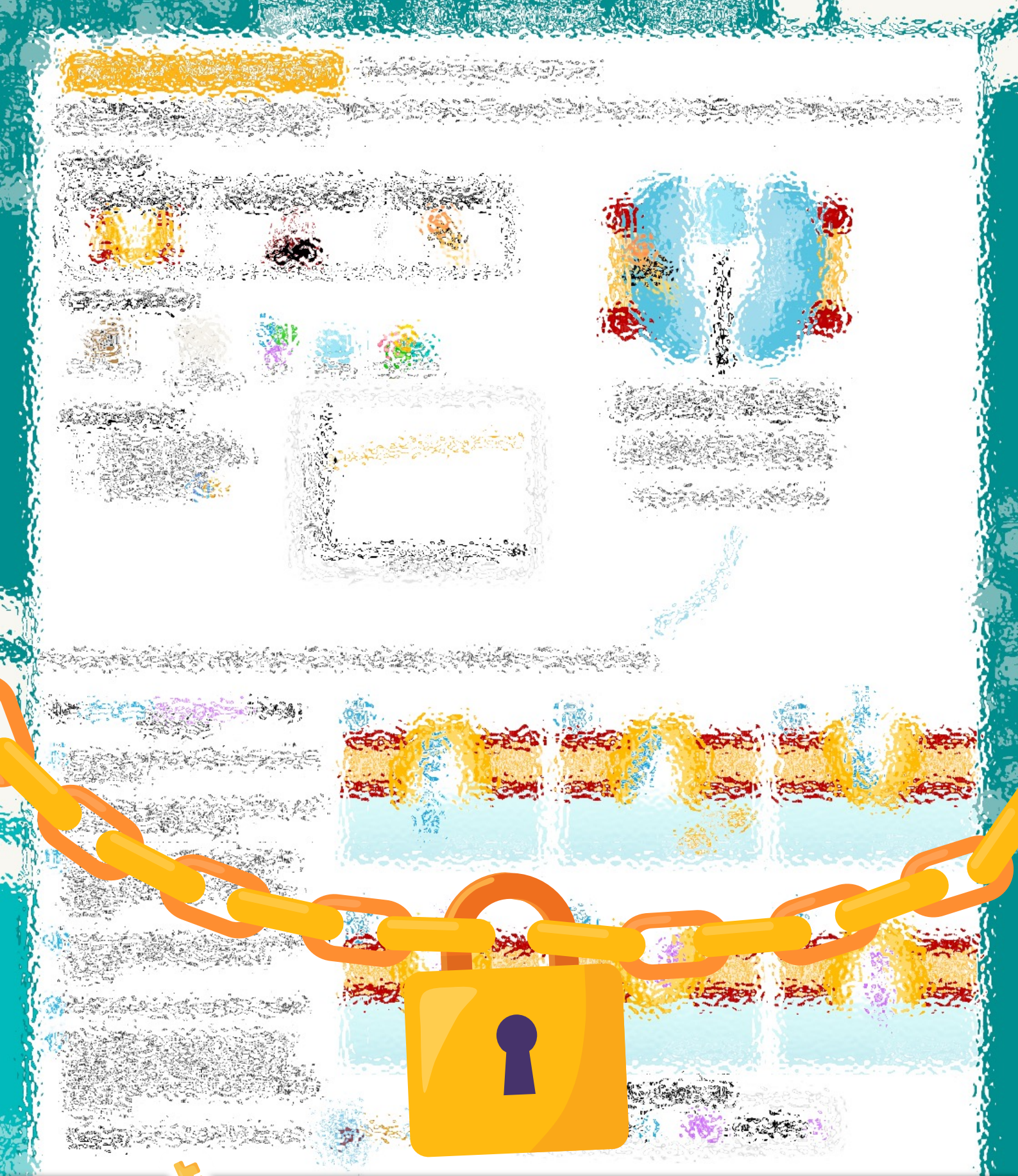

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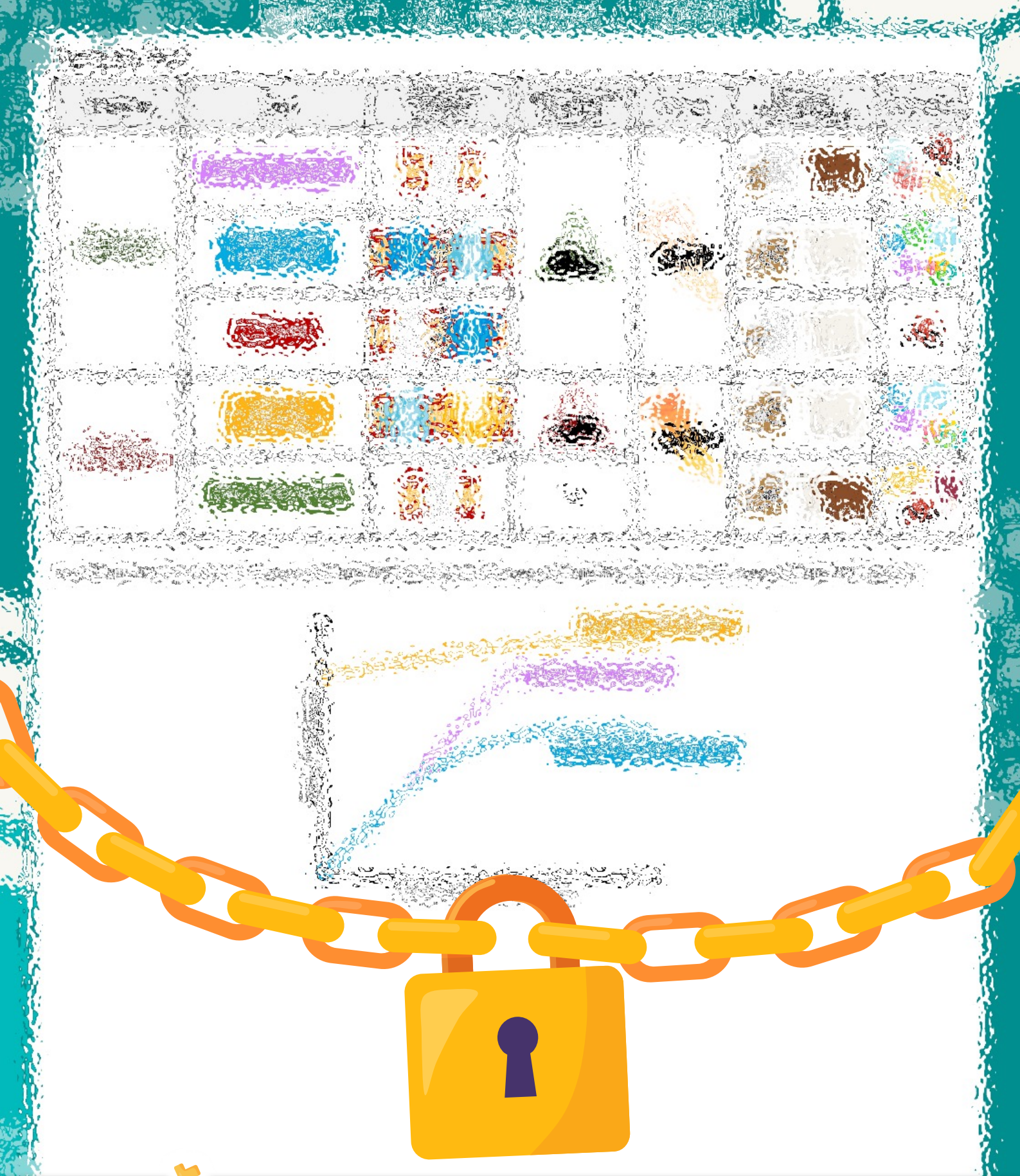

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