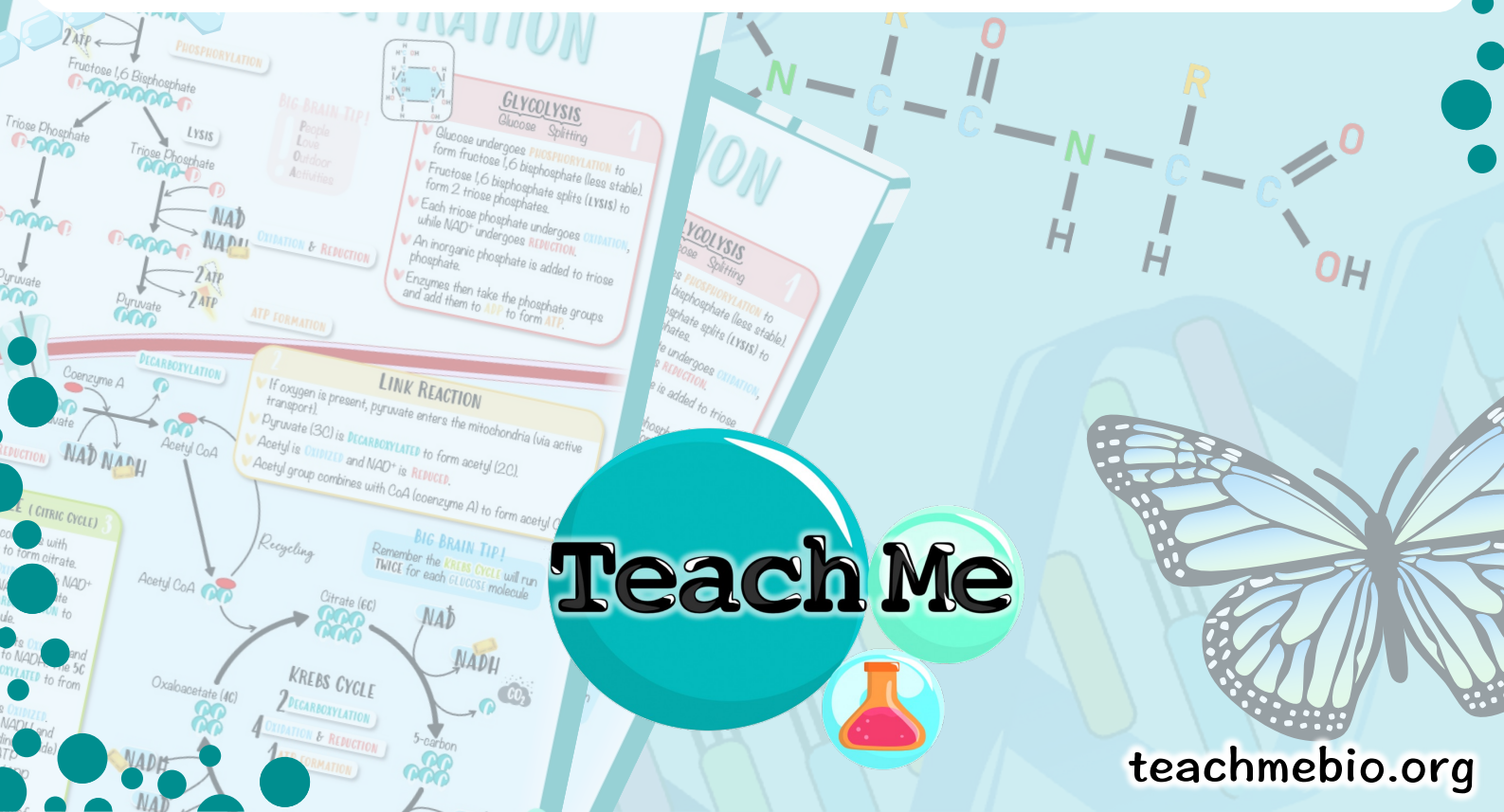


TeachMe

STUDY NOTES

CHAPTER 5 – THE MITOTIC CELL CYCLE MITOSIS

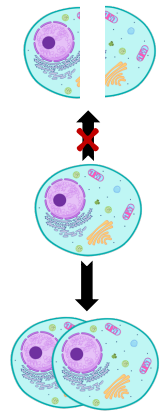


MITOSIS

THE Importance of Cell Division

Cell division is the production of two cells from one cell [in both prokaryotic or eukaryotic cells].

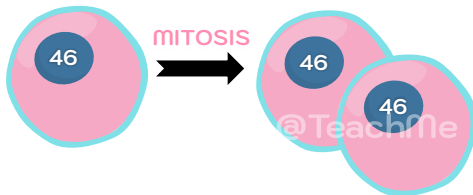
Common Misconception!
Cell Division does not just "split a cell in half"



Cell Division may occur in two different ways: **IDENTICAL DIVISION** or **NON-IDENTICAL DIVISION**:

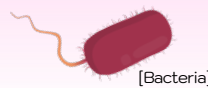
IDENTICAL DIVISION

Produces **genetically identical** cells



Unicellular Organisms

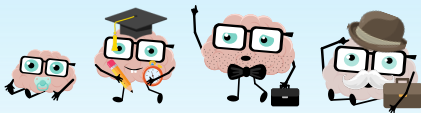
ASEXUAL REPRODUCTION Produces genetically identical offspring from a single parent.



Multicellular Organisms

GROWTH

Increases the number of cells, allowing the organism to grow.



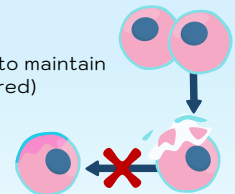
ASEXUAL REPRODUCTION

Produces genetically identical offspring without fertilization.



REPAIR

Replaces damaged or worn-out cells to maintain tissues (the damaged cell is not repaired)

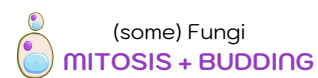


IMMUNE RESPONSE (Chapter 11)

Produces large numbers of identical immune cells to fight infection.

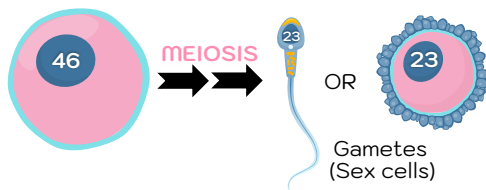


Different organisms use different methods of cell division. Since eukaryotes contain a nucleus (which prokaryotes lack), they undergo a process called mitosis, where replicated chromosomes are separated, forming two genetically identical nuclei. However, complete cell division in eukaryotes requires both **mitosis** (nuclear division) and **cytokinesis** (division of the cytoplasm).



NON-IDENTICAL DIVISION (Chapter 16)

Produces **genetically different** cells.



Multicellular Organisms

SEXUAL REPRODUCTION

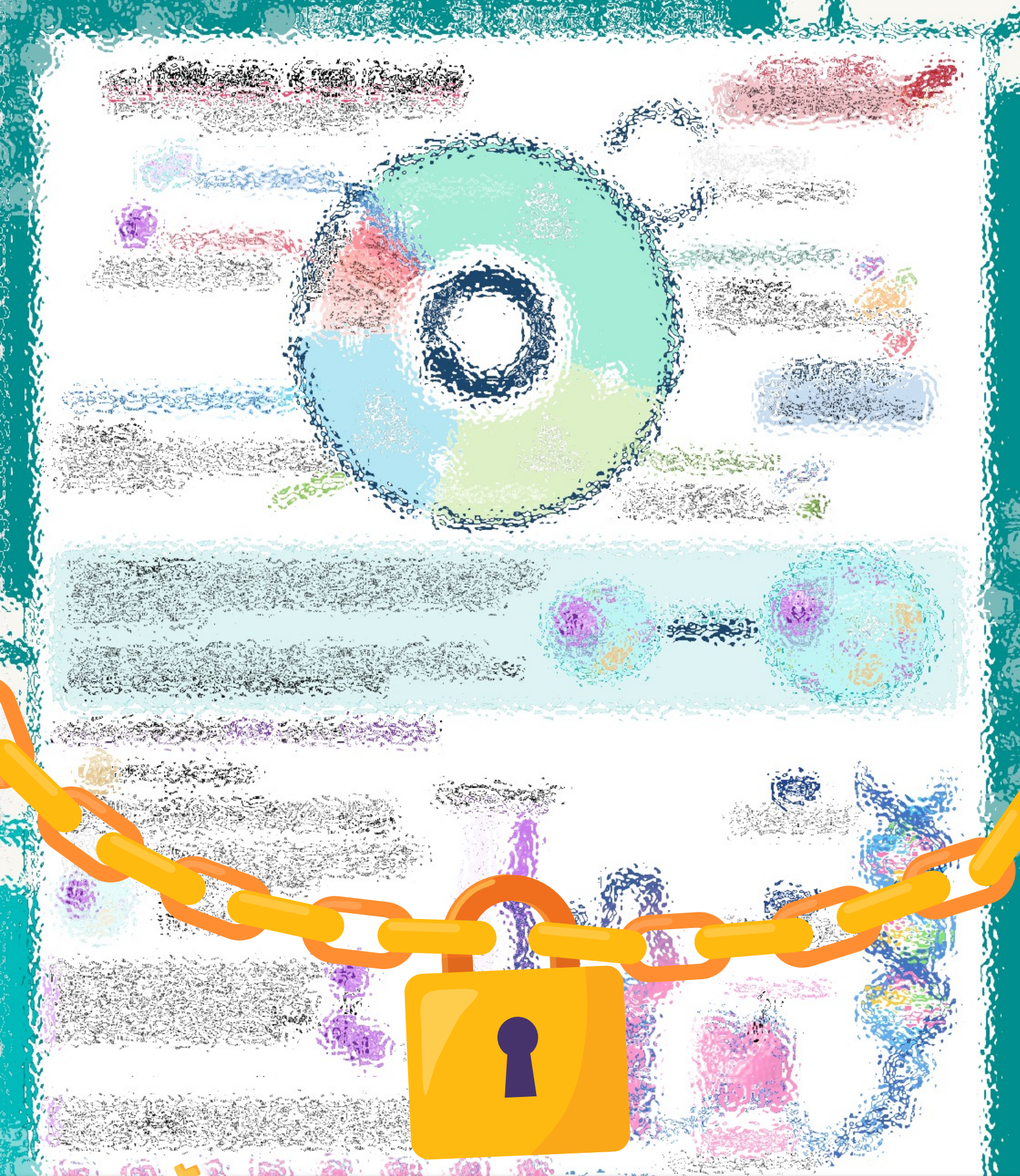
Produces genetically different offspring from two parents.



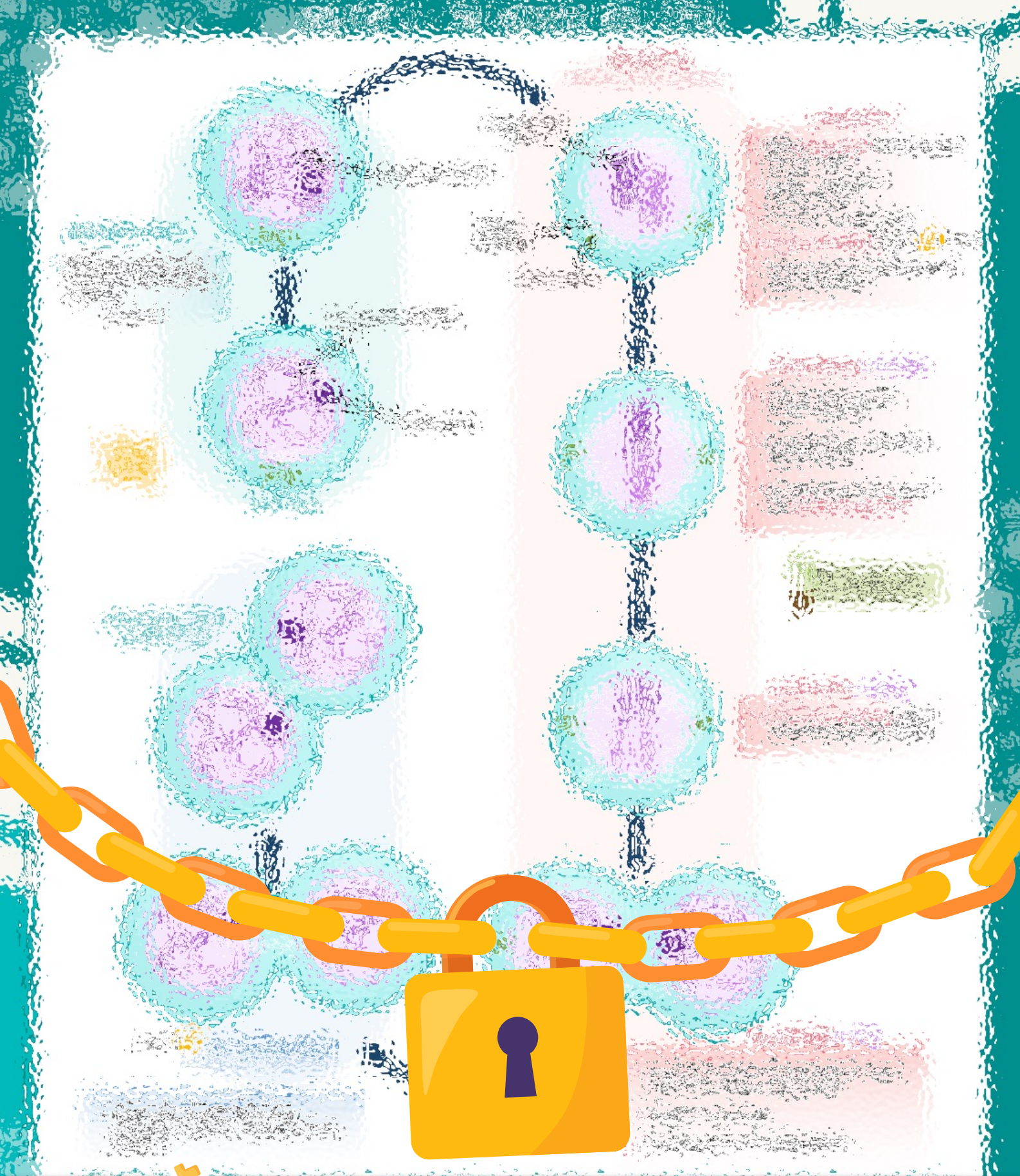
Eukaryotic gamete production involves **meiosis** (two rounds of nuclear division) and **cytokinesis**, producing genetically different haploid daughter cells.

MEIOSIS + CYTOKINESIS

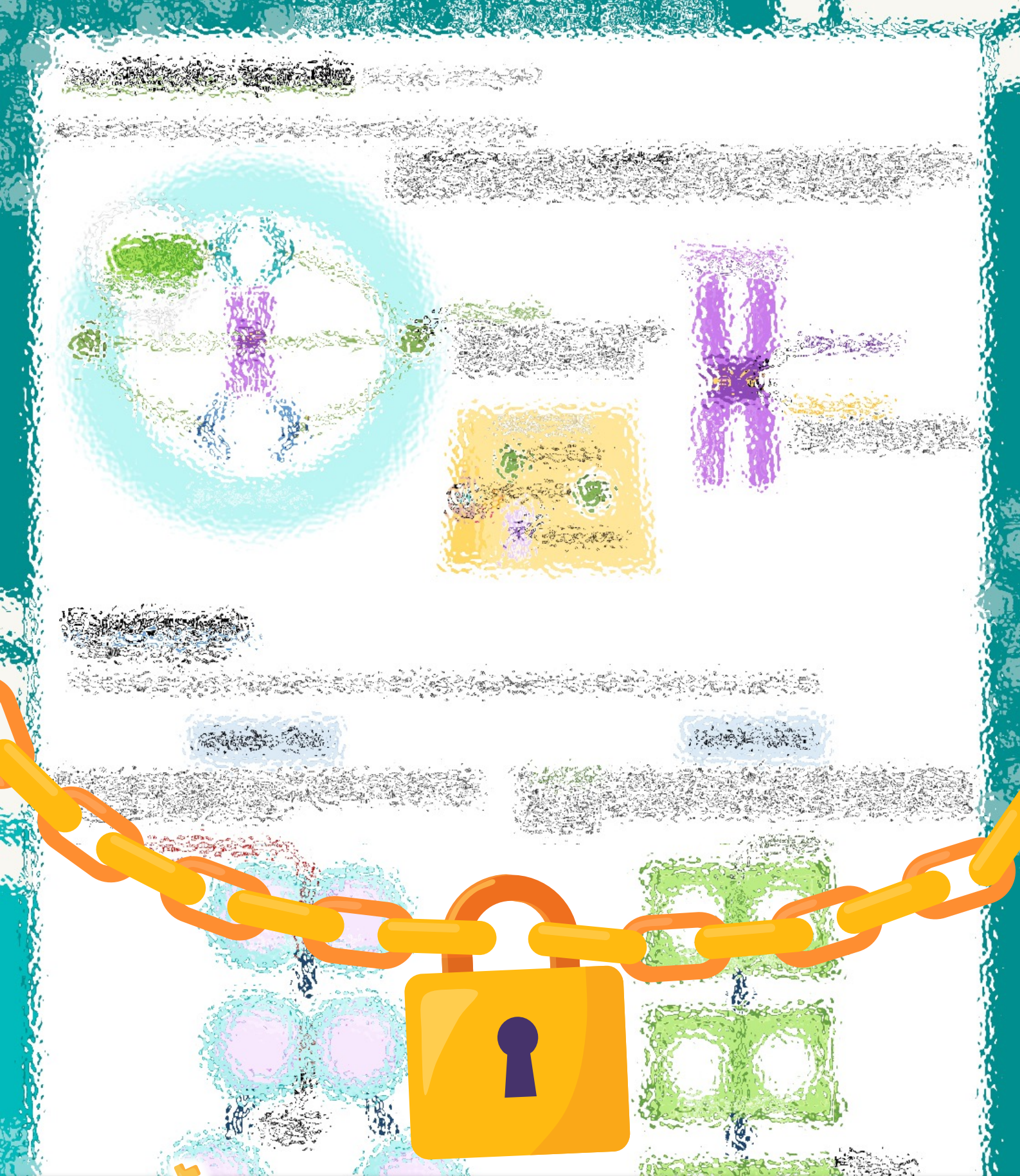




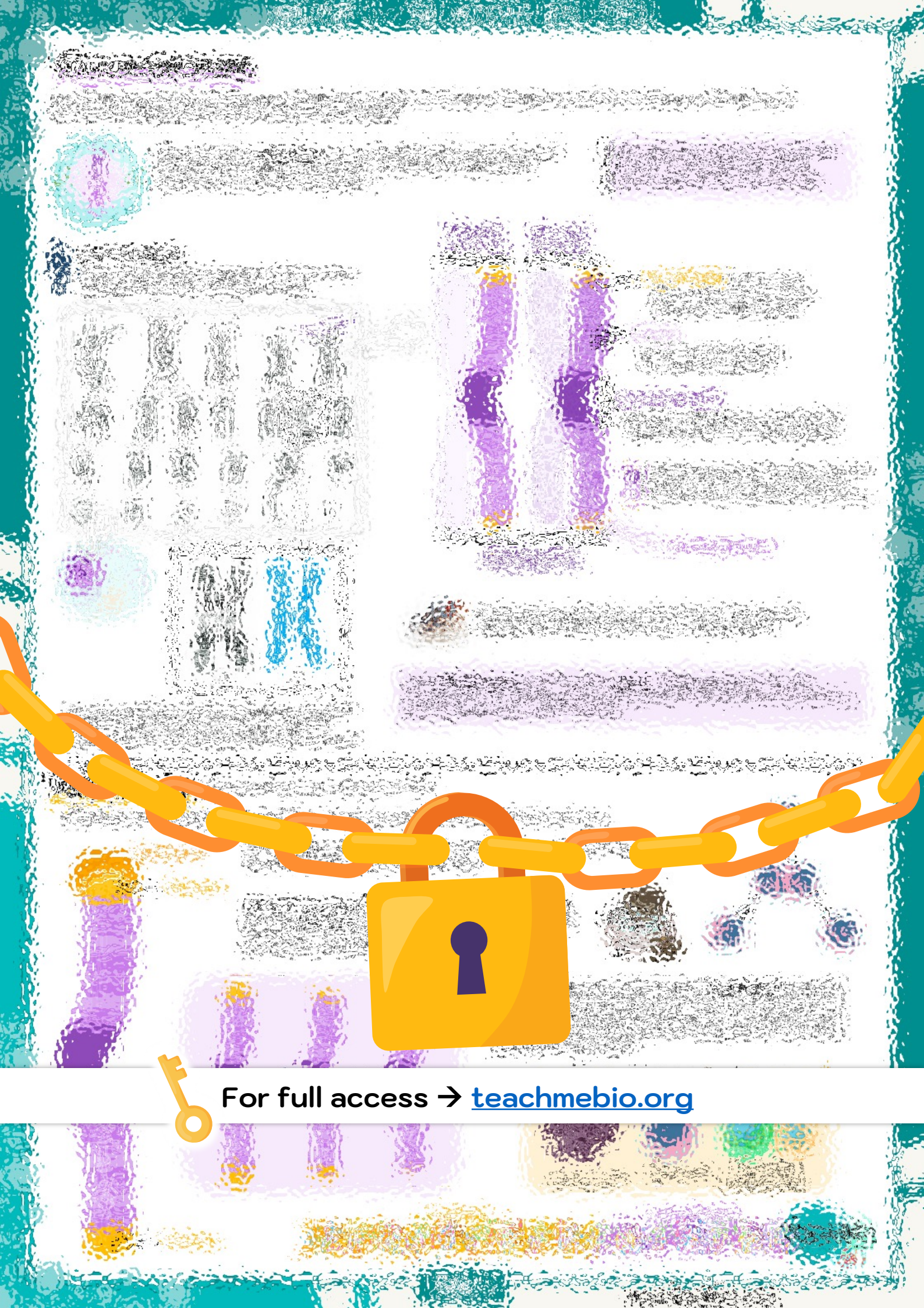
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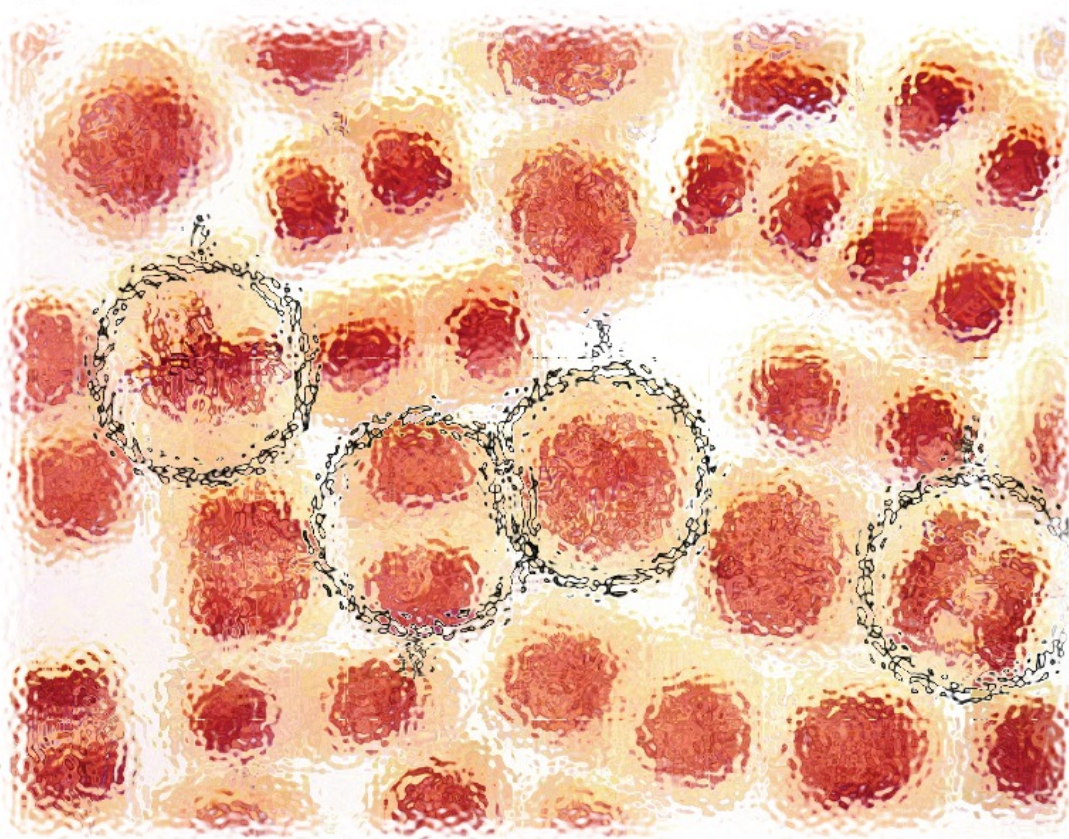
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LESSON 1

1. The first part of the lesson is a video of a scientist talking about the importance of the cell. The video is about 5 minutes long and is available on the TeachMeBio website.

2. The second part of the lesson is a worksheet that contains a series of questions about the cell. The questions are designed to test your understanding of the video and to help you to think about the cell in more detail.

3. The third part of the lesson is a series of diagrams that show the structure of the cell. The diagrams are designed to help you to understand the different parts of the cell and how they are arranged.

4. The fourth part of the lesson is a series of activities that you can do to help you to learn about the cell. The activities are designed to be fun and interactive and to help you to remember what you have learned.

5. The fifth part of the lesson is a series of resources that you can use to help you to learn about the cell. The resources include a list of websites, a list of books, and a list of videos.



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