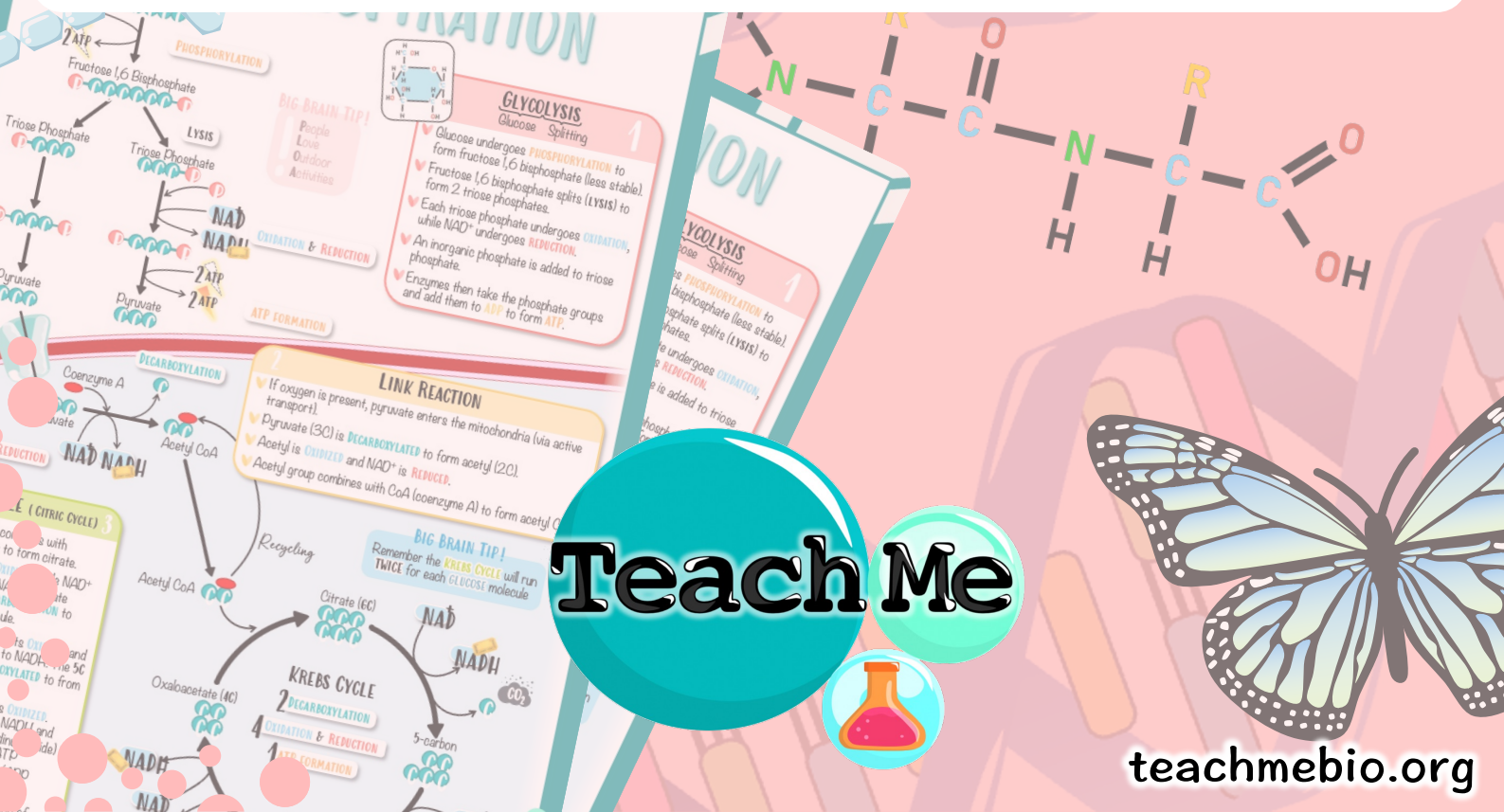


TeachMe

STUDY NOTES

CHAPTER 16 - INHERITANCE

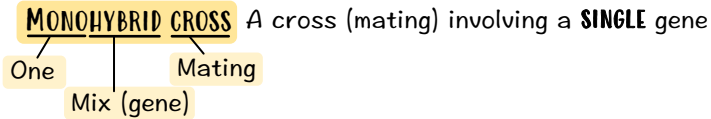
DIHYBRID INHERITANCE



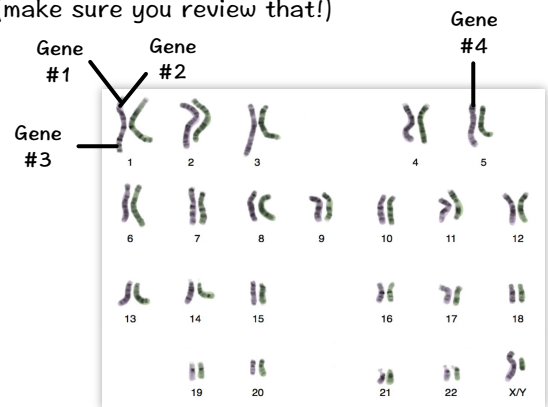
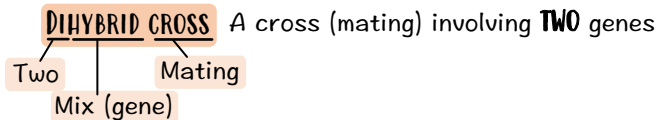
DIHYBRID INHERITANCE

INTRODUCTION

In “monohybrid inheritance” we learnt all about monohybrid crosses (make sure you review that!)



In HL inheritance, we have a look at dihybrid crosses.



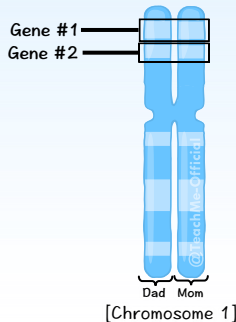
In dihybrid crosses, we want to see how two different genes are inherited to the next generation. Any two genes we consider during the cross, can either be on **different chromosomes** (e.g. gene #1 and #4), on the **same chromosome but far apart** (e.g. gene #1 and #3) or on the **same chromosome and close to each other** (e.g. gene #1 and #2).

From this we classify the relationship between two genes into one of these two categories:

LINKED Any two genes that are located close to each other on the same chromosome.

[details on page 2]

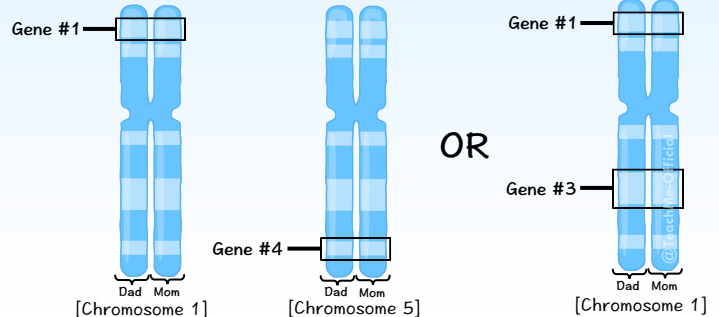
Gene #1 and #2 are called linked genes:



UNLINKED Any two genes that are located on a different chromosome (or far apart on the same chromosome).

[details on page 4]

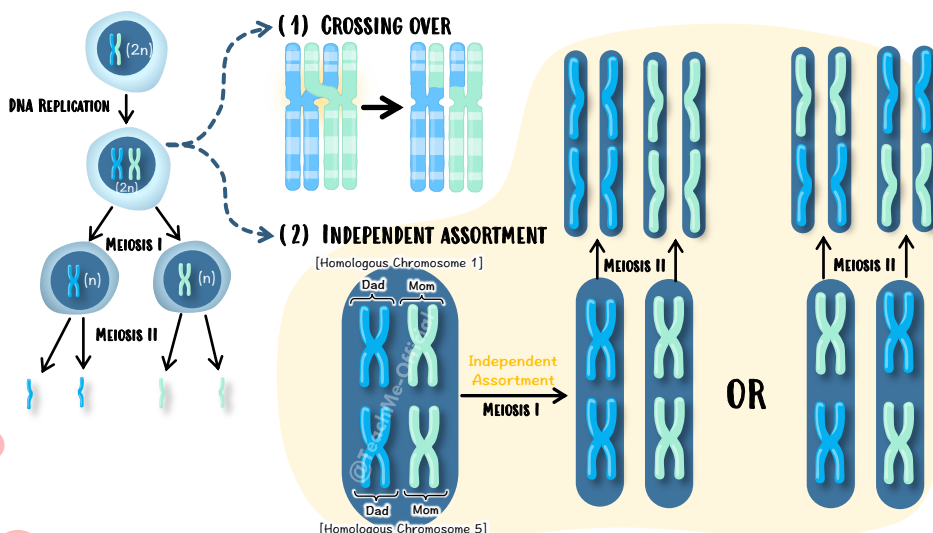
Genes #1, #3 and genes #1, #4 are called unlinked genes:



Why do we care about whether two genes are linked or unlinked?

Answer: It is important when we talk about their manner of inheritance (whether they are inherited together or not).

During meiosis, **independent assortment** and **crossing over** introduce genetic variation by exchanging segments between homologous chromosomes leading to reshuffling of alleles. The linking of genes (proximity) affects the shuffling of alleles, as genes that are close together on the same chromosome tend to be inherited together due to a lower likelihood of recombination occurring between them:

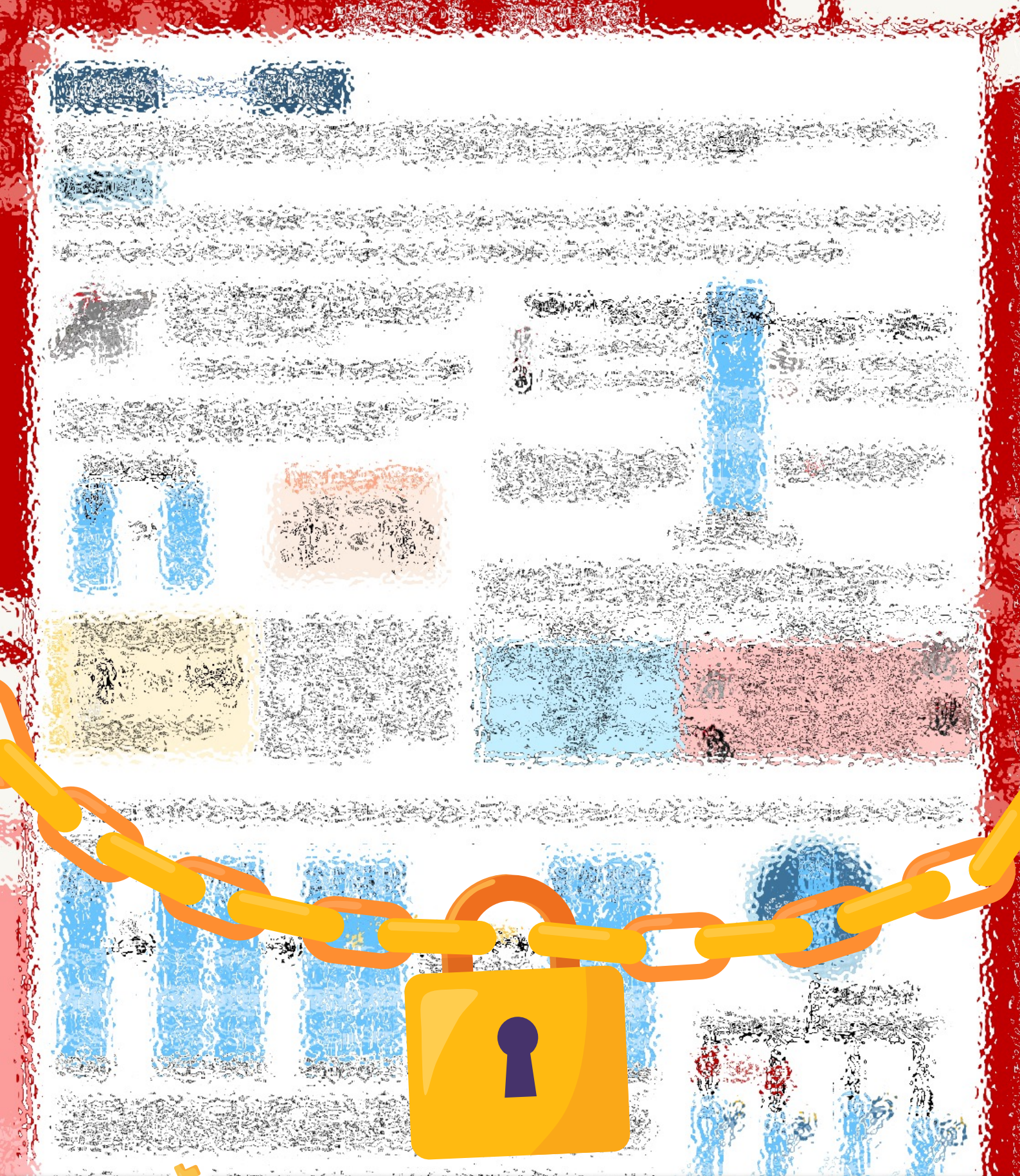


When genes are **NOT** closely linked (**UNLINKED**), crossing over is more likely to occur between them, resulting in new combinations of alleles that are different from those inherited from each parent.

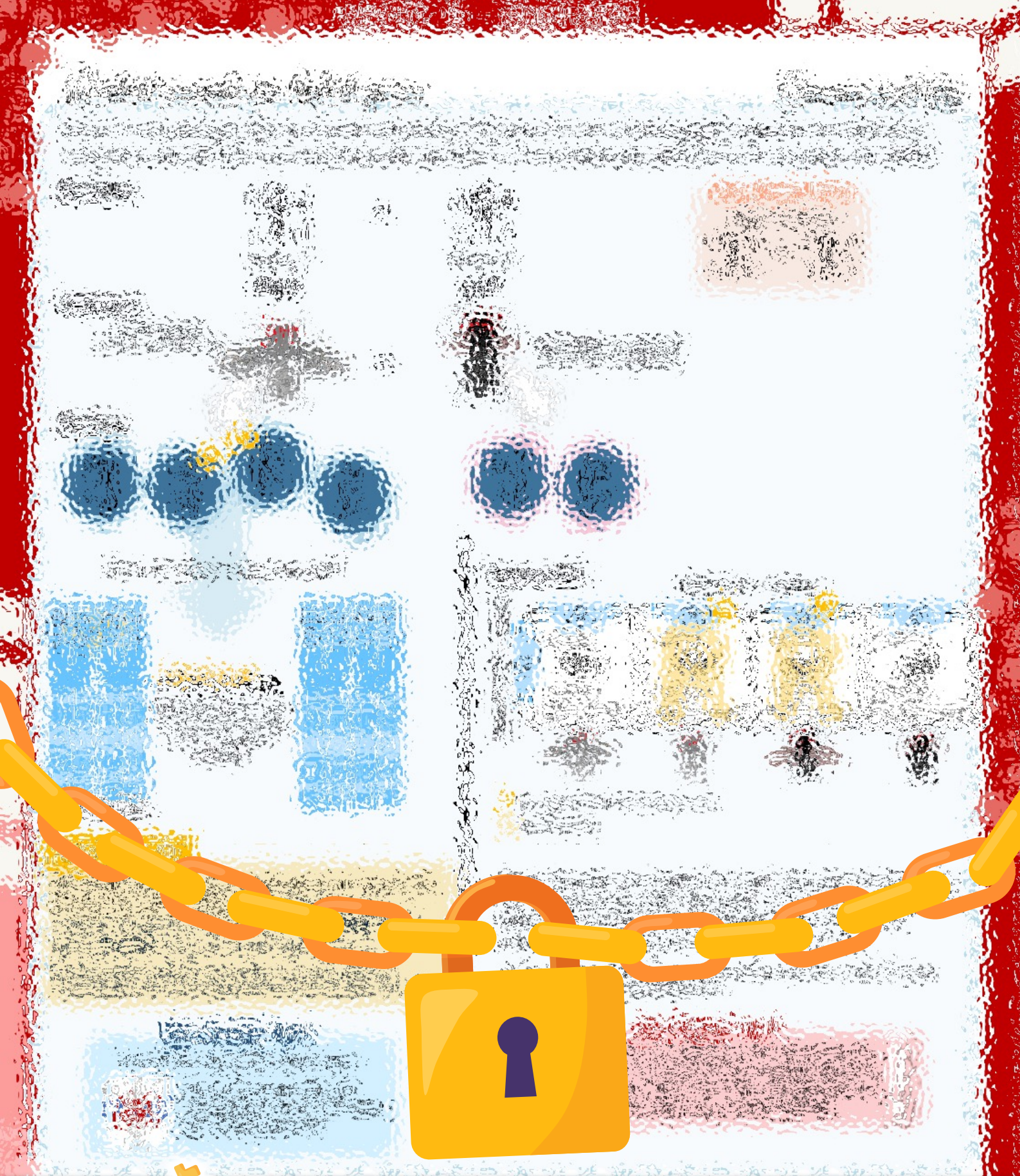
However, genes that are closely **LINKED** on the same chromosome are less likely to be rearranged by crossing over due to their proximity. As a result, these genes tend to be inherited together.

And remember — Law of segregation: “Each gamete will only receive one of the two copies that the parents can give.

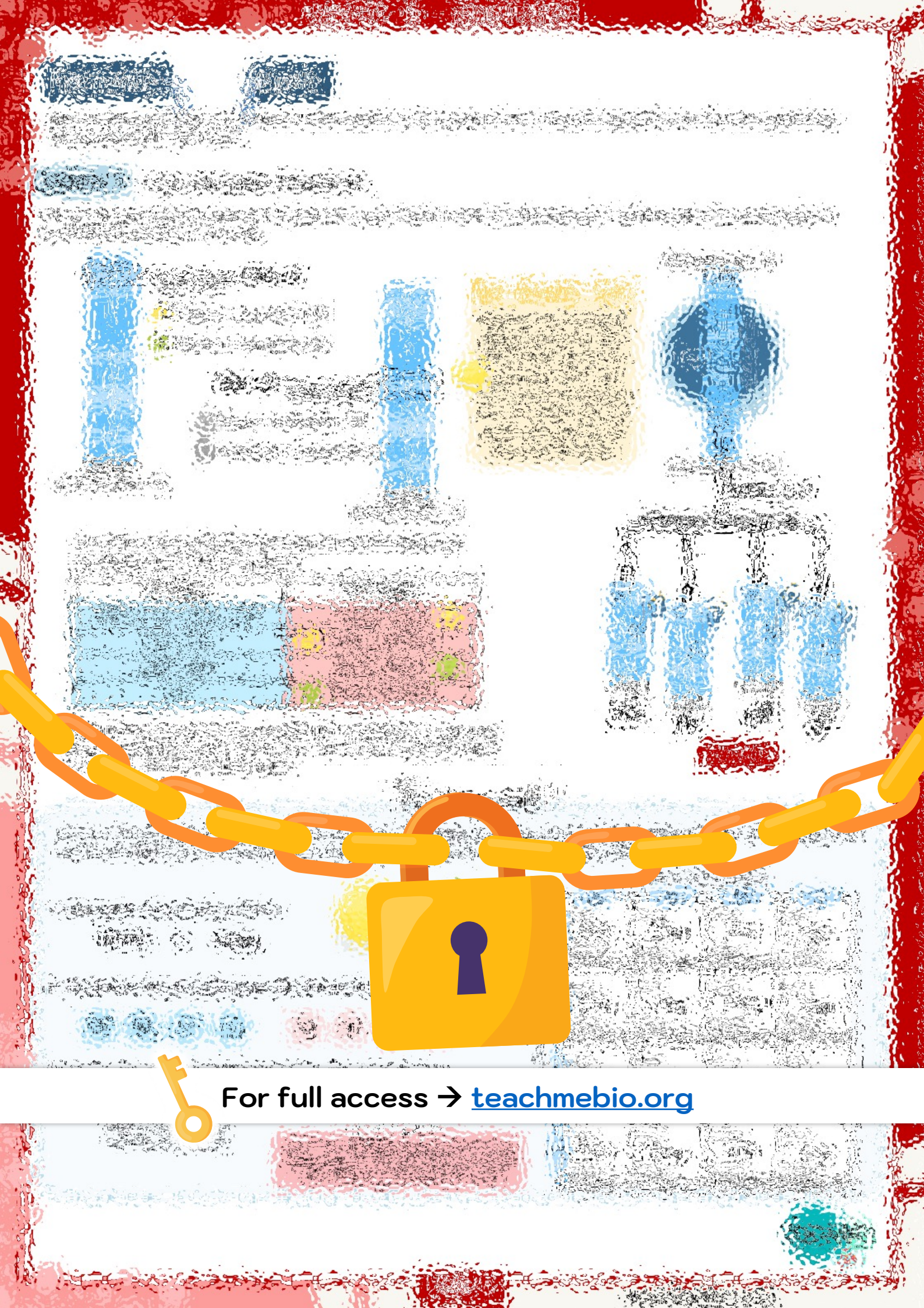




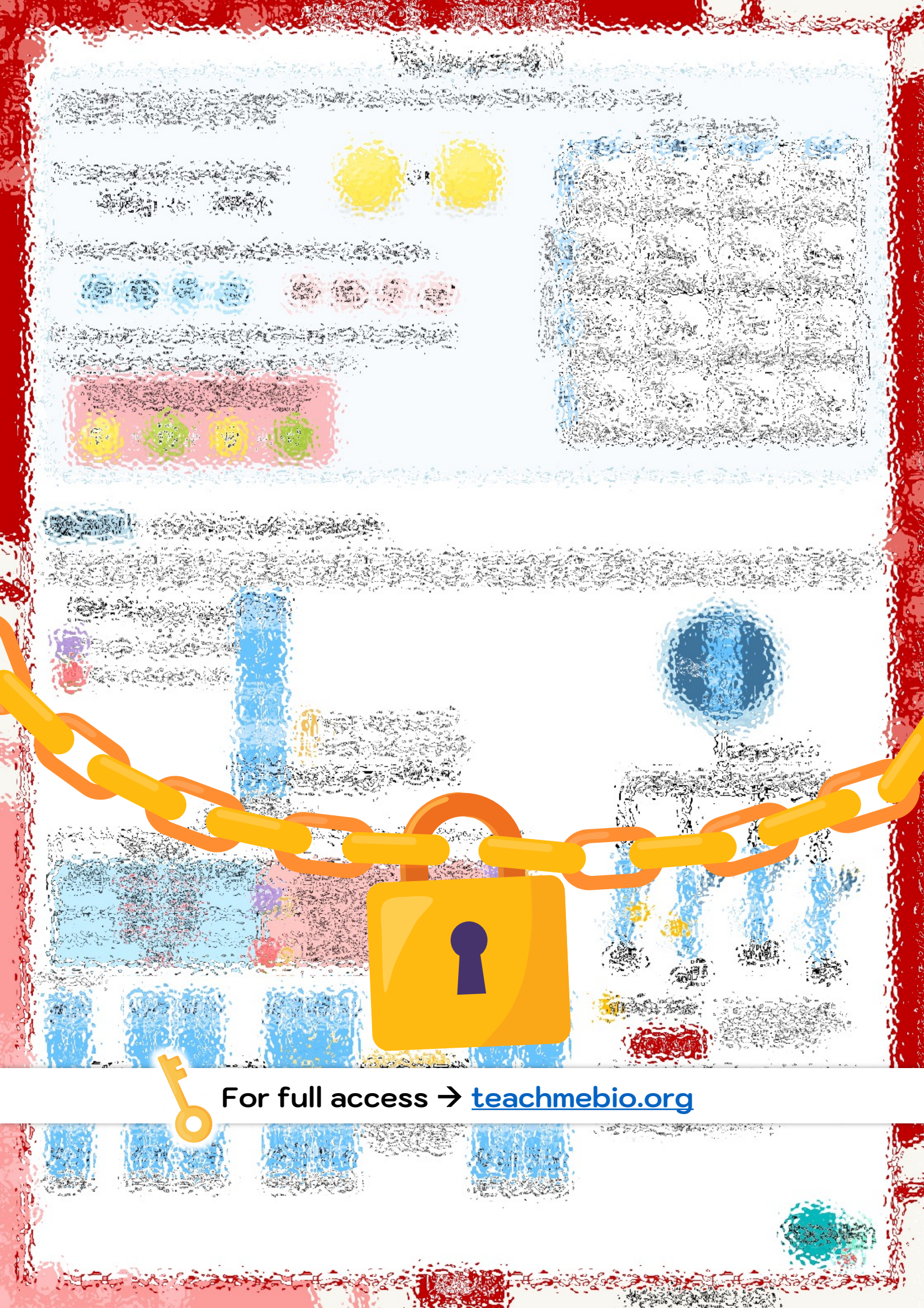
For full access → teachmebio.org



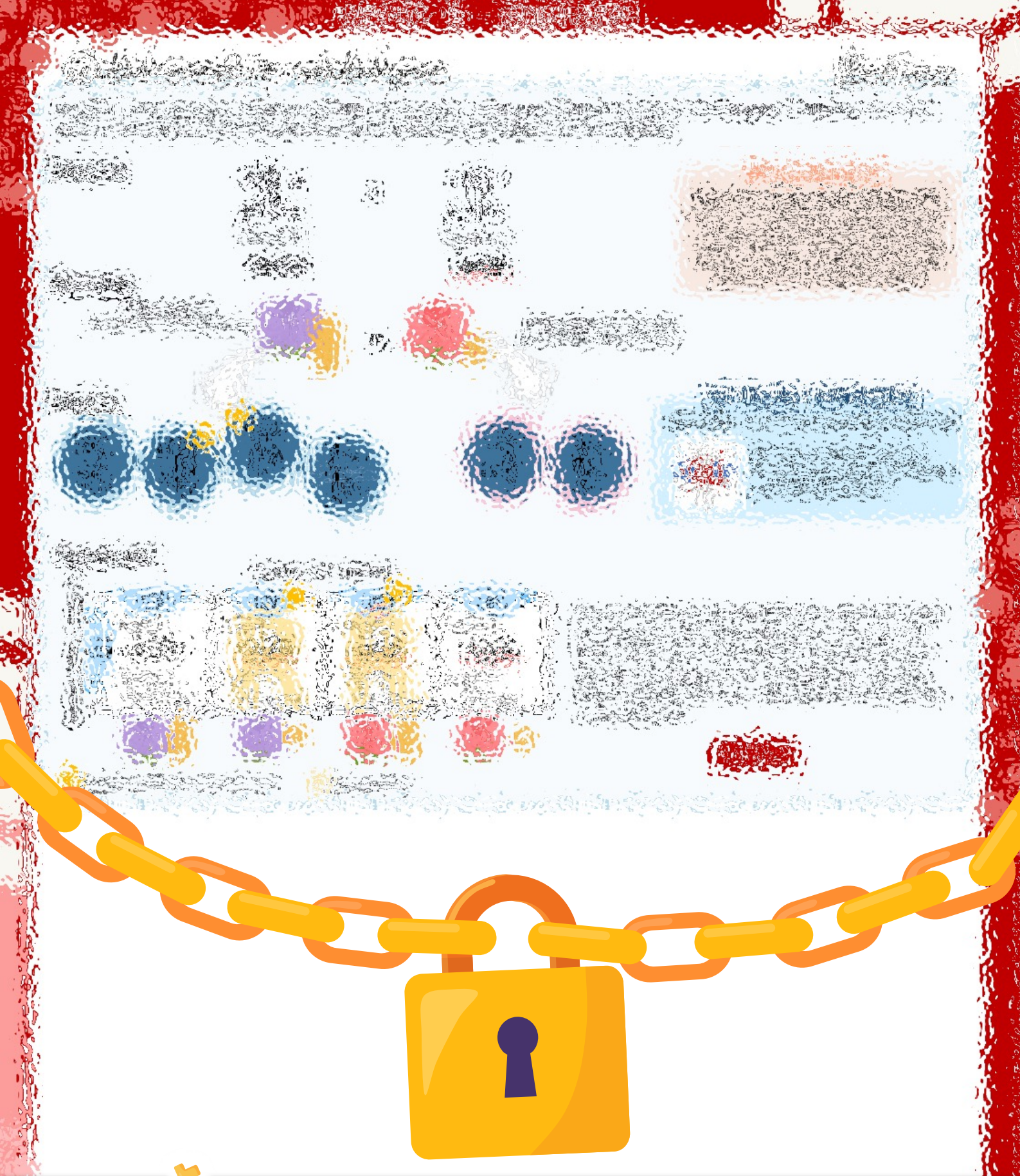
For full access → teachmebio.org



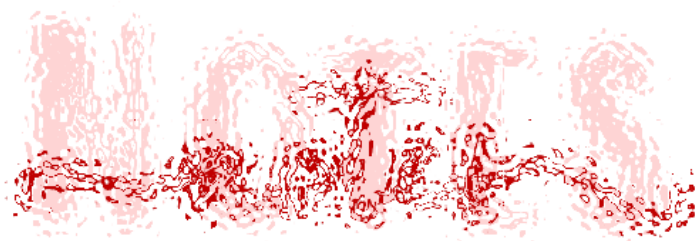
For full access → teachmebio.org



For full access → teachmebio.org



For full access → teachmebio.org



For full access → teachmebio.org