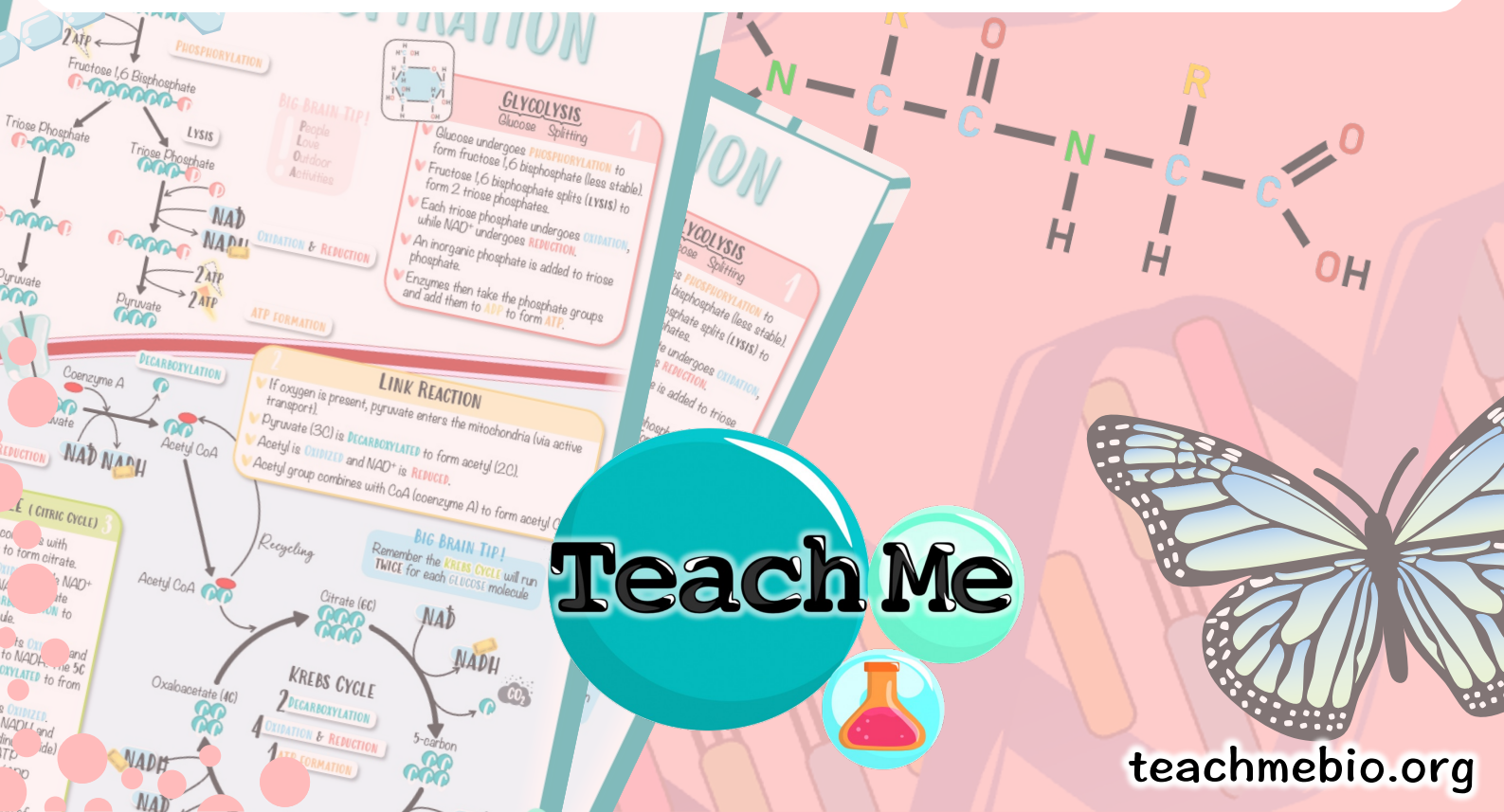


TeachMe

STUDY NOTES

CHAPTER 14 - HOMEOSTASIS

THE KIDNEY



THE KIDNEY

A key organ involved in homeostasis is the **KIDNEY**. We each have two kidneys (bean-shaped organs) located towards to back of your abdomen, one on each side of your spine.

FUNCTION OF THE KIDNEY

Kidneys are the organs that **REGULATES** the contents of our **BLOOD**.

EXCRETION

The removal of waste products from the body.

OSMOREGULATION

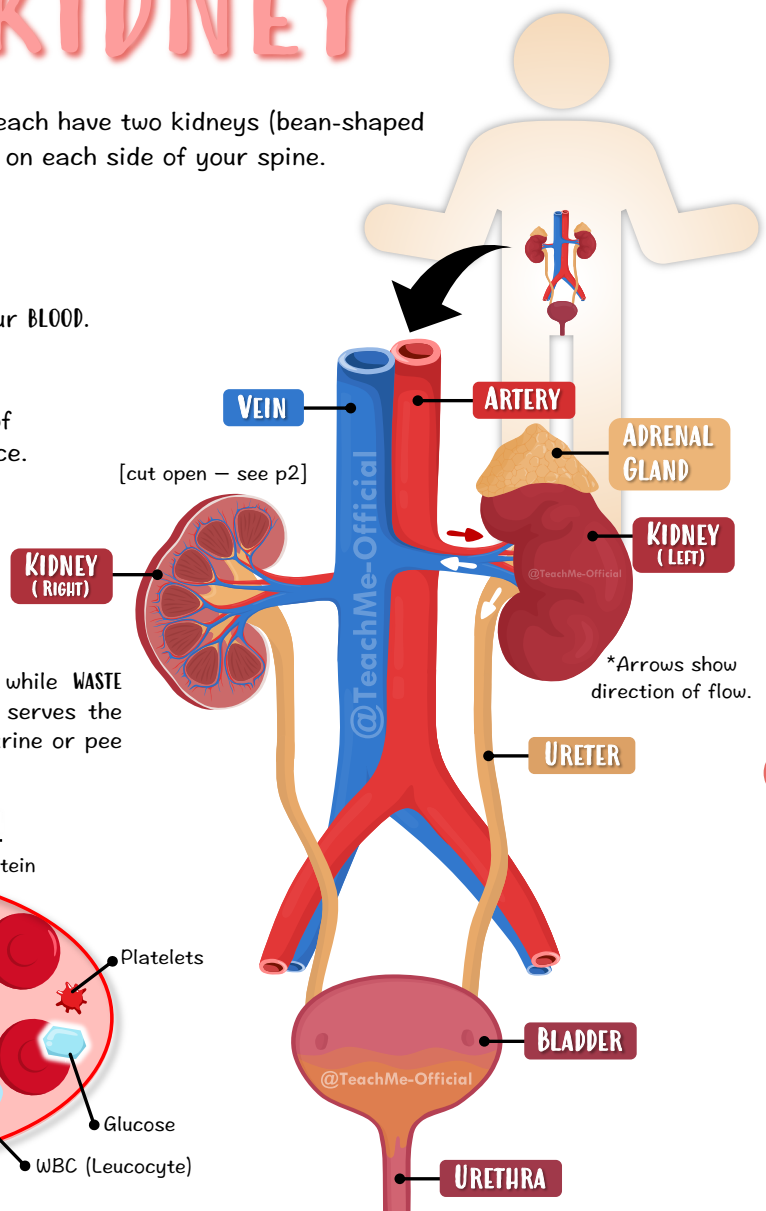
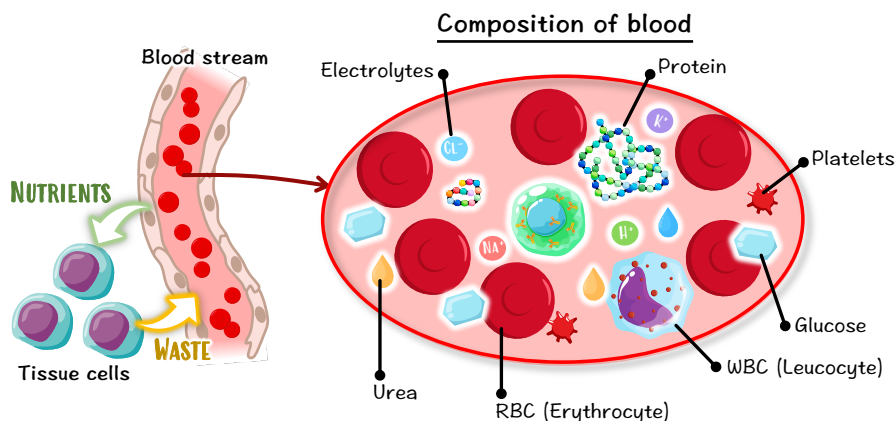
The maintenance of proper water balance.



BIG BRAIN TIP!

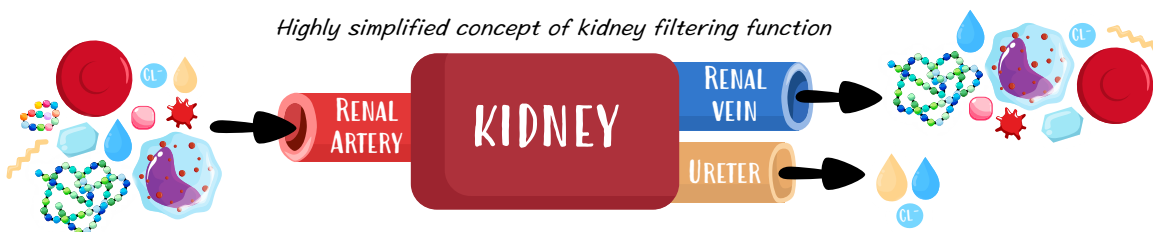
You can think of the kidney as a really fancy filter! The GOAT of filters.

NUTRIENTS from the blood gets taken up and used by cells, while **WASTE** products are released by the cells into the blood. The kidney serves the role in ridding the body of the waste products (in the form of urine or pee) and to retain the useful components in the bloodstream.



Blood enters the kidney through the renal artery to be filtered. The filtered blood exits the kidney as the renal vein. The waste removed from the renal artery leaves the kidney in the ureter. Therefore blood content is different in the **RENAL ARTERY** compared to the **RENAL VEIN**, which is also different to that of the **URETER**.

Highly simplified concept of kidney filtering function



RENAL ARTERY

Unfiltered "dirty" blood
 High O_2 | Low CO_2

The blood is high in nutrients (such as glucose, amino acids, lipids, proteins), waste products (urea), electrolytes (Na^+ , K^+), red blood cells, immune cells, platelets, plasma, and water.

RENAL VEIN

Filtered "clean" blood
 Low O_2 | High CO_2

After filtration, the blood is lower in nutrients, but red blood cells, immune cells, platelets, plasma, and water are still present. Waste (urea) is not present anymore as it was filtered out, into ureter.

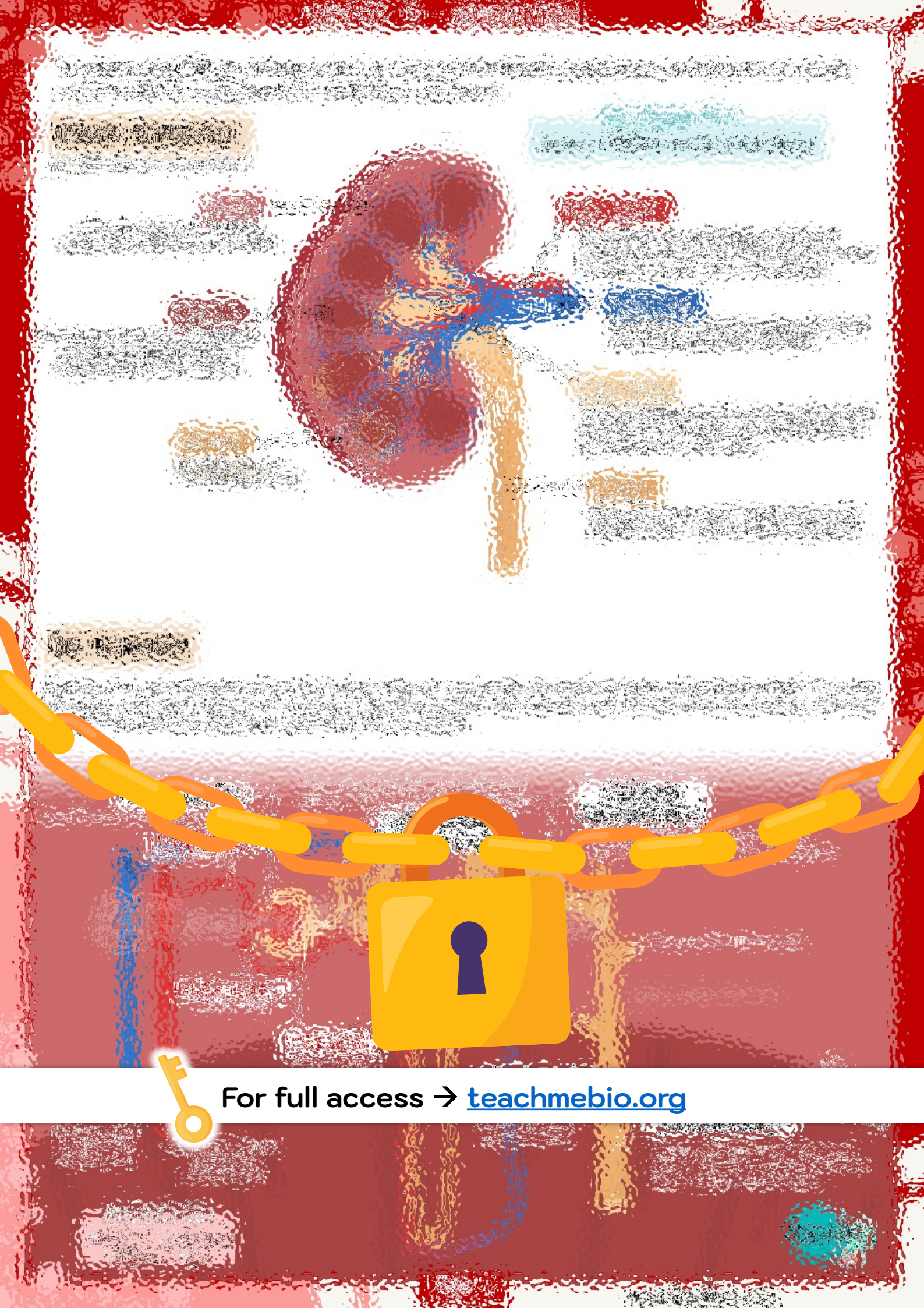
URETER

Filtered waste (urine)

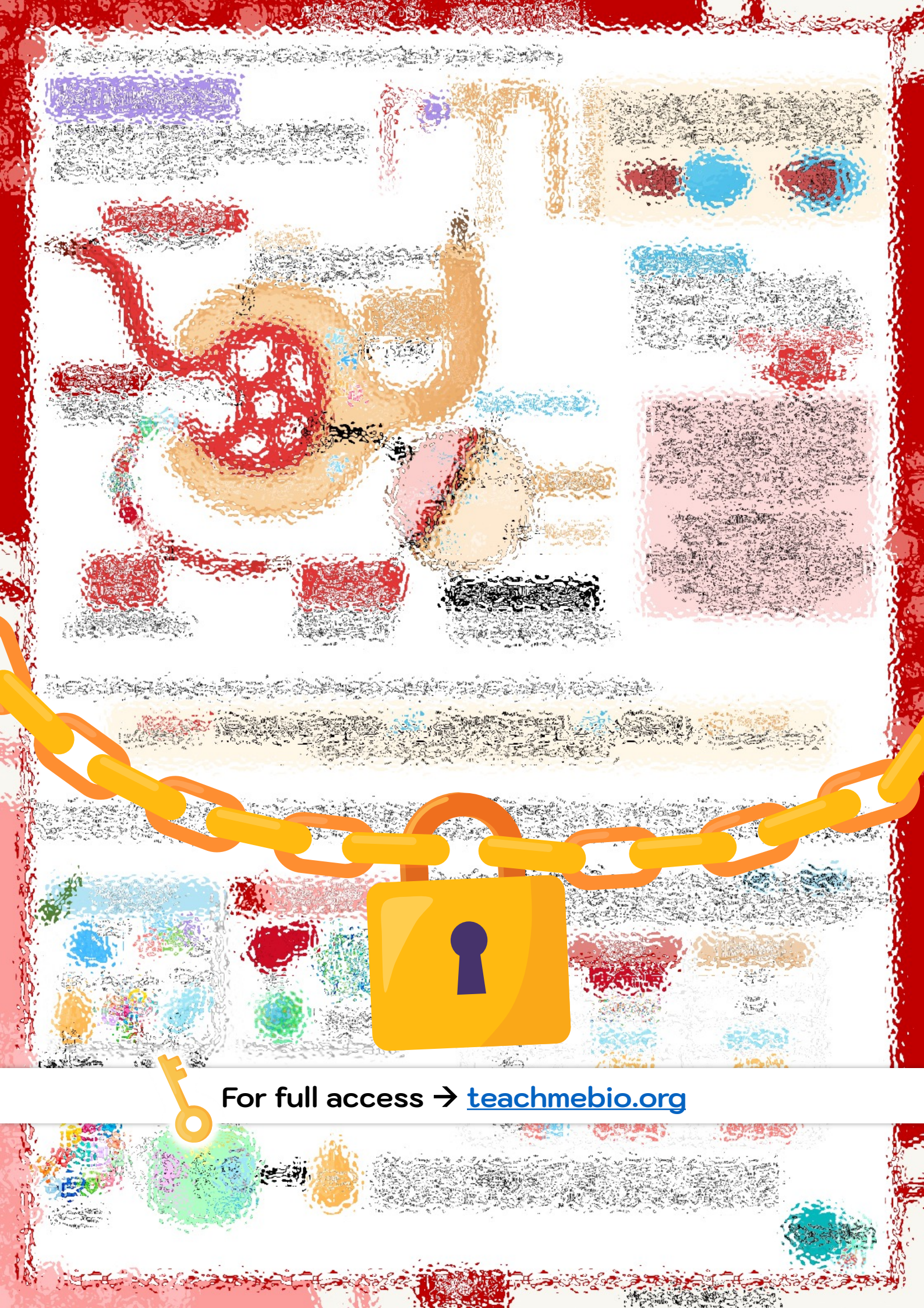
The urine contains the waste products (urea), as well as excess ions and excess water (OSMOREGULATION function of the kidney).

See more on page 6

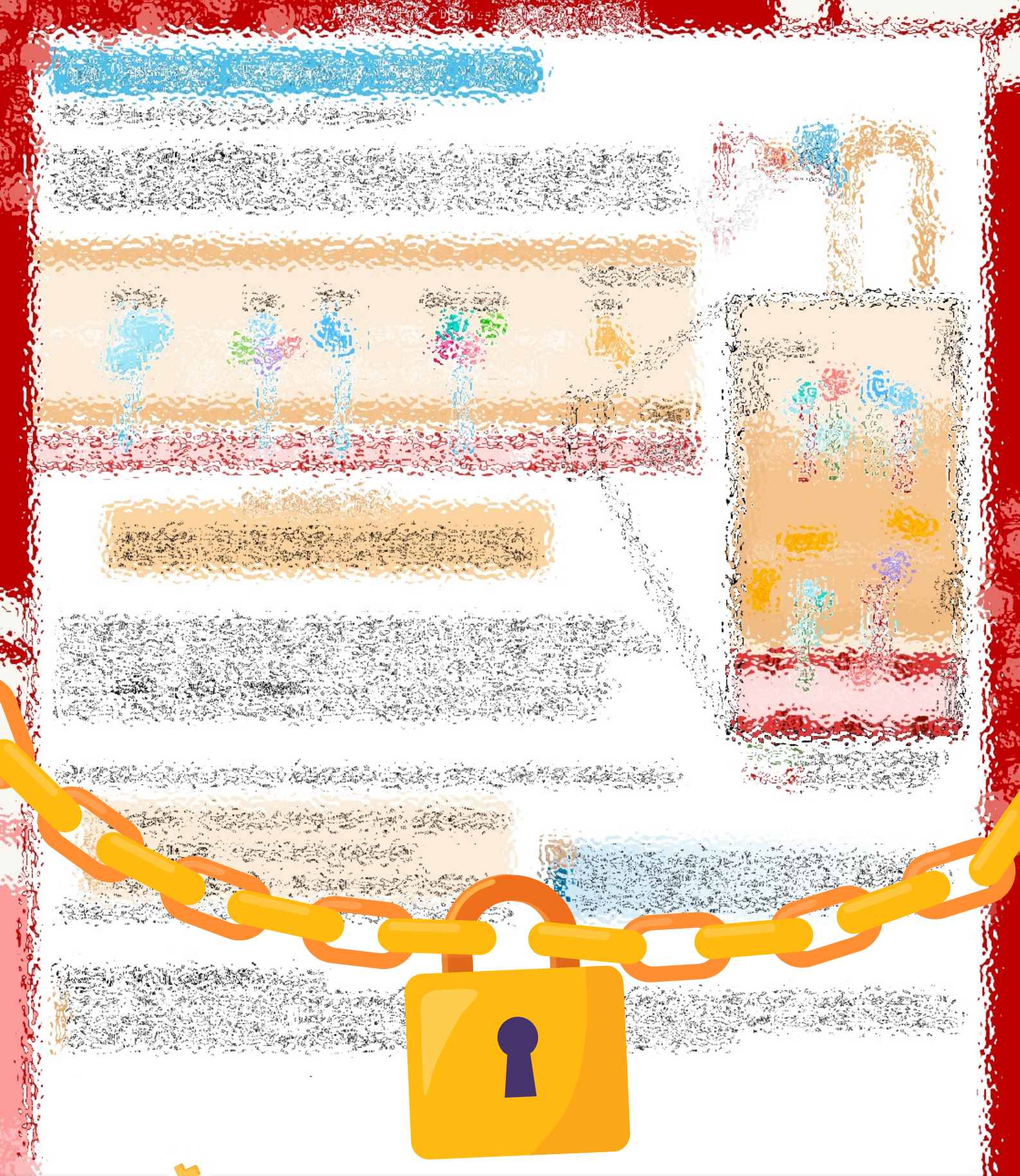




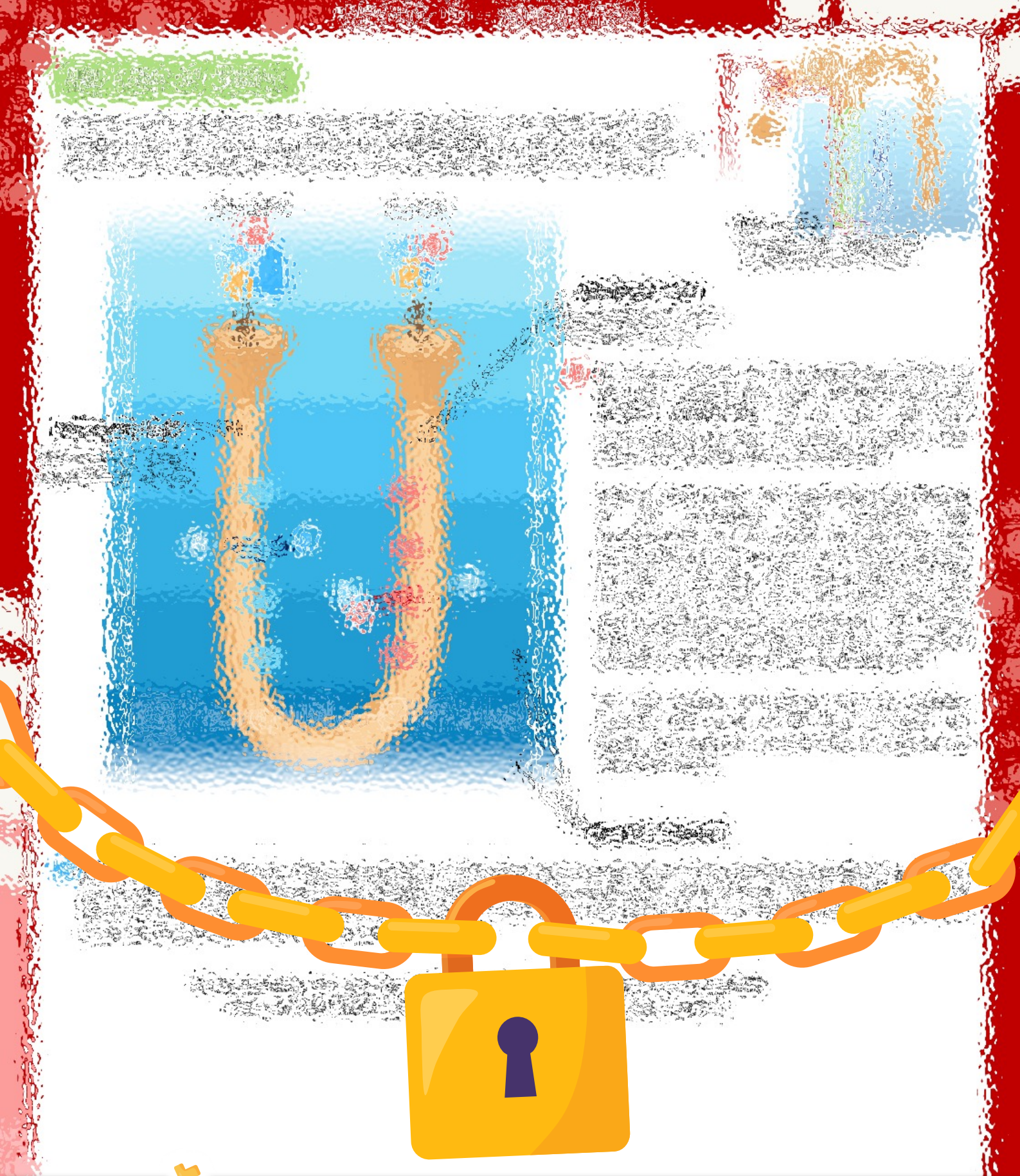
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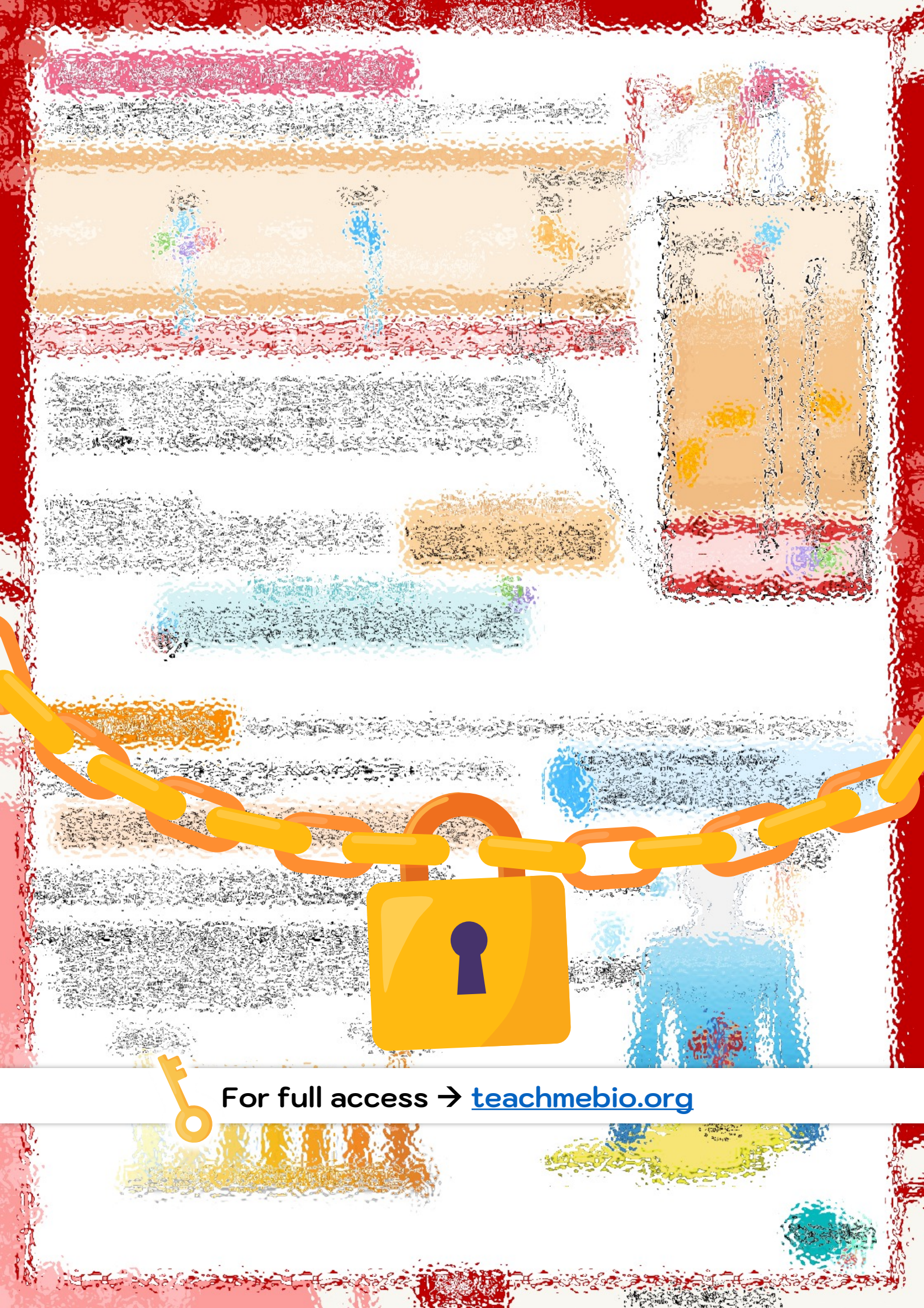
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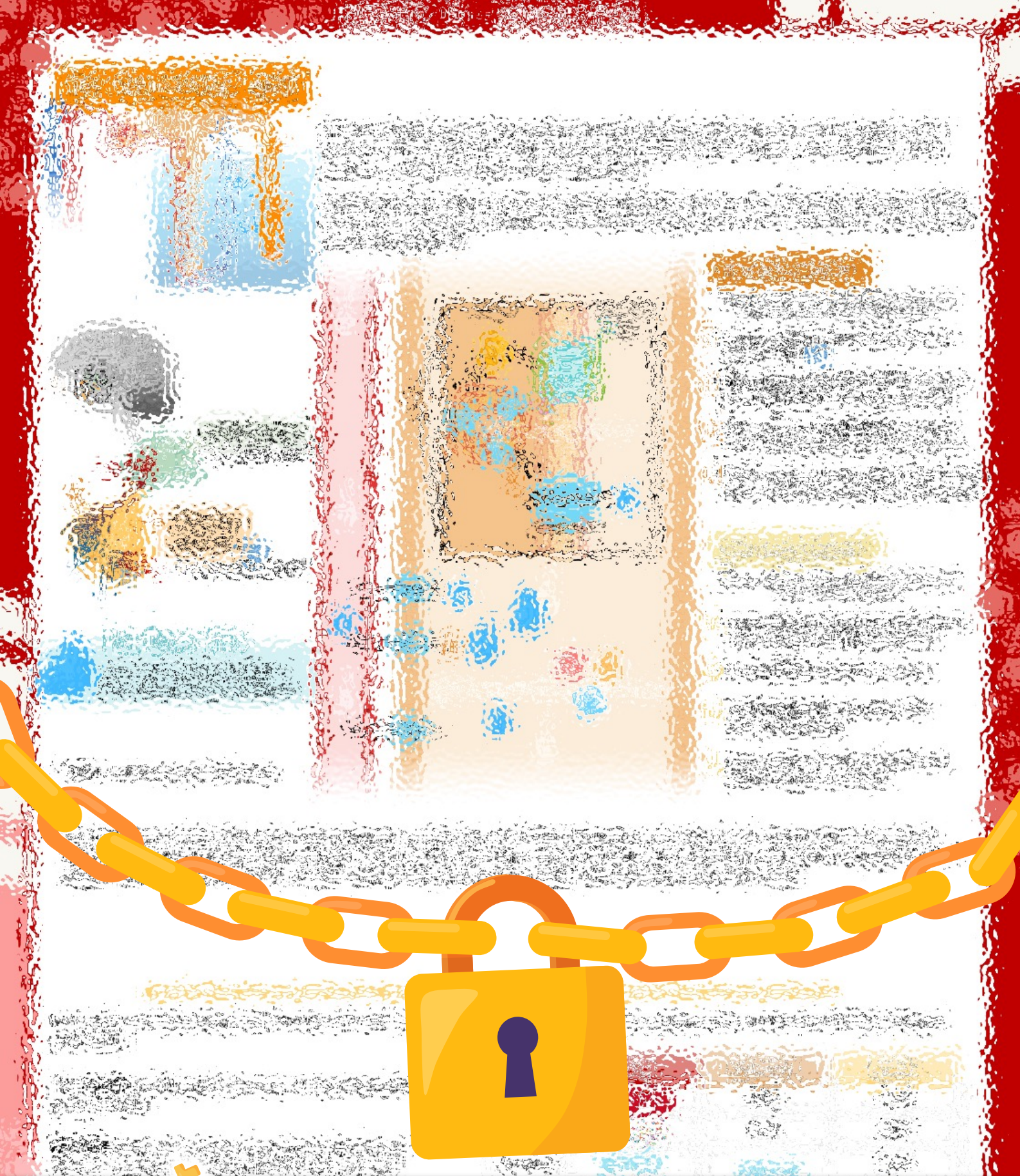
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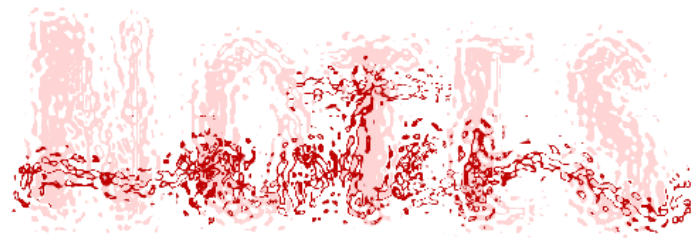
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