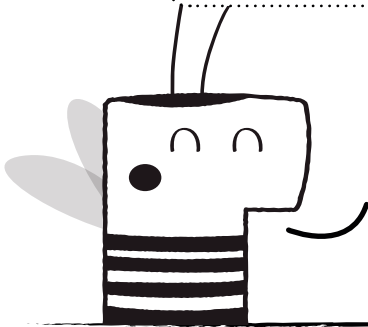


Name: _____

Group: _____



Rubbers, like many other things, were invented by chance. Logically, the need of erasing pencil marks appears with the use of the pencil, until then, ink, an indelible element, was only used for writing.

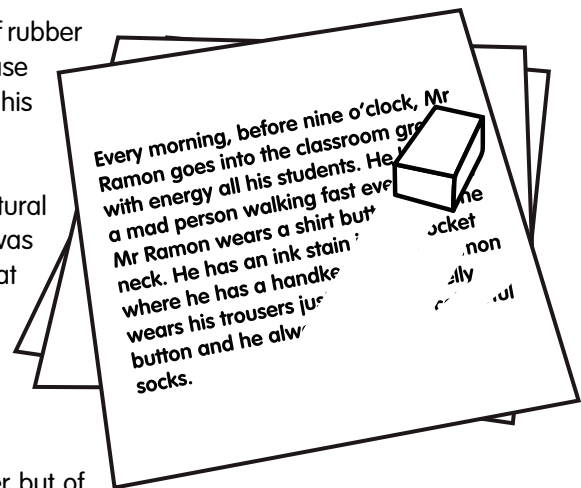
Before the rubber appeared, it was possible to erase pencil marks with bread erasers. There were two problems with these breadcrumbs erasers: they needed fresh bread and they were not too precise.

When the Spanish were exploring America, they saw the aztecs playing with balls that bounced frenetically and which, according to one of the soldiers of Hernán Cortés, called Bernán Díaz del Castillo, they seemed to be moved by evil spirits. In effect, as in other civilisations, the aztecs had fun playing ball games with a very elastic ball. Other soldiers saw a liquid flowing from a tree, falling onto the ground and turning into small balls that bounced easily. It came from a rubber and a cork tree, they named this material latex. Surprised by the elasticity of latex, the spanish people brought samples to Europe. It was not in Spain where they proposed to use this material for rubbers. It was in England, where the scientist Joseph Priestley discovered he could erase pencil markings by rubbing a piece of natural rubber made from plants over it. He did not sell this product.

In 1770, Edward Nairne, an English engineer, picked up a piece of rubber instead of breadcrumbs and discovered that rubber can erase pencil marks and he started selling rubber blocks as erasers in his shop in London.

There was a problem with this first natural rubbers, the natural rubber in time fermented and went off. To delay this process, it was Charles Goodyear who invented the vulcanization, a process that heated natural rubber and sulphur to make the rubber harder and less sticky and most importantly, more durable because it did not go off. This process was patented by Goodyear himself in 1844.

Nowadays, most of the rubbers are not made of natural rubber but of synthetic materials.



① WE ARE CURIOUS 

1. Who were the aztecs ?

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2. Which product do you relate Charles Goodyear with?

.....

3. Who was Hernán Cortés?

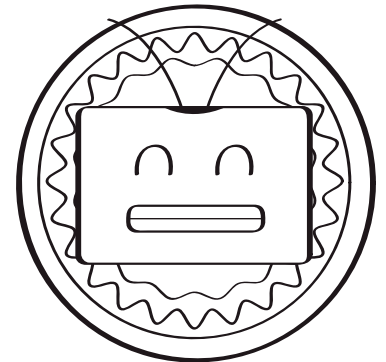
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4. Investigate about the different uses of latex. Ask your parents, uncles and aunts, grandparents about the memories rubbers bring to them. If they used bread or which brands did they use?

.....

5. Try making a breadcrumbs rubber and use it for a couple of days.



GLOSSARY

By chance: something that happens without cause or reason, and that cannot be controlled by humans. (per casualitat)

To erase: To rub out or remove something, esp. a pencil mark. (esborrar)

Indelible: (of ink, pens, etc) leaving a mark that cannot be removed. (imborrable)

Breadcrumbs: Very small pieces of bread that can be used in cooking. (molles de pa)

Precise: Particular, exact (precís)

Aztecs: Certain ethnics groups of central Mexico who dominated Mesoamerica from the 14th to the 16th centuries. (aztecas)

To bounce frenetically/To be moved by evil spirits:These expressions mean that the rubber bouncing balls move everywhere very quickly, with a lot of energy. (botar les pilotes de goma amb molta força)

To bounce: To move up and down: to jump up and down. (botar)

To have fun: to enjoy (divertir-se)

Latex: thick liquid produced by certain plants, esp. the rubber tree. (latex)

Sample: A typical small quantity. (mostra)

To rub: To press one's hand or another surface against something, usually with a repeated round-and-round movement. (fregar)

To ferment: To change chemically and become filled with gas by the action of certain living substances such as yeast, esp. in such a way that sugar turns into alcohol. (fermentar)

To go off: to go bad. (tornar-se dolent)

To delay a process: To move the process to a later time. (retrassar un procés)

To heat: To make or become warm or hot. (escalfar)

Sticky(adj.): A thick liquid which stays fixed to anything it touches. (enganxós)

Durable(adj.): Long-lasting (que dura)

Synthetic: Artificial; made by combining chemical substances rather than being produced naturally by plants. (sintètic)

