





A Brief History of Plastics

boom

The background is a vibrant comic book illustration. It features a central white rectangular area containing text. Surrounding this area are various comic-style elements: a yellow and orange starburst at the top center, a red starburst at the top right with the word 'WOW' in red, a blue starburst at the bottom left with the word 'boom' in yellow, and a green starburst at the bottom right. There are also several white clouds with motion lines, a red starburst at the bottom center, and a blue starburst at the bottom left. The overall style is reminiscent of classic comic book art.

The first man-made plastic of note was created
by Alexander Parkes - who publicly demonstrated
it at the Great Exhibition in 1862.

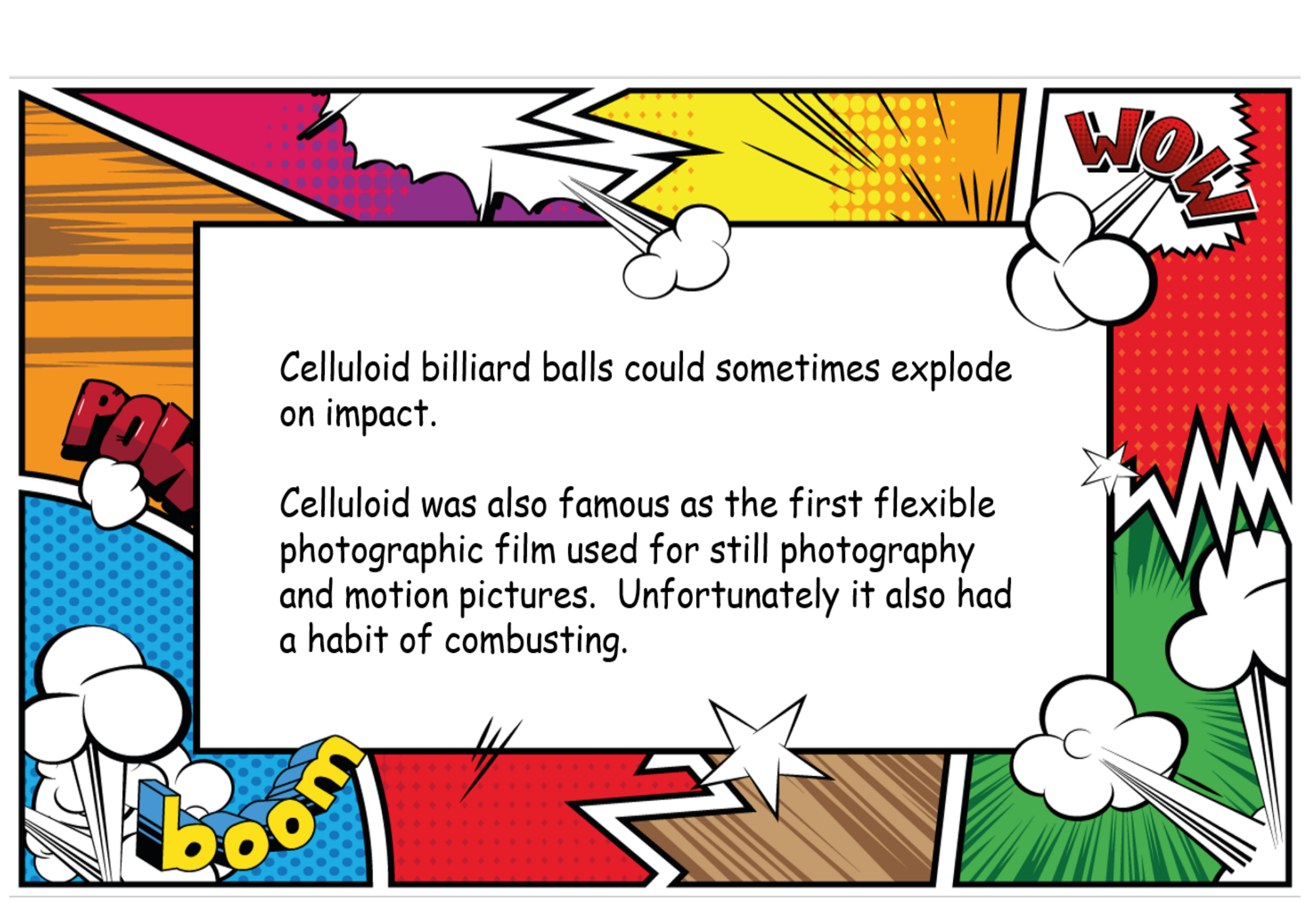
It could be moulded and it kept
its shape when cooled.
Not surprisingly it was called Parkesine



In 1863 John Wesley Hyatt invented a plastic called Celluloid. Hyatt was looking for a replacement material to make billiard balls

Do you know what material billiard balls were made of before plastic?





Celluloid billiard balls could sometimes explode on impact.

Celluloid was also famous as the first flexible photographic film used for still photography and motion pictures. Unfortunately it also had a habit of combusting.



Silent Film Production

Hyatt pressed on and created celluloid in a strip format for movie film.

By 1900 moving films were a growing industry. The first 'Silent Film' was shown in 1895 and the first 'Talkie' was screened in 1920.



In 1890 Casein (made from milk protein and formaldehyde) was discovered. It was very brittle and used to make buttons and knitting needles.



1899: Arthur Smith was issued the first phenolic resin patent, the resin was used to coat electronic cables.



1907: Hendrik Baekland built on the work of Arthur Smith and invented Bakelite which was the first fully synthetic (man-made) plastic to become commercially successful. It was also the first to be made from a fossil fuel (coal or oil)



Bakelite was popular because....

It could be made in a range of colours including black, brown, red, yellow, green, grey and blue or blends of two or more of these, to get different effects.


It was suitable for a wide range of products like toys, clocks, radios, telephone cases and jewellery.





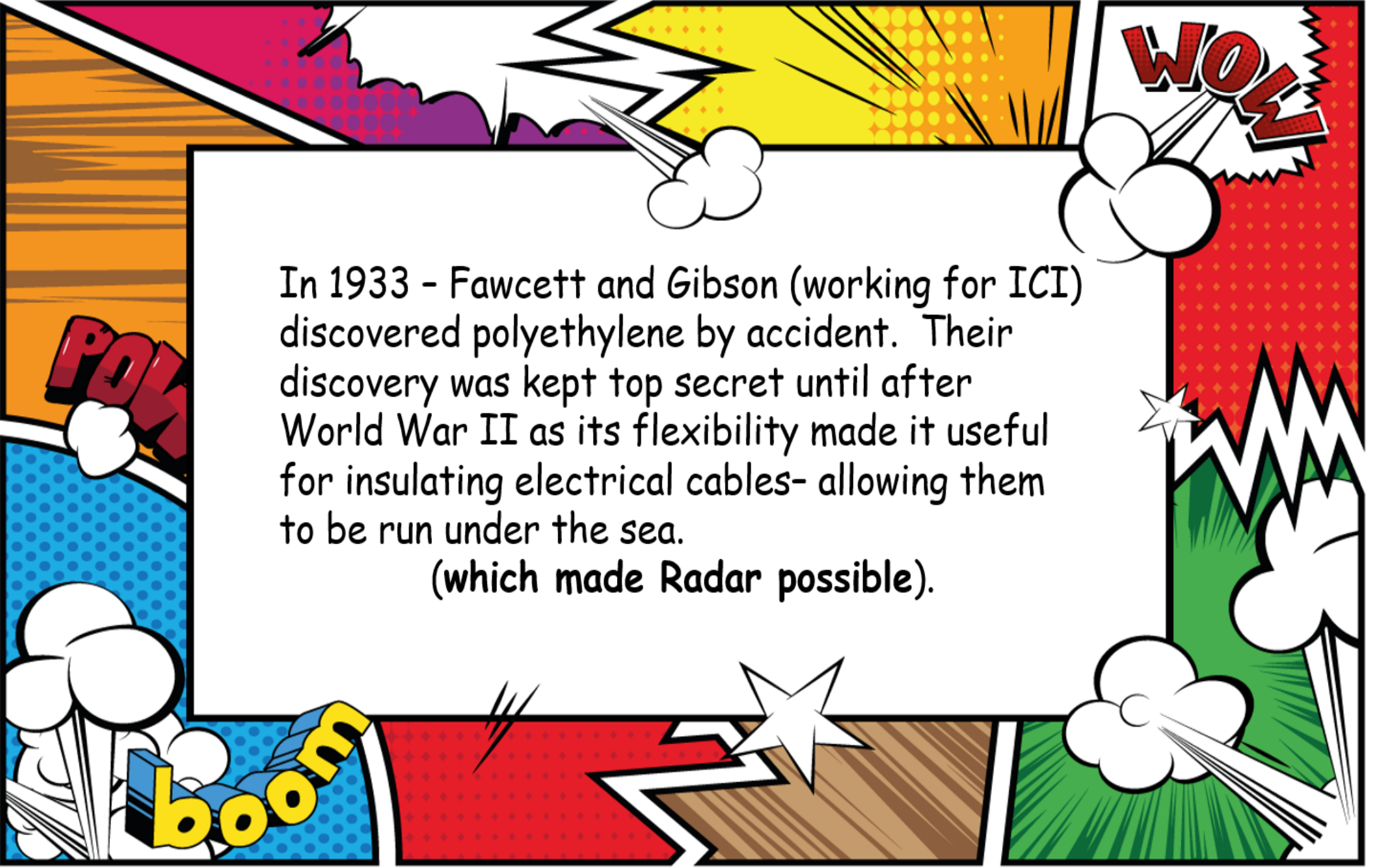
Things really began to speed up in the plastics world in the early part of the 20th Century.

Starting with **Cellophane** in 1912 - first used to wrap boiled sweets/candy.




In 1926 Polyvinyl chloride was developed to replace natural rubber.

It was cheap to manufacture and was commonly used to replace leather to sole shoes and to make waterproof clothing.

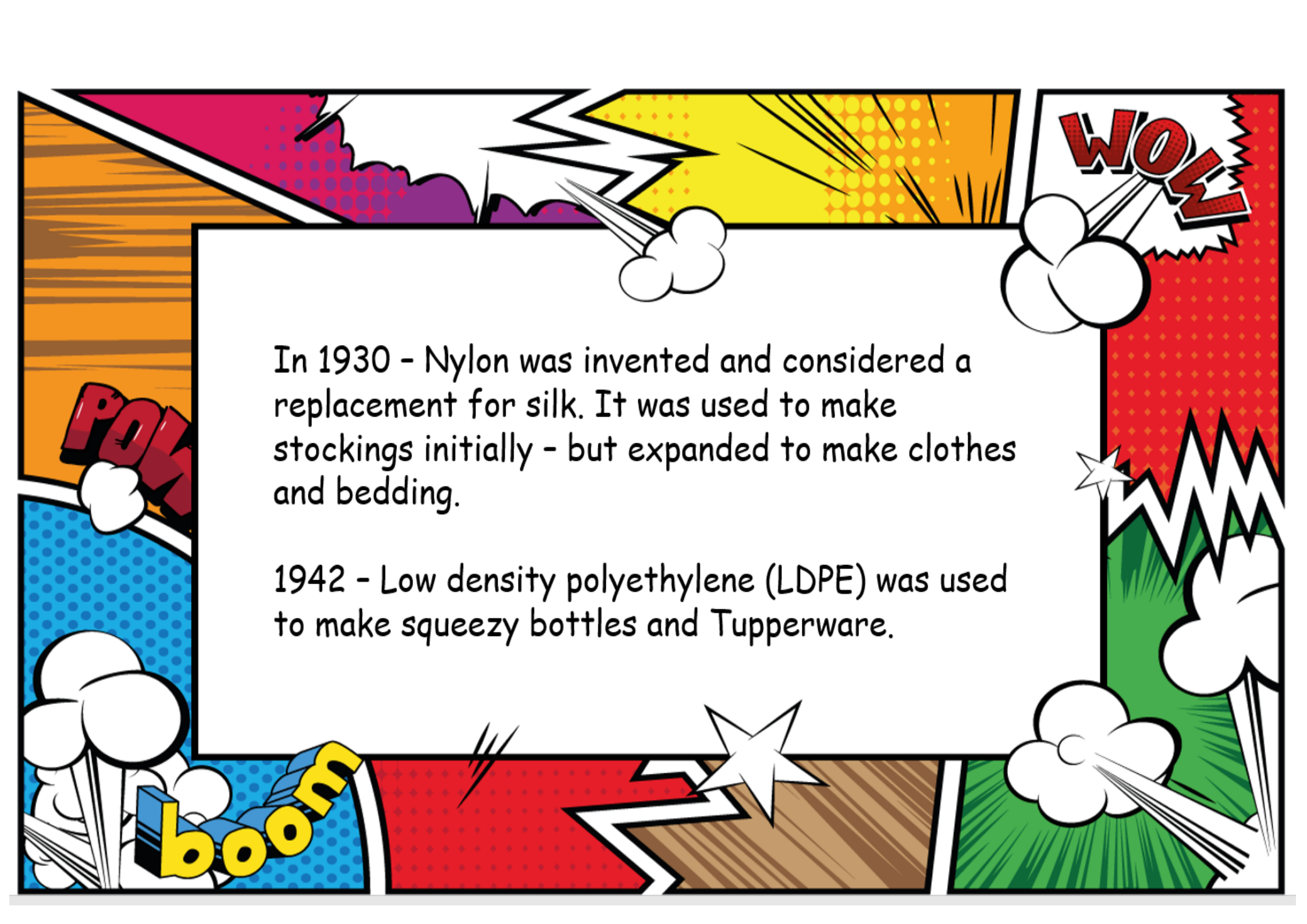


In 1933 - Fawcett and Gibson (working for ICI) discovered polyethylene by accident. Their discovery was kept top secret until after World War II as its flexibility made it useful for insulating electrical cables- allowing them to be run under the sea.
(which made Radar possible).



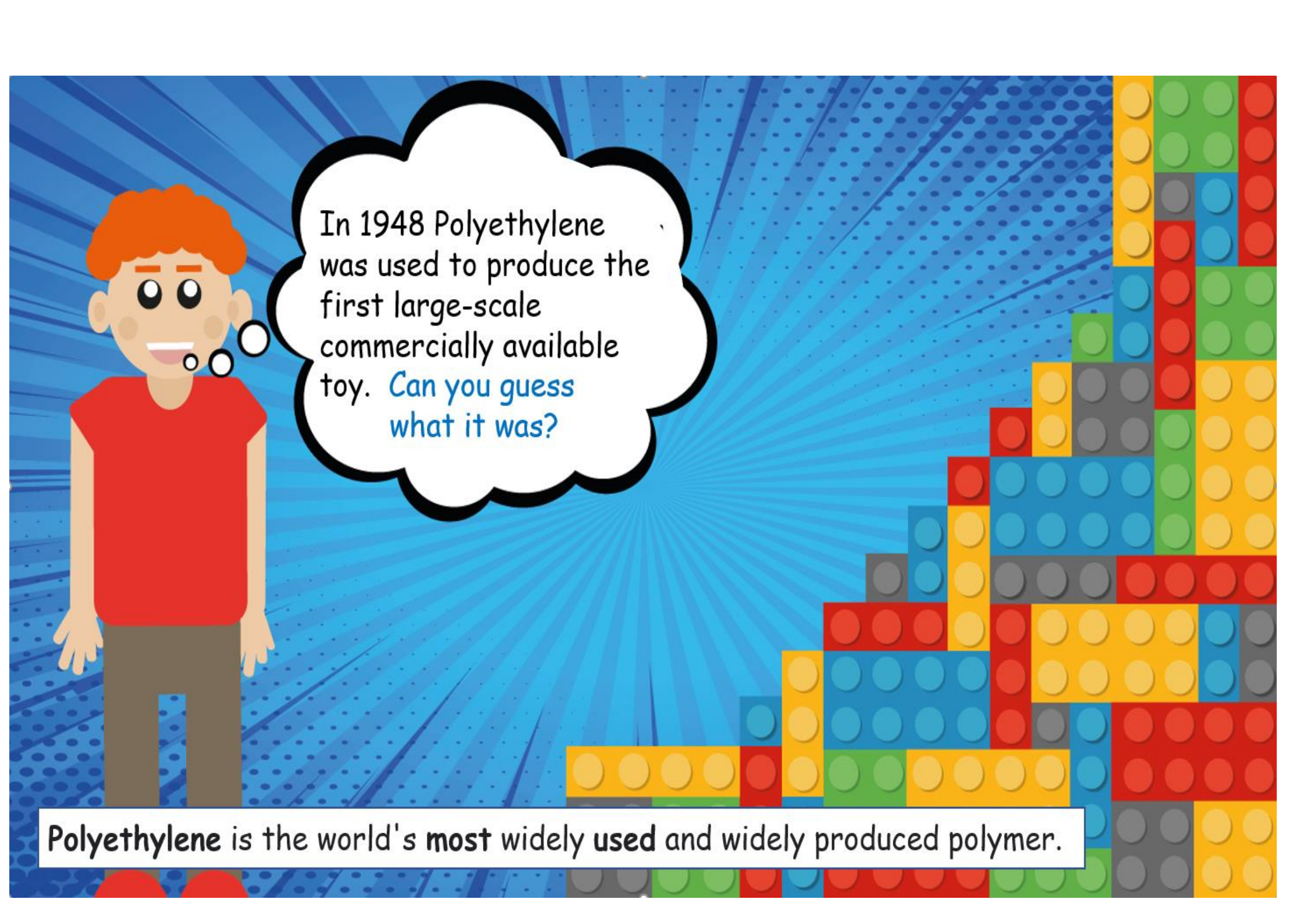
In 1934 Perspex was discovered, by scientists at ICI. It was used to make the cockpit canopies in the Spitfire aeroplane in WWII. Because it was see-through and a lot lighter than glass.





In 1930 - Nylon was invented and considered a replacement for silk. It was used to make stockings initially - but expanded to make clothes and bedding.

1942 - Low density polyethylene (LDPE) was used to make squeeze bottles and Tupperware.



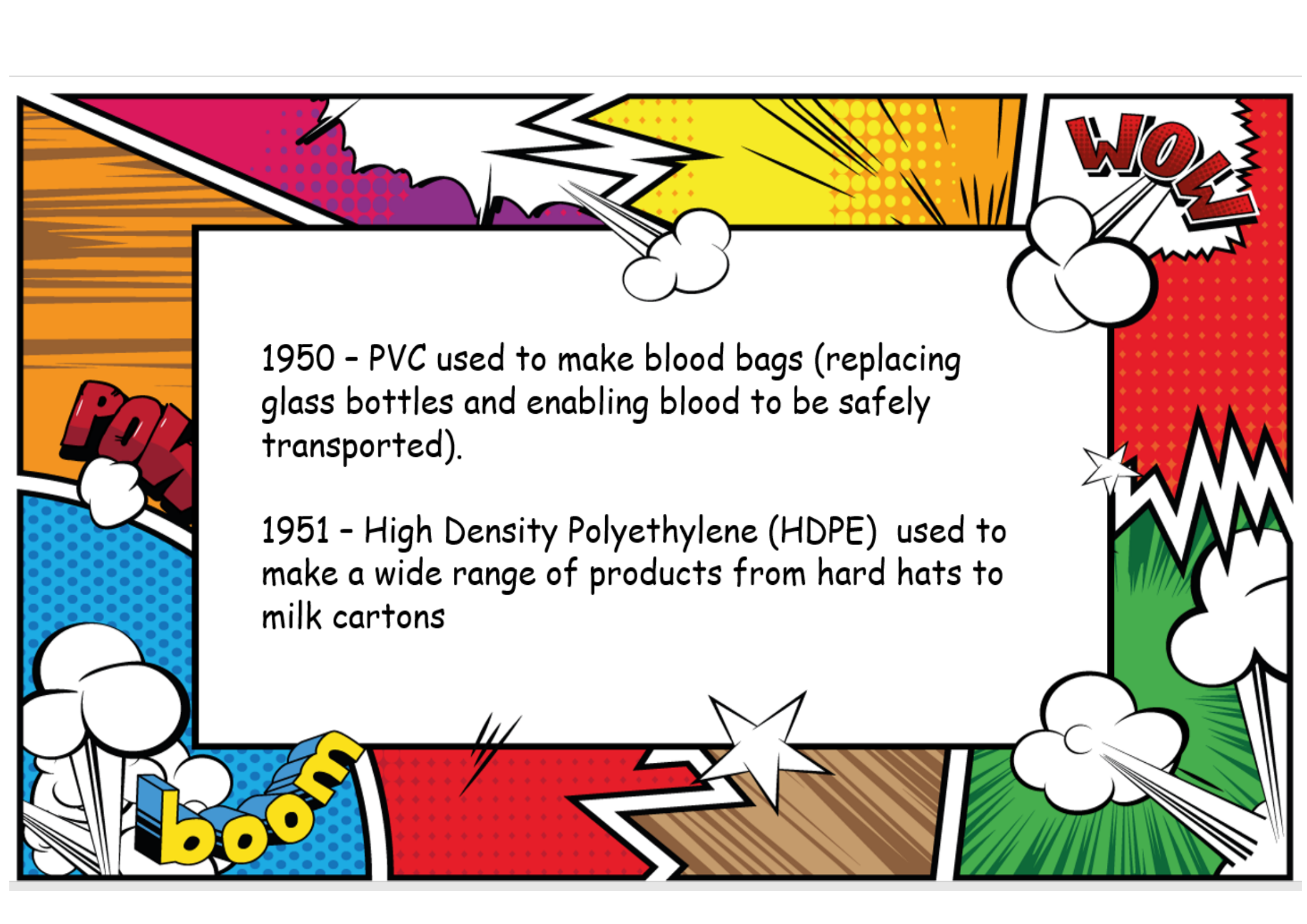
In 1948 Polyethylene was used to produce the first large-scale commercially available toy. Can you guess what it was?

Polyethylene is the world's **most** widely used and widely produced polymer.



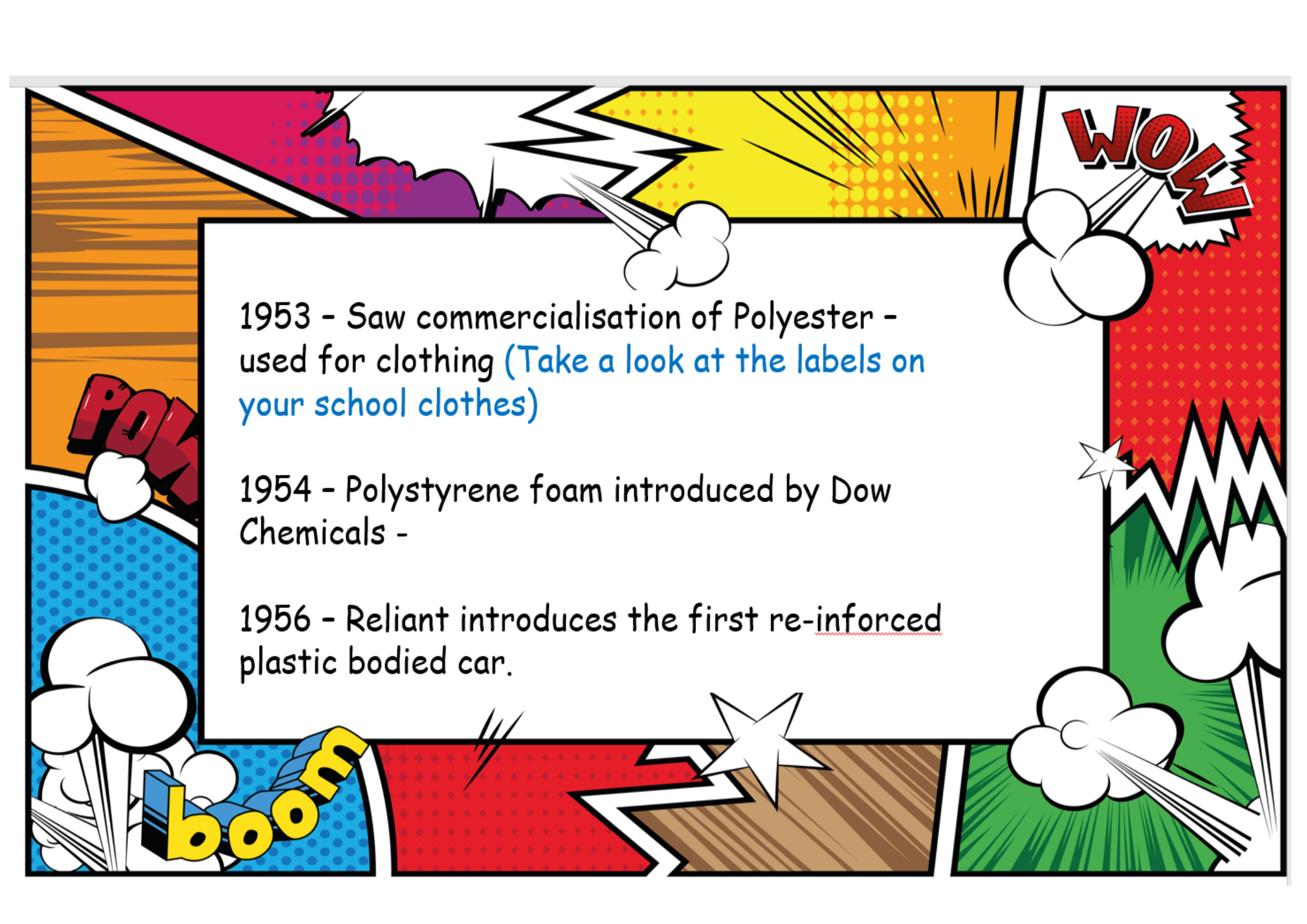
1948:
George De Mestral
invents Velcro

1948:
Du Pont invent Lycra



1950 - PVC used to make blood bags (replacing glass bottles and enabling blood to be safely transported).

1951 - High Density Polyethylene (HDPE) used to make a wide range of products from hard hats to milk cartons



1953 - Saw commercialisation of Polyester -
used for clothing (Take a look at the labels on
your school clothes)

1954 - Polystyrene foam introduced by Dow
Chemicals -

1956 - Reliant introduces the first re-inforced
plastic bodied car.



1957:

The Hula Hoop is re-invented - and made from polyethylene.

It is the first big toy craze





1960 - Water based acrylic paints

1962 - Silicone gel developed.

1965 - Kevlar developed by Dupont and used in tyres

1970 - Sven Gustaf Thulin invents the plastic bag

To save trees - What were trees used for?



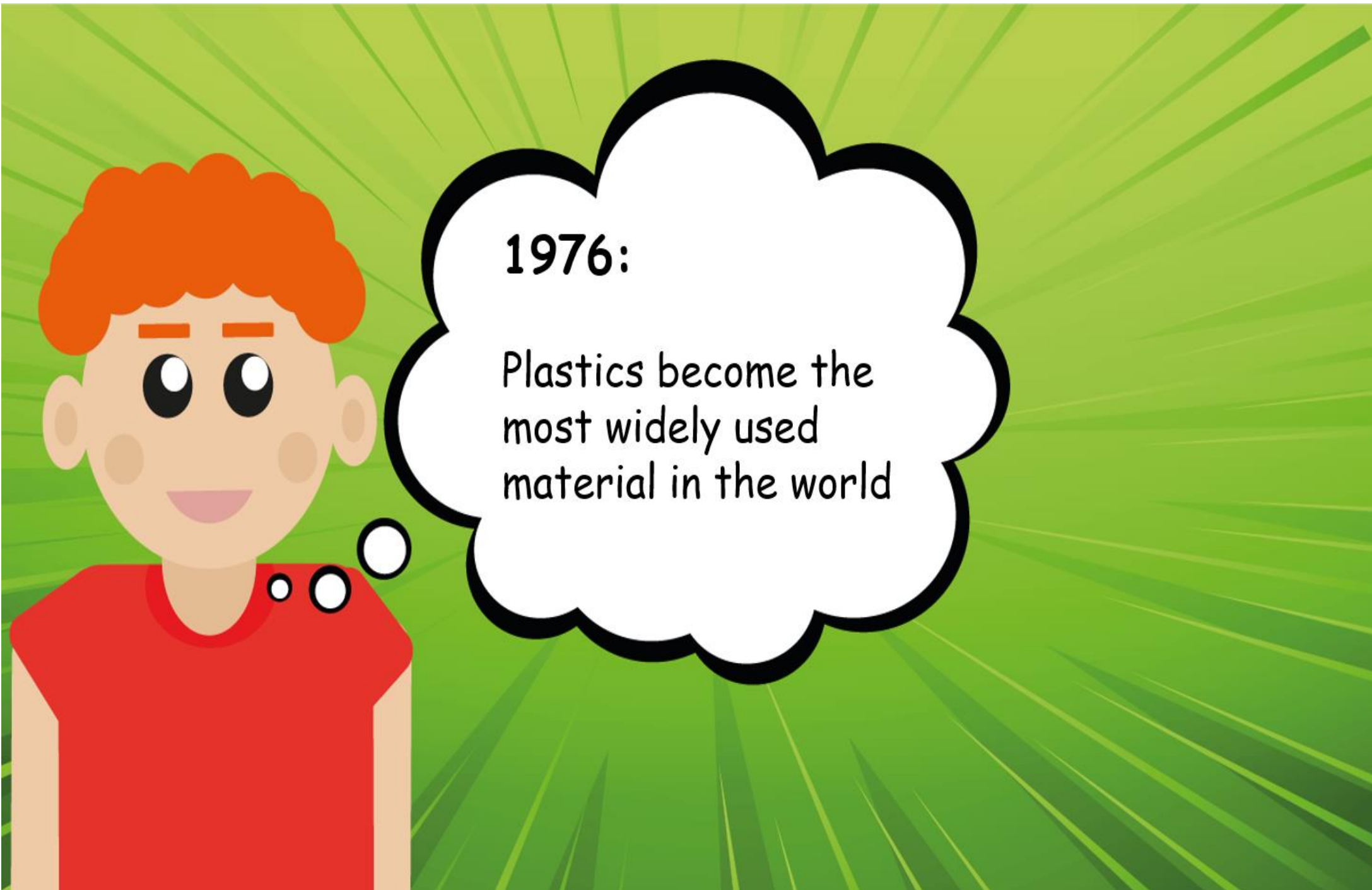
1957 - First production of poly-carbonates (improved strength, temperature resistance, optical properties, flame retardant and insulation properties) **Mainly used for electronic applications**

Late 1950's - Plastic furniture and toys starts to appear

1973 - PET used to make plastic bottles

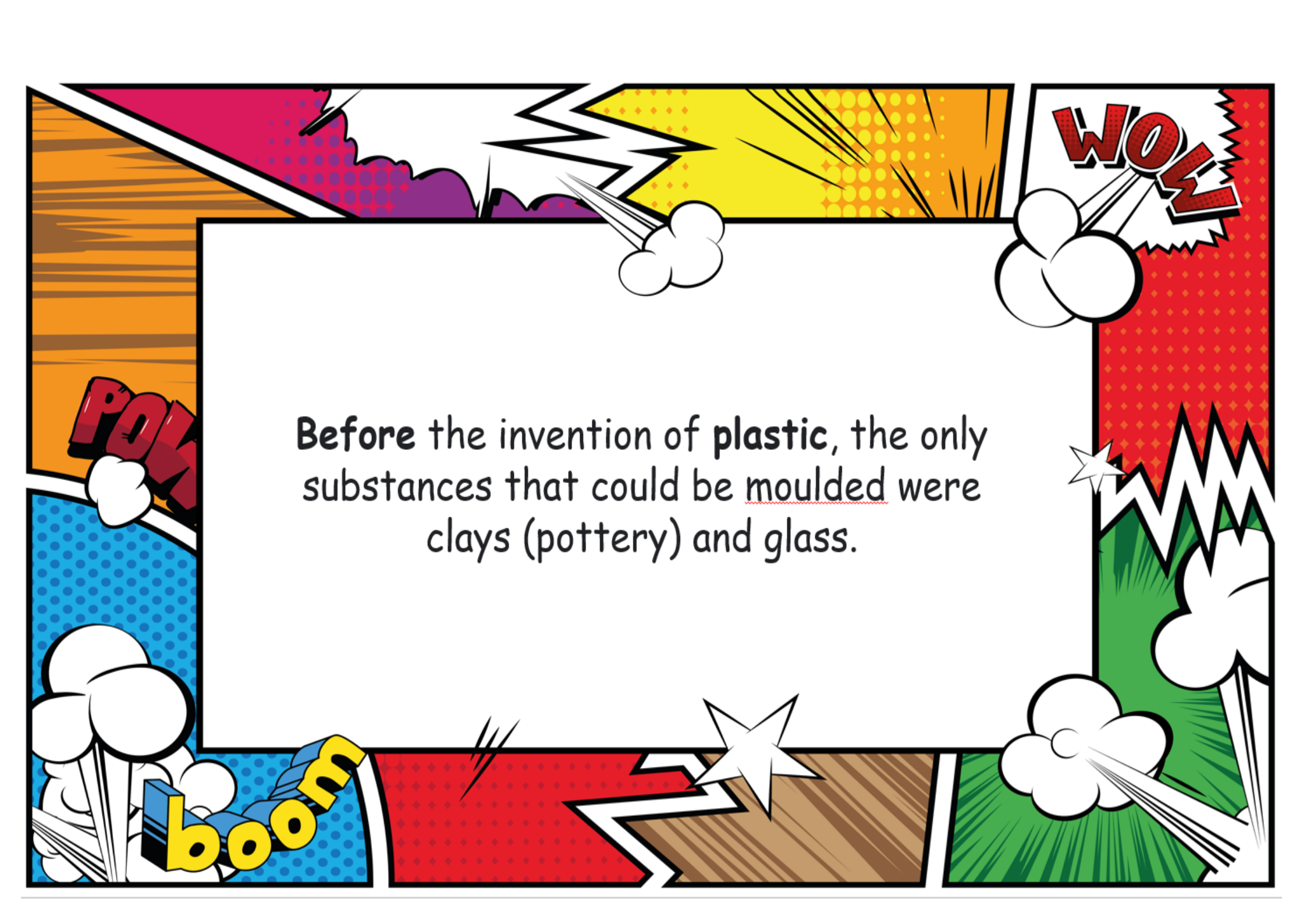
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1976:

Plastics become the
most widely used
material in the world



Before the invention of **plastic**, the only substances that could be moulded were clays (pottery) and glass.

The background is a vibrant comic book page. It features several panels with different colors and patterns: orange with horizontal lines, pink with dots, yellow with dots, red with dots, blue with dots, and green with vertical lines. There are various sound effects in bold, stylized letters: 'POW' in red, 'boom' in yellow, and 'WOW' in red. There are also white clouds, stars, and jagged lines representing action or explosions. A white rectangular box with a dashed border is in the center, containing the text.

Question:

What materials did we use before plastics to make shoes, buttons, clothes, furniture, toys and to protect and transport food?

The background is a vibrant comic book style. It features several panels with different colors and patterns: orange with horizontal lines, yellow with a dot pattern, red with a dot pattern, blue with a dot pattern, and green with a dot pattern. There are white clouds and stars scattered throughout. Sound effects like 'POW', 'WOW', 'boom', and 'POW' are written in bold, stylized letters. The text 'If you would like to find out more' is centered in the top panel.

If you would like to find out more

Take a look at the second set of slides in
this Series.

Plastic Facts

Making Plastic Smarter
Symphony
environmental

