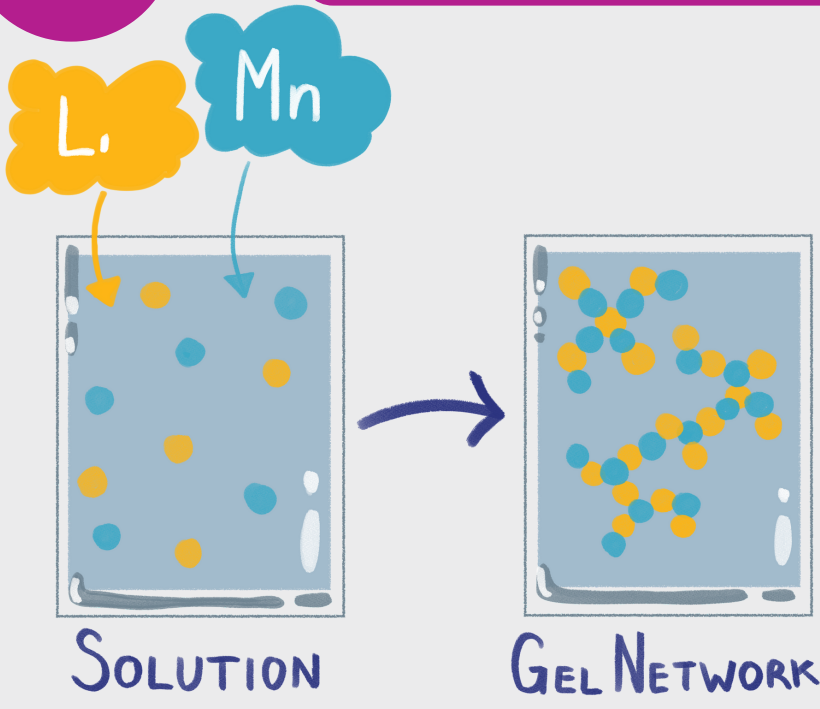
B

Sol-gel Method



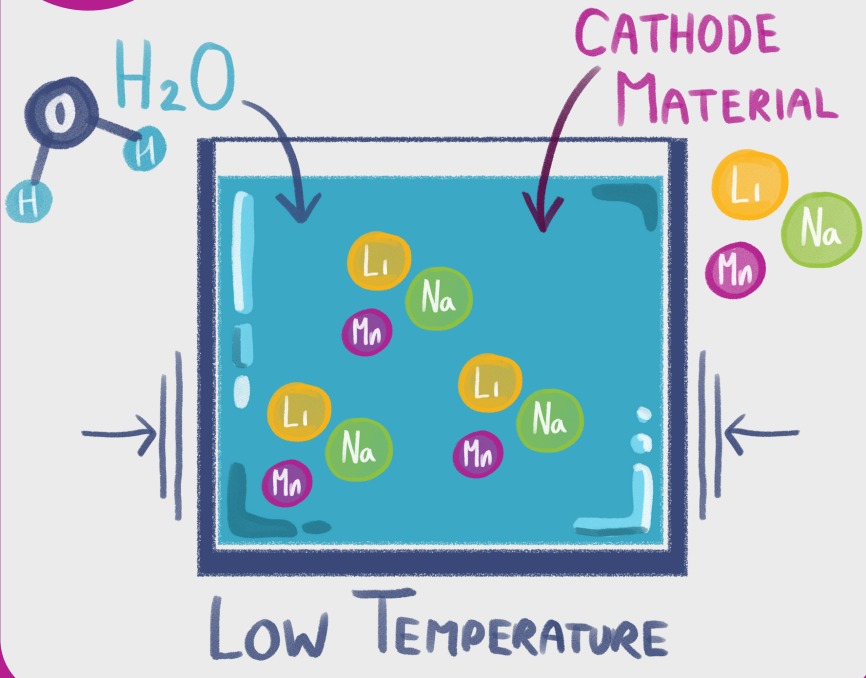
A slowly heated solution leads to a network of cathode material with good homogeneity (regular, repeating order).

Sustainability ↑

Safety –

Cost –

B Hydrothermal



Materials are manufactured using water, as a solvent, at low temperatures. Sometimes, pressure is used to create interesting particle morphology.

Sustainability

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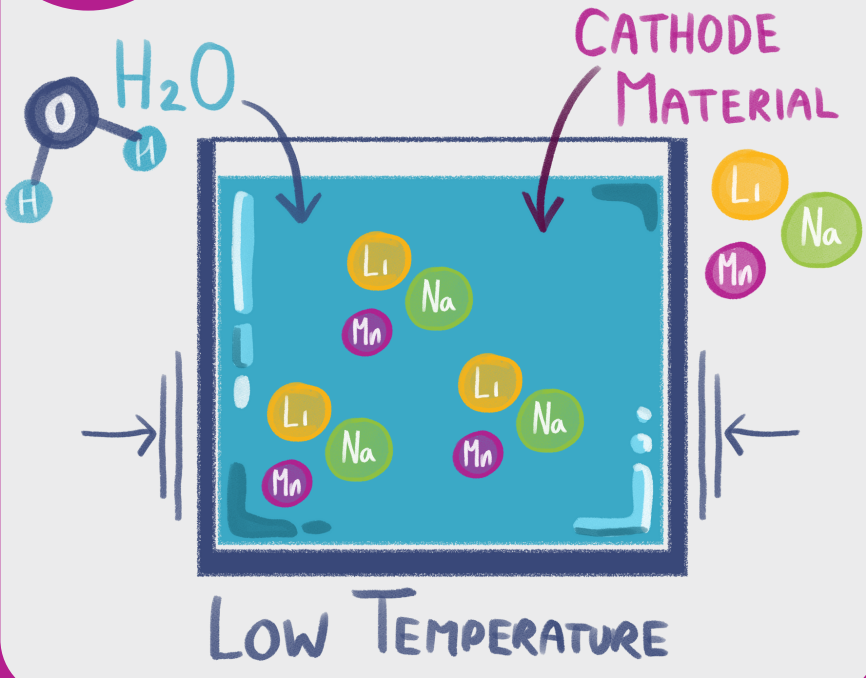

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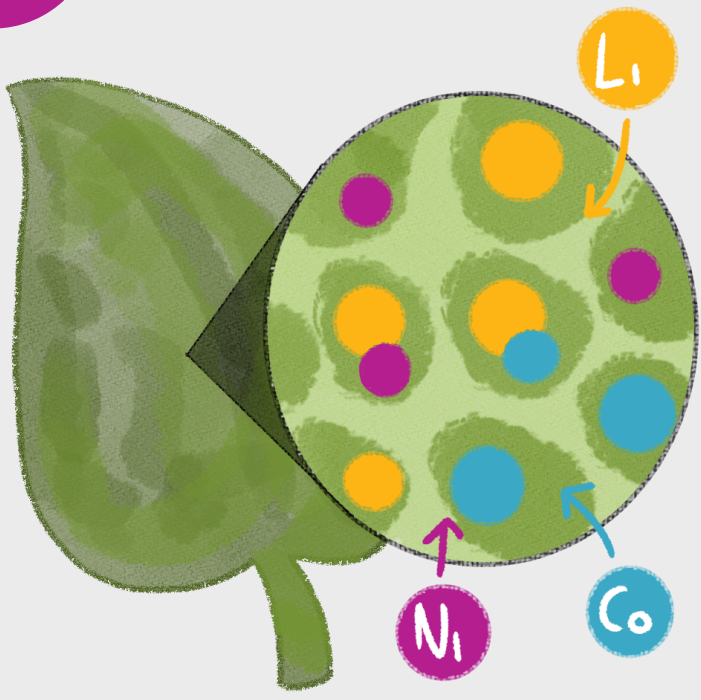
Sustainability

B Biotemplating

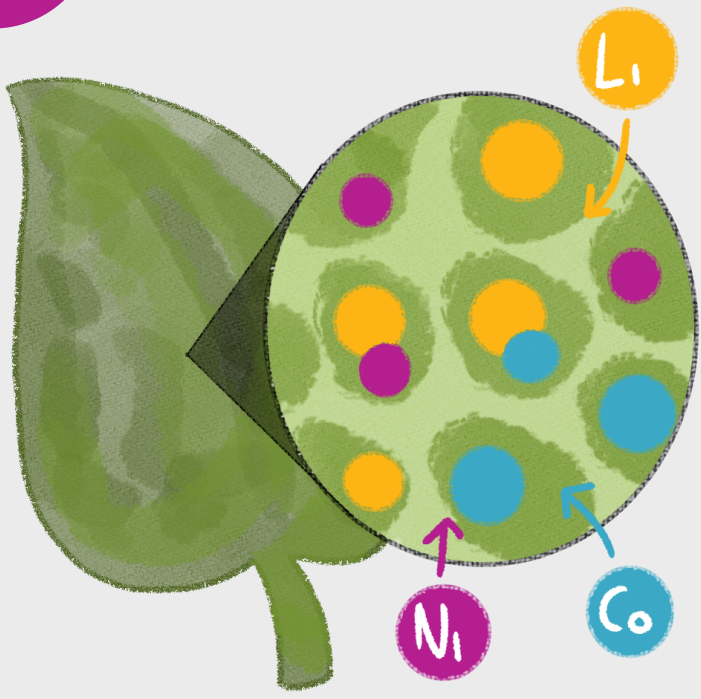


Biological material, such as seaweed and moss, can be used as a template for creating cathode materials. The materials are distributed around the biotemplate, which is later is burnt off.

Capacity

Sustainability

B Biotemplating



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Capacity

Sustainability

J

Battery Researcher

Battery researchers investigate new materials for batteries and improve existing ones. Research into batteries is important for Net Zero and improving everyday applications.

You may steal another player's battery card from a battery that has been played to win an application card. This is added to your hand and the unfinished battery is discarded.

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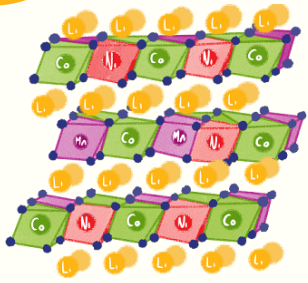
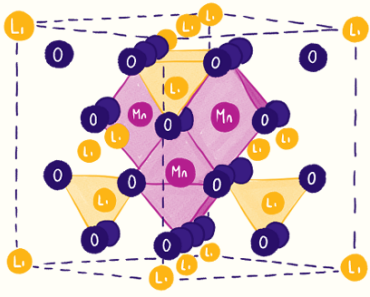
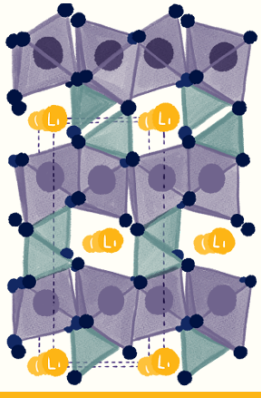
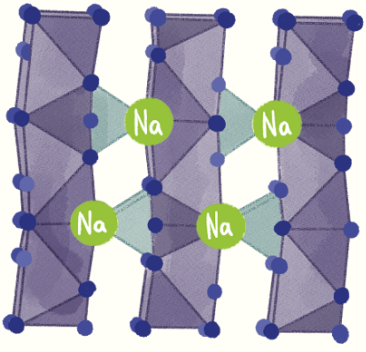
Crystallographer









Crystallographers study the repeating structure of cathode materials. They can do this using X-rays or firing neutrons at the structure to learn more about it.

Look at an Application card that has not been placed face up yet, return the card face down.

B

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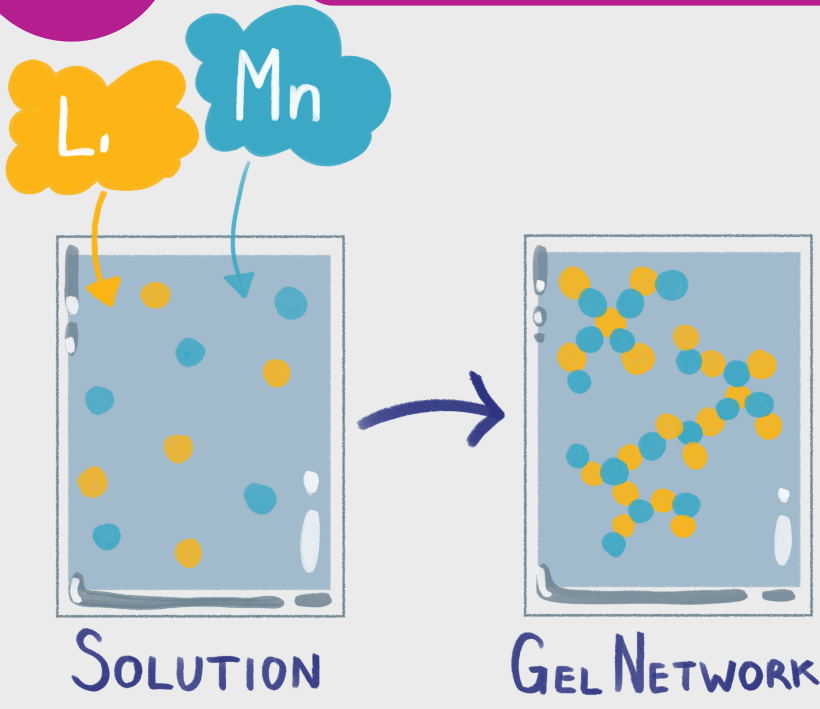

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Sustainability ↑

Safety –

Cost –

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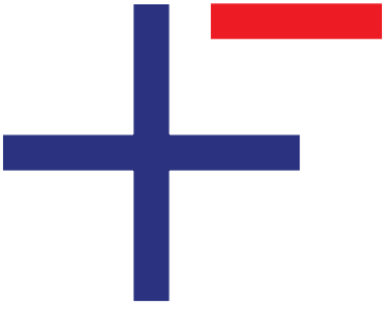

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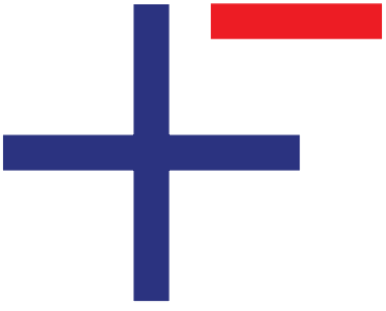

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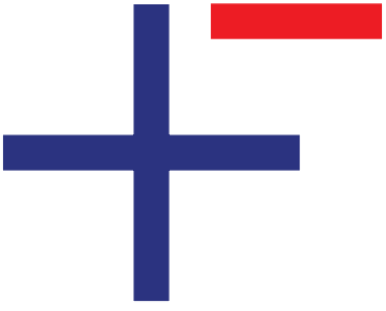

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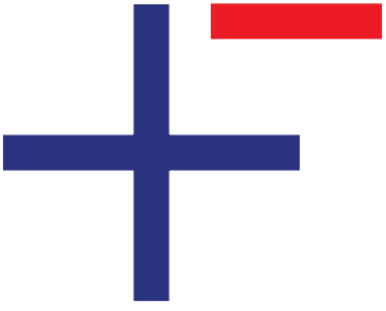

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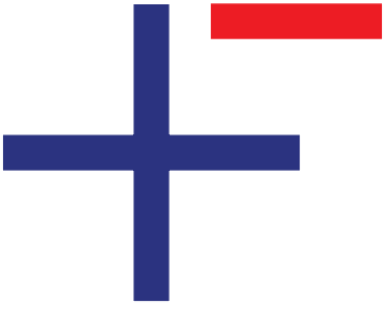

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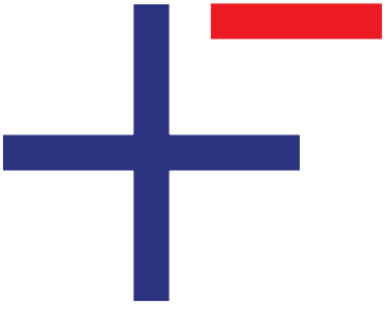

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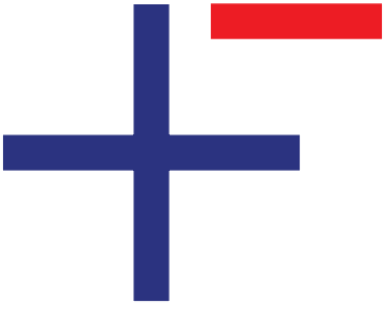

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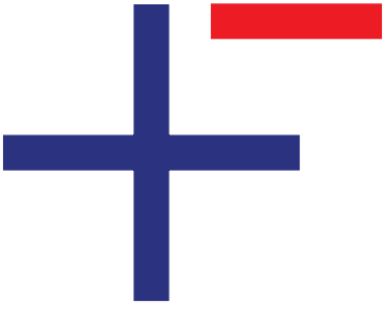

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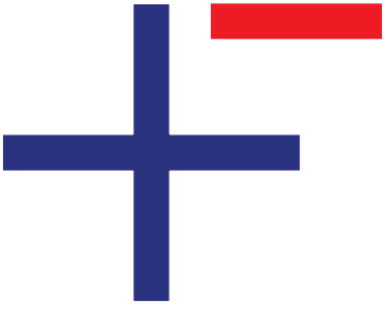

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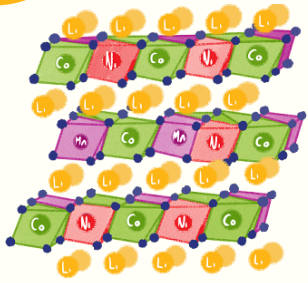

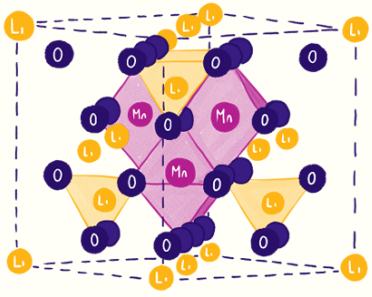

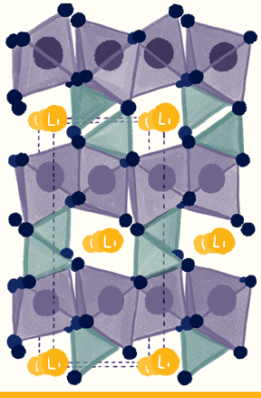

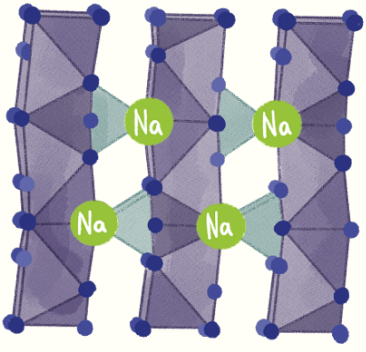

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Battery Trend Analysis

There are lots of factors that can affect the popularity of a type of battery. Some of the factors include mining of materials, safety and public opinion.

When this card is played, the player can look at the top 4 cards in the deck, then select one to add to their hand. The other 3 cards are placed back on top of the deck.

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Electric Car Manufacturer

To meet the demand for more electric cars, there will need to be more electric car manufacturers to produce the vehicles. This includes design, manufacturing and testing of the vehicles.

Pick a random card from another players hand and add it to your own hand.

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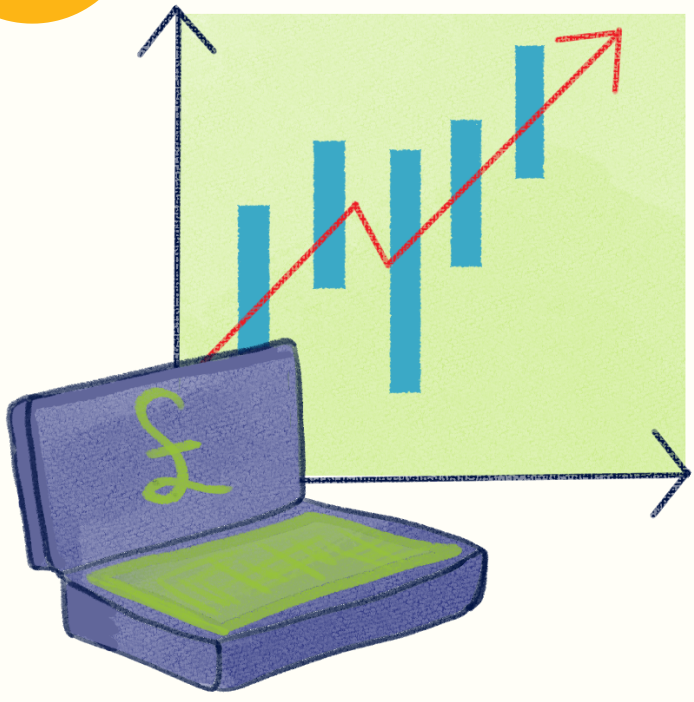
Investor

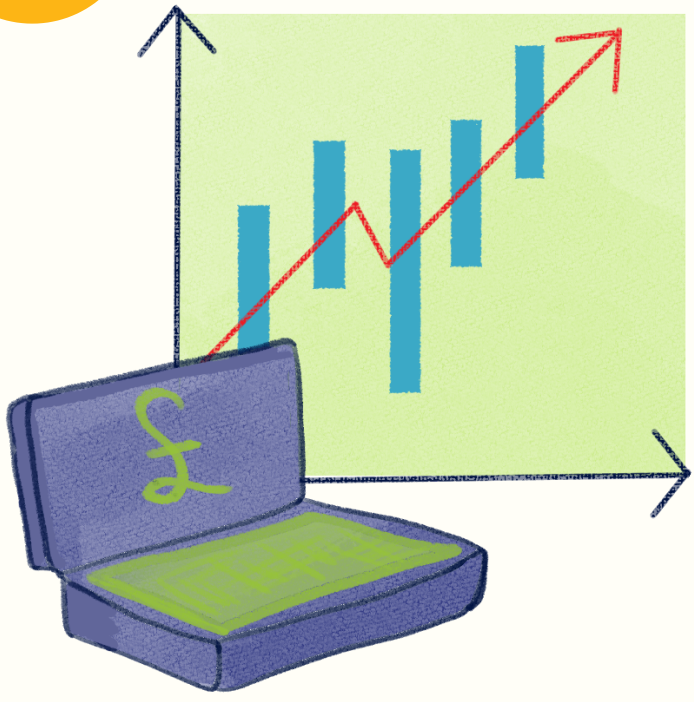


Companies, governments and individuals can invest in battery technology. This can support the research of new and improved batteries.

Pick up 3 cards from the deck, discard 1 and put the other 2 into your hand.

J

Investor



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Affordable Battery

Batteries will need to become more affordable as the UK transitions to Net Zero carbon emissions. This can be through cheaper manufacturing processes or improved selection of materials.

Create a battery with:

Cost – ££

Cobalt Free

Cobalt has very few reserves and has issues of unethical mining. This covers the mistreatment of land and workers. Batteries researchers want to stop using cobalt due to these concerns.

Create a battery without:

Cobalt

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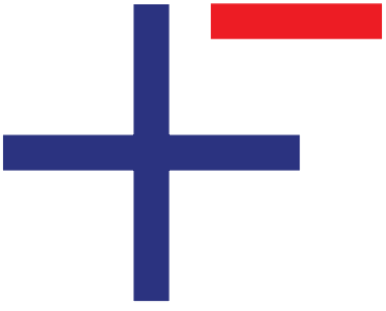

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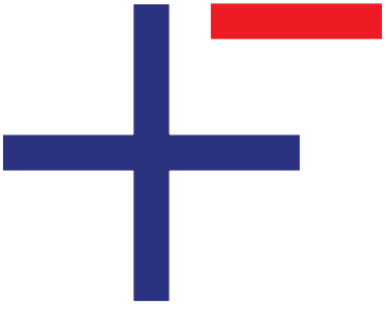

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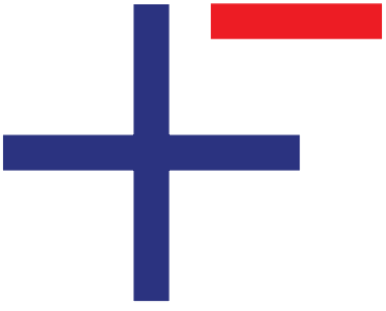

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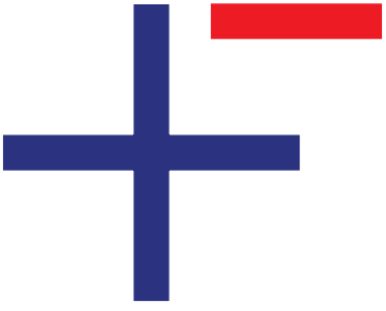

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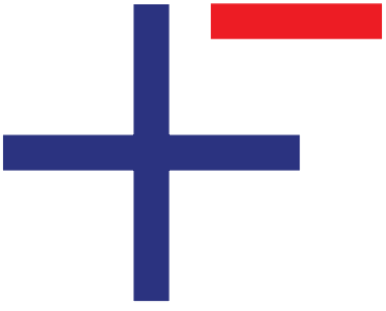

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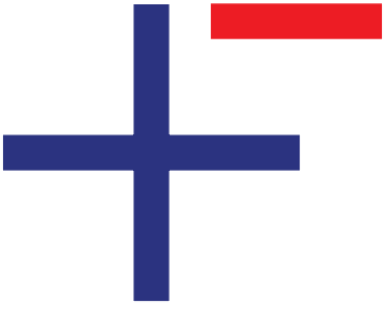

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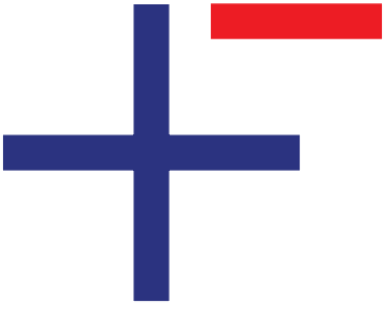

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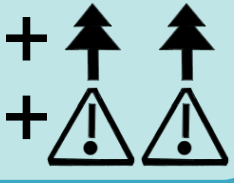
Children's Toy

Many children's toys have batteries inside of them. These need to be safe and sustainable, since it's a non-essential use that children play with.

Create a battery with:

Sustainability

Safety



Sodium Battery

A possible alternative to lithium-ion batteries is sodium-ion batteries. Sodium is far more abundant than lithium.

Create a battery with:

A Sodium Cathode

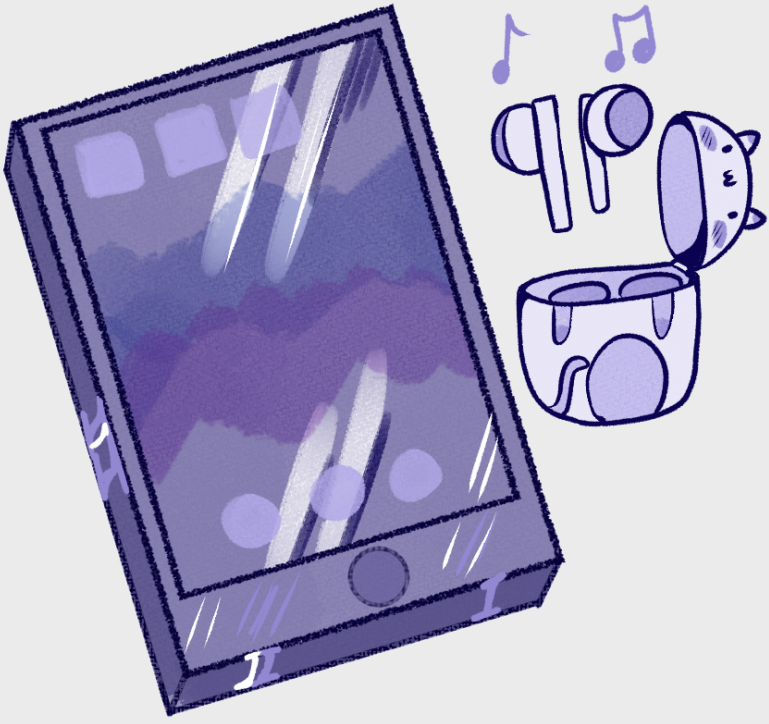
Green Battery

A major issue facing battery technology is recycling. Batteries are complex which makes recycling and reusing materials difficult. They need to be disposed of and recycled separately.

Create a battery with:

Sustainability +

Phone

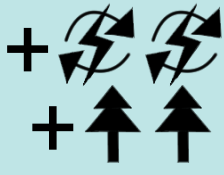


Mobile phones are a staple device to modern life and are used to connect people around the globe.

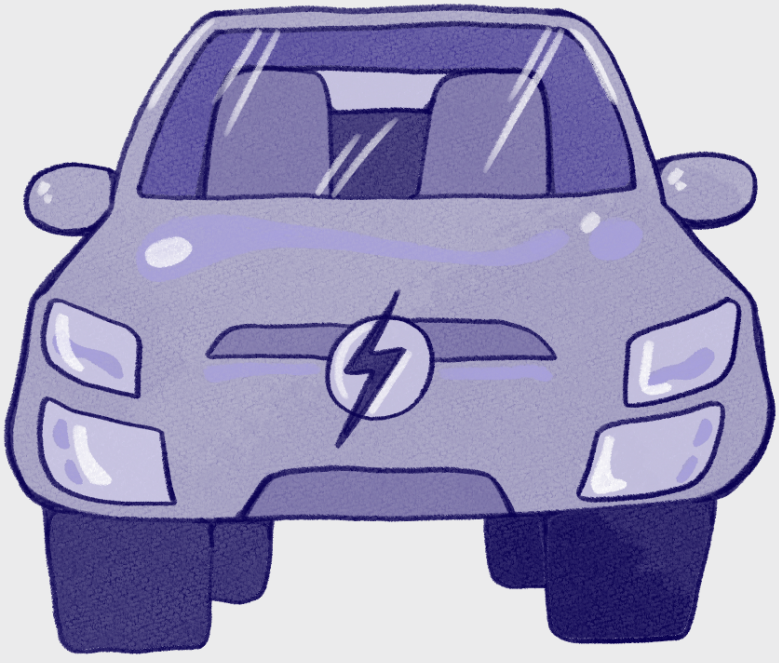
Create a battery with:

Cyclability

Sustainability



Electric Car



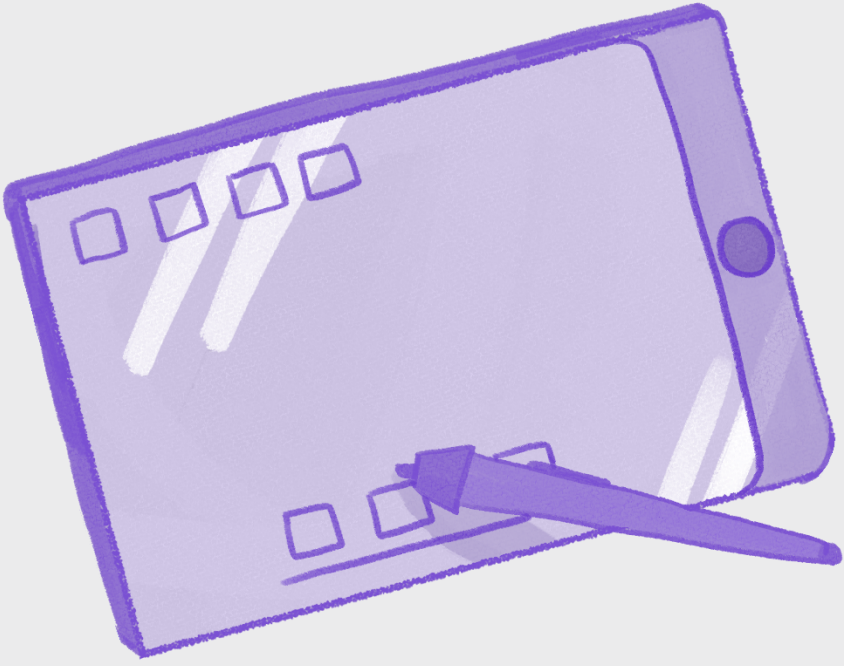
In 2030, the sale of new petrol and diesel cars will be banned, so there is a lot of effort to create electric cars that can travel long distances.

Create a battery with:

Capacity +

Cyclability +

Tablet



Tablets are a popular digital device. Users want a tablet that has a long battery life, so it can run different programs for a long time. Another important feature is safety, since it is a household application.

Create a battery with:

Cyclability

Safety

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