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Mrs. Begum

What is a superconductor?

Can all metals become superconductors?

What is a lithium ion battery?

What are the advantages of lithium ion batteries?

Independent task

Evaluate the use of an electric car compared with petrol car, using the information in the table.

	Car type	
	Electric	**Petrol**
Source of energy	Rechargeable lithium ion batteries	Petrol from fractional distillation of crude oil
Range before refuel/recharge	200 miles	400 miles
Sound of engine	Almost silent	Older cars can be very noisy
Waste products	Carbon dioxide from use of fossil fuels to produce electricity	Carbon dioxide, nitrogen oxides
Minimum cost to buy new (£)	15, 000	6,000
Running cost per mile (p)	3.5	17.5

Scaffold

1. Which car has a more sustainable energy source? Is this better?
2. Which car can travel longer before the need for recharge or refuel?
3. What are the waste products?
4. Which car is the cheapest to buy? How many times cheaper is it?
5. How many times cheaper is it to run an electric car than a petrol car?

Judgement

Model answer

The electric car uses a rechargeable battery as its source of energy so that means that it is more sustainable than the petrol car.

The petrol car can travel **twice** the distance as the electric car before if needs to refuel. This is good if you are travelling a long journey and you don't have to stop to refuel.

Both cars produce carbon dioxide which contributes to global warming, however petrol cars also produce nitrogen oxides which produce acid rain.

The petrol car is 2.5x cheaper to buy than an electric car; however, it costs 7x more per mile to run the petrol car, so if you drive a lot of miles, the electric car would be cheaper.

The electric cars are quieter than petrol cars, meaning less noise pollution; however there have been some cases of pedestrians not hearing electric cars approaching which could make them more dangerous.

The best car overall is...