

Understanding Earth's Inventory

A Guide to Natural Resources

An essential revision guide for Environmental Studies.

Nature provides the raw materials useful to humanity.

Natural resources are materials provided by nature that are essential for survival and economic utility.



WATER



SOIL



AIR



SUNLIGHT



SUNLIGHT



MINERALS



FORESTS



COAL



EARTH



COAL



PETROLEUM



NATURAL GAS

Resources are classified by their ability to replenish.



Renewable

Can be replenished naturally over a short period.

INFINITE / SUSTAINABLE



Non-Renewable

Limited in quantity. Takes millions of years to form.

FINITE / DEPLETABLE

Renewable resources offer sustainable energy and materials.



Sunlight

Solar Energy



Wind

Atmospheric Currents



Water

Hydropower



Forests

Timber & Oxygen

NOTE: THESE RESOURCES CYCLE THROUGH NATURE CONTINUOUSLY.

Non-renewable resources are a fixed stock.



Coal

Solid Fossil Fuel



Petroleum

Liquid Crude Oil



Natural Gas

Gaseous Fuel

Once consumed, these cannot be replaced within a human timeframe.

Fossil fuels are the buried history of Earth.

Formed from the remains of plants and animals buried under the Earth for millions of years.



JetBrains Mono (Small, caps)

ANCIENT PAST

Organic Matter



TRANSFORMATION

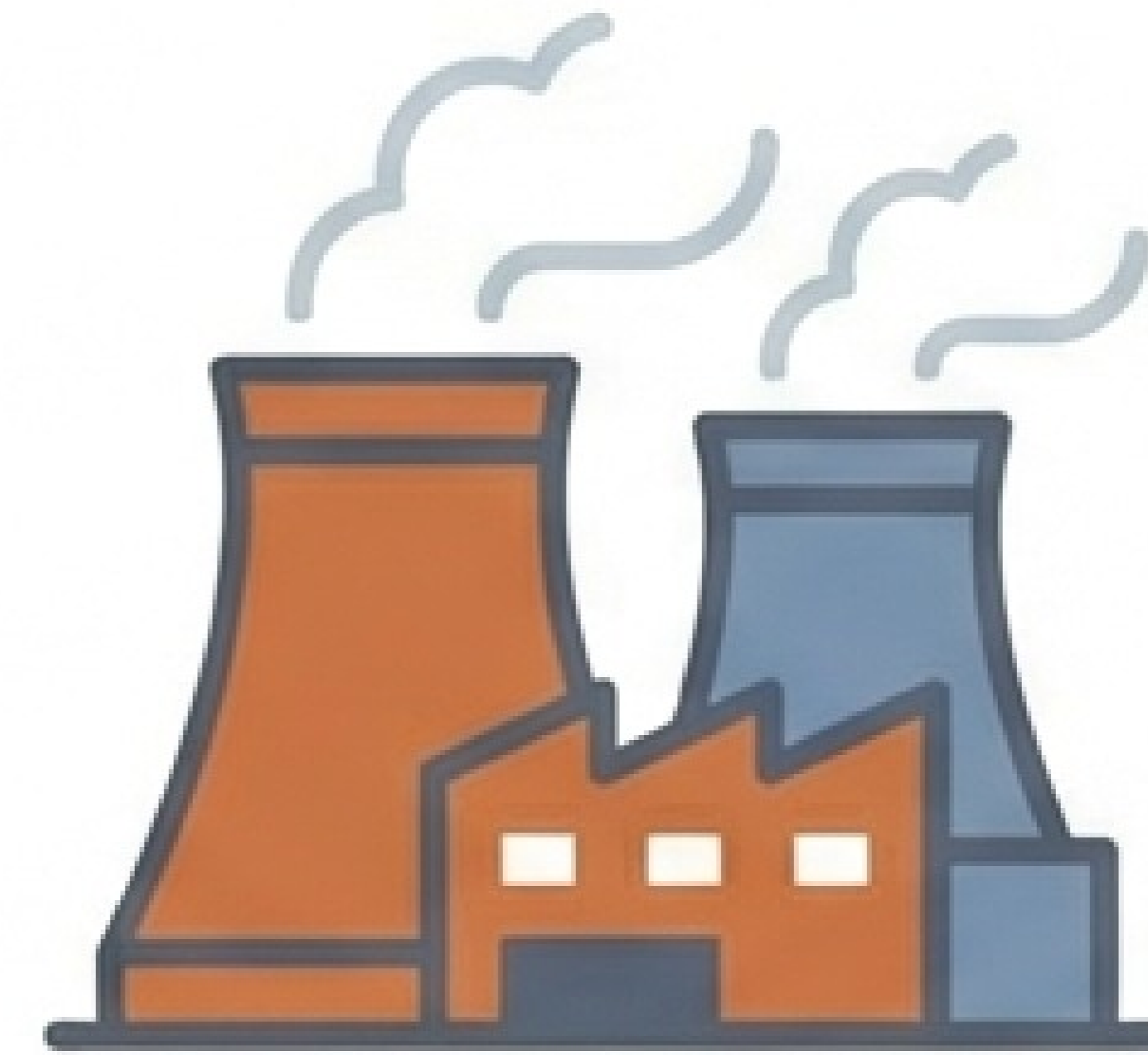
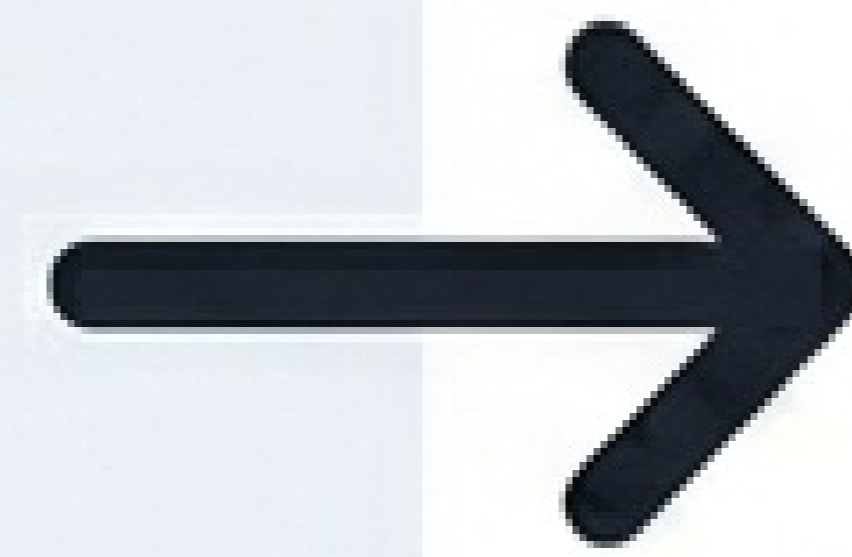
Time, Heat & Pressure



PRESENT DAY

Extraction

Coal powers the thermal generation of electricity.



TYPE: Non-Renewable Fossil Fuel

APPLICATION: Thermal Power Plants

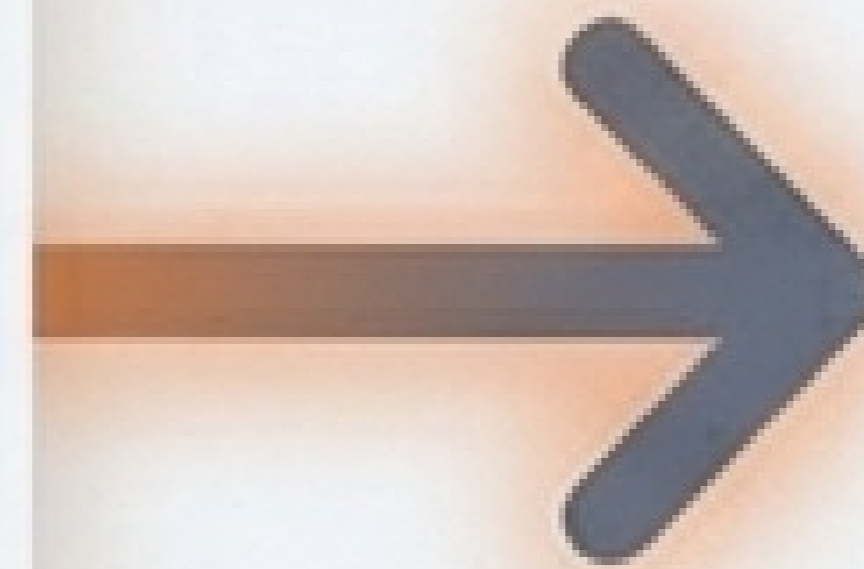
OUTPUT: Electricity

Petroleum is the raw 'Crude Oil' extracted from the ground.

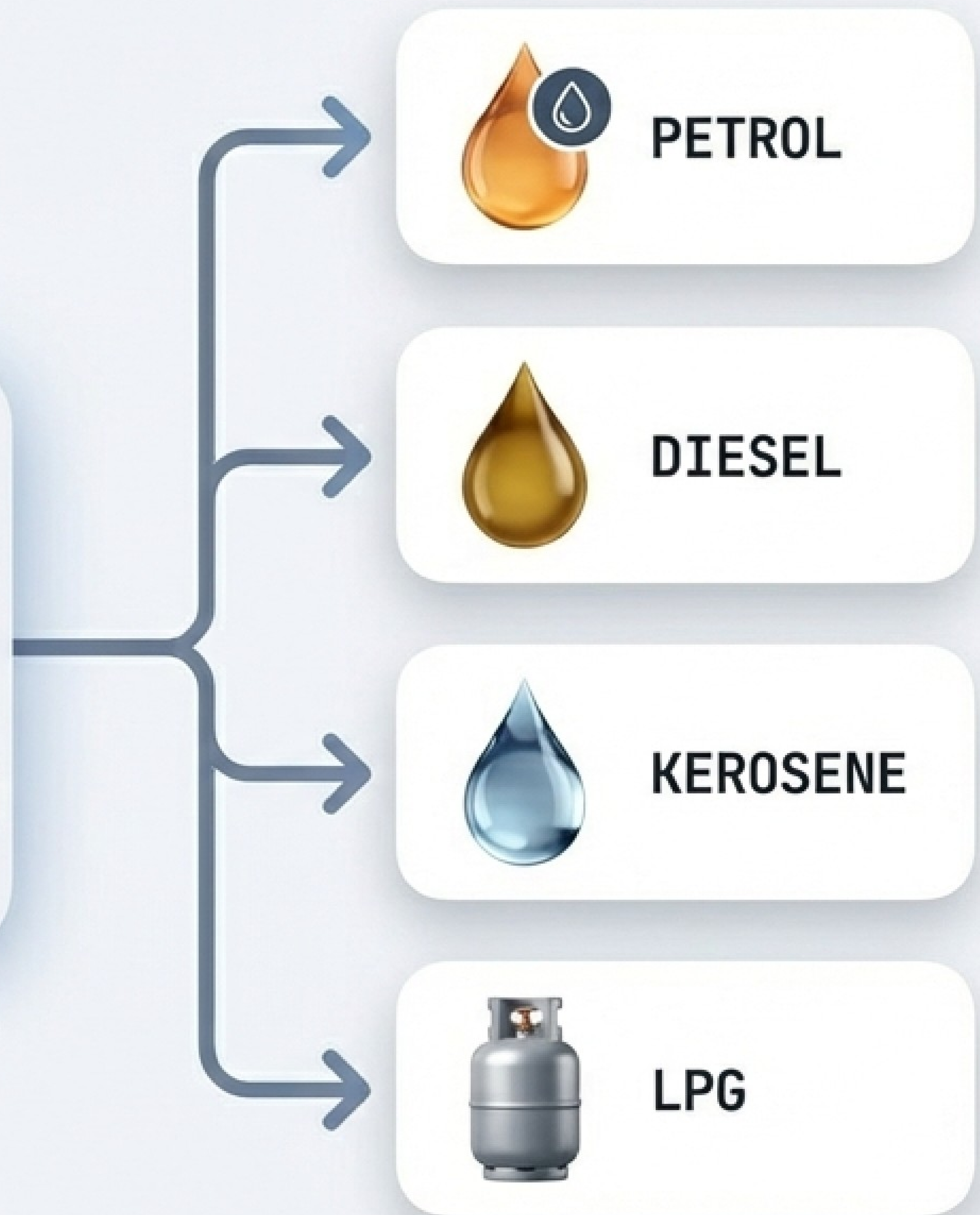
It must be refined to produce usable fuels.



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EXTRACTION



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REFINING PROCESS



Refined petroleum powers global transportation.

PETROL



Fuel for light vehicles like cars and bikes.

DIESEL



Fuel for heavy vehicles (buses, trucks) and electric generators.

Refined petroleum powers domestic life.

KEROSENE



Used in lamps and stoves.

LPG (Liquefied Petroleum Gas)



The standard fuel for cooking gas.

Natural Gas provides cleaner energy.

Often found alongside petroleum deposits



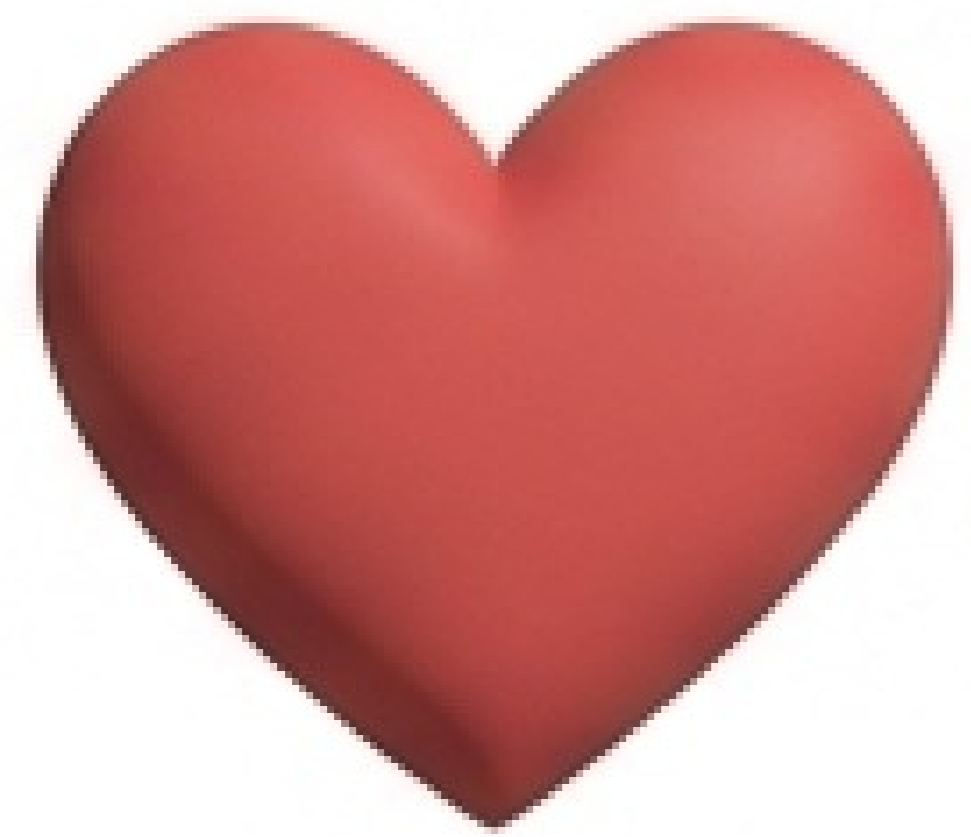
CNG (Compressed Natural Gas)
JetBrains Mono (Small, Caps)
Cleaner alternative for vehicles.



LPG
JetBrains Mono (Small, Caps)
Also derived from natural gas processing.



Natural resources drive human progress.



Survival



Economic
Development



Energy
Production



Transportation



Industry

Resource consumption carries an environmental price tag.



CAUSE:

Burning coal, petrol, and diesel.

EFFECT:

Releases Carbon Dioxide (CO_2).

RESULT:

Air pollution and Global Warming.

Extraction disrupts physical ecosystems.



MINING OPERATIONS

Damages land structure and destroys forests.



OIL SPILLS

Severe harm to marine life.

Conservation is the careful management of resources.

Using natural resources breanable wisely to ensure they last longer and cause less harm.



The 3Rs framework guides sustainable behavior



Practical steps to conserve Earth's inventory.



Switch Energy: Transition to renewable sources.



Cut Waste: Save electricity and water.



Heal Nature: Afforestation (planting trees).

Quick Review: Question 1

Which is a non-renewable resource?

A) Wind

B) Coal



C) Sunlight

D) Water

Quick Review: Question 2

Petrol is obtained from:

A) Coal

B) Petroleum



C) Water

D) Wind

Quick Review: Question 3

What does '3R' stand for?

A) Reduce, Reuse, Recycle






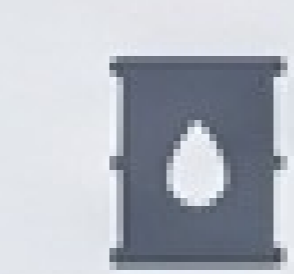






B) Run, Rest, Repeat

C) Read, Write, Remember

D) Repair, Replace, Remove

Summary Cheat Sheet

TYPES	FOSSIL FUELS	IMPACT	CONSERVATION
Renewable: Sun, Wind, Water 	Coal: Electricity 	\$CO ₂ & Pollution 	The 3Rs 
Non-Renewable: Coal, Oil 	Petroleum: Transport & Home 	Global Warming 	Afforestation 
-	Natural Gas: Clean Fuel 	Mining Damage 	Save Energy 