

◆ 5.1 Types of Natural Resources

- ☀️ **Inexhaustible Resources:** Unlimited in nature
Examples: Air, sunlight
- 🪨 **Exhaustible Resources:** Limited in nature, can finish
Examples: Coal, petroleum, natural gas, minerals, forests

🌟 Activity 5.1 – Classifying Materials

🔧 What to Do:

Make a list of items we use daily (like wood, plastic, water, iron)

Classify into:

Natural – Found in nature

Man-made – Made by humans

✅ **Conclusion:** All resources come from nature – but not all are unlimited.

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🌟 Activity 5.2 – Popcorn Group Activity (Exhaustible Resource)

🔧 What to Do:

- Divide class into groups of 7
- Sub-groups of 1 (first generation), 2 (second), and 4 (third generation)
- Use popcorn or roasted gram in one container per group
- Each generation eats in order

🔍 Observe:

- Third generation may not get anything if first two over-consume

✅ **Conclusion:** Exhaustible resources like coal & petroleum can finish if overused.

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🪨 5.2 Coal



Coal

- **Black, hard substance used as fuel**
- **Earlier used in trains, now in:**
 - **Cooking**
 - **Power plants**
 - **Industries**

Story of Coal Formation:

- **300 million years ago: Dense forests buried under soil**
- **Heat + Pressure + Time → dead plants changed into coal**
 - ✓ **This process is called carbonisation**
 - ✓ **Coal = Fossil fuel**

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Products From Coal

Product	Description & Uses
Coke	Tough, black, almost pure carbon. Used in steel making and metal extraction
Coal Tar	Thick black liquid (smelly), mixture of ~200 substances. Used in paints, perfumes, dyes, explosives, plastics, naphthalene balls
Coal Gas	Used as fuel in industries. Collected during coke processing

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5.3 Petroleum

- **Used to make petrol, diesel, kerosene**
- **Derived from Latin: “Petra” (rock) + “Oleum” (oil)**
- **Found deep between rocks below the Earth**

Formation:

- Dead sea organisms buried under sand & clay
- Heat, pressure, and absence of air over millions of years → petroleum + gas

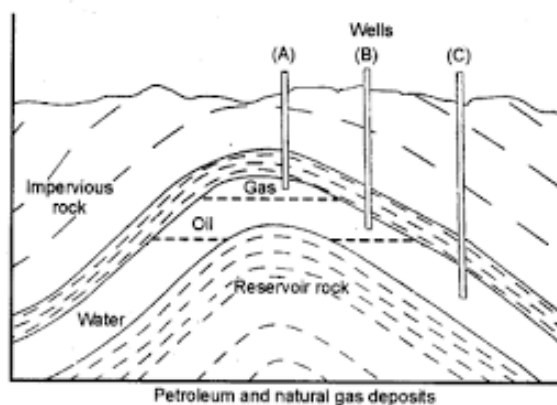
✓ Found in: Assam, Gujarat, Mumbai High, Godavari–Krishna delta

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Refining of Petroleum

- Raw petroleum = dark, smelly liquid
- Refining: Separation of different parts (fractions)

✓ Refining done in a petroleum refinery



Main products & their uses:

Product	Use
LPG	Home fuel (cooking)
Petrol	Vehicle & aviation fuel
Diesel	Heavy vehicles, generators
Kerosene	Jet fuel, lamps, stoves
Lubricating oil	For machines
Paraffin wax	Candles, ointments, Vaseline
Bitumen	Road surfacing, paints

Petrochemicals:

- Substances made from petroleum & natural gas
- Used in:
 - Detergents
 - Plastics (polythene, nylon)
 - Fertilizers (urea)
 - Synthetic fibres

✓ Petroleum is also called: “Black Gold” 💰

5.4 Natural Gas

- Clean, efficient fossil fuel
- Stored as: Compressed Natural Gas (CNG)

✓ Uses:

- Fuel for homes, industries, vehicles
- Power generation
- Producing chemicals & fertilizers

✓ Found in: Tripura, Rajasthan, Maharashtra, Krishna–Godavari delta

✓ Supplied via pipeline in some cities (like Vadodara, Delhi)

5.5 Limited Nature of Fossil Fuels

- Formed over millions of years
- Can finish in a few hundred years due to overuse
- Burning causes:
 - Air pollution
 - Global warming

✓ Hence, use fossil fuels judiciously.

📌 PCRA (Petroleum Conservation Research Association) advises:

- Drive at steady speed

- Switch off engine at red light
- Keep tyre pressure correct
- Service vehicles regularly

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 Q: Can coal or petroleum be made in lab?

 A: No. Their formation takes millions of years under special conditions.