🔌 11.1 Do Liquids Conduct Electricity?

- Materials that allow electric current to pass → good conductors

- Materials that do not allow it → poor conductors

- Metals like copper & aluminium → good conductors
- Wood, rubber, plastic → poor conductors

✅ Question: Do liquids conduct electricity too?

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🌟 Activity 11.1 — Testing Your Tester

🔧 What to Do:

- Join the free ends of a tester briefly.
- If the bulb glows → tester is working.
- If not → check for loose connections, fused bulb, or weak cells.

✅ Tip: Don't keep the ends joined for long — battery may drain.

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🌟 Activity 11.2 — Testing Lemon Juice & Vinegar

🔧 What to Do:

- Pour lemon juice or vinegar into a bottle cap.

- **Dip tester ends into the liquid (keep them ~1 cm apart, not touching).**

🔍 **What You Observe:**

- **If bulb glows → liquid conducts electricity.**

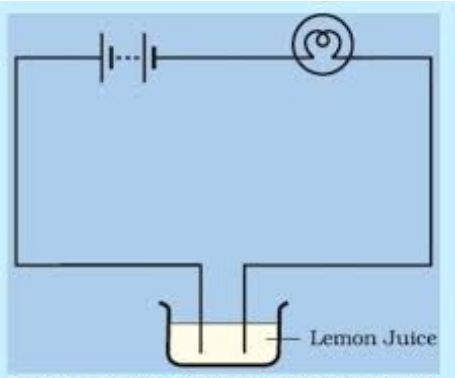


Fig.2 Testing conduction of electricity in lemon juice or vinegar

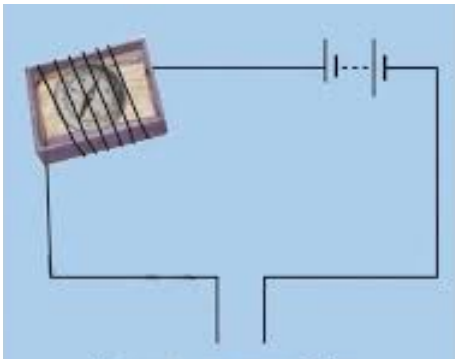
✅ **Conclusion: Lemon juice & vinegar are conducting → good conductors.**

Note: If the current is weak, bulb might not glow — use LED or magnetic needle tester.

🌟 Activity 11.3 — Magnetic Needle Tester

🔧 **What to Do:**

- **Wrap a wire around a small matchbox tray.**
- **Place a compass needle inside.**
- **Connect wire ends to a battery.**



🔍 **What You Observe:**

- **If magnetic needle deflects → current is passing → liquid is conducting.**

✅ **Repeat for lemon juice, tap water, milk, oil, honey etc.**
✅ **Fill a table for good/poor conductors.**

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🧪 11.2 Chemical Effects of Electric Current

- Electric current through a conducting liquid can cause:
  - Formation of gas bubbles
  - Metal deposits
  - Colour changes in solution

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🌟 Activity 11.4 — Distilled Water vs Salt Water

🔧 What to Do:

- Test distilled water using a tester → bulb does not glow
- Add salt → test again

🔍 What You Observe:

- Distilled water is a poor conductor.
- Salt water is a good conductor.

✅ Tap water conducts due to dissolved salts.

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🌟 Activity 11.5 — Adding Different Substances to Distilled Water

🔧 What to Do:

- Take 3 caps with distilled water.
  - Add lemon juice (acid) in 1
  - Add caustic soda (base) in 2
  - Add sugar in 3
- Test all with a tester

🔍 What You Observe:

- Acid & base solutions → conducting
- Sugar solution → not conducting

✅ Most liquids that conduct are solutions of acids, bases, or salts.

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🌟 Activity 11.6 — Passing Current Through Water

🔧 What to Do:

- Take 2 carbon rods (from cells), wrap wires, connect to battery.
- Dip them in salty water.

- **Observe for gas bubbles or deposits.**

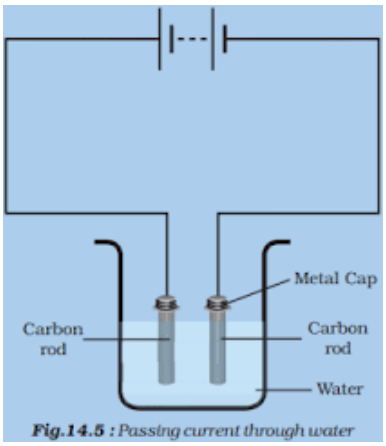

Fig.14.5 : Passing current through water

🔍 **What You Observe:**

- **Bubbles form around electrodes**
- **Chemical change occurs due to electric current**

✅ **Electric current causes chemical changes in liquids.**

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🔍 Discovery by Boojho (Potato Test)

- **Insert tester wires into potato.**
- **Leave for 30 min.**
- **Greenish-blue spot forms near positive terminal wire.**

✅ **Observation: Chemical reaction in potato shows current passed & effect occurred.**

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⚙️ 11.3 Electroplating

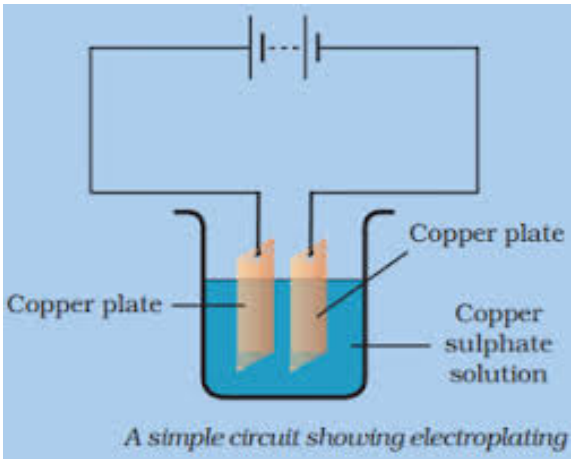
- **Electroplating = Depositing metal layer using electricity**


Electroplated Objects

🌟 Activity 11.7 — Electroplating with Copper

🔧 **What to Do:**

- **Make copper sulphate solution (add few drops of sulphuric acid)**
- **Take 2 copper plates, clean & dip in solution**
- **Connect to battery — one to +ve, one to -ve terminal**



A simple circuit showing electroplating

🔍 **What You Observe:**

- **Copper deposits on plate connected to –ve terminal**

✅ **Copper is transferred from one plate to the other through the solution.**

📌 **This is how:**

- **Handles, rims, ornaments, cans etc. are coated with metals like chrome, silver, tin etc.**