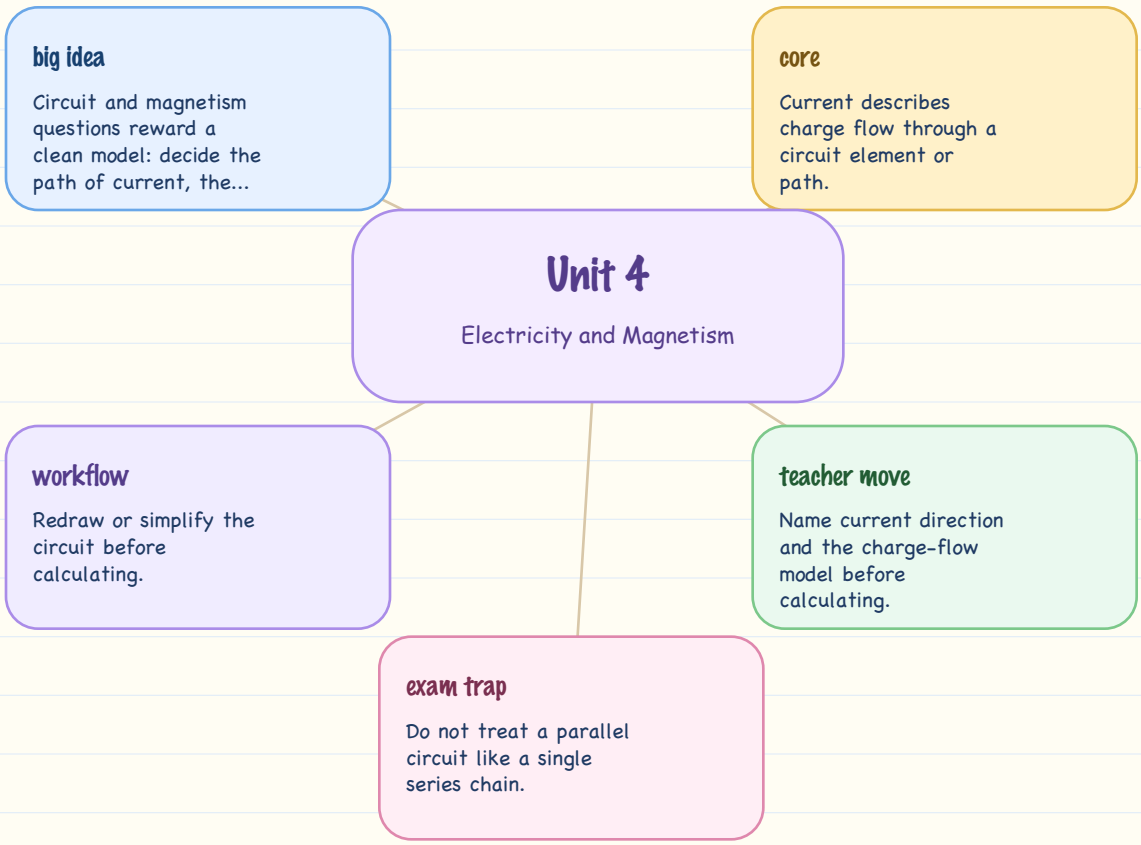
Unit 4 Visual Notebook

Electric Circuits, Magnetism, and Ampere Force

DISTILLED FROM VIDEO

Diagram-first study pages using the same source-locked SPH3U workflows and teacher moves.



Visual Strategy

Step 1 simplify circuit → **Step 2** label current → **Step 3** use V = IR → **Step 4** set hand rule

Use this when stuck

- Redraw or simplify the circuit before calculating.
- Label current direction and potential differences.
- Choose the series, parallel, or mixed-circuit rule that fits the structure.
- For magnetic direction questions, set the hand rule before deciding the result.
- Check the unit: ampere, volt, ohm, tesla, newton, or joule.

Video teacher tips

- Name current direction and the charge-flow model before calculating.
- Simplify the circuit structure before using formulas.
- Read the graph feature first: slope, area, intercept, or trend.
- Set the right-hand rule carefully before naming a magnetic direction.
- Set directions before assigning signs or writing equations.
- Use parallel-circuit rules only after identifying shared endpoints.

Example and Recall

Worked example pattern

One-resistor circuit (Unit 4 distilled pattern: identify current, voltage, and resistance before calculating)

Use the simple circuit relationship V = IR.

If V = 12 V and R = 4 Ω, solve for I.

I = V/R = 12/4.

Attach the unit ampere.

Answer pattern: I = 3 A.

Magnetic direction routine (Unit 4 distilled pattern: use the direction rule before solving motion)

Identify the current direction.

Identify the magnetic-field direction.

Use the hand rule named by the source lesson.

Quick recall prompts

- Use V = IR in a one-resistor context.
- Identify whether current or voltage is shared in series or parallel parts.
- Use a direction rule for a current-carrying wire in a magnetic field.