

## 19.8: Thinking about the material

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### 19.8.1: Reflect and research

1. Describe how superconductivity arises in certain materials (hint: research “Cooper pairs”).
2. What are some example of superconducting materials, and at what temperature do they become superconducting?
3. Is there a limit to how much current a conductor can carry?
4. Does an AC current have a drift velocity? Why or why not?

### 19.8.2: To try at home

1. Use Ohm’s law and the electrical information on an appliance to determine the current produced drawn by your appliance (e.g. a hair dryer).
2. What is the current produced by your phone’s battery? What is the total power stored in your phone’s battery? Check the technical information of your phone.

### 19.8.3: To try in the lab

1. Propose an experiment to create an AC circuit and measure its current.
2. Propose an experiment to measure the temperature coefficient ( $\alpha$ ) and resistivity of a wire.

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