

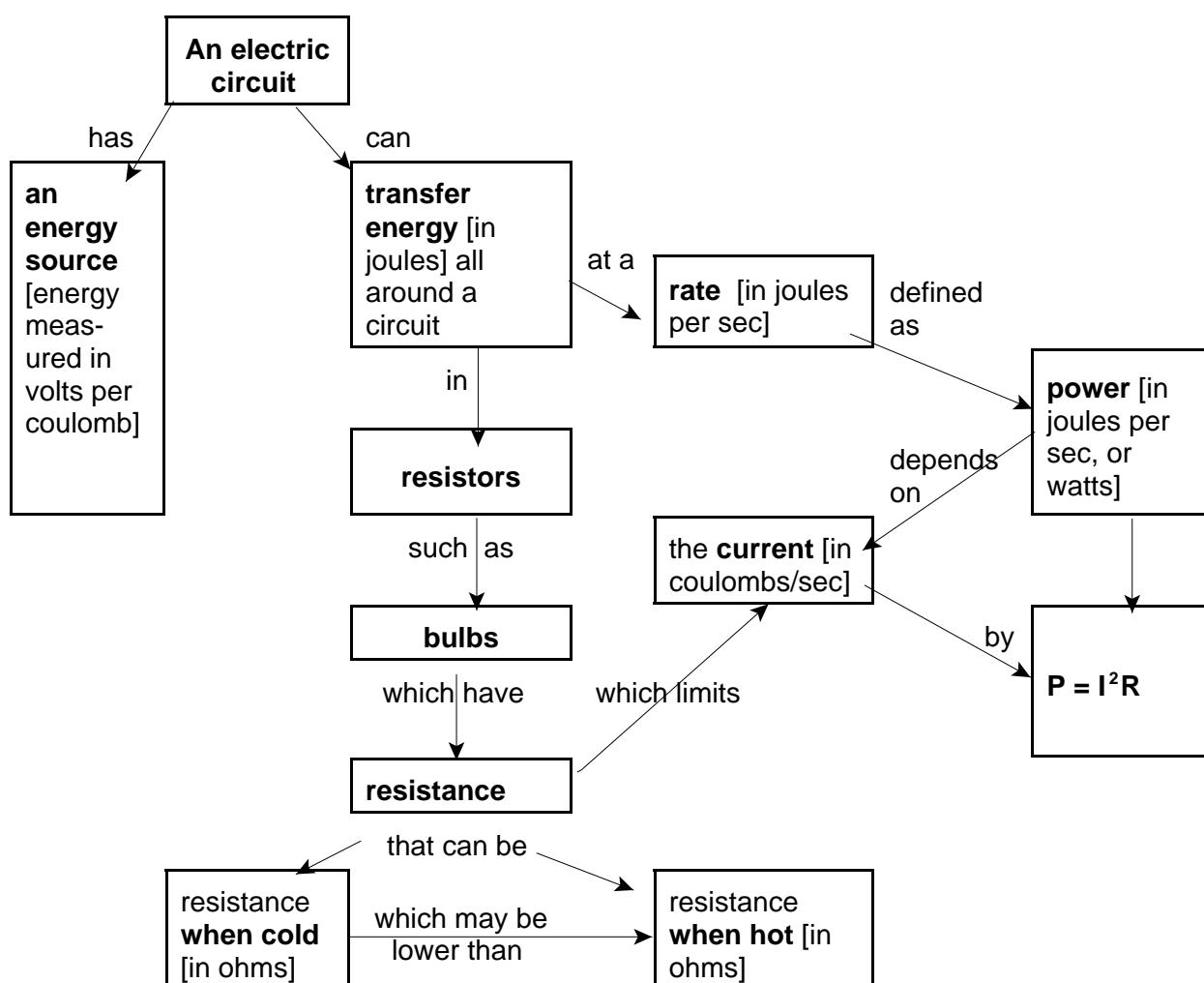
## Electric circuit concepts

### Teachers' notes

These notes come from the website [www.scienceteachingalive.com](http://www.scienceteachingalive.com), where you find the video *How to teach electrical concepts and circuits* by Brian Gray and the Solon Foundation. The website also has notes for group leaders, and ideas for student worksheets.

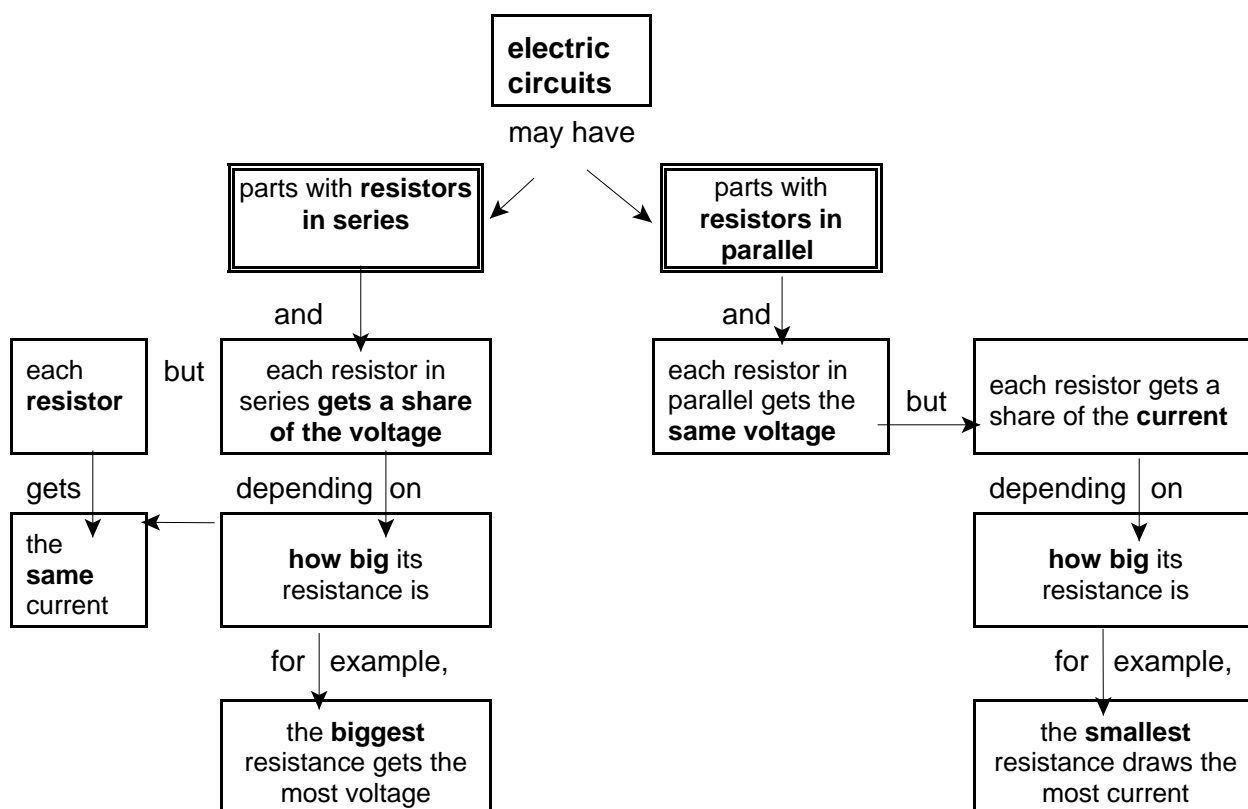
Here are a few important ideas to keep in mind when you teach this section.

**Concept map 1, based on the conceptual approach in the video.** The approach avoids formulae and focuses on understanding what is happening in the circuits.



Later on in the electric circuits topic, you will have to teach students to calculate voltages, currents and resistances. But first they should understand the basic relationships that you can see in the next Concept Map. If they understand these relationships, they will be able to check whether the numbers that come out of their calculators make sense.

## Concept map 2

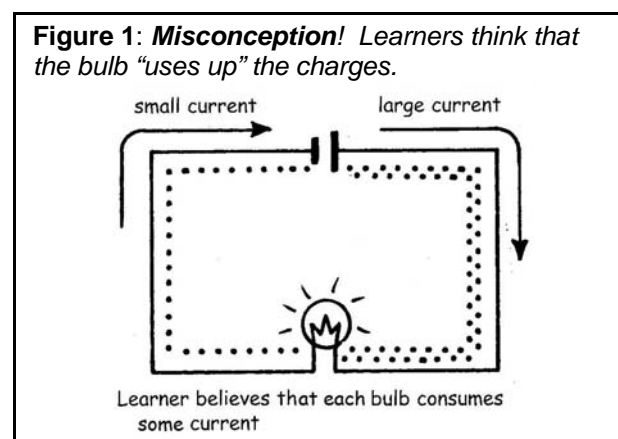


## Student misconceptions

Research in many countries has revealed some common ideas which learners have about circuits; these are ideas which make it hard for them to form[?] a scientific understanding of electric circuits. But learners often believe more firmly in their own ideas than in the scientific ideas we try to teach them; this is because their own ideas seem more sensible to them. You will be able to find more information about these misconceptions on the website [www.scienceteachingalive.com](http://www.scienceteachingalive.com) in months to come. For now, here is one example, that Brian refers to in the video.

### The misconception that the current gets “used up in the bulbs”, as it goes around the circuit

Some of your learners will wonder why similar bulbs in series circuits are equally bright. They wonder, “Does not the first bulb get the most current and the last bulb get the left-over current?”



**Figure 2: The scientific view:** When charges flow through the bulb, no charges disappear. But they give some of their **energy** to the bulb.

