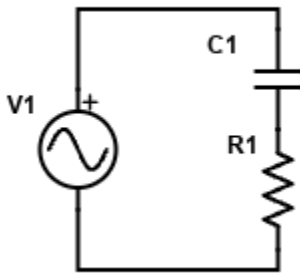


EN-3212 Electronics

Filters

We've talked about resonance, when it's a good thing, and when it's a bad thing. Now, let's talk about filters. In electronics, filters filter out certain frequencies so that we can get rid of the ones that we don't want and keep the ones we do. You'll explore a simple filter in your lab. Write down the equation for the voltage drop across the resistor in the circuit shown below. Let's say that the source, V1, has an amplitude of V_{10} , a phase of 0° , and a frequency of f .



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Filters

Notice that your equation includes the frequency of the source. What happens to the voltage if the frequency is close to zero. What happens if the frequency gets very large? If we powered a device using the voltage drop across that resistor, we'd say that we had put it through a "High-Pass Filter". What do we mean by that?

Repeat the exercise for the capacitor. What kind of filter do you think this one is?

