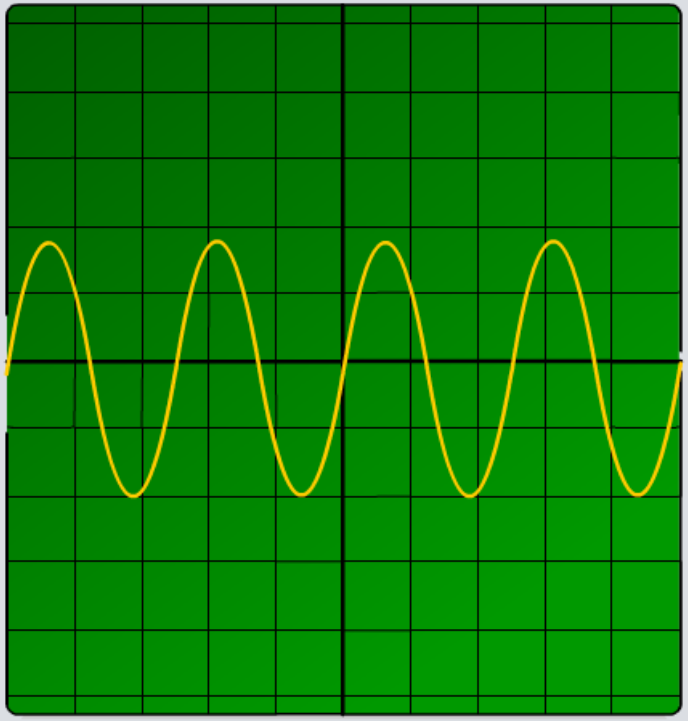
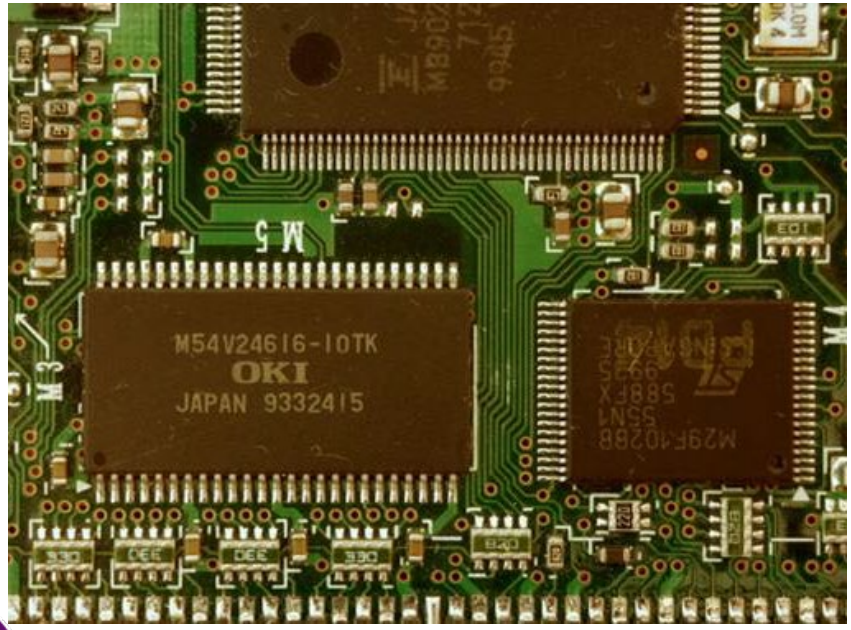
Types of Current



What is direct current (DC)?

Direct current (DC) is an electric current that always flows in one direction.

Direct current is produced by cells and batteries.



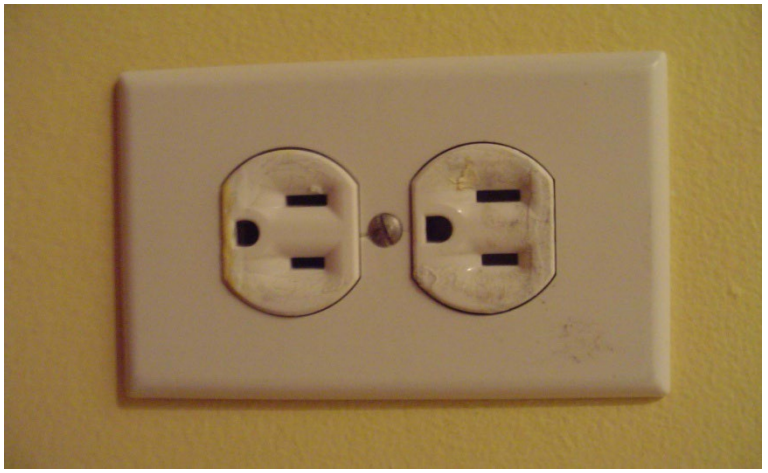
Electronic circuits such as those in computers and stereos need direct current electricity in order to work.

Direct current cannot be transferred efficiently over large distances.

What is alternating current (AC)?

Alternating current (AC) is an electric current that is constantly changing direction.

Alternating current is produced by most generators and is used in mains electricity.



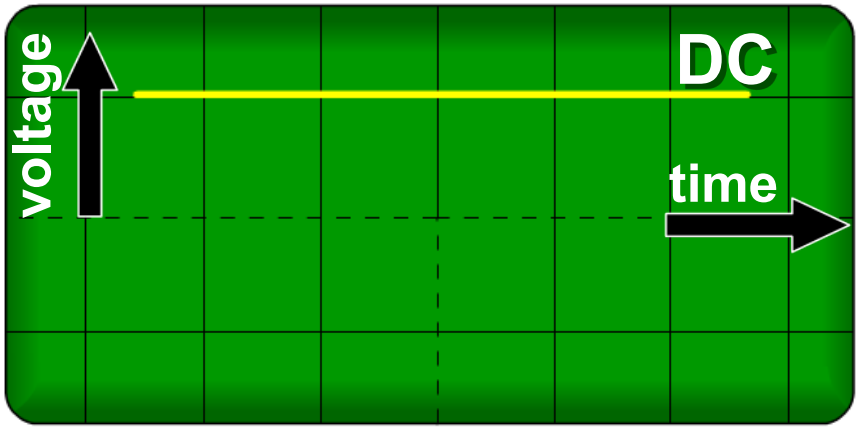
Motors often work using alternating current. The voltage of alternating current is easily changed with a transformer.

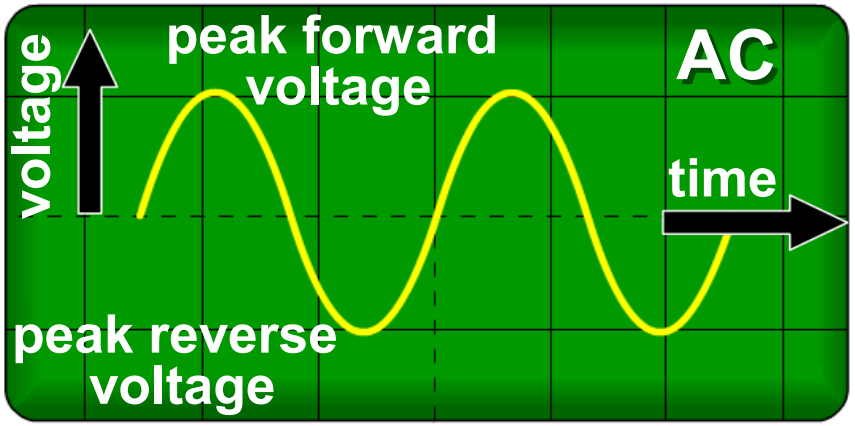
Alternating current can be transferred efficiently over large distances.

What is the difference between AC and DC?

The difference between **alternating current** (**AC**) and **direct current** (**DC**) can be seen using an oscilloscope.

For each current, the oscilloscope trace is a graph showing how the voltage of an electricity supply varies with time.



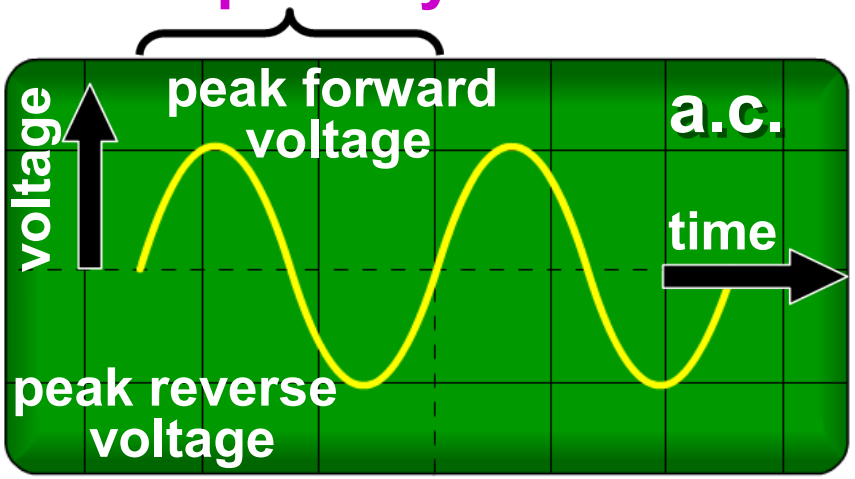


The voltage of a DC supply is steady and always in the same direction.

The voltage of an AC supply follows a repeated pattern: it rises to a peak, returns to zero changes direction and so on.

Frequency of alternating current

The frequency of AC electricity is the number of complete cycles per second, which is measured in **hertz** (**Hz**).

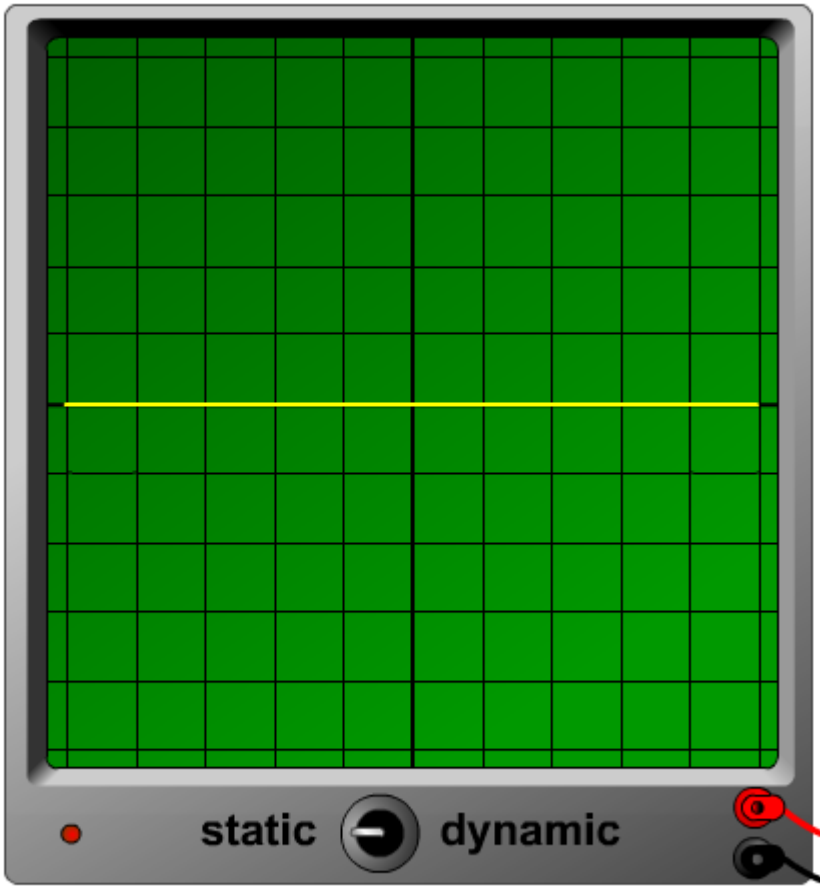


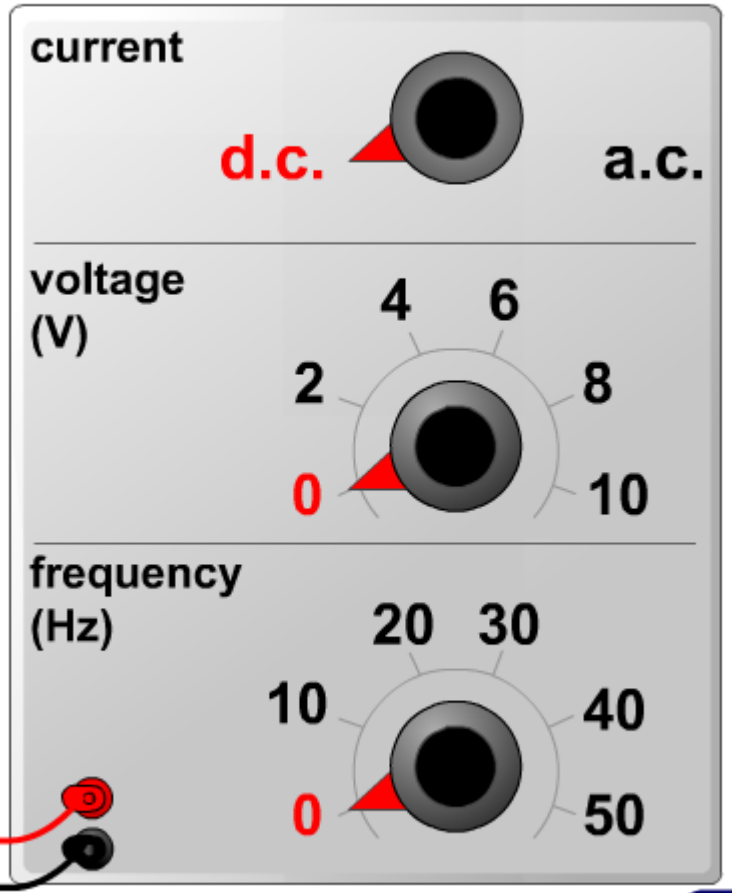
The AC frequency can be determined from an oscilloscope by counting the number of complete waves per unit time.

If the frequency is increased, the number of complete waves shown on the screen increases. For example, if the frequency is doubled, the number of waves doubles.

Comparing AC and DC

Use the oscilloscope to investigate a.c. and d.c.





Which type of current – AC or DC?

Does each appliance use alternating current or direct current?

alternating current (a.c.)	direct current (d.c.)

table lamp

solve