1. Fill in the gaps

Between two \_\_\_\_\_\_\_ we have attraction force, if the poles are \_\_\_\_\_\_\_\_(+,-), and repel force, if the pole are the \_\_\_\_\_\_\_\_ (+,+; -,-).

Words: opposite, same, magnets.

1. Fill in the gaps

An electromagnet is a type of [magnet](https://en.wikipedia.org/wiki/Magnet) in which the [\_\_\_\_\_\_\_\_\_\_\_\_](https://en.wikipedia.org/wiki/Magnetic_field) is produced by an [electric current](https://en.wikipedia.org/wiki/Electric_current). \_\_\_\_\_\_\_\_\_\_\_\_ usually consist of wire wound into a [coil](https://en.wikipedia.org/wiki/Electromagnetic_coil). A current through the wire creates a \_\_\_\_\_\_\_\_\_\_\_which is concentrated in the \_\_\_\_\_\_\_\_\_\_\_, denoting the centre of the coil. The magnetic field disappears when the current is turned off.

Words: disappears, hole, magnetic field, electromagnets.

1. Draw an image and explain that law, starting from the definition.

**Electromagnetic** or **magnetic induction** is the production of an [electromotive force](https://en.wikipedia.org/wiki/Electromotive_force) (i.e., voltage) across an [electrical conductor](https://en.wikipedia.org/wiki/Electrical_conductor) in a changing [magnetic field](https://en.wikipedia.org/wiki/Magnetic_field). (Faraday's law).

1. Match the word with the definition

|  |  |  |  |
| --- | --- | --- | --- |
| 1) | DC (direct current) |  | Needs high tension (V) to be transported over long distances, which is dangerous for people. |
| 2) | AC (Alternate current) |  | Is the process by which a coil of wire magnetically induces a voltage into another coil located in close proximity to it. Then we can say that transformers work in the “magnetic domain”, and transformers get their name from the fact that they “transform” one voltage or current level into another. |
| 3) | Advantage of AC |  | Does this by linking together two or more electrical circuits using a common oscillating magnetic circuit which is produced by the transformer itself. A transformer operates on the basis of “electromagnetic induction” |
| 4) | Disadvantage of AC |  | The electricity, and the voltage (V), that is produced is always positive because the electrons flow in the same direction all the time. |
| 5) | Transformer |  | Can be transported for very long distances with a low resistance. |
| 6) | Mutual Induction |  | The electricity, and the voltage (V), change every time. The name alternate refers to the characteristic of this electric current. In Italy the AC current change the voltage 50 times per second. |

1. Domino game: how electricity is produced and transported. You need part of the information from recent explanations, and part of the information from the first part of this academic year.

|  |  |  |  |
| --- | --- | --- | --- |
| Combustion | Produces vapor ad high pressure. | High voltage | Essential for the transportation of electricity to long distance. 10.000 V |
| Turbine | Transforms kinetic energy in mechanical energy. | Transformer. | Is used to decrease voltage.  High V to Low V. |
| Generator | Produces electricity in high quantity | Low voltage | The voltage is lowered to our electric machine, 220 V. |
| Transformer. | Is used to increase voltage.  Low V to High V. | Hairdryer | Converts electricity in heat, Joule’s law. |

1. Each group has to generate a kahoot game, with 5 answers. The first kahoot is mine.

<https://create.kahoot.it/share/electricity/5f91aca2-e5c9-4277-a702-17d147fbf2a9>