



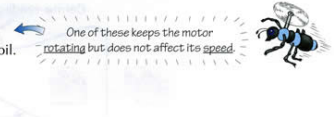
The simple electric motor

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Q1 Which of the following will **not** make an electric motor spin faster? Tick **one** of the boxes.

- Having more turns on the coil.
- Using a stronger magnetic field.
- Using a soft iron core inside the coil.
- Using a bigger current.
- Using a commutator.



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Q2 Read the three statements below. Tick the box next to each statement that you think is **true**.

- The split-ring commutator makes the motor spin faster.
- The split-ring commutator reverses the direction of the current every half turn by swapping the contacts to the DC supply.
- The split-ring commutator makes the motor rotate in a different direction.

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Q3 Suggest two ways in which the direction of spin of a simple DC motor can be reversed.

You could either reverse the polarity of the permanent magnets or reverse the direction of the current (by switching the terminals round on the power supply)

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Q4 The electric motor is often used in lifts in tall buildings and mines. Describe briefly how an electric motor can be used to raise (and lower) a lift cage.

To raise and lower a lift cage you would need a pulley system. The cable from the pulley system could be wound onto a spindle that was turned using the rotation of the motor. The axle of the motor would be the axle of the winding mechanism. The current through the coil could be reversed to wind the system in the opposite direction.

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Q5 Use the words supplied to fill in the blanks in the explanation of how a loudspeaker works.

move amplifier force field sound magnetic frequency current

The loudspeaker relies on the fact that a wire carrying a **current** in a **magnetic field** can experience a **force**. A coil is attached to a cardboard or plastic cone. An AC signal is then sent to the coil from an **amplifier**. This makes the coil **move** and causes the cone to vibrate. The cone vibrates at the same **frequency** as the signal from the amplifier and produces **sound**.

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