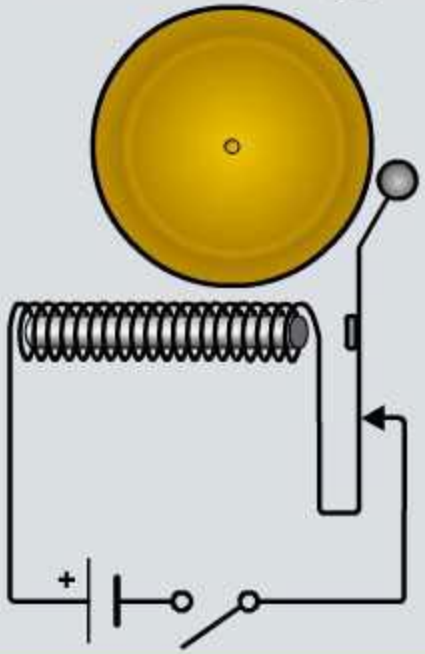
Uses of Electromagnets

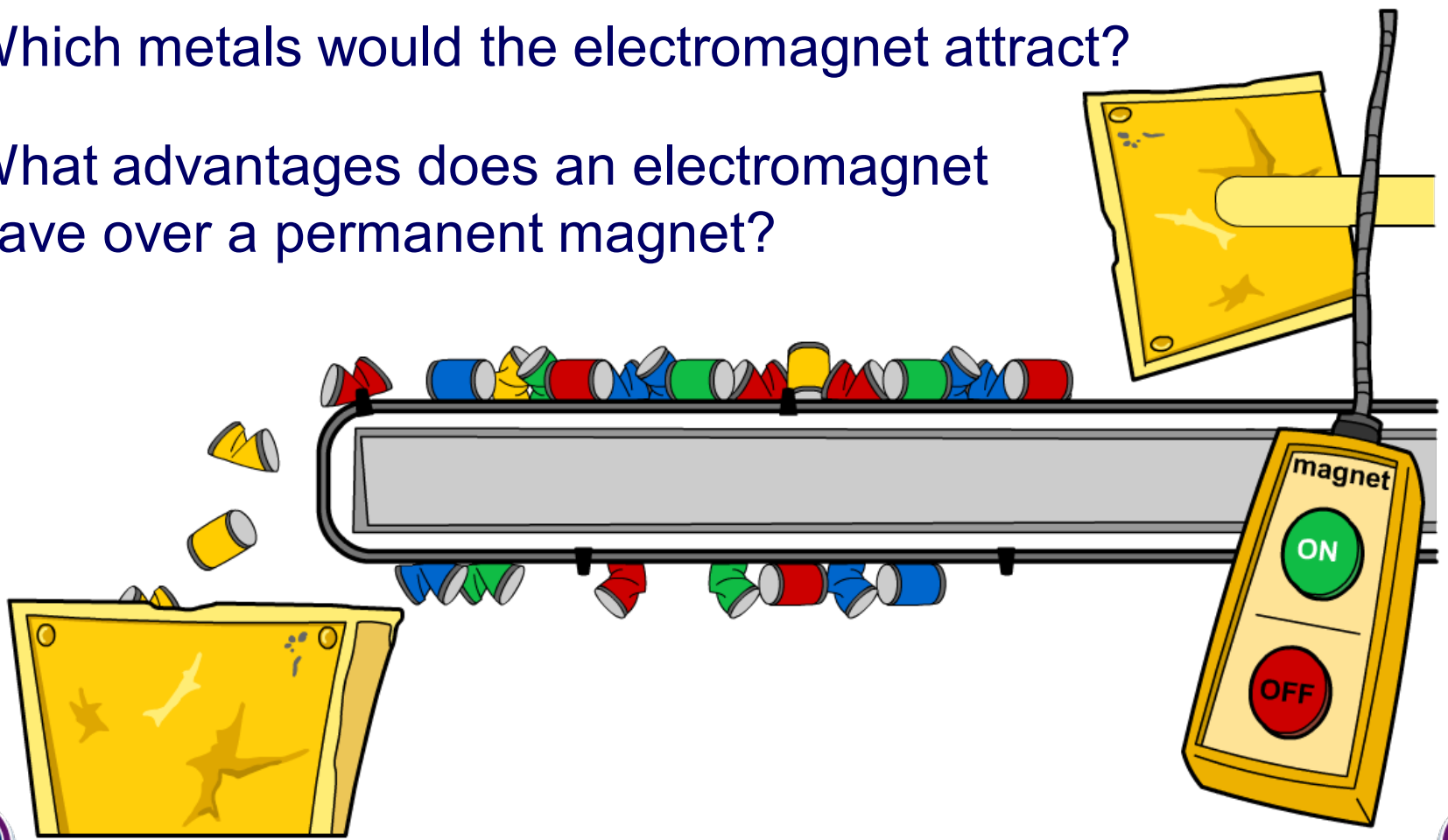


Using electromagnets – recycling

A large electromagnet is used on a recycling plant conveyor belt to pick up and move metal cans.

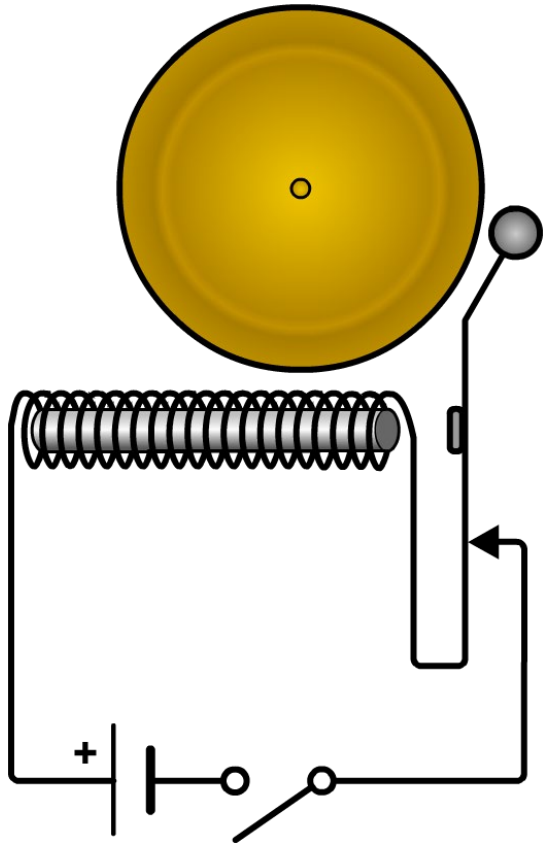
Which metals would the electromagnet attract?

What advantages does an electromagnet have over a permanent magnet?



Uses of electromagnets – electric bell

The circuit for a door bell includes an **electromagnet**.



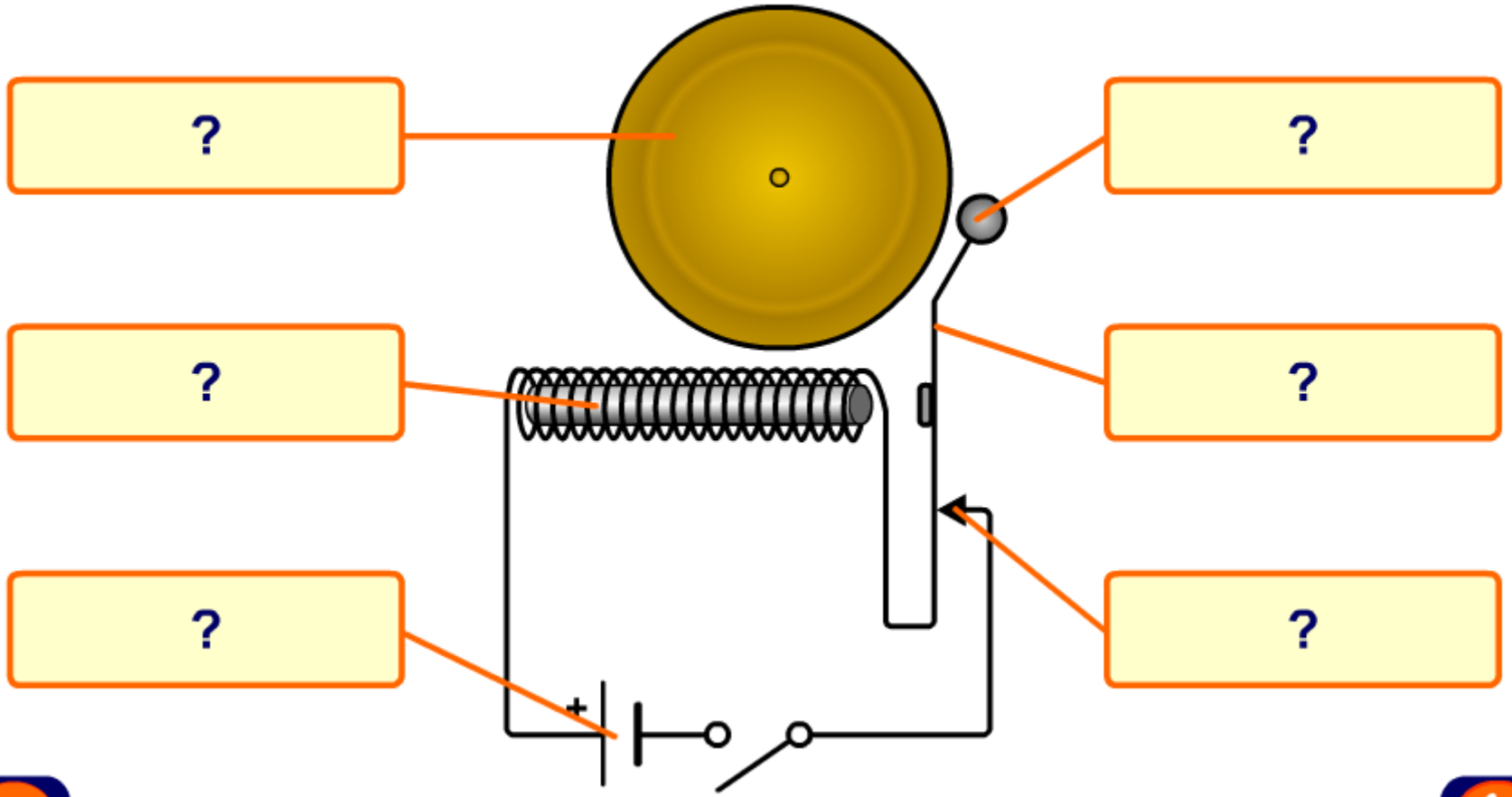
When the circuit is closed, the electromagnet pulls the armature towards it, causing the hammer to strike the bell.

The movement of the armature breaks the circuit, and the hammer returns to its original position.

This sequence repeats, causing the bell to sound continuously.

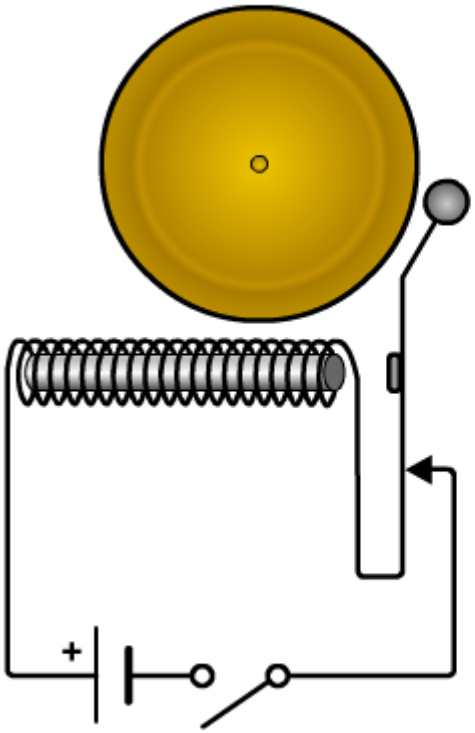
Label the diagram – electric bell

What are the parts of an electric bell?



Using electromagnets – door bells

How does an electric bell work?



1. The switch is pressed
2. The contact is broken
3. A current flows through the electromagnet
4. The electromagnet attracts the armature
5. The hammer returns to the start
6. The hammer hits the bell
7. The whole process repeats

?

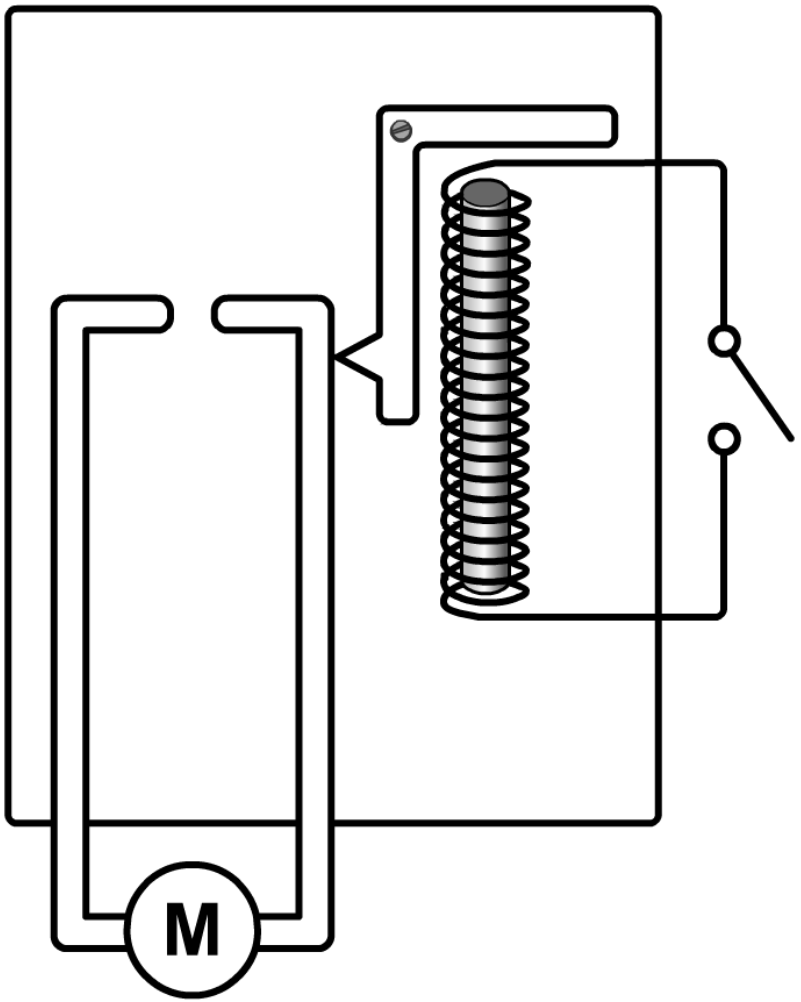
C solve

Using electromagnets – the relay

Elevators, cars and other large electrical machines use high currents.

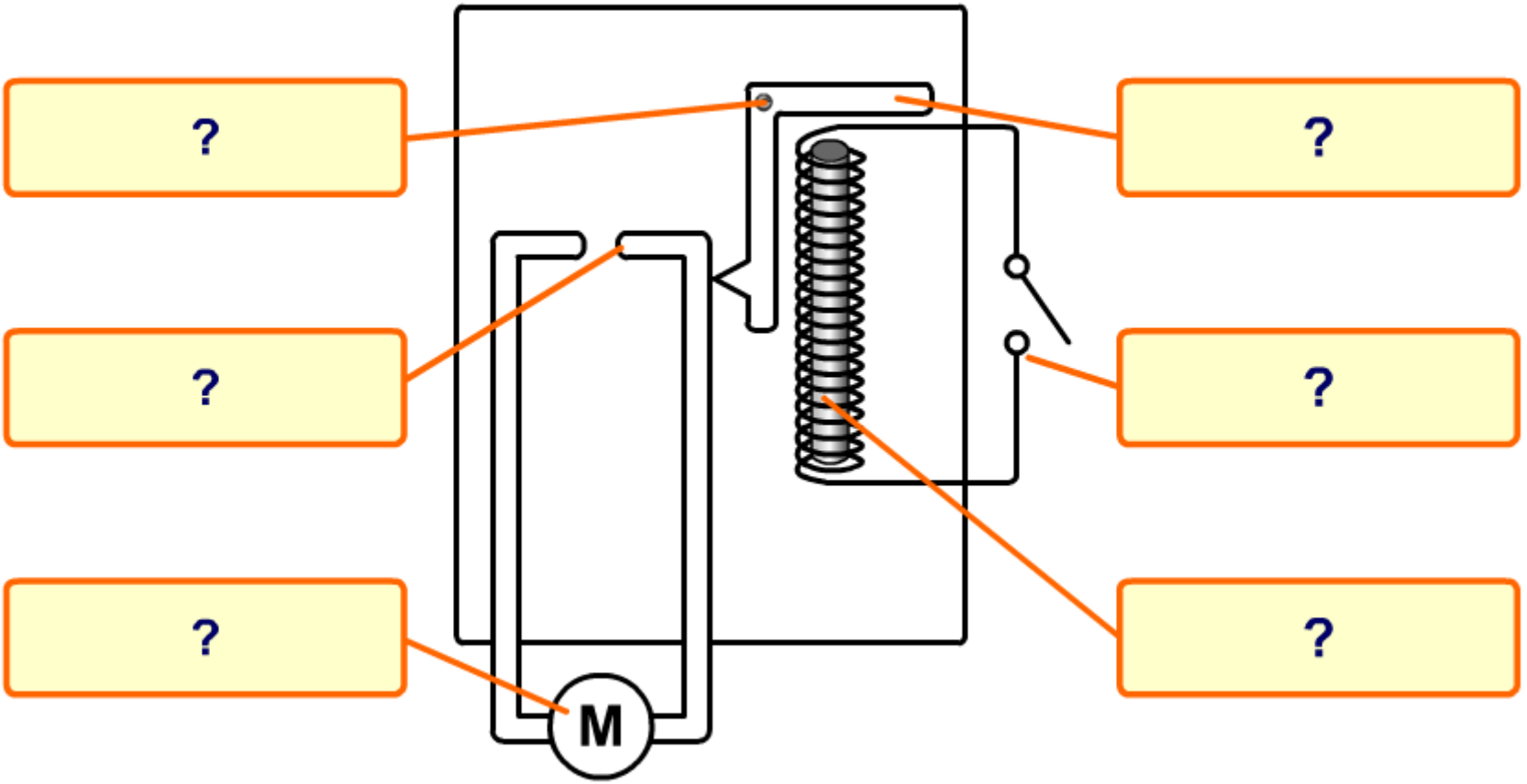
Relays use an electromagnet to allow a small current in one circuit to control a large current in another circuit.

Can you predict what will happen when the switch is closed in this circuit?



Label the diagram – relay

What are the parts of an electromagnetic relay?



Electromagnets: summary

What are the missing words about electromagnets?

1. When electricity is passed through a coil of wire, the coil behaves like a magnet and has a magnetic field around it – this is an [?] .

2. There are three ways to make an electromagnet stronger:
   a. wrap the coil of wire around an [?] core;
   b. [?] the number of coils;
   c. increase the size of the [?] .