

If forces on an object are balanced it will stay \_the same\_ or if it is moving then it will keep \_the same speed\_.

If forces on an object are unbalanced\_ then the speed or direction of an object will change.

Work out the resultant force of the object below:



Draw the magnetic field



There are 3 magnetic metals. What are they?  
Stainless steel, iron, nickel

Air resistance can slow down cars (create drag). We can stop this by making them more streamlined.

Draw a streamlined car and a non-streamlined car below

## Forces

You can make an electromagnet stronger by:

- Increasing the number of coils\_.
- Increasing the size of the core\_.
- Changing the material of the core

List some of the uses of electromagnets below

Maglev trains  
anti-shoplifting systems  
MRI machines

Electromagnets have advantages and disadvantages compared with permanent magnets. Can you think of any?

| Advantages                                | Disadvantages  |
|---|--|
| They can be a lot more powerful           | On a maglev train if the magnets fail the result would be catastrophic |
| an electromagnet can be turned on and off | They use a large amount of electricity                                 |