

Maglev is a type of train that uses new magnetic levitation technology, from which the name maglev is derived, to have very little impact on the environment. Here is how scientists achieve this, and some of the advantages of doing so.

Maglev trains use electromagnets to move and levitate. This is how they do so. Positive attracts negative, a property that we can use to attract the magnets on the train to those on the track, and then repel them. This works as is shown in the diagram at the end of the video.

This means that unlike normal trains, maglev has very minimal friction levels, which means that they can travel at considerably greater speeds than normal trains. In fact, maglev trains can travel at speeds of up to 311 mph, and 268 mph in commercial use. This means that maglev can be used to travel short distances at high speeds, an example of this being travelling from one side of an urban area to another in a conveniently short time. This means that commuters can travel from their homes in the suburbs to their offices in the city centre very quickly.

The cost of building a single mile of maglev track, is roughly £250 million, whereas 1 mile of standard rail track would cost £1.6 million, meaning that maglev is more expensive than standard rail. However, what we need to ask is whether the extra money is worth in effect exchanging for extraordinarily low levels of emission. As well as this, a whole new system of rails would have to be built. For example, one application of maglev would be to have a direct route from London to Edinburgh, a distance of roughly 400 miles. By car this would take around 7 hours and by train about 4 and a half hours. This length of track would therefore cost roughly £100 billion, but would take only 1 hour and 50 minutes. To put that into perspective, the government last year had a budget of £761.9 billion. For everything, including local councils etc. Is it worth it?

A benefit of maglev is that it is proven to produce less sound than a standard train, and in some designs, than road traffic. This means that no energy is wasted in the system, precisely 30% less than standard trains, as well as that people will have considerably less to complain about if a maglev rail were to be placed within close vicinity to their homes. Maglev rails themselves would require virtually no maintenance, as a result of the magnetic levitation, which allows for nothing to touch the rails causing no wearing down to occur. The trains themselves will produce very low emissions and have a relatively neutral effect on the environment. They are also not affected in any way, speed in particular, by weather conditions, making them reliable and able to precisely follow a timetable. Maglev trains have also been proven to be much safer than conventional trains, as it is very difficult, if not impossible for the trains to come off their tracks.

All in all maglev has great potential, but has its setbacks. After much thought and contemplation I have decided on one question that must inevitably be asked - why would we need maglev? Why would someone have any desire to travel from London to Edinburgh in under two hours? What is the point of the exercise?