

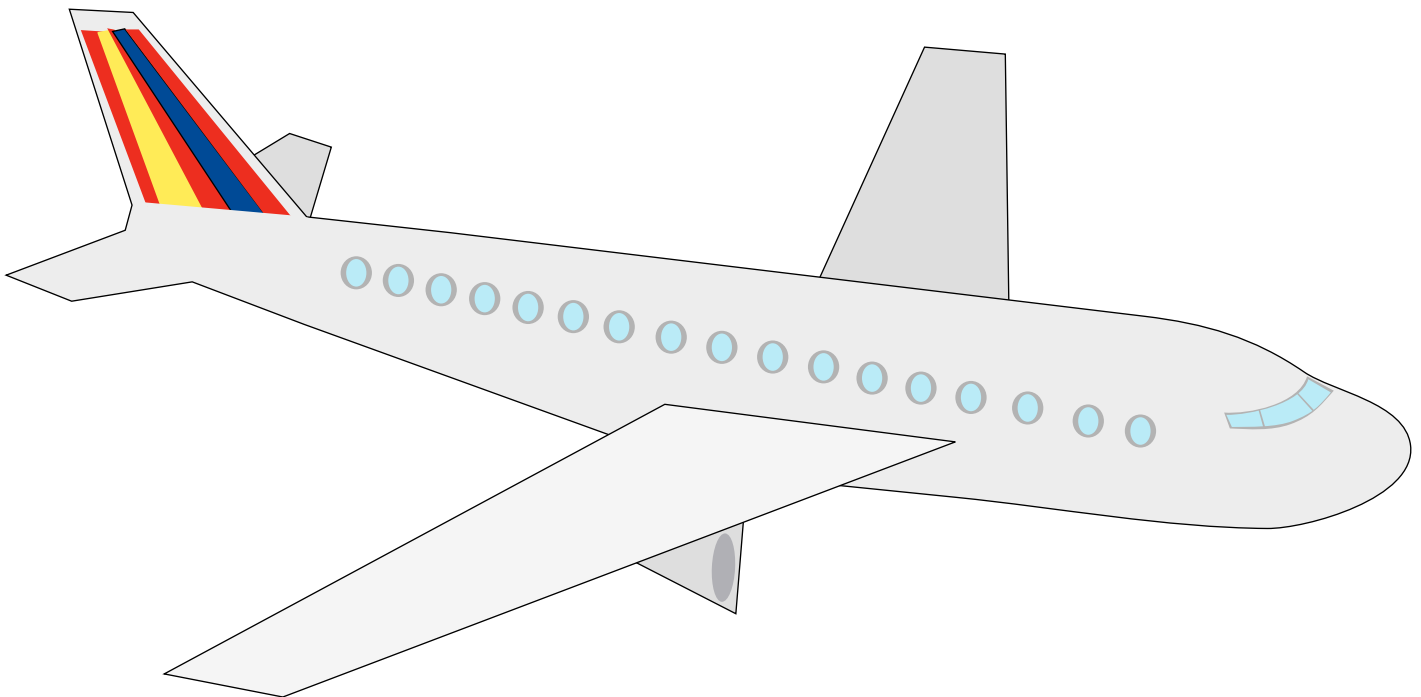


Rolls-Royce

Fuels

For pupils aged 7-11

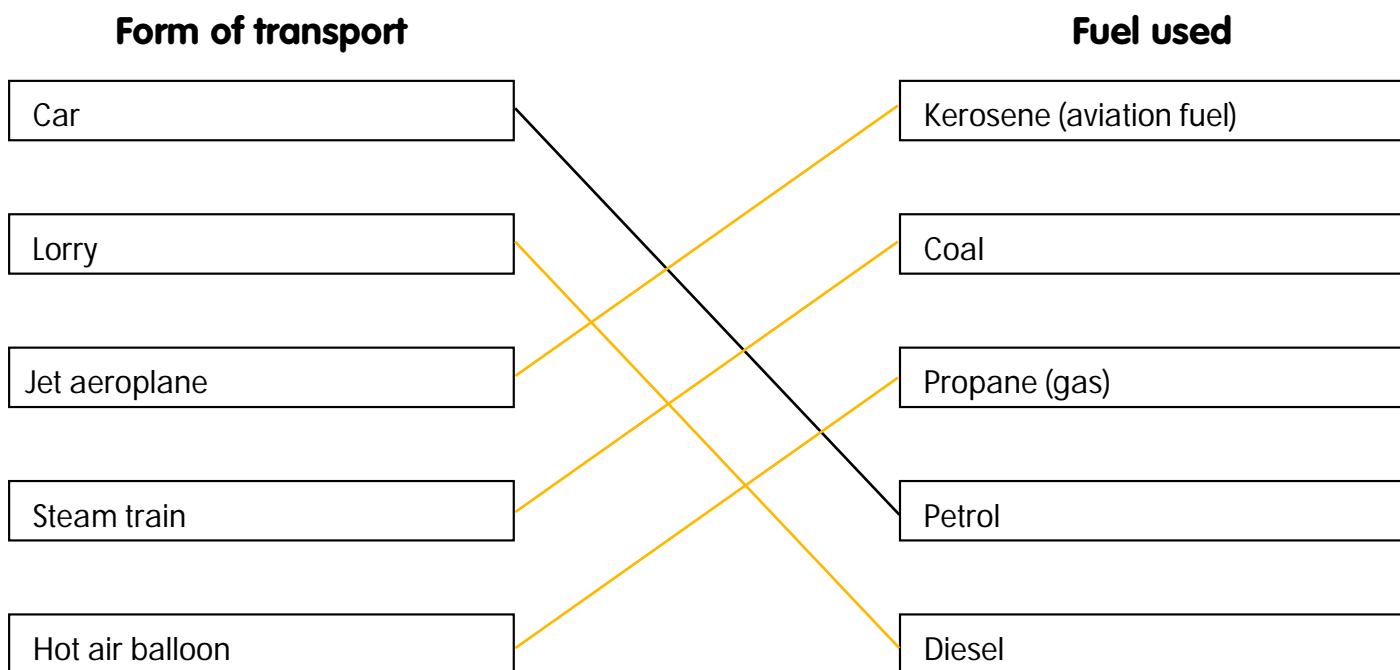
Teachers' notes



This Activity Sheet is provided by Rolls-Royce plc as part of our continuing commitment to education

Fuels

Fuels are materials that can be burnt to release energy. Sometimes a fuel can be burnt to release energy that is used to make a machine work. All the machines below are forms of transport. Draw a line from the form of transport to the type of fuel that is used to make it work. An example has been done for you.



Note: car is already marked as an example.

Can you think of any types of transport that do not burn a fuel to make them work? Write the names of two examples in the space below. For each one try to say where you think the energy comes from to make it go.

Examples include:

Electric vehicles. Eg milk floats or electric cars, pupils may say that energy comes from batteries.

Wind powered vehicles. Eg sailing boats or land yachts, pupils may say that the energy comes from the movement of air, the wind.

Solar powered vehicles. These use solar cells to trap energy from the sun, producing electricity, which is then used to power the vehicle.

Fuels

When fuels are burnt they join with oxygen from the air and new materials are made.

The main new materials are water and a gas called carbon dioxide. These changes can not usually be reversed to get the fuel back. Burning fuels is an example of a permanent change to materials.

Sometimes fuels are used to give us a source of heat or light. For example when a candle burns the candle wax is the fuel and the flame gives of light.

In the space below write down three examples showing how fuels can be used to give heat or light. For each one say what the fuel is and describe how it is used.

Examples that the pupil might suggest include:

A barbecue. The fuel is usually charcoal and it is burnt to give heat, which is used to cook the food.

A gas fire. Gas is the fuel and it is burnt in the fire to give heat.

A match. The wood of the matchstick is the fuel. And it is burnt to give heat to light a fire.

Practical tips

This activity asks pupils to think about the use of different fuels and types of transport. A whole class discussion about the useful properties of fuels may be helpful, drawing out the fact that they all burn easily, but not so easily that they cannot be used safely. The liquid and gas fuels may be easier to store and can be transported through pipes.

Forms of transport that do not use fuels directly still need a source of energy to make them work, again whole group discussion may help to bring this point out.

The notes on this page emphasise the nature of burning as an irreversible reaction which leads to new materials being made. The water produced during burning is not usually obvious because it disappears as water vapour. The last question asks pupils to think about use of fuels in a different context, as sources of heat or light. Again a discussion relating uses to the properties of the fuels may be helpful.

National Curriculum Links

This activity links to attainment target Sc3 Materials and their properties. At KS2;

Pupils should be taught:

- Sc3 1a** Pupils should be taught to compare materials on the basis of their properties and relate these properties to every day uses of the materials.
- Sc3 2g** Pupils should be taught that burning materials results in the formation of new materials and that change is not usually reversible.