

What are biofuels made from?

- Corn
- Algae
- Waste cooking oil
- All of the above.

Biofuels are made from renewable, biological ingredients of any type, instead of fossil fuels

Which of the following is not a greenhouse gas

- Carbon dioxide
- Carbon monoxide
- Methane

Carbon monoxide is a poisonous temporary pollutant, but it is not a greenhouse gas. Greenhouse gases are able to absorb infrared radiation and trap heat in the atmosphere. Without greenhouse gases, the average temperature of Earth's surface would be about 15 °C colder than the present average of 14 °C, the problem is that it is rising.....

What is the present level of Carbon dioxide in the atmosphere?

- 40%
- 4%
- 0.04%

This may seem a small amount, but it is almost double what it was before the Industrial Revolution (1750) and it is continuing to increase and has a big effect on global warming.

Which country is the leading producer of biofuel?

- Brazil
- The United States
- China

The United States leads world production with 40 billion litres, followed by Brazil at 25 billion litres, Europe: 10 billion litres, Australia/Asia: 4 billion litres, Africa: 2 billion litres.

Which of the following is not a potential biofuel:

- Hydrogen fuel cell
- Algal biodiesel
- Grassoline

Hydrogen fuel cells are feasible alternatives to oil, as they do not come from a biological source are not biofuels. Biofuels could be made from grass which is a biological material.

Biofuels are often described as carbon-neutral. What does this mean?

- They recycle the carbon content already in the atmosphere
- They do not contain carbon
- They do not produce greenhouse gases

Biofuels are made from plants which use atmospheric carbon dioxide and “fix” it by photosynthesis to make “biomass” (sugars and oils and other plant materials). The biomass is then converted into a biofuel, which when burned releases the carbon dioxide back into the air. However, because fertilisers and energy are required to grow and harvest the crop, many may be slightly carbon positive, but they are still better than fossil fuels.

Which contributes the most to greenhouse gases?

- Cow burps
- Cow farts
- Cowslips

Contrary to the myth that “farting cows” cause climate change, 96 percent of bovine-based methane comes from the front end. In cows, methane is a byproduct of the digestion of grasses and grains in the cow's microbe-packed rumen. The more methane generated in the rumen, the more a cow burps.

How do fossil fuels contribute to global warming?

- They create heat-trapping gases.
- They produce a lot of heat
- They remove carbon dioxide from the air

Although fossil fuels contain high amounts of energy, they produce tons of heat-trapping gases, such as carbon dioxide, into the atmosphere. These gases keep the sun's radiation close to the ground, heating Earth's surface.

In the world of Biofuels what is meant by AD?

- Anaerobic Digestion
- Anno Domini
- Antidepressant

Anaerobic digestion is the process by which organic matter such as animal or food waste is broken down to produce biogas and biofertiliser. This process happens in the absence of oxygen in sealed containers called anaerobic digesters. These are usually large domed vessels which can often be seen next to farms.

The petrol sold at UK petrol stations is:

- 100% petrol from fossil fuel
- A 5% blend of bioethanol in petrol
- A 10% blend of bioethanol in petrol

Bioethanol is commonly mixed with gasoline (petrol) to produce gasohol. A blend which contains 10% ethanol is called E10 and is standard in the USA. In the UK E5 is standard.

When is the first record of the first biofuel car?

- 1893
- 1993
- 2003

The first cars ever built were made to run on biofuels. In 1893 Rudolph Diesel built the first car engine which ran on a fuel made from peanut oil and Henry Ford designed his original 1908 Model T to run on ethanol made from corn. But in the 1920's engineers redesigned car engines to run on petrol as oil was cheap and plentiful.

In the early 1980s concerns over the environment, energy security, and agricultural overproduction once again brought the use of biofuels back to the forefront.

In Brazil, what is the main source of ethanol

- Corn
- Sugar cane
- Brazil nuts

Brazil has been producing ethanol from sugarcane since the mid 1970s. It has received a lot of bad press, because rain forests and farms have been lost to sugar cane production. However, a new variety called "Energy cane" should help Brazil put things right. Energy cane is giant cane with high fibre content. It promises to have twice the yield of traditional cane and it can be grown on marginal land, so it does not compete with land for food.

Which form of energy does not ultimately come from the sun?

- Biofuels
- Fossil fuels
- Nuclear energy

Biofuels derive energy from photosynthesis which is powered from the sun. All fossil fuels can be thought of as "paleo-biofuels" and are a form of stored solar energy. Wind energy is created by the uneven heating of the earth's surface, which is driven by solar input. Nuclear energy is not derived from the sun. Nuclear energy comes from the energy released when atoms are split apart and some mass is converted to energy.

Which biofuel is produced by the fermentation of corn or sugar cane?

- Bioethanol
- Methanol
- Biodiesel

Refineries can turn starchy plants, such as corn, sugar beet and sugar cane into ethanol. Methanol is made from wood; Biodiesel is made from animal and plant oils.

Which process allows green plants to convert sunlight into chemical energy?

- Respiration
- Photosynthesis
- Digestion

Photosynthesis is the process by which green plants turn carbon dioxide and water into carbohydrates and oxygen, using light energy trapped by chlorophyll.

Which of the following are needed to make biofuels from plant sugars

- Carbon dioxide and water
- Sunlight and rain
- Microbes

Bacteria or yeast break down long strings of sugar molecules into ethanol.

Which form of transportation gives the best mileage per unit fuel per passenger?

- Aeroplane
- Train
- Bus

A train is the best, then aeroplane and finally bus.

Which of the following is the biggest producer of Carbon dioxide?

- China
- USA
- UK

China is the world's biggest emitter, but a report in 2014, showed that when you look at the average emissions per person, the UK beats all of them!

What is meant by GHG?

- Generated Hot Gases
- Greenhouse Gases
- Generally Harmful Gases

Greenhouse gases are produced by burning fossil fuels. They absorb infrared radiation and trap heat in the atmosphere. They cause global warming and are linked with climate change.

Which of these microbes is not used in making a type of biofuel?

- Bacteria
- Viruses
- Algae

Viruses are very small microbes. They cause disease in plants, animals and humans.

Which is not true about enzymes?

- They are alive
- They speed up chemical reactions
- They are chemicals

Enzymes are chemicals made by living cells but they are not alive. They are said to be catalysts which means they help speed up chemical reactions, but are not used up so can be reused over and over again, unless they get damaged e.g. by heat.

Which of the following is not true about fermentation?

- It occurs in yeast and bacteria
- It is used to make to make some types of biofuel
- It produces smoke

Fermentation is a biological process that converts sugar to gases or alcohol. It occurs in yeast and bacteria, and is used to make some types of biofuel.

What is the process of breaking down chemical bonds using water called?

- Hydrolysis
- Photosynthesis
- Fermentation

The process of breaking down chemical bonds using water is called hydrolysis. Hydrolysis can be achieved using acid at high temperature or enzymes at lower temperatures.

Which of these molecules is made from one carbon atom and two oxygen atoms..

- Water
- Carbon dioxide
- Carbon monoxide

Water is H₂O (two hydrogen, one oxygen), Carbon monoxide is CO (one carbon atom and one oxygen).

A reliable supply of energy at an affordable price is known as

- Energy security
- Energy sufficient
- Energy source

Many factors affect our energy supply including politics, war, natural disasters and accidents. Alternative fuels allow countries to be more self-sufficient and gives them greater energy security.

Which of the following is not true about fracking?

- It produces natural gas
- It has been linked to earth tremors
- It is not a fossil fuel

Shale oil produced from fracking is still a fossil fuel which produces GHGs when burned.

What does anaerobic mean?

- Does not need air
- Does not need oxygen
- Does require oxygen

Anaerobic bacteria get their energy without using oxygen., indeed some types are poisoned by oxygen.

In June 2019 the UK became the first major economy in the world to pass laws to become Carbon Zero by which date?

- 2030
- 2040
- 2050

This beats the previous target of at least 80% reduction from 1990 levels.