



Today we're going to talk about the environment. Global warming is caused by the presence of greenhouse gases in the atmosphere. One of the worst greenhouse gases is carbon dioxide.

We're going to look at the language of cause and effect while we find out why these greenhouse gases are a problem.

The main problem is our use of fossil fuels. So what we've done is put the whole natural system out of balance by digging up coal and oil that took about 200 million years to accumulate and we're releasing it all in about 100 years. So it's put the whole system out of balance at the moment, which has resulted in higher levels of these gases in the atmosphere.

That was Dr Roger Francey talking about the natural system. He says that the natural system is 'out of balance'.

He also talked about the causes and effects of this.

Listen for the main cause of the natural system being out of balance...

The main problem is our use of fossil fuels.

He says 'the main problem is our use of fossil fuels'.

So if we look at a table of cause and effect, we can say that 'the use of fossil fuels' is a cause, and 'the natural system out of balance' is an effect.

Listen again.

The main problem is our use of fossil fuels. So what we've done is put the whole natural system out of balance by digging up coal and oil that took about 200 million years to accumulate and we're releasing it all in about 100 years.

So the natural system has been put out of balance by people digging up and burning coal and oil. This releases gases into the atmosphere. Coal and oil are fossil fuels.

So if we go back to the table of cause and effect, we can say that 'digging up and burning coal and oil' is another cause.



See if you can hear another effect.

The main problem is our use of fossil fuels. So what we've done is put the whole natural system out of balance by digging up coal and oil that took about 200 million years to accumulate and we're releasing it all in about 100 years. So it's put the whole system out of balance at the moment, which has resulted in higher levels of these gases in the atmosphere.

It's put the whole system out of balance, which has resulted in higher levels of gases in the atmosphere.

So here, 'the natural system out of balance' is now a cause.

It has 'resulted in', or 'caused', higher levels of gases in the atmosphere.

This is an effect.

<i>cause</i>	<i>effect</i>
natural system out of balance	higher levels of gases

To express these relationships, there many different word choices.

We can use verbs like 'causes', 'leads to', 'results in'.

So we can express the relationship like this:

'A causes B', 'A leads to B', 'A results in B'.

Listen to an example here.

The main problem is our use of fossil fuels. So it's put the whole system out of balance at the moment, which has resulted in higher levels of these gases in the atmosphere.

'Our use of fossil fuels has resulted in higher levels of gases.'

But we can also express the cause/effect relationship the other way round:

'Higher levels of gases are the result of our use of fossil fuels.'

Notice that we use a noun phrase here. This is very common.



We can use nouns like 'the result', 'the effect', 'the consequence'.



If we look at these effect relationships, we can say:

'B is the effect of A', 'B is the result of A', 'B is the consequence of A'.

Remember that it's always important to have a variety in your language. Make sure you use both nouns and verbs to express causes, and effects. This will make your written work and your speech sound more interesting.

OK, so Dr Francey and his team have designed a new way of measuring one of the worst greenhouse gases in the earth's atmosphere: carbon dioxide.

Listen for what they're trying to find out.

We need to understand what happens in the tropics, that's where the biggest forests are and that's where some of the biggest changes are occurring in terms of human modification of those forests through conversion to agriculture and regular burning of these forests.

Our interest is not so much in that diurnal or daily variation. We're interested in what's happening on time scales of days or months or years.

They are interested in what's happening over days, months or years.

Their interest is not so much in diurnal or daily variation.

The conjunction 'or' here works to connect alternative meanings.

In this sense, 'or' means 'that is', 'I mean'.

'We're interested in diurnal, that is daily, variation.'

'We're interested in diurnal, I mean daily, variation.'

The second word defines the first. It tells the reader or listener what the more unfamiliar, technical word means.



Listen again for what diurnal means.

Our interest is not so much in that diurnal or daily variation.

He says diurnal or daily.

'Diurnal' means 'daily'.

See if you can work out the meaning of CO<sub>2</sub> here ...

"One of the main causes of global warming is CO<sub>2</sub>, or carbon dioxide."

'CO<sub>2</sub> or carbon dioxide'

'CO<sub>2</sub> is carbon dioxide'

When you're looking at environmental issues, like global warming and greenhouses gases, it's often necessary to be familiar these kinds of chemical terms.

You should try to learn the more common ones, like 'CO<sub>2</sub>'.

You might want to keep a copy of the 'periodic table' in your notebook. That's the list of all chemical elements and their abbreviations.

Here are some of them:

'hydrogen' is H, but 'helium' is He.

Notice that with abbreviations of elements, the first letter is always a capital, and the others are always small.

See if you can guess these ones:

'oxygen', that's O,

and 'carbon' is C.

But they're not always that easy:

'lead' is Pb,

and 'sodium' is Na.

OK, now let's listen to Dr Francey talk about the new CO<sub>2</sub> measuring device...

Then we'll look at the names of countries and nationalities.

There's been interest from Korea, Japan, France and Malaysia, where the analyser could be installed on a 100metre tower on the island of Borneo.

She says there's been interest in their device from Korea, Japan, France and Malaysia.



It's important to learn and recognise the English names of the major countries of the world, their nationalities, and how to spell and pronounce these.

It's a good vocabulary exercise to make lists of these families of words.

To help you remember them, try grouping countries according to how the nationalities are formed.

Notice that they're all spelt with capital letters.

We have the '-an' group:

'Australia, Australian',

'Korea, Korean',

'Malaysia, Malaysian',

'Fiji, Fijian'.

We have the '-ese' group:

'Japan, Japanese',

'China, Chinese',

'Vietnam, Vietnamese'.

Then there's the '-i' group:

'Bangladesh, Bangladeshi',

'Kuwait, Kuwaiti'.

And some nationalities are formed in an irregular way:

'France, French',

'New Zealand, New Zealander',

'Philippines, Filipino'.

And watch the change in spelling with that one!

Why don't you start your own list of English names for countries and their people. Some countries also take separate adjectives that you can learn along with them.

And that's all for Study English today.

I'll see you next time. Bye bye.