

## Resource 1.2

### The heat is on

Global warming caused by the enhanced greenhouse effect is the hottest problem of the century. The increasing temperatures on Earth may turn our normal weather patterns upside down, causing floods, droughts, rising ocean levels . . . and that's just the beginning.

The natural greenhouse effect is actually important for the survival of all life on Earth. The atmosphere surrounding our planet is made up of gases such as nitrogen and oxygen, along with smaller amounts of 'greenhouse gases', including water vapour, carbon dioxide and methane. This atmosphere allows heat from the Sun to pass through to warm the surface of the Earth while also allowing some of this heat to escape back out to space. This keeps the Earth's surface at just the right temperature for living things; not too hot and not too cold. Without our atmosphere, the Earth would have an average temperature of around minus 18°C.

The problem is that over the past 200 years humans have been producing a lot of extra greenhouse gases. By burning fuels such as oil, coal and gas, we've raised the amount of carbon dioxide in the atmosphere by more than a third. Methane gas levels have more than doubled, and other gases have also increased. As the atmosphere gains more greenhouse gases, it's also getting warmer, and allowing less of the heat that is reflected from the Earth to escape out to space. So the planet is slowly warming up. At the same time we're cutting down lots of trees — which breathe in carbon dioxide — so we're getting rid of one of the ways we can reduce carbon dioxide levels.

Why do we care about global warming? After all, doesn't it mean we won't have to rug up so much in winter, our summers will be nice and warm, and life might become a bit easier in cold places such as Siberia and Alaska? Unfortunately, global warming is a lot more complicated.

Along with the atmosphere, the oceans are warming, though much more slowly. As the oceans heat up, they expand or get bigger, resulting in sea level rises that could flood low-lying areas on coasts. Major icefields are also melting and this will also contribute to major sea level rises.

Rainfall patterns may also change, so that some areas will get a lot more rain and others will get none at all. While we may be able to grow some crops in areas that used to be too dry, it could mean that some farming areas will dry up or become too wet for crops. We aren't sure exactly what will happen, where it will happen, or when but scientists do have predictions based on their studies.

Many scientists believe that we're already beginning to feel the effects of global warming, but this doesn't mean it is too late for us to fix the problem before it gets worse. If we can reduce the amount of greenhouse gases we produce, and plant more trees, we can cool global warming.

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