# Guided Practice 1.1D: Our Changing Climate

## How Are We Changing Our World?

Since the Earth has existed, it has gone through many climate changes—most of these were gradual, some were drastic, but all were part of the natural progress of a planet. However, when the topic of climate change is considered today, it is human-caused and more rapid change that is being discussed. The science is now unequivocal: we humans are changing the climate and the atmosphere. All the pollutants we pump into the air and earth are making our world more likely to get warmer and therefore to change abruptly.

What are Global Warming and Greenhouse Gases?

Global Warming refers to the widespread increase in global temperatures. As a result of the last 300 years of the invention and production of industry and automobiles, the atmosphere now contains many more gases—carbon dioxide, methane, and nitrous oxide especially. These three greenhouse gases trap heat in the Earth's atmosphere and cause the phenomenon of Global Warming.

These gases are referred to as greenhouse gases because the planet is much like a greenhouse; it relies on the gases in the atmosphere to trap the sun's heat and keep our planet warm enough to sustain life. The atmosphere gets too hot with too much gas, thereby creating the greenhouse effect. Carbon dioxide is the main contributor to climate change. There is now 32 percent more carbon dioxide, a gas released mostly by burning fuels such as oil, gas and coal, clearing land and modern farming, than before modern industry. Methane, produced whenever vegetation rots or is digested, is also on the rise due to the increase of cattle farms and garbage dumps. Nitrous oxide, a gas hundreds of times more damaging than carbon dioxide, is released by chemical fertilizers. As these gases increase, global temperatures are predicted to increase by 1.1 to 6.4 degrees Celsius between 1990 and 2100.

# What's a Few Degrees?

The increase in temperature may seem like an insignificant change. Everyone likes a warmer winter and a sunnier summer, don't they? The problem with this warmer weather is that it will also lead to rising sea levels, poorer air quality in cities, and an increased chance of extreme weather events like floods, droughts, hurricanes, and tornadoes. Also, scientists predict that some animal species will become extinct, and some diseases will have a greater negative impact on human health.

#### Will British Columbia Change?

Yes, it is expected that the climate of B.C. will get warmer. In fact, in the last 100 years, all the interior regions of B.C. have seen an increase in temperature of over 1 degree—this is twice the rate of the global average.

The Lower Fraser Valley, in particular, is expected to see some dramatic changes with hotter, drier summers leading to intense smog. The Interior's forests are anticipated to experience more and more severe insect infestations and forest fires. In the surrounding Pacific Ocean and the rivers that run into it, the salmon populations are predicted to decline as a result of increasing water temperatures. These are just a few of the dramatic changes anticipated for B.C.'s climate in the next 100 years. Each change will have an equally dramatic impact on the province's economy. Forestry, fishing, farming, and tourism industries could see a significant decline in profitability.

## What Can I Do About Climate Change?

In 2007, nearly 4 out 5 Canadians believed that they had seen climate change in their own communities. Whether it was playing golf in January in Toronto or watching the wild windstorms that blew the trees down in Stanley Park in Vancouver, Canadians are convinced that global warming is real. As a result, they also want to figure out what they can do to make a difference.

Changing your impact on the environment and the climate is easier than you might think.

#### • Go Low Carbon, Low Car

Start by reducing your emission of the three greenhouse gases. Reduce your carbon dioxide contributions by encouraging your family and friends to drive only a fuelefficient car. Or do not rely on a car at all; walk, bike, or take public transit to get to where you want to go. If possible, try to live near to school, businesses, and other destinations that you frequent. These few small changes alone will drastically change how much carbon dioxide you put into the atmosphere.

## • Curb Your Meat Consumption

You can also reduce the amount of methane produced by eating meat-free meals once a week. In particular, reduce the amount of red meat that you consume—the world's cattle are some of the most prolific producers of methane. Instead of a hamburger, try a veggie burger!

# • Change Your Home Habits

You can reduce all the greenhouse gas emissions by changing a few things in your home as well. Aim to reduce home energy expenses—turn the heat down and wear a sweater, install energy efficient light bulbs, insulate windows and doorways properly, and when buying appliances, purchase only energy efficient ones. In the long run, you will not only be saving the environment, you will be saving money. In addition, instead of shopping for groceries at the supermarket, try locally produced food from farmer's markets and other community vendors. The produce is fresher and your shopping experience will be more fun!

#### • Pitch the Pesticides

Many communities in Canada are now banning pesticides. Beside the fact that these chemicals are toxic to humans, they are also the main reason that nitrous oxide is in our atmosphere. Whether your community is pesticide free or not, persuade any gardeners you know to try pesticide free gardening.

The climate is changing, but we still have time to slow global warming. Start making your changes today!