**C9 Chemistry of the Atmosphere Pack For Year 9 – Part 2**

**Greenhouse Gases**

* Greenhouse gases include; carbon dioxide, water vapour and methane.
* Short wavelength Ultra Violet (UV) radiation passes through the atmosphere and is absorbed by the Earth. It is re-emitted as longer wavelength Infra-Red (IR) radiation. This IR radiation is absorbed by the greenhouse gases and so remains “trapped”.

**Human Activity and the Greenhouse Effect**

* Farming has led to an increase in methane and burning fossil fuels has led to an increase in carbon dioxide in the atmosphere.
* Scientific work that has been peer reviewed draws a direct link between human activity and the temperature of the earth's atmosphere.

**Global Climate Change**

* Four effects of climate change are loss of habitat, bizarre weather patterns, floods and drought, rising sea levels and loss of ice caps.
* Have an awareness of the scale, risk and environmental implications of global climate change.

**Carbon Footprint and Reduction**

* Carbon footprint is the amount of carbon dioxide and other greenhouse gases emitted over the full life cycle of a product.
* Carbon footprint can be reduced by reducing the emission of greenhouse gases.
* Reducing greenhouse gas production by sustainable farming e.g. eating less meat, carbon capture and storage, switching to hydrogen fuel cell vehicles and using renewable energy resources may be difficult to implement in some cases.

**Pollutants from Fuels**

* Fuels contain carbon, hydrogen and some sulphur
* When fuels are burned the following pollutants are formed:
* Carbon dioxide – leads to greenhouse effect
* Carbon monoxide – odourless, colourless and is toxic
* Sulphur dioxide – causes respiration problems and acid rain
* Oxides of nitrogen – as sulphur dioxide
* Particulates – global dimming and health problems

**Task 1: Watch Free Science lessons (if you can) and do a mind map of the information**

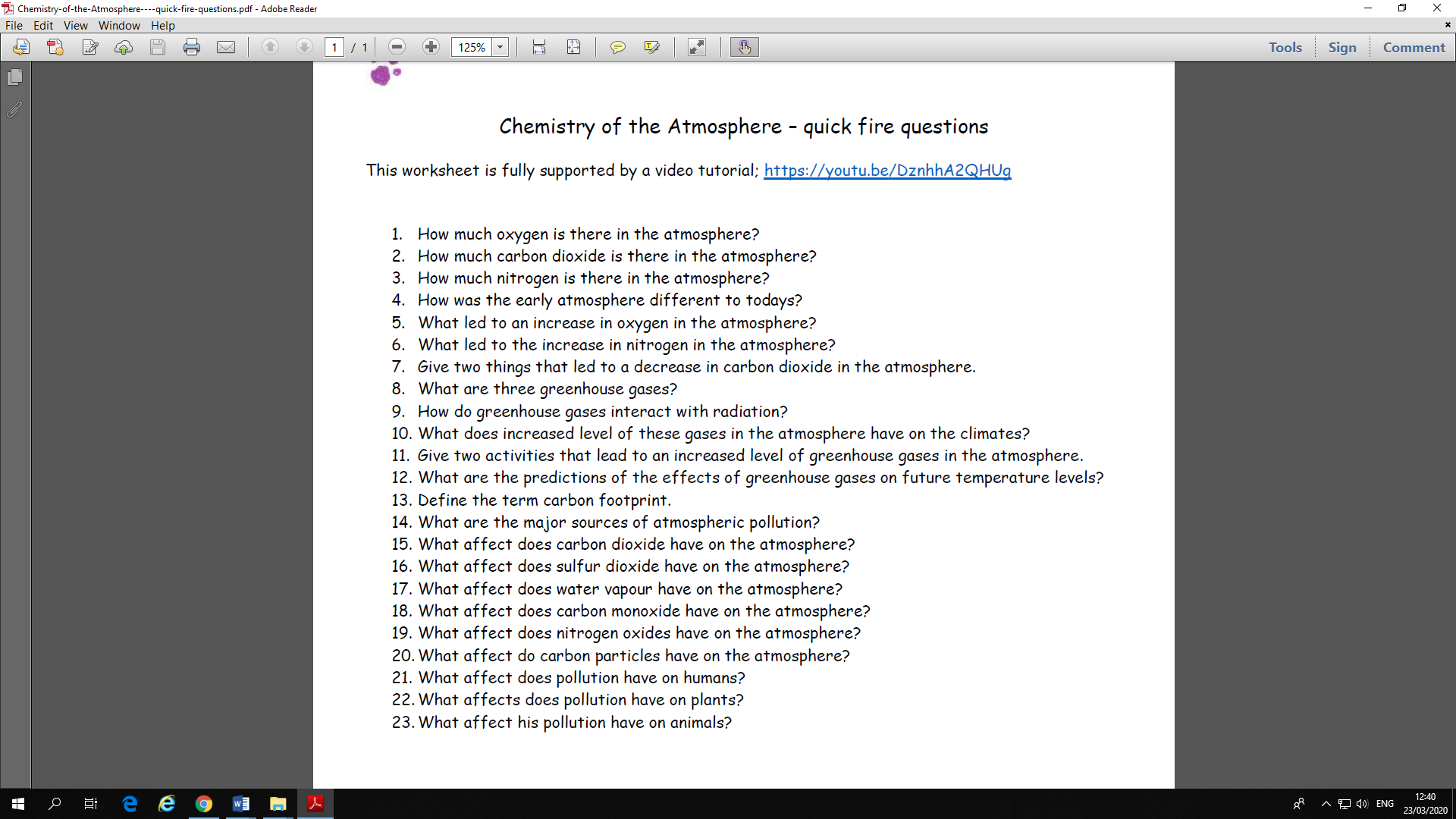
**GCSE Science Chemistry (9-1) The Greenhouse Effect**

**GCSE Science Chemistry (9-1) Climate Change**

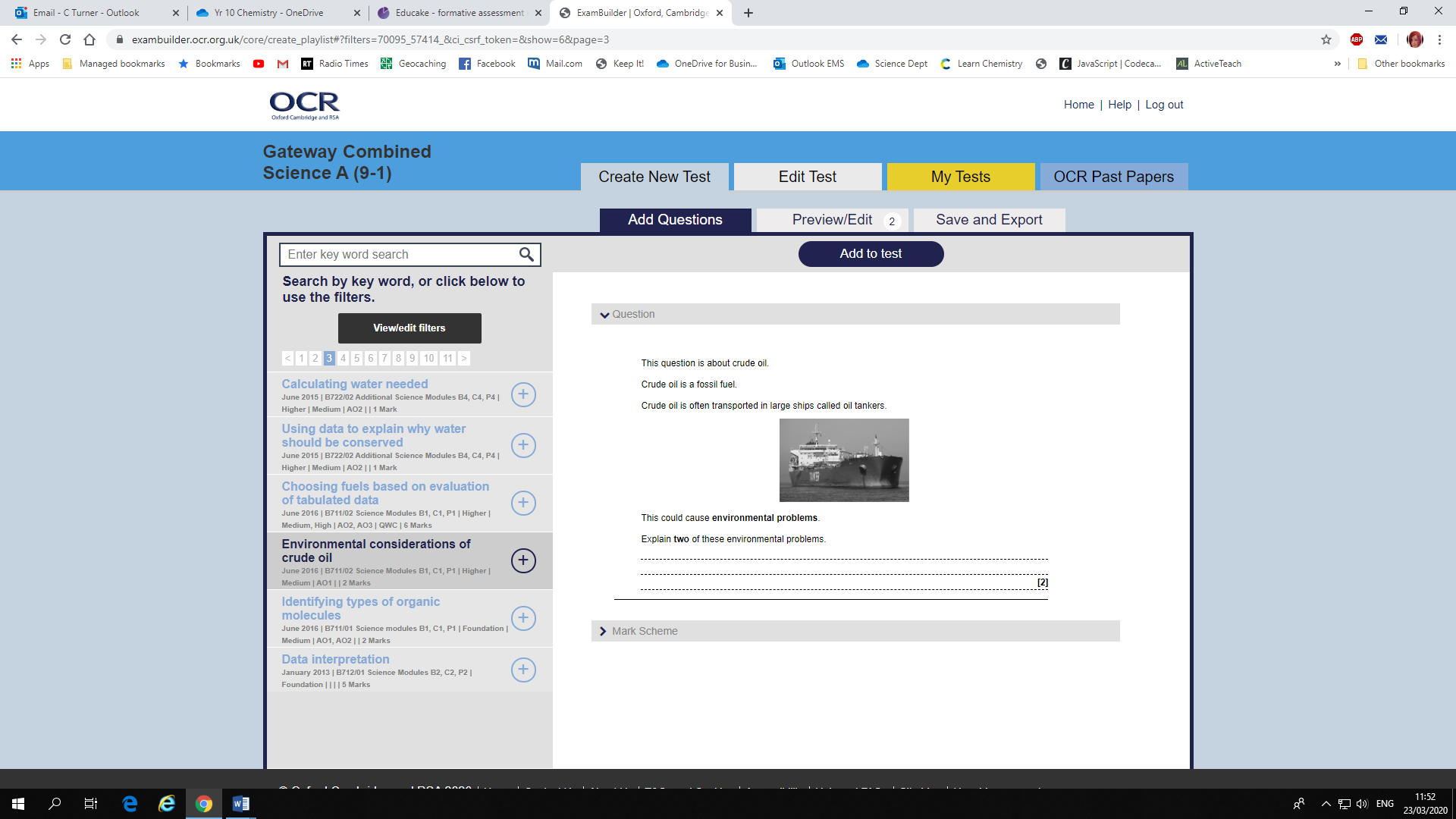
**GCSE Science Chemistry (9-1) Carbon Footprint**

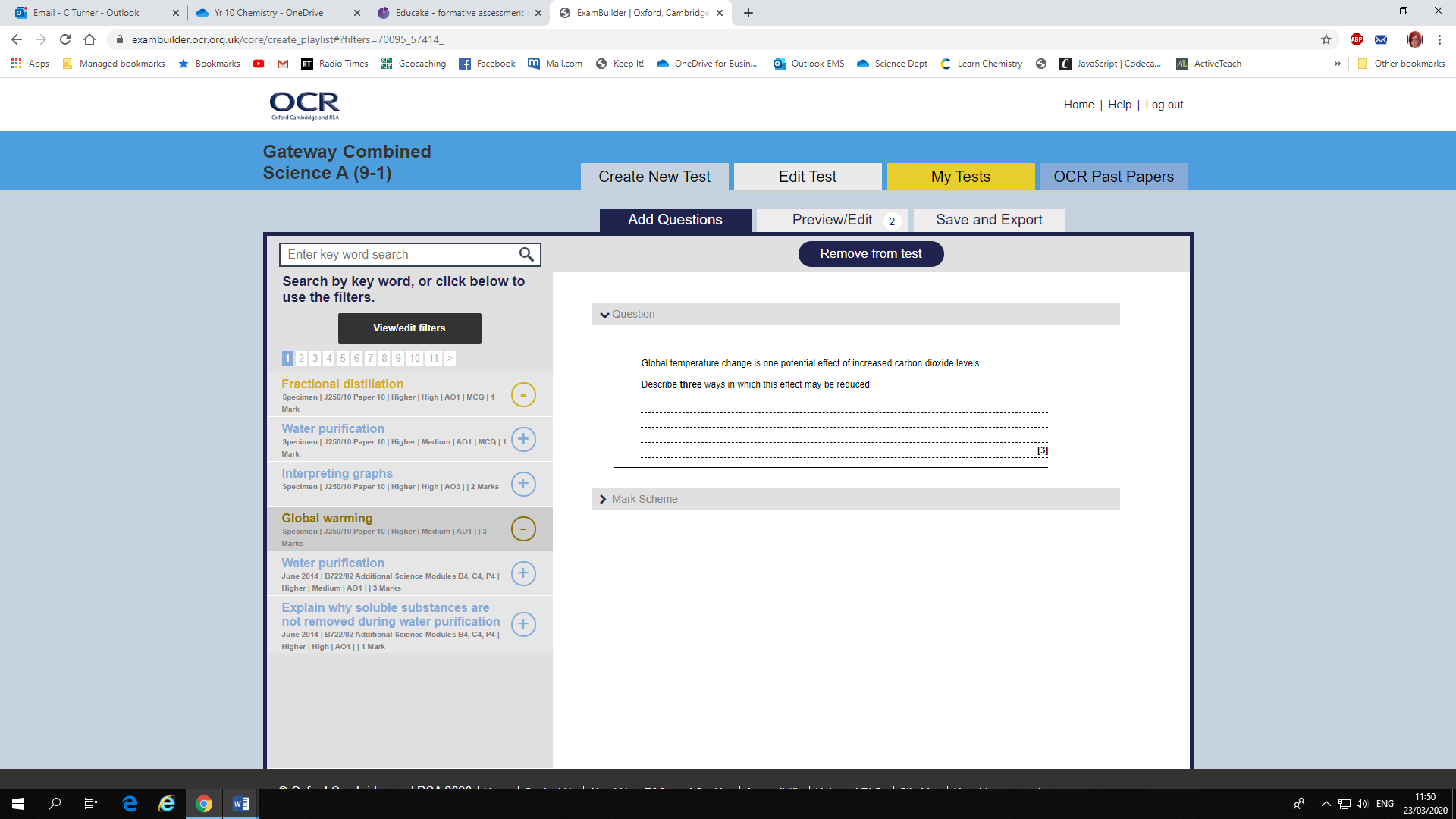
**GCSE Science Chemistry (9-1) Pollutants from Fuels**

**Task 2: Test yourself! Answer these quick fire questions.**

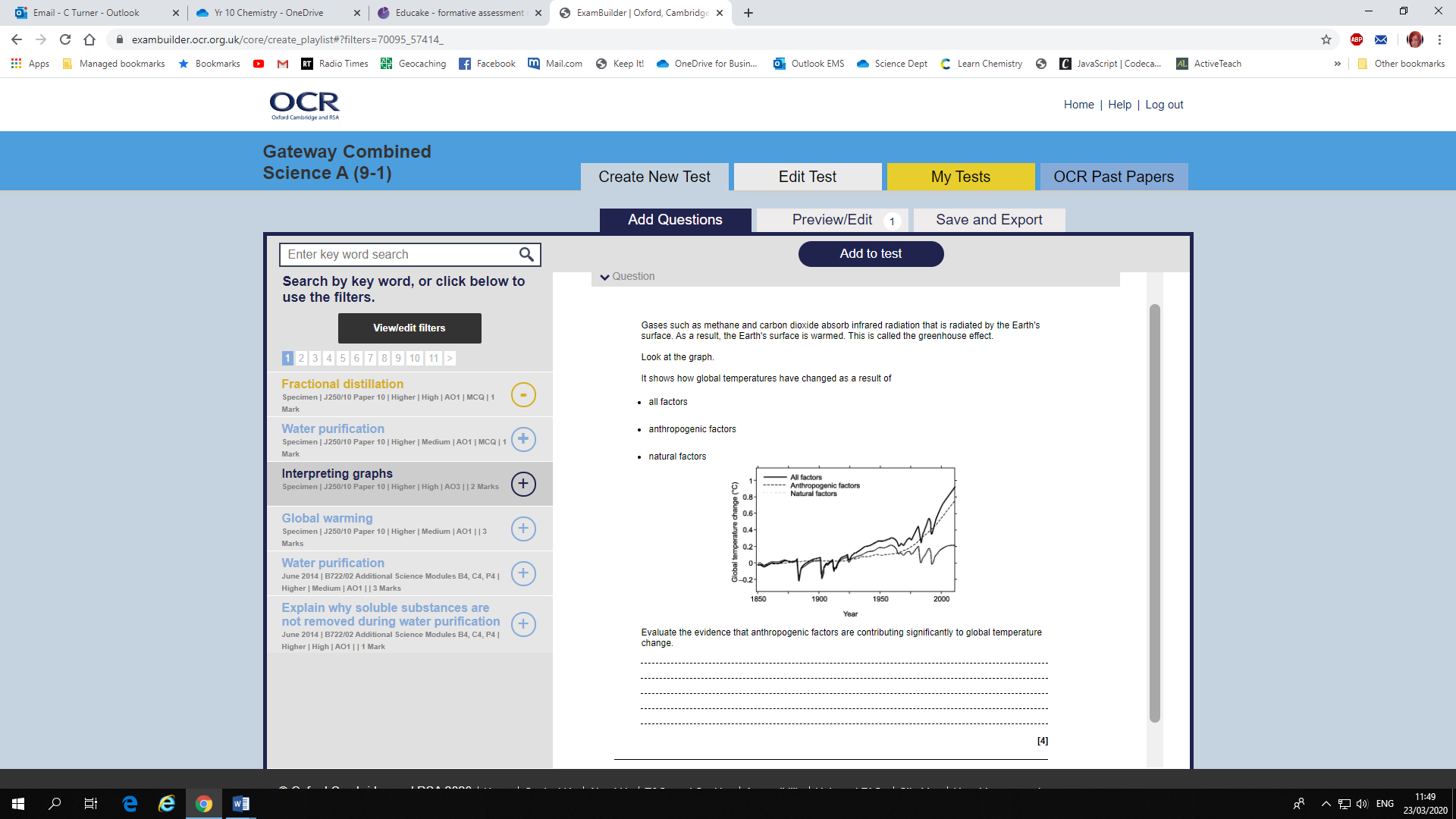


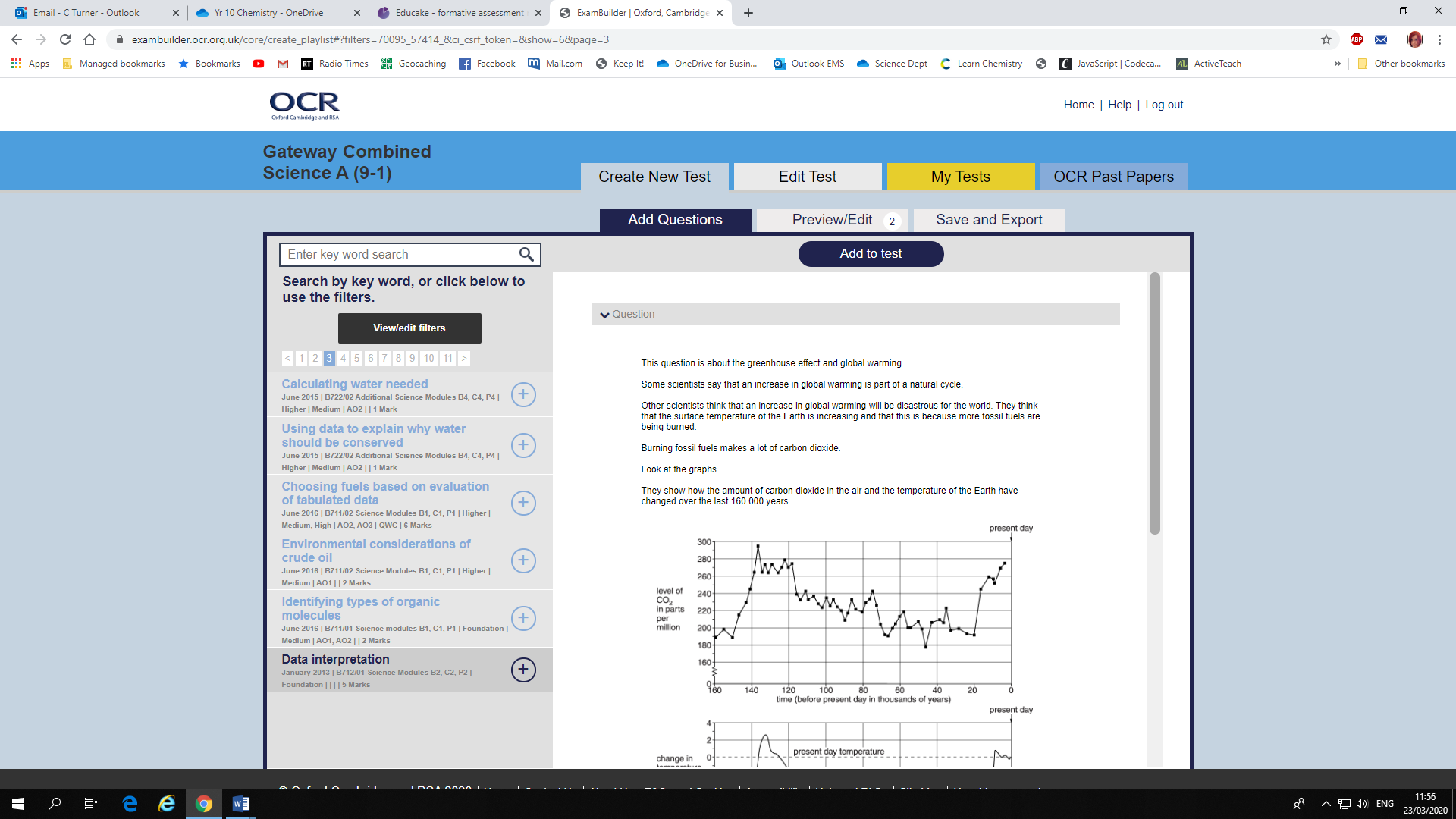
**Task 3: Answer these Shorter Answer Questions**

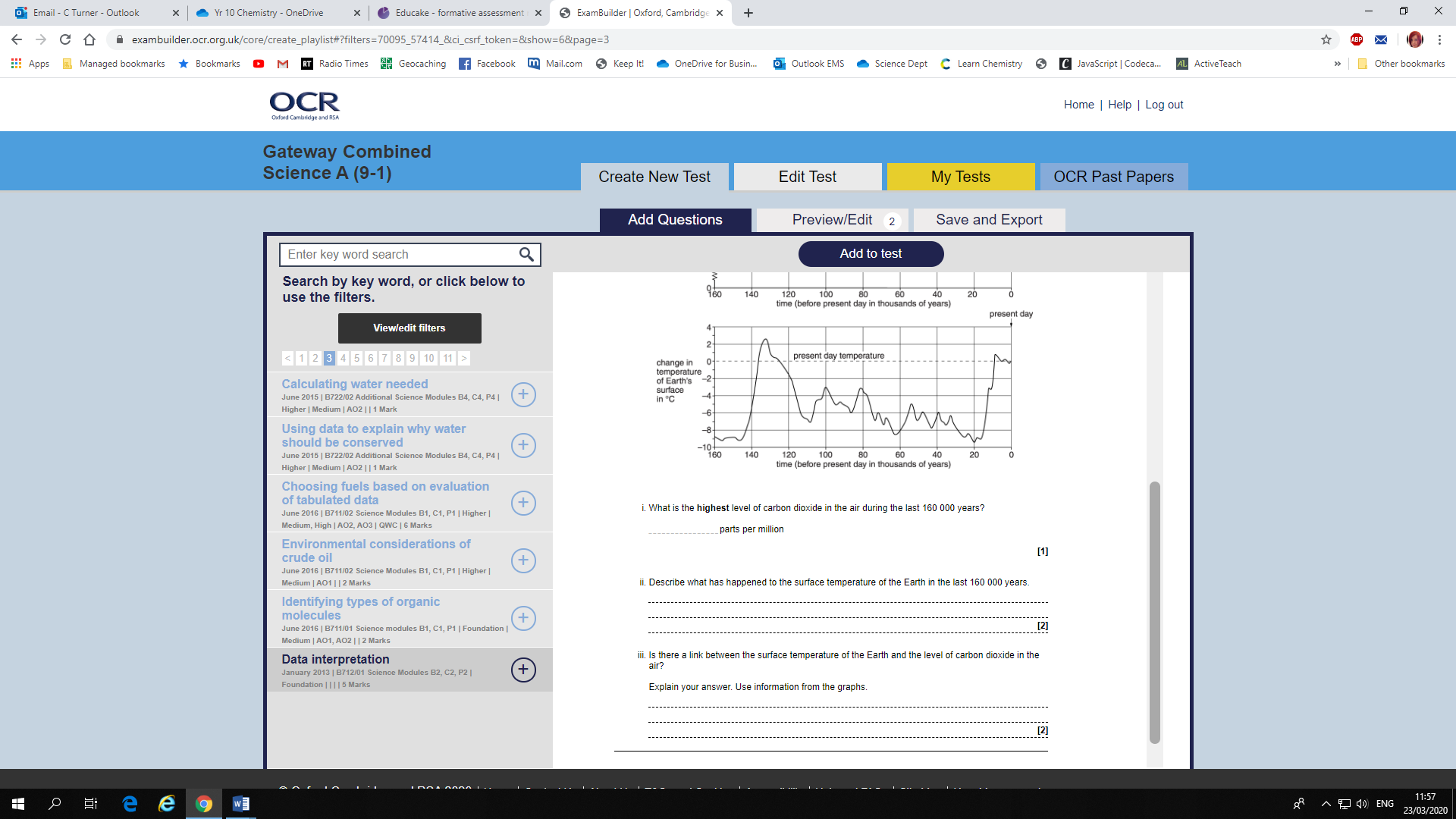




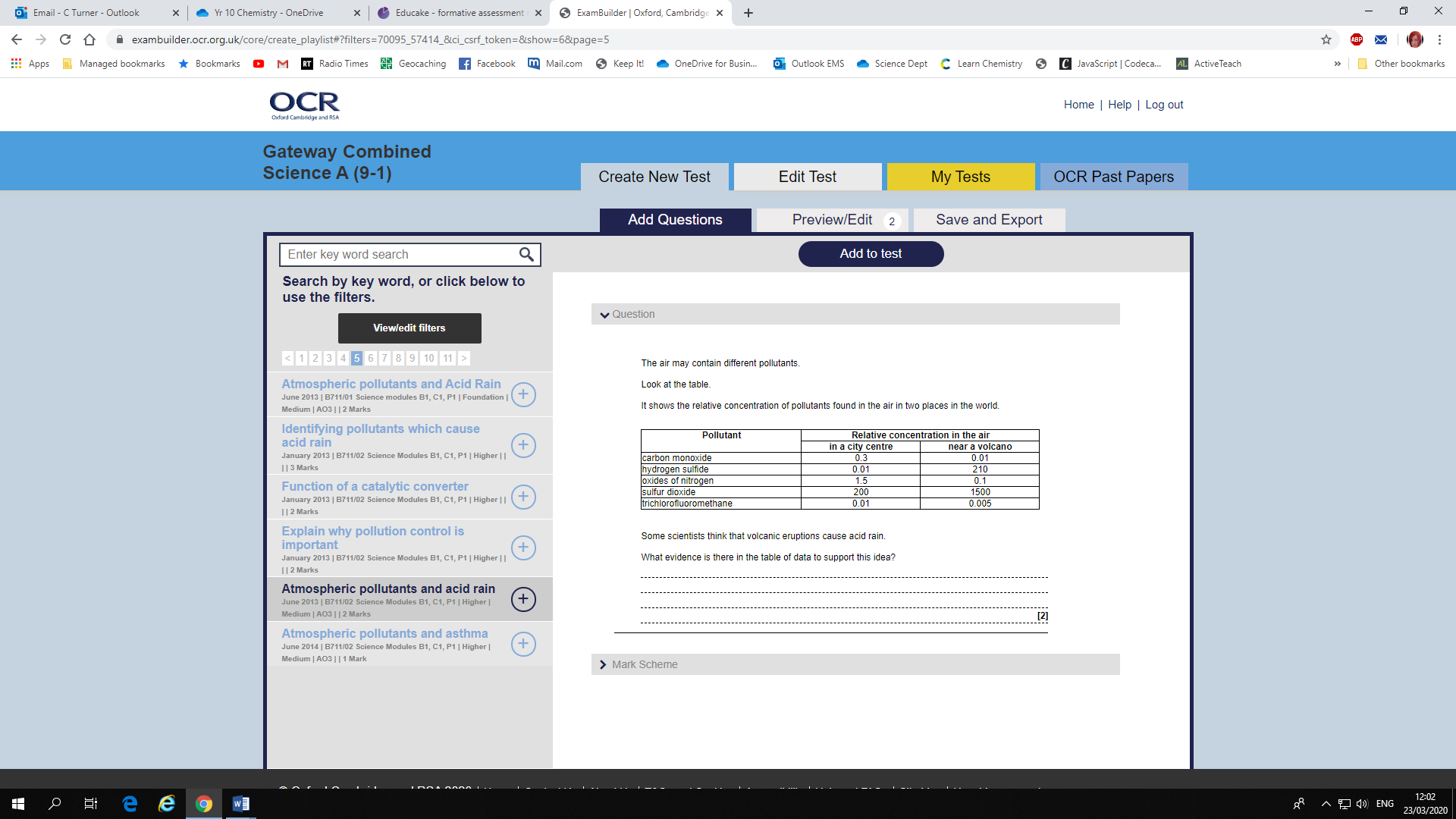
**Task 4: Answer these questions about interpreting graphs.**



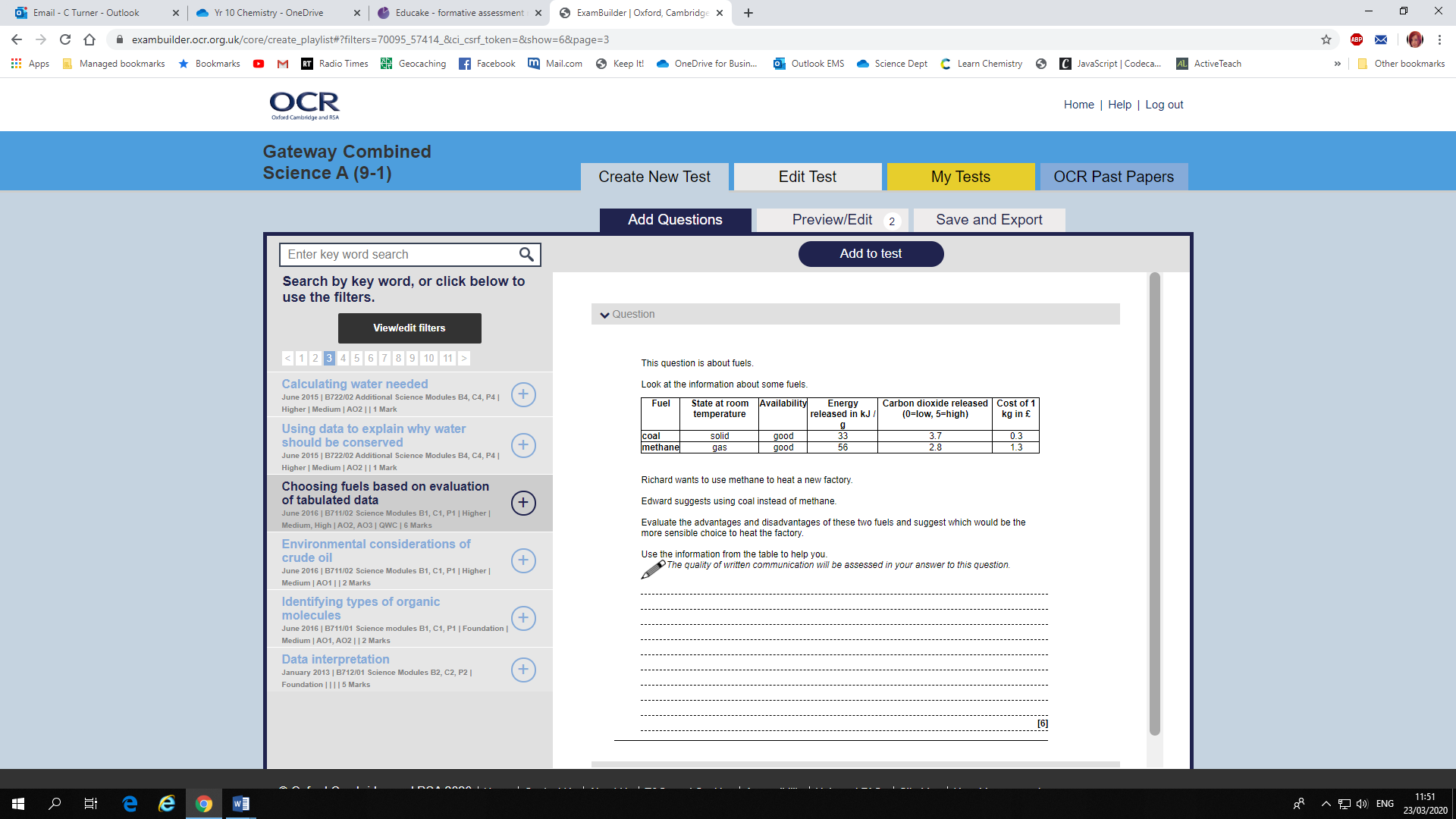




**Task 5: Answer this question about using a complex table.**



**Task 6: Answer this Longer Answer Question**



**Task 7: Researching Carbon Footprints**

**Find an online Carbon Footprint Calculator e.g.** <https://www.carbonfootprint.com/calculator.aspx> and calculate your household’s carbon footprint. Make a poster or a mind map to detail all the changes you could make to make your carbon footprint lower. Try to implement these ideas in your house and discuss them with people at home.