

Name Class Date

C13 The Earth's atmosphere – Aiming for Grade 6

Aims

In this activity you will produce an illustrated timeline that shows how the Earth's atmosphere has changed over time. Your timeline will also suggest how the atmosphere and global climate may change in the future if greenhouse gas concentrations continue to rise.

Learning outcomes

After completing this activity, you should be able to:

- describe in detail how the Earth's atmosphere has changed from its early origins to the present day
- describe how the Earth's atmosphere and climate may be affected by increased levels of greenhouse gases.

Task

You are going to draw a series of diagrams (or a cartoon strip if you prefer) showing how the Earth's atmosphere has changed over time. Your timeline needs to include the dates (i.e. the number of billions of years ago) that key events took place.

Draw your diagrams in order, either along a timeline or as a series of boxes like a storyboard. Include descriptions and explanations of what is happening in each diagram.

You should make your timeline include the future, to show what the atmosphere and climate may be like if increasing amounts of greenhouse gases cause global climate change.

Include equations showing the reactions that take place where possible.

It is up to you how to set out your timeline but you should include the following as a minimum:

- When the Earth was formed.
- The identity of the first gases in the Earth's atmosphere and how these were produced.
- How the oceans were formed.
- How and when life formed and how the process that these life forms used to produce energy created new gases in the atmosphere.
- How and why the level of carbon dioxide steadily decreased and the level of oxygen increased.
- The make-up of the modern atmosphere.
- How human activity adds carbon dioxide to the atmosphere and how this is thought to contribute to global warming and potential global climate change.
- What changes may happen in the Earth's atmosphere and climate if greenhouse gas emissions and global warming continue to increase.

(15 marks)