

## The Earth's energy budget

### Introduction

This activity builds up a more detailed picture of the Earth's energy balance, using a presentation and questions available from the [climateprediction.net](http://climateprediction.net) web site in the sections offering resources for Science for Public Understanding:

<http://climateprediction.net/content/science-public-understanding>

The presentation is available in pdf format and there are accompanying teachers notes (pdf) on the web site with a commentary and answers to the questions on the slides.

#### Science explanations

**Nd** All objects emit radiation; the hotter they are the more radiation they emit and the shorter the wavelength at which they emit most radiation.

**Ne** When radiation strikes another object it can be reflected, transmitted or absorbed (or a combination of these). Reflected or transmitted radiation is similar to the original radiation. When radiation is absorbed, however, it ceases to exist as radiation, instead causing heating and perhaps also changes to molecules or other effects.

**Nf** Some gases, such as carbon dioxide, methane, nitrogen oxides and water vapour absorb infrared radiation; other gases such as nitrogen, oxygen do not.

**Oa** Energy can be transferred from one object to another ..... by radiation.

**Ob** The temperature of an object changes if the energy it absorbs and the energy it radiates from its surface are not in balance.

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