

# The Oceans

## More

### 3. Gases from phytoplankton

#### Solution Worksheet 2

##### 1.

The oceans take up CO<sub>2</sub> in a number of different ways. Both physical and biological processes occur in seawater that allow the oceans to efficiently take up carbon dioxide.

##### *Physical:*

When air mixes with sea water (for instance when the wind produces waves and rough surface water), bubbles enter the water. These bubbles transfer gases from the atmosphere into the water. Carbon dioxide dissolves more easily in cold water than in warm water. It also dissolves more easily in seawater compared to pure water.

##### *Biological:*

Phytoplankton and other organisms use CO<sub>2</sub> for photosynthesis and bind carbon in biological tissue – for instance in carbon skeletons. Most of the carbon dioxide taken up by phytoplankton is returned to the atmosphere when the phytoplankton die or are eaten but some is lost to the deep sea sediments in sinking particles.

##### 2.

The experiment shows that if the ocean warms up, it is likely that it can hold less CO<sub>2</sub>, and some of it will be released into the atmosphere.