

Maths – Ocean Literacy Principle 4

The ocean makes Earth Habitable

Oxygen generator activity:

The phytoplankton *Prochlorococcus* is the most abundant photosynthetic organism on the planet, and scientists have discovered that it alone is responsible for the oxygen for one of every five breaths that we take. This activity allows us to

quantify this amount by calculating the number of breaths that we take on average each day.

Method:

- Get your students to measure the number of breaths they can take in 30 seconds.
- Multiply this up until they can work out how many breaths they take in an entire day.
- Challenge them to calculate the total number of breaths they take in a day that come from *Prochlorococcus*.

Activity Learning Objectives:

Putting their maths skills to the test, students will be able to understand the importance of phytoplankton in the ocean for oxygen production, and how it is an invaluable asset for life on Earth. They will use simple maths to calculate the exact number of breaths that they take that uses oxygen from

What you will need:

- Stopwatch

Further work:

Task students with the challenge of calculating the volume of air they inhale in each breath, and what percentage of this is oxygen. They will then be able to calculate the exact amount of oxygen that they breathe in a day that comes from *Prochlorococcus*. Since it is a photosynthetic organism, this means it is capable of photosynthesis which converts carbon dioxide into

Maths links to other Ocean Literacy Principles:

Principle 1:

Research where the products that students use on a daily basis originate from (e.g. bananas from Cameroon) and plot the route on a world map to reach you. Find out average speeds of modern day shipping vessels to calculate how long it takes

Principle 2:

Encourage students to devise ways to measure the speed of waves on a beach.