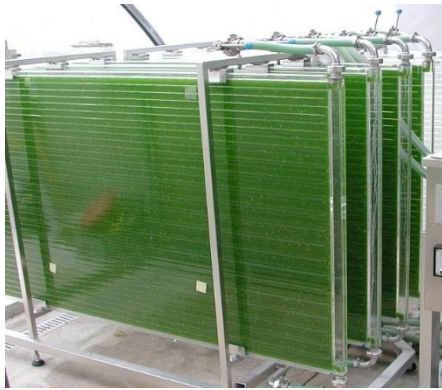


Energy from Algae?! Worksheet **Answer Key**



Microalgae grown in a photobioreactor (left) and raceways at an algae farm in Hawaii (right).

A **photobioreactor** is a container in which algae or other plants are grown. “Photo” comes from *photosynthesis* (what plants do to make energy), “bio” comes from *biological* (something is alive in there!), and reactor is just another word for the container where it all happens.

Algae can be grown in **photobioreactors** by using **recycled water** and **nutrients** from waste. The algae are harvested and converted into **biofuel** (even jet fuel!). Because algae grow so fast and naturally produce oil, we can make earth-friendly biofuel with a small **ecological footprint!**

If not converted to **biofuel**, algae can also be harvested and made into **other products**, such as human and animal food, fertilizers, and ingredients in makeup, vitamins and medicine.

Show Your Smarts!

1. Why are algae (or other plant-based biofuels) important?

During photosynthesis plants take in carbon dioxide, which is a greenhouse gas. Because plants use this gas, plant-based biofuels do not pollute the Earth’s atmosphere.

2. What main things do algae (and plants) need to grow?

water, nutrients, sunlight, carbon dioxide

3. Where might we find “waste” sources of these important items?

Water from wastewater, reclaimed water, rain water, stormwater runoff. Nutrients from

wastewater, food waste, liquid from compost piles. Carbon dioxide from the atmosphere,

flue gas from industry (coal plants), gas from other combustion sources (cars), etc.

4. Plants (and algae!) use the sun’s energy to grow in a process called photosynthesis.

5. Besides biofuel, for what else can algae be used?

fish and animal feed, human food, vitamins, cosmetics, fertilizers, pharmaceuticals

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Cyanotech Corp. via Commerce.gov: <http://www.commerce.gov/blog/2011/06/13/manufacturers-receive-presidential-award-their-export-efforts>