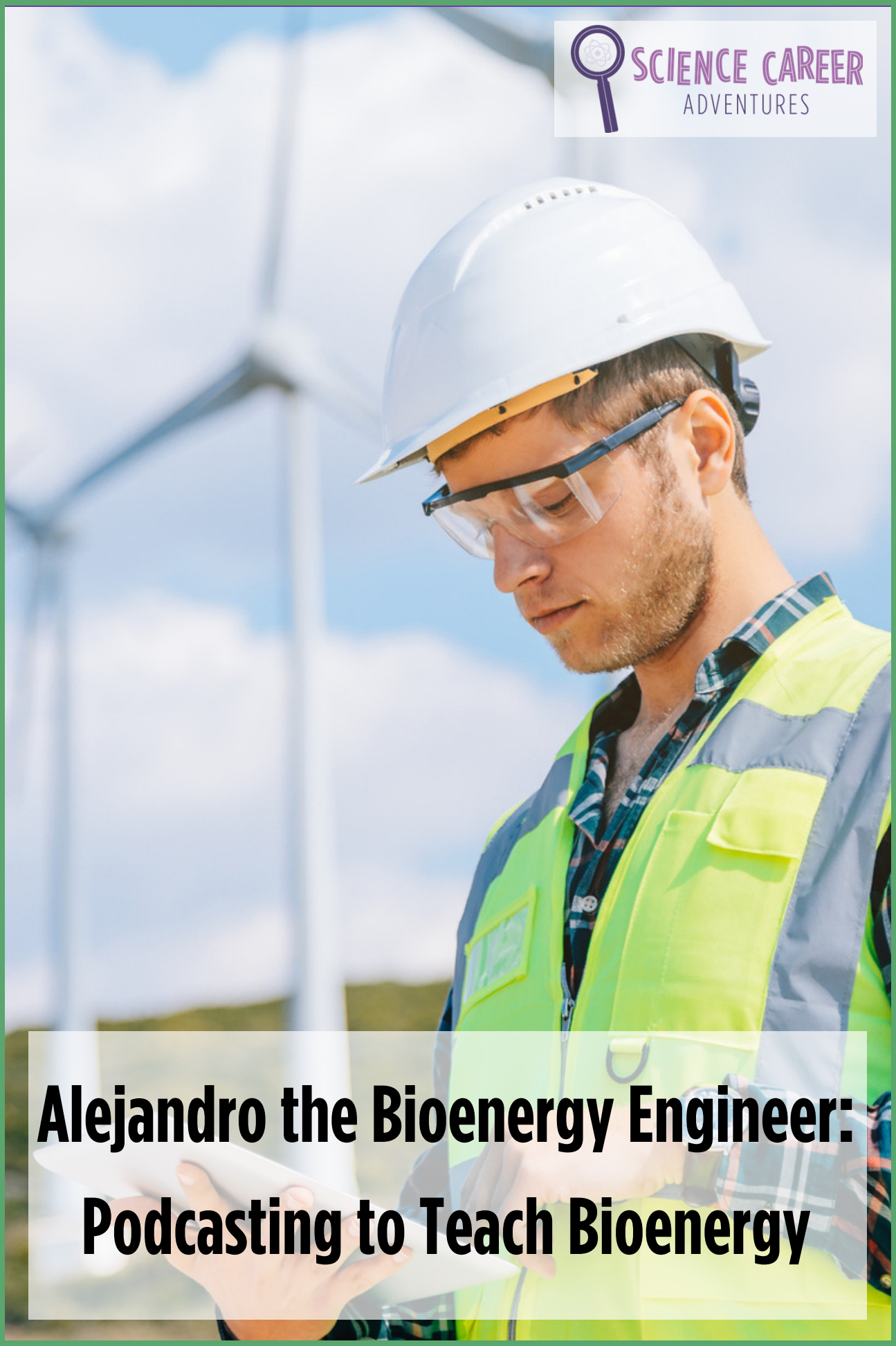
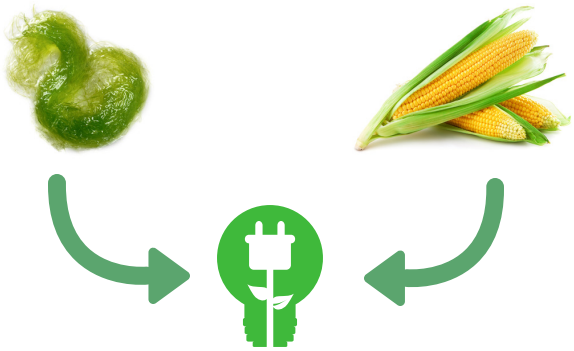


Alejandro the Bioenergy Engineer: Podcasting to Teach Bioenergy

Who is Alejandro?

Hi, I'm Alejandro, and I am a bioenergy engineer. Bioenergy refers to energy created from natural resources. For example, algae and corn husks can be turned into energy for people to use!



People need energy for many things. Think of all the ways you use electricity in your home. Every time you turn on the lights or plug in your phone to charge, you are using energy.

DID YOU KNOW?
Electricity was discovered in the later 1800s. People like Thomas Edison and Alexander Graham Bell were some of the first electrical and energy engineers.

Starting a Podcast

Right now, I am creating a podcast to share information with the world about bioenergy. A podcast is a recording of someone talking about a specific topic. People listen to podcasts so they can get more information on a topic and learn about different opinions. Most podcasts feature experts in a field, even bioenergy! What's great about podcasts is that I can reach people all over the world! People can listen to podcasts on a cellphone or computer.

My podcast, called Clean Green Bioenergy, is about different types of bioenergy. Examples of bioenergy are algae, food waste, and crops that can be used to create fuel. I want people to understand that there are types of energy that don't harm the environment. Right now, energy often comes from burning fossil fuels, like oil and coal. Fossil fuels come from underneath Earth's surface. When we burn these fuels, they release pollution into the air.

Each one of my podcasts will focus on a specific type of bioenergy. For example, I will have episodes on how plastics, wood pulp, and human waste can be turned into energy that people can use!

Some sources of bioenergy

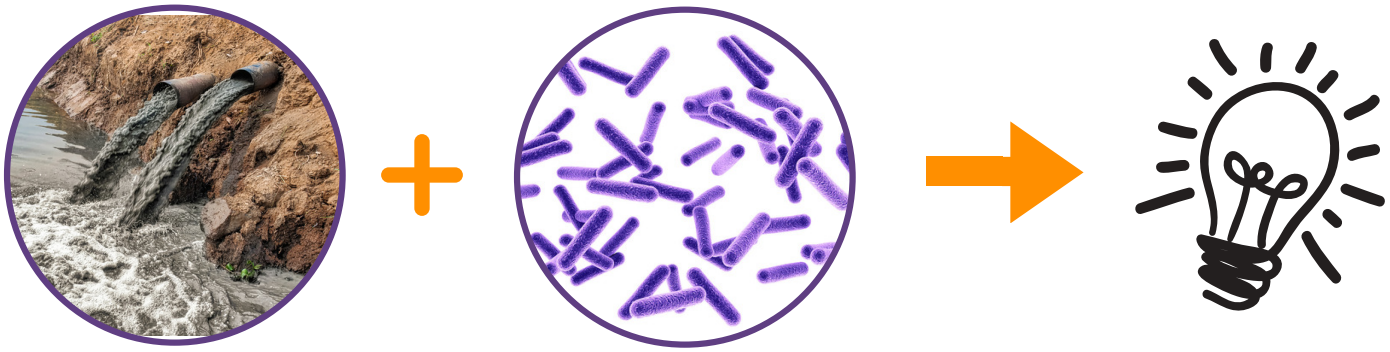
Food waste

Crops

Plastics

Recording a New Podcast Episode

My next podcast episode will discuss how purple-colored bacteria produce energy from sewage! Sewage is wastewater (usually very stinky and gross) made from human activities.



In the podcast, I will go through the basic steps of how bacteria get energy from food:

STEP 1 Bacteria eat a source of food. Different types of bacteria eat different kinds of things.

STEP 2 After eating food, a process called cellular respiration occurs. In this process, a series of chemical reactions happen.

STEP 3 The chemical reactions first take the food molecule apart. As the food molecule breaks, energy that was stored inside comes out.

STEP 4 The bacteria capture this energy and store it for later use in other reactions.

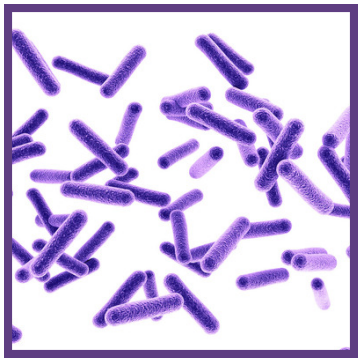
STEP 5 Other chemical reactions also take the food pieces and assemble them into smaller molecules. These molecules are usually gases and float into the surrounding air.

Bacteria get the energy they need to live from food, just like us. When you eat, your body takes the energy from food molecules and uses it to power all of the things your cells do! For example, when you breathe, move and think, your cells use energy. The same holds true for bacteria!

Preparing for the Podcast

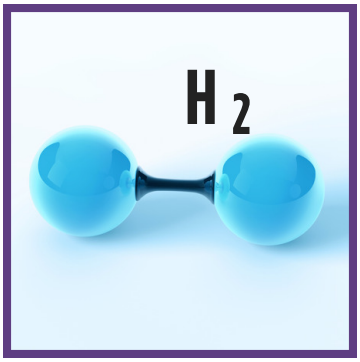
To get ready for this podcast, I learned about how the purple bacteria create energy from sewage. I interviewed three of my colleagues who are also bioenergy engineers. Through my interviews, I learned that purple bacteria use sewage as food.

Below are the steps for how bacteria use sewage to create bioenergy:



The purple bacteria eat sewage.

Through cellular respiration, bacteria break the sewage particles apart.



Energy is then released in the form of hydrogen gas.

Engineers then built pipes and tanks to capture the hydrogen gas.

This gas can then be used by humans for fuel. This fuel is much more environmentally friendly!

Posting the Podcast

After I record and edit the podcast, I will post it on the internet so it's ready for the world to hear! I really hope more people are curious about bioenergy and how fuel doesn't have to pollute the environment. I also hope I can inspire someone to become a bioenergy engineer one day!