

Format for your lesson

Assignment	Description	Used materials	Level of education
FOOD TO ENERGY	The main idea is to educate school kids from the age 9-12 about biogas production. In the video it will be explained how electricity can be produced using food waste/scraps and anaerobic digestion.	Richard Jemmett: Methane Production Guide - how to make biogas. Three simple anaerobic digesters	Level of education pupils from 9-12 years old. How this lesson can benefit them? It can help them gain awareness about green energy that is shown in an interesting animated video. With the quiz kids can check their knowledge and understanding.
Quiz	Questions	Answers	Explanation
Quiz is about biogas production and making food waste an energy source.	What is a different, "greener" way to light up your room?	Answer 1: biogas, using food leftovers Answer 2: fossil fuels Answer 3: a candle	Using biogas is considered to be sustainable because it comes from unused plant part or from food leftovers. Fossil fuel is not a greener way of powering your house.
	In what bin do you throw your leftovers?	Answer 1: in a green bin Answer 2: with all the trash together Answer 3: in the toilet	Answer 1: Food is thrown in the green bin because that where organic waste is being thrown so it can easily be used for degradation later.
	How are called little helpers that "eat" your leftovers?	Answer 1: my pets Answer 2: anaerobic bacteria Answer 3: aerobic bacteria	Answer 2: anaerobic digestion is the correct answer. Because they do not use oxygen for the digestion process unlike aerobic digestion
	What is biogas composed of?	Answer 1: carbon monoxide and methane Answer 2: oxygen and carbon dioxide Answer 3: carbon dioxide and methane	Answer 3: Biogas consists of carbon dioxide and methane
	Biogas can be used for:	Answer 1: electricity Answer 2: heat Answer 3: both answers are correct	Answer 3: both is the correct answer. Biogas can be used to power electricity in your house and can be used for heating as well.
Video / Animation	Script	Text	Image
Create a video or animation (max. 2 minutes).	<ul style="list-style-type: none"> • Hi, did you know that your food has 'superpowers'? And that it can also power your light bulb? • When you are cooking and there are parts you don't use anymore, or leftovers from your lunch if you throw it to the green bin, it will be collected by a local superhero and with the truck he will transport it to the magical factory! • In the factory they take unused food to the anaerobic digester where teeny-tiny bacteria breaks down your food without using oxygen. As bacteria eats your leftovers, it produces gases. • Gasses produced are methane and carbon dioxide. Together, it is called biogas. When biogas is burned, electricity is produced. • The heat and electricity produced can be send to your house and light up your room! 		Images are shown in the video as a part of each sequence. Images are related to the topic being explained, for example: light bulb, food, recycle bin, factory, transport, energy, etc.
Resources (a scientific report-online)	K. M. Akkoli, B M Dodamani, A. Jagadeesh, C. Ravi - Design and Construction of food Waste Biogas Plant, IJSRD -International Journal for Scientific Research & Development Vol. 3, Issue 03, 2015 ISSN (online): 2321-0613		

Discussion question:

What do you think is it better to throw food in the bin with all the other trash or to put in in the green bin so it can produce energy?

LINK TO THE VIDEO: https://www.youtube.com/watch?v=G7h_w5INOqI