

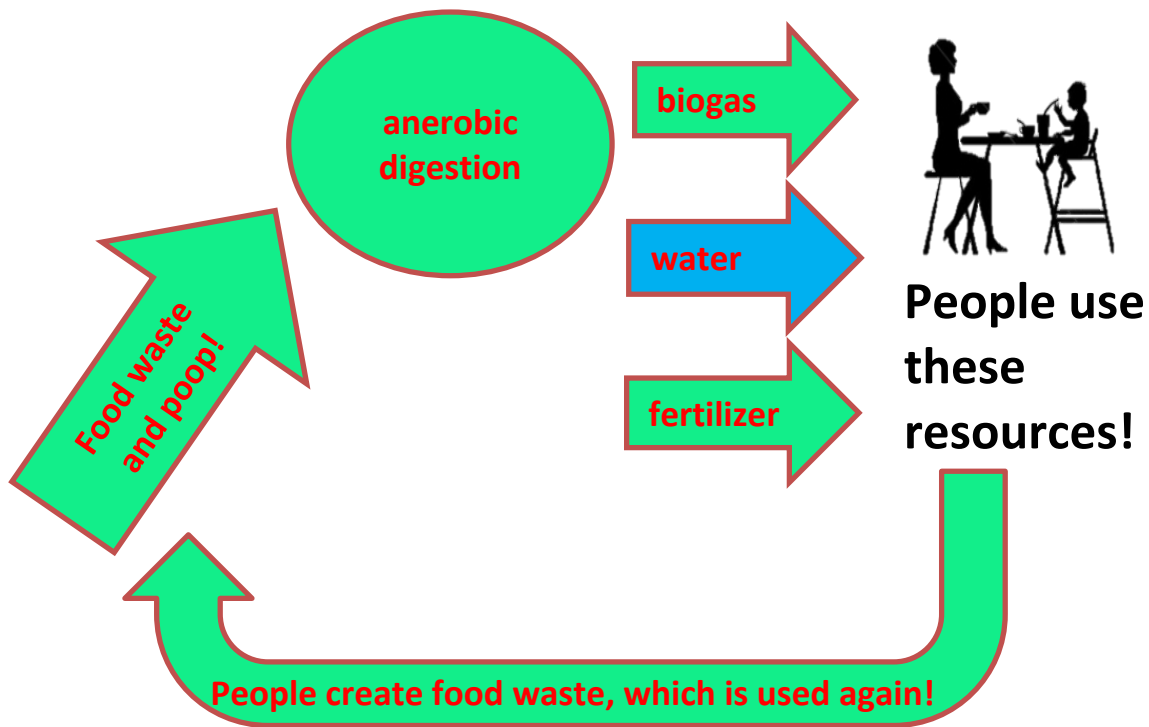
Anaerobic Digestion: Putting Microbes to Work! Worksheet

AD stands for anaerobic digestion.

AD is the process in which microorganisms break down biodegradable material without using oxygen!

Where does AD happen in nature? Retention ponds, wastewater treatment plants, swamps, septic tanks, marshes, bottom of the ocean, cow stomachs (cow farts!)

Fill in the blanks in the diagram below:



Anaerobic digestion's main product is gas. Biogas is usually ~70% methane (flammable!) and about 30% CO₂. Natural gas, which may be piped into your house, is ~90% methane.

For what might you use biogas? cooking, making electricity, powering vehicles

Anaerobic digestion also produces a nutrient-rich water stream (lots of nitrogen and phosphorous). *For what do you think you could use this "waste" product?*

Useful for algae biofuels and growing plants

Now that you are familiar with anaerobic digestion, think about how it might be different from (or the same as) composting. *Write down your ideas:*

Anaerobic digestion must happen without oxygen, compared to composting, which does better when it is aerated. However, both use microbes to break down materials. AD breaks it down to gas, while composting keeps it in the form of organic carbon (just simpler structures).