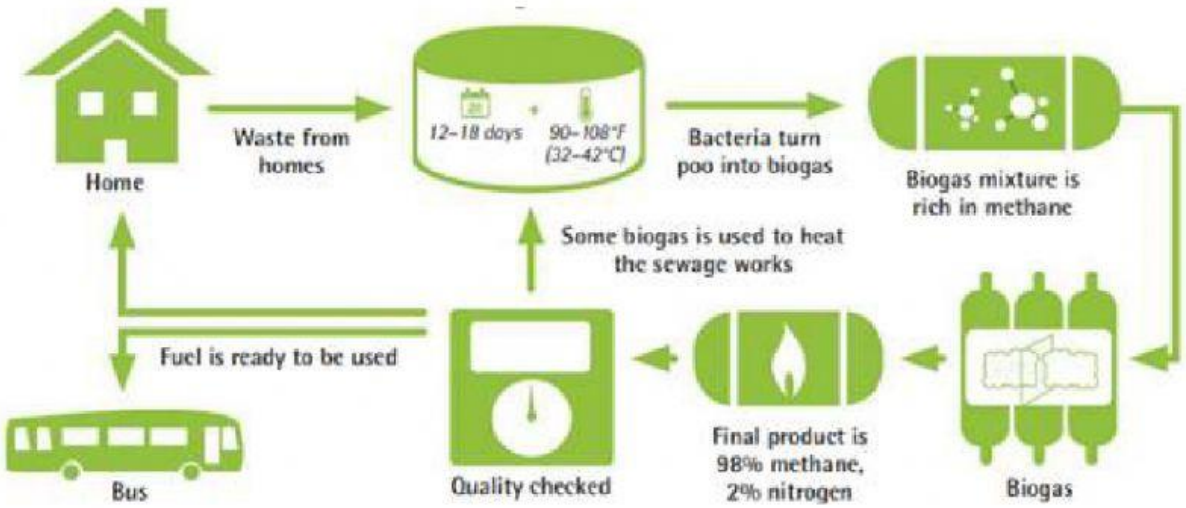
TECHNOLOGY AND THE ENVIRONMENT

READING 2



BIO BUS

Unlike an ordinary bus, the Bio-Bus has an unusual power supply: human poo. Human waste from sewers can be collected and turned into biomethane, a highly flammable fuel. Because the ingredients of biomethane are both abundant and completely renewable, the Bio-Bus shows us that clean fuels could one day be used to power our cars, heat our homes, and generate electricity.

Biomethane is made by heating waste inside tanks where the air is removed. Inside, bacteria turn the poo into biogas, which is 60% methane. Dust, bugs, and bad smells are filtered, and the biogas is then refined, so it is 98% methane, which can be used as fuel for vehicles.

On the bus, the fuel is stored in a tank on the roof, compressed to 200 times the air pressure in the atmosphere. The exhaust emissions contain 97% less smoke and 90% less nitrogen oxide than diesel-powered buses.

SKILLS:

- Details
- Understand vocabulary
- Look for synonyms

GETTING STARTED:

Do you think human excrement can be useful to create energy?

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To protect the The 40-seater bus can travel 300 km on a full tank of biogas. Actually, the Bio-Bus runs a regular public transportation service through Bristol, UK, powered by human sewage and food waste. After being processed at a biogas plant, these rotting materials become a super-clean, odor-free, and low-carbon fuel.

Other Alternative Energy Sources

Another source of oil fuel can be made with light. Tiny algae use a source of bright light to grow inside an algal bioreactor, where they are kept free of impurities. The oils stored in the algae's cells are then refined into a fuel. Likewise, the trash cans of Copenhagen, Denmark, have become a source of power since the Amager Resource Center (ARC), an energy plant and sports facility, opened. This giant incinerator makes electricity from the heat of burning garbage.

**Adapted from How Super Cool Tech Works. DK Publishing.*

Note:

- Alga (singular) is pronounced /ˈælgə/
- Algae (plural) is pronounced /ˈældʒi:/



Read the following words and identify their synonyms in each paragraph:

- **Paragraph 1:** different, changed, abnormal, create, gathered
- **Paragraph 2:** odors, in, automobiles
- **Paragraph 3:** kept
- **Paragraph 4:** in fact, daily
- **Paragraph 5:** in the same way, trash, small, tins, huge

Match the concepts with the descriptions on the right.

1.	Bio-Bus	a. Place where energy is generated and people can exercise.
2.	Biomethane	b. Material no longer needed
3.	Waste	c. Plants, like seaweed, that grow in or near the water.
4.	Exhaust	d. System through which gases come out.
5.	Algae	e. A type of fuel
6.	ARC	f. Vehicle that runs on alternative fuel.

Language Note – Passive Voice

- Human waste from sewers **can be turned** into biomethane.
- Biomethane is made by heating waste inside tanks where the air **is removed**.

We use the passive voice when we want to focus on the action (not the doer of the action), or because the doer is unknown.

- The bank was robbed last night.

We form the passive voice by using be (in any tense) + a past participle form.

- Jessica Chastain **was given** the Oscar for best actress in 2022.
- The materials **are processed** at a biogas plant.

If we want to mention the doer of the action, we use by + the person (or thing, place, etc.).

- Romeo and Juliet was written **by** Shakespeare.

WHAT DO YOU THINK?

Do you know of other projects/technology that involve using alternative fuels?



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