



LESSON 2: SUSTAINABLE STRUCTURES

SUBJECT

Sustainable Homes: What is a Sustainable Toilet?

AGE RANGE

15-18

LESSON PLAN

2 of 4

USE OF ECOLOGICAL TOILETS

Ecological toilets come in various shapes and sizes, they are gentle on the environment and the pocket book, and despite urban legend - they are not smelly if well maintained, they are a module for sustainable waste management by saving power and water.

TYPES OF ECOLOGICAL TOILETS

Slow Composting Toilets:

- Slow compost toilets are commonly used at remote locations
- It is a box with a seat on the top which contains a compost system underneath the box

Active Composting Toilets:

- These tend to be bigger than flush toilets
- This toilet has fans to keep oxygen flowing to speed up composting

Incineration Toilets:

- This type uses electricity to incinerate waste into small amount of sterile ash
- Popular option where there is no access to septic systems or sewers

Low-Flow Single Flush Toilets:

- The same as a traditional single flush toilet except it uses less water and power

Watersense Toilets:

- Developed by the Environmental Protection Agency (EPA) in the U.S.
- Allows user to save up to 60% of water they would use with a traditional loo
- This toilet can save up to 13,000 gallons of water by an average American family in a year

Bidet Toilets:

- Eliminates the need for toilet paper
- It uses a jet of water either in a handheld device or fixed system to clean user off after use

Dual-Flush Toilets:

- These toilets have two buttons, one for half flush (0.8 gallons per flush) and one for the heavier load requiring a full flush (around 1.6 gallons per flush)

HOW EXACTLY DO COMPOST TOILETS CREATE COMPOST?

Composting toilets use anaerobic decomposition to break down human waste and produce heat, water and carbon dioxide to convert into compost. The following are the microorganisms which are used to help with composting:

- **Actinomycetes:** Breaks down materials such as cellulose, protein and starch, which also leads to an earthy smell in the compost
- **Fungi:** Fungi like yeasts and molds helps to break down tough materials into palatable materials, then the remaining process can be taken over by bacteria
- **Thermophilic Aerobic Bacteria:** These bacteria can sustain and actually thrive in very high temperatures, making them a useful aid in supporting the composting process