

Build a Biogas Generator



**Re-Energy
Activity
Grade Level 7-12**

Main Objectives

In this construction activity, learners will build a model of a simple biogas generator. Learners will also test their biogas system design and answer questions about renewable energy.

Learning Outcomes

By the end of this activity, learners will:

- Identify the purpose of and specific requirements for making a biogas generator
- List the steps needed to construct a biogas generator
- Describe why biogas is considered a source of renewable energy

Curriculum Connections

Alberta

Science 9: Electrical Principles and Technologies
Science 30: Energy and the Environment (D1.4, D1.5k, D1.3s, D2.3k, D2.4k, D2.1sts, D2.3s, D2.4s)

Ontario

Science & Technology 7: Heat in the Environment (1.2)

Environmental Science 11: Scientific Solutions to Contemporary Environmental Challenges (U/C Preparation) (B1.2)

- Conservation of Energy (U/C Preparation) (F1.2)
- Energy Conservation (Workplace Preparation) (D1.2)

Length of Activity

2 hours (Two class periods)

Materials List

Internet-enabled device
Biomass Energy Backgrounder
Materials and tools to build the biogas generator as outlined in the Construction Plan

Procedure

Step 1

Distribute the Biomass Energy Backgrounder and have the learners read the information. As a class brainstorm answers to the questions in the backgrounder.

Step 2

Set up stations of complete materials to build a biogas generator. Set up enough stations to accommodate all learners.

- Watch a video on [How to Make A Biogas Generator?](#) (7:14 minutes)

Step 3: Build It!

- Review the Biomass Generator Construction Plan as a class.
- Then, build it! Please ensure you follow all safety precautions outlined in the Construction Plan and that you pay close attention to the steps on pages 2-5.

Discussion Questions

1. Why is biogas considered a source of renewable energy?
2. In what appliances or to what uses could biogas be applied?
3. What are some of the practical limitations to use biogas as an energy source on a large scale?
4. Where in Canada would biogas be a viable alternative to fossil fuels?
5. Why do you not want photosynthetic algae growing in your "digester"?