



WEATHERIZATION

TOPIC OF STUDY

Weatherization



90 MINUTES

KEY TERMS

See *Energy Conservation Handbook*, p. 137

LESSON

Dense Pack Insulation Lab – Teacher Demo

BIG IDEA(S)

Air sealing and insulation aid in the control of air movement.

OBJECTIVES

Students will:

- Describe the steps in properly blowing cellulose insulation into existing wall cavities
- Follow and describe the steps required in completing the job
- Identify the proper safety steps and equipment required
- Describe the requirements for successfully using a blower machine

TASK LIST SUBCATEGORY

- 210 Demonstrate active listening and effective communication strategies
- 806 Perform weatherization tasks including installing air sealing, moisture barriers, and insulation
- 810 Use energy efficiency vocabulary

OVERVIEW

As a follow-up to the insulation lessons, the teacher demonstrates the procedures for blowing insulation into framed walls with a blowing machine. This lab shows how to prepare, drill and probe a wall, and properly fill an uninsulated wall cavity with cellulose insulation. This is demonstrated in Year 1 since the process is complex and requires practice, which will take place in year 2. Calculations for determining weight per wall, density and the number of bundles of cellulose are optional for Year 1.

STANDARDS

PA/SDP

- 3.2.10.B3.** Explain how heat energy will move from a higher temperature to a lower temperature until equilibrium is reached.
- 3.2.10.B3.** Analyze the processes of **convection**, **conduction**, and **radiation** between objects or regions that are at different temperatures.
- 3.10.10.B2.** Demonstrate how humans devise technologies to reduce the negative consequences of other technologies.
- 3.4.10.D2.** Diagnose a malfunctioning **system** and use tools, materials, and knowledge to repair it.
- 3.8.10.B.** Analyze how human ingenuity and technological resources satisfy specific human needs and improve the quality of life.

INSTRUCTIONAL

TEXT/REFERENCES

Energy Conservation Handbook. pp. 137 - 142





INSTRUCTIONAL (CONTINUED)

MATERIALS NEEDED

Teacher Presentation: Detailed in the text

Content: Detailed in the text

Technology: If remote demo, head and tripod cameras should be used to capture.



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IMPLEMENTATION (LESSON PLAN)

1. Before the demonstration, walk students through the steps that you will demonstrate in the classroom. Review tools, consumables, safety equipment.
2. Review all steps involved.
3. Provide the demonstration, including clean up and disposal of scraps and debris. If this demo is provided remotely, use a head and still camera to capture the experience adequately.
4. Debrief with students. Have students point out procedures that would require assistance and practice.

RESOURCES/LINKS

Dense Pack Demonstration (14:08 minutes):

https://www.youtube.com/watch?v=_Cqtky1owls

This Old House Dense Pack:

<https://www.thisoldhouse.com/insulation/21016883/how-to-retrofit-cellulose-insulation>

