



# Sunny Shelter

## STEM Sims

### Lesson 1: House Size

Families with multiple children may need a larger house than a smaller family. But how does house size affect energy efficiency?

### Doing the Science

1. Start the Sunny Shelter Simulation by clicking on the “Sim” tab.
2. Make the following selections:
  - House Size: Small
  - Sheltering: Not Earth Sheltered
  - Window Direction: North Facing
  - Window Size: Small
  - Window Tint: Absent
  - Thermal Mass: Low
  - Material R-value: 10
  - Season: Summer
3. Click on the Design House Now button.
4. The Energy Usage Thermometer is to the right of the image. Record the value in Table 1 below.
5. Click the Design Menu button to return to the main screen.
6. Repeat steps 2-5 only changing House Size to Medium and Large until your table is completed.
7. Repeat steps 2-6 only changing Season to Winter.

**Table 1.**

House Size	Small	Medium	Large
Summer Energy Reading			
Winter Energy Reading			

### Do You Understand?

1. Did the amount of energy used change when you changed only the size of the house?
  
2. A lower energy reading means more efficiency. Looking at your results in Table 1, infer the most likely reason that house size affects energy usage.
  
3. Was there a relationship between house size, season, and energy use? If so, discuss the relationship.