Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period \_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

****

**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.