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Name: _____

Date: ____ / ____ / ____ Class Hour: ____

Building A Passive Solar Home

1. Explain how the building of a good passive solar home will enable you to avoid the “100 year mistake?”

*** Answer**

2. You want to build a home that saves the most money, resources, and pollution. You have two basic choices.

- **Solar Home:** Build a conventional home that has lots of south-facing roof. In this way you can install a large solar photovoltaic array and try to produce enough electricity to offset the energy you use.
- **Energy Efficient Home:** Build a home with lots of design features that take advantage of energy efficiency in materials and design and the natural energy characteristics on your site.

Which type of home do you build? Explain your choice giving reasons and details.

*** Answer**

3. Which model home from the activity is best designed for winter heating and summer cooling? Is it the “lean-to” design or the “conventional” design? How (or why) is it better designed? Provide reasons and details.

*** Answer**

4. Which model home did you decide to build? Explain your choice giving reasons and details.

*** Answer**

5. How did you decide where (how) to place your model house on the plot plan? Provide reasons and details.

*** Answer**

6. On which side of the home did you place the most windows? The fewest windows? How did you decide on your window placements? Provide reasons and details.

*** Answer**

7. In which direction (or directions) do the horizontal overhanging parts of the roof face? How did you decide on this? Provide reasons and details.

*** Answer**

8. Explain how you conserved energy through the landscaping you placed around your home. Provide reasons and details.

*** Answer**

9. To promote energy efficiency, what type(s) of windows should be used on your passive solar home? You may have to do some background research in order to answer this question.

*** Answer**

10. To promote energy efficiency, what type(s) of building materials should be used to construct your passive solar home? You may have to do some background research in order to answer this question.

*** Answer**

11. In many new houses, 2" X 4" lumber is used for wall construction with fiberglass batting as typical wall and attic insulation. Most of the time, additional one-inch thick insulation panels are nailed on the outside walls and the seams between the panels are taped. What else would you consider doing in the way of insulation to improve your home's ability to conserve heat in the winter and prevent heat gain in the summer?

*** Answer**

12. What additional feature—a feature which is not a part of the activity as written and given to you—did you place into your design to improve it? Explain how your additional feature improves energy conservation in your home.

*** Answer**

13. You have now completed the activity and compared your home to those made by others. How could you improve your model house, its placement, and landscaping to increase their effectiveness for winter heating and summer cooling?

*** Answer**

14. Let's say you are designing a home in which you will use your own renewable energy resources. Your goal is to live completely free of the local energy utility. Why is it important to meaningfully reduce the energy your home uses in the first place?

*** Answer**

Digitally copy and paste several good photos of your passive solar home on its plot plan below. The photos should help “sell” what you wrote, and “tell the story” of your home.

