Objectives/Terms:

-Solar Gain (Direct, Indirect)-

Direct Gain- a large, south facing window admit sunlight; solar radiation absorbed by thermal mass

Indirect Gain- Collects and stores solar energy in one part of the house and uses natural heat transfer (convection, conduction) to distribute

-Insolation (Incident Solar Radiation)- the amount of solar radiation reaching the earth

-Insulation-retards the flow of heat from one object to another (i.e. walls of a house are insulated to resist heat from escaping from the rooms)

-Thermal Mass- Material used to absorb the solar radiation (in a house, concrete floors absorbs radiant energy during the day and radiates it back at night)

-Collector- collection in passive houses is primarily by placement

-Storage- Collection in passive systems, a thermal mass–thermal storage materials are usually in the form of concrete, water, and stone.

-Control-venting and ducts

-Distribution-Natural heat transfer (radiation, convection, and conduction)

Plan:

-In starting out the class, students will be given the definitions to the words listed above.

-Following this portion of the class, I will start a discussion of these topics in which starting with each topic, we will start to describe the various types of materials as well as various structures that could be used to initiate each part of a passive solar energy system.

-Examples of various materials that could be used:

-Storage- concrete walls, cinder block, tiles

-Collectors- windows, one way mirrors, reflective mirrors

-Distribution- steel rods from collector throughout house, pipes holding water to transfer

-Control- varying the direction of the mirrors, controlling the amount of light allowed through windows

-Following a brainstorming session, put all the ideas together and create a possible idea for a house.