Unit 8 Pre-/Post-Test

*Kuhikuhipu‘uone Wilikī (Architecture & Engineering)*

*Knowledge Survey Questions*

DIRECTIONS: Write the letter of the correct answer in the blank on the RIGHT. Use capital letters only (e.g. ‘A’ not ‘a’). 1 point given for each correct answer.

1. Engineering and Architecture careers for Hawai‘i’s youth are ...

   a) Limited in number and difficult to get  
   b) Not likely to help them raise a family or benefit local people 
   c) Diverse and plentiful  
   d) All of the above

2. Hawai‘i is developing a variety of renewal energy sources because...

   a) Citizens hope to make Hawai‘i a model of sustainability to others 
   b) Oil is costing citizens too much and contributing to climate change 
   c) Hawai‘i has diverse natural resources to explore year-round 
   d) All of the above

3. The housing most likely to survive a 7.0 scale earthquake are ...

   a) Traditional heiau and hale (Hawaiian altars and houses) 
   b) 2-storey eco-villages and pre-fabricated housing pods 
   c) Modern skyscrapers 
   d) All of the above

4. The most vital aspect to consider in engineering a water tunnel is ...

   a) Bernoulli’s Principle 
   b) Forces of energy, fluids and motion 
   c) Seasonal water flow and erosion 
   d) People’s right to free access of the water

5. Debates over rights to water in Hawai‘i persist today because ...

   a) Slow moving water in ‘auwai (aqueducts) causes erosion of soil 
   b) Water is seen as profitable, not a gift of the gods for all to share 
   c) Ancient Hawaiian burial grounds are threatened by water diversion 
   a) Kalo (taro) farmers want more water than hotels
DIRECTIONS: Write, speak or perform your answers as directed below.

6. **Plan a Housing Solution.**

   Make drawings on sheets of graph paper (or use paper, index cards, straws, tape, string, paper clips &/or play-dough to make a 3-D model) of an architectural structure that addresses all the needs of a perfect and affordable home for a low income family. It can be situated in any specific site in the world, but must address all natural, cultural, human and visual site conditions, plus safety and sustainability. Take 15-20 minutes to create it.

   When done, describe your drawing or model to your teacher, and/or write a paragraph to explain all the features of your house and how it meets the criteria above.

7. **Debate a water issue.**

   With a partner, consider several issues that may arise regarding an Army decision to build a canal in your town at the site of a stream that flooded recently, causing one death and a million dollars in damages to the neighborhood. Consider each issue, then pick just one and prepare to debate each other, either 'pro' or 'con'. You may write brief notes on another page if you wish to use in the debate:

   a) The Environmental Protection Agency is concerned that endangered species of a native plant, bird and snail inhabiting the proposed canal site and reef at mouth of the stream may become extinct due to loss of habitat and erosion from construction

   b) Some of the water has always flowed to kalo (taro) farms just below the proposed canal site and subsistence farmers could lose their livelihood

   c) A national hotel chain and small local businesses will be able to provide more jobs if the canal is built and water diverted to support their interests

   d) If the canal is built at the proposed site and a portion of the water is diverted, a proposed low income housing development will benefit needy people.

   When ready, take 2 minutes each and debate both sides of the issue you chose to address before your teacher and two other students. Take an additional 1 minute to rebut each others’ arguments. Discuss with your audience who would persuade the public and policy makers with their response more & why.