**MIT-JWEL Şenay Purzer** [**purzer@purdue.edu**](mailto:purzer@purdue.edu)

**BREAKOUT GROUP TASK #1 (15 minutes)**

The following solarized houses are designed by two students. The next page includes a design review conversation between Mike and a Design Reviewer.

Please review the images, brief descriptions, and the design review conversation and type your answers in the table provided below

|  |  |
| --- | --- |
| What do you notice in these designs? |  |
| What inferences can you make about student thinking and learning? |  |
| What questions would you ask these students to elicit their reasoning about their design decisions? |  |
| What new inferences can you make about Mike’s reasoning after reading this conversation? |  |
| What do you notice about the design reviewer and their questions? |  |

**Lisa’s House**

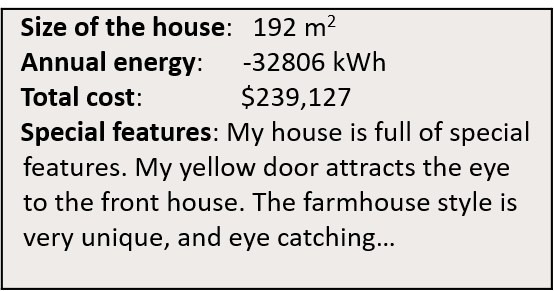
**Mike’s House**

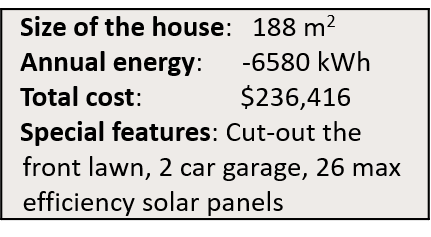
A picture containing text, receipt

Description automatically generated

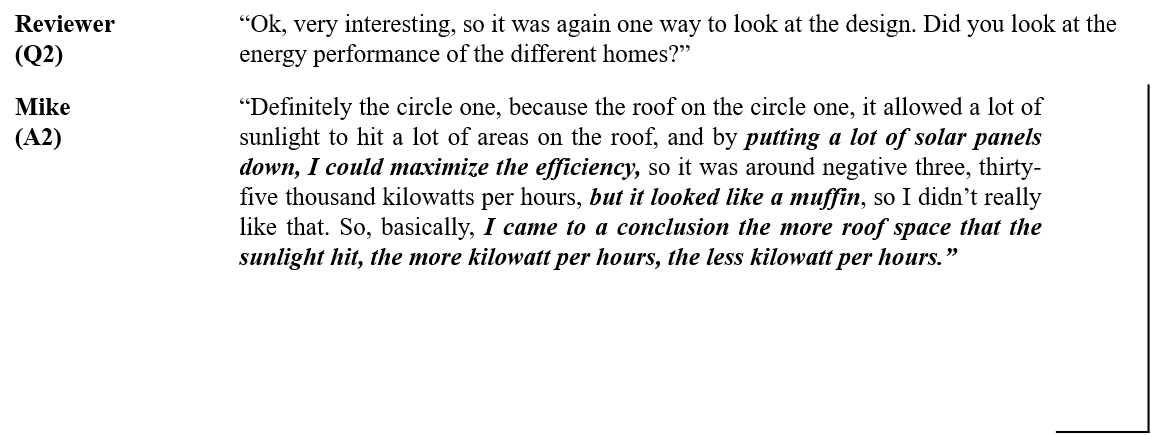
Graphical user interface, application

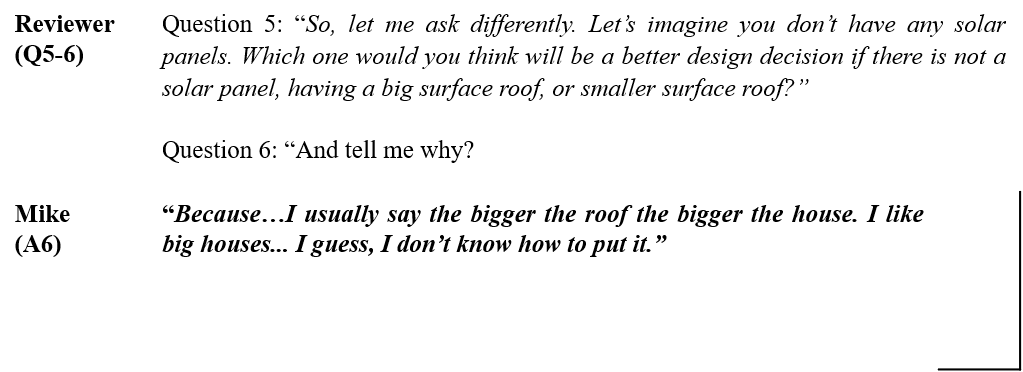
Description automatically generated

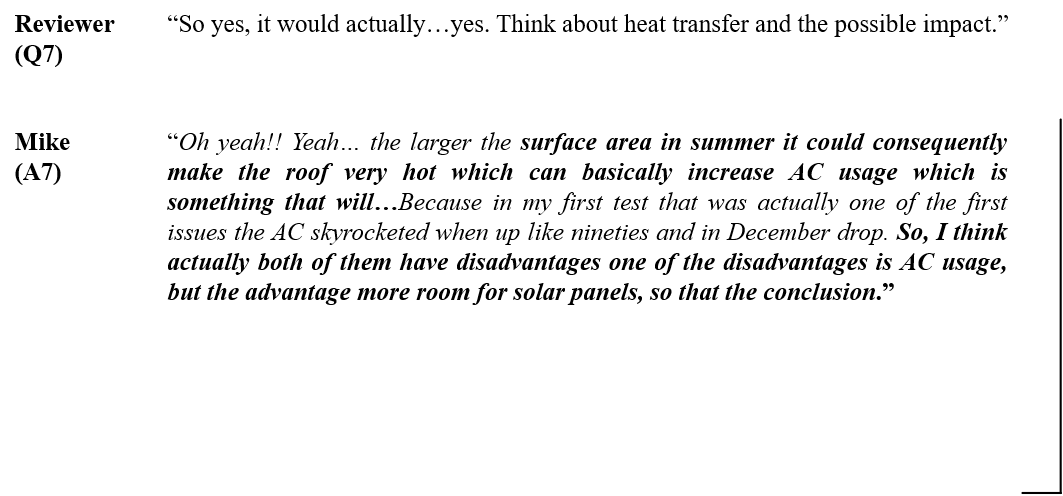




**Design Review Conversation with Mike**







**BREAKOUT GROUP TASK #2 (15 minutes)**

*Please choose your adventure, work on either option 1 or option 2*

**OPTION 1 (15 minutes)**

Solarize a house (5 minutes)

* First, draw a very basic sketch of a house you lived when you were in middle school.
* Please include a compass to show the orientation of the building and provide a few details.
* Your goal is to maximize KWh generated while maintaining the maintaining eh residential elements and cultural values of the city/neighborhood

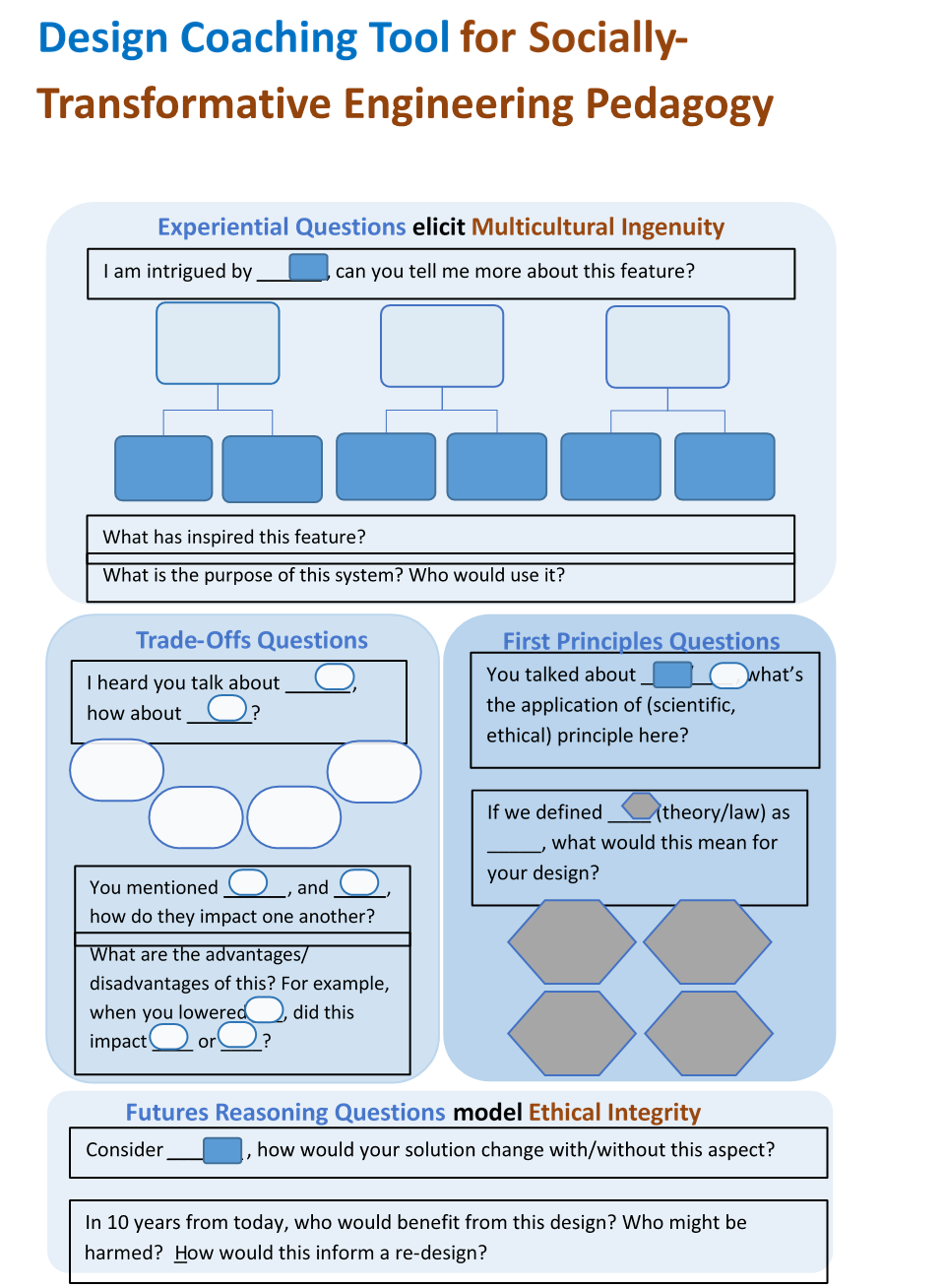
Role playing (10 minutes)

* Two volunteers act as **Designers** present their houses to the group
* Two other volunteers act as the **Design Reviewer** and seeks to understand the design using **the Design Coaching Tool** provided.

**OPTION 2 (15 minutes)**

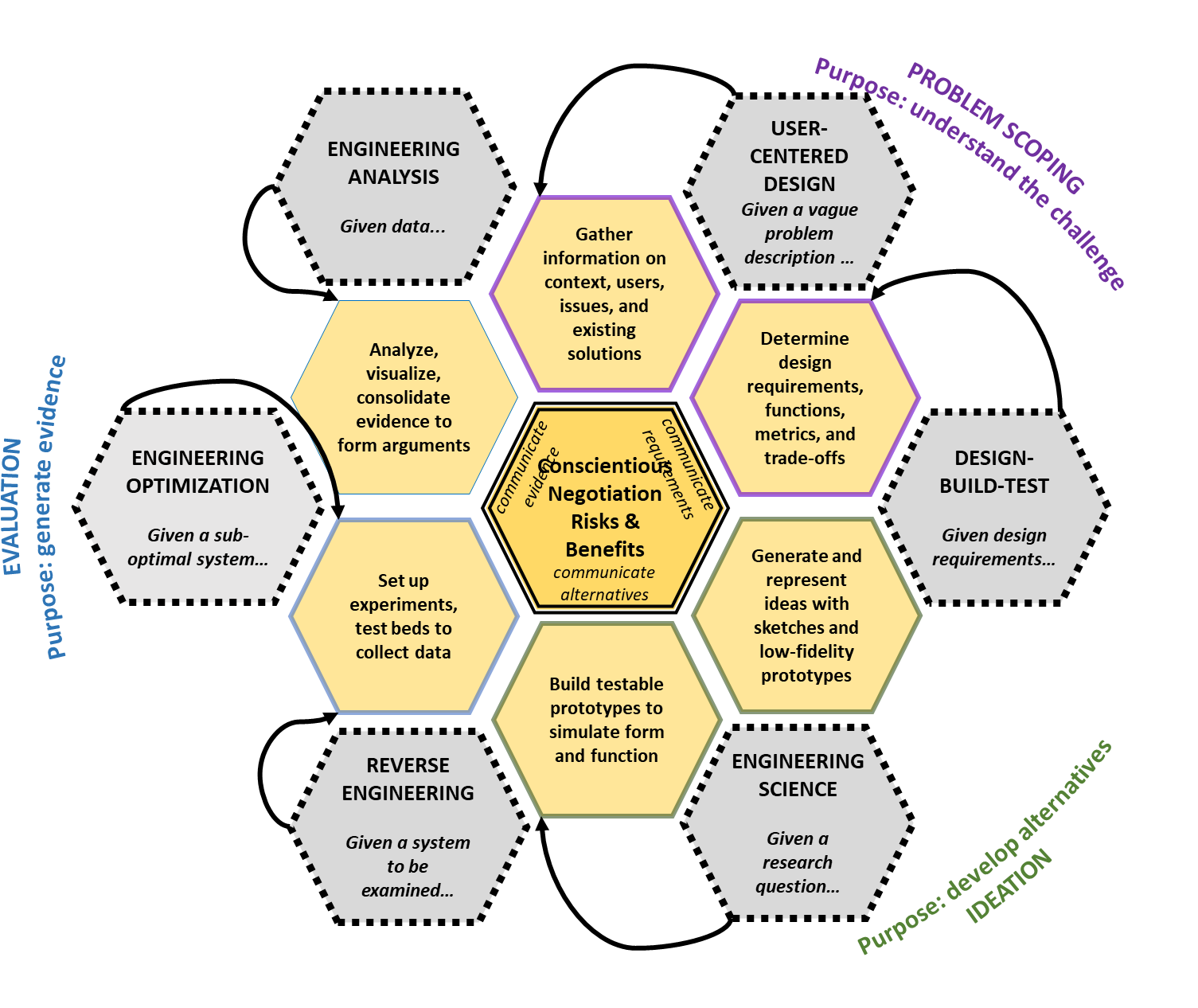
Identify ways you can use the **Design Coaching Tool** or the **Reasoning Quadrants Framework** or the **Honeycomb of Engineering** in your own teaching and design

|  |  |
| --- | --- |
| **Class** | **Details** |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |



**Honeycomb of Engineering**

Purzer, Ş., Quintana-Cifuentes, J., & Menekse, M. (2021). The honeycomb of engineering framework: Philosophy of engineering guiding precollege engineering education. *Journal of Engineering Education, 111*( 1), 19– 39. <https://doi.org/10.1002/jee.20441>



1. User-centered design
2. Design build test
3. Engineering science
4. Engineering optimization
5. Engineering analysis
6. Reverse engineering

