

# Energy expertise

## Overview

You work for a window company and need to collaborate with an architect on the correct window-to-wall ratio for a new building. Students will demonstrate their understanding of energy design by presenting their window-to-wall calculations and explaining how they created the most energy efficient building possible.

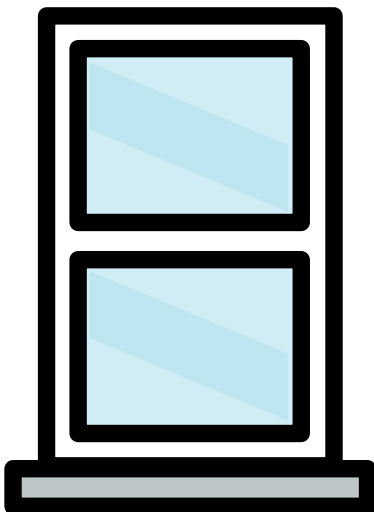
## Scenario

You are an employee at Wendell's Window Company. The contract you are currently working on is with a new business coming to town that will be constructing a brand new building. The client would like you to collaborate with their architect on the correct number and type of windows they need to ensure that the building is an energy efficient structure.

## Driving questions

The driving questions were developed to encourage you to explore the current realities of communities and individuals to be served. The questions will aid you in developing empathy to understand how others might be feeling about a problem, circumstance, or situation.

1. What is the window-to-wall ratio?
2. On which sides of the buildings should the windows be placed?
3. How will the number of windows affect the energy usage of the building?
4. Should the windows be operable?
5. Are there other design features that can accompany the windows to make the building more energy efficient?
6. Will the windows provide adequate daylight to the employees?

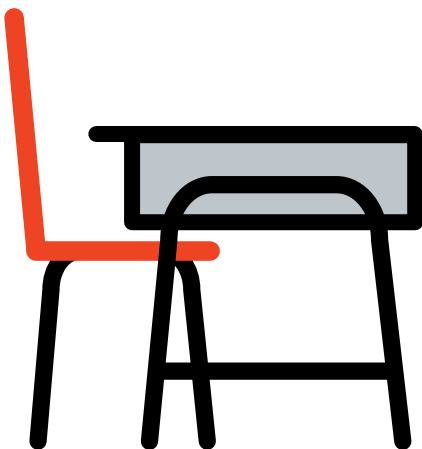


Understanding,  
Research, Define,  
and Ideation  
(U-RDI)

**Understanding**

Understanding is the process of gathering information to inform what you need to know about a topic. The use of a graphic organizer can help you analyze two aspects of a problem. We are suggesting a T-Chart to explore your “know” and “need to know”.

<b>Know</b>	<b>Need to know</b>
<ul style="list-style-type: none"> <li>• You are an employee at Wendell’s Window Company.</li> <li>• Your current contract is with a new business coming to town.</li> <li>• The business is constructing a brand new building.</li> <li>• The client has asked you to collaborate with the architect.</li> <li>• You need to determine the correct number and type of windows they need to order for the building.</li> <li>• The building needs to be an energy efficient structure.</li> </ul>	



## Research

Research is the process of examining as much data as possible to have an informed idea for your problem.

## Problem specific resources

- [AIA - Designing for Equitable Communities](#)
- [10 Key Components for Building Healthy, Equitable Communities](#)
- [EPA - Creating Equitable, Healthy, and Sustainable Communities](#)
- [Tips for Connecting Learners to their Community](#)
- [The 7 Universal Design Principles](#)
- [Engaging Everyone](#)
- [Designing More Equitable Cities](#)
- [Simple Machines Article](#)

## Hands-on activity

- [Simple Machines Activities](#)

## Define your problem using empathy

Architects work to define problems before coming up with a solution. They use empathy in defining a problem. This allows them to define a problem using multiple perspectives.

Now that your research is done, define your problem!





### Ideation

During ideation you will develop as many possible solutions as possible to the problem base on your defined problem. Do not limit your solutions!

Once you have listed all your possible solutions in the box below, cross out those that are extreme or refine them to be more practical.

**Possible solutions:**