



# Real World Problem Scenario

<b>Scenario:</b>	<b>Leed and Sun Angles</b>
<b>Business:</b>	<b>Pickering Associates</b>
<b>Business Participant:</b>	<b>Nick Arnold - Architectural Designer</b>
<b>Career Cluster(s):</b>	<b>STEM, Architecture and Construction</b>
<b>Grade Level:</b>	<b>4-12</b>
<b>Standards &amp; Skills:</b>	Geometry— Lines and Angles Environmental Science(9-12) Earth, Life, and Physical Science(5-6)

## Problem Description:

A local homeowner wants to build a LEED(Leadership in Energy and Environmental Design) Certified home in your neighborhood. This wonder would like all of the south-facing windows on the house to be shaded in the summer, but exposed to the sunlight in the winter. Based on your location and calculated sun angles, what options does the hoje owner have to achieve this goal? Will the roof overhang need to be deeper? Are there other methods of shading other than extending the edges of the roof?

## Things to be considered or defined for the solution:

- Environmental Factors
- It is 12pm on your project site and the building is orientated where the main walls are facing north and south
- What roof design will take less material?
- In what city is the project located?

- How will the project location affect the sun angles as they hit the building?
- The sun angles will change based on how far from the equator you are