Stage 1 – Desired Results

Established Goals: What relevant goals (eg. content standards, course or program objectives, learning outcomes) will the design address? Students will be able to solve two forces working on one point problems using two different methods, the Parallelogram method and the Vector method. They will be able to demonstrate this ability by solving the same problem using both methods. They will then be encouraged to use their favorite method in solving the three different types of problems, angles given from the positive x-axis problems, bearing problems, and airplane problems. Both methods work equally well. The Parallelogram method is tactile, while the Vector method is analytical.

Understandings: Students will understand that…

* What are the big ideas? Students will understand that there is normally more than one way to solve most problems. This topic is just one more example of this general idea. Students will understand how to use both methods and chose the method that best fits their style and the situation.
* What specific understandings about them are desired? Both methods yield the same result, however, one method might be better depending on the problem.
* What misunderstandings are predictable? Students normally use the first method taught, and “tune out” when the second method presented. Also, students use the vector method with the airplane problems without first converting the angles. This shows that they do not understand the difference.

Essential Questions: What provocative questions will foster inquiry, understanding, and transfer of learning?

1. In your opinion, which method works best for...
   1. …positive x-axis type problems?
   2. …bearing problems?
   3. …airplane problems?
2. How do the two methods differ?
3. How are the two methods similar?
4. What are the common mistakes to avoid when using each method?
5. Which method is your favorite and why?

Students will know…

* What key knowledge and skills will students acquire as a result of this unit?
* What should they eventually be able to do as a result of such knowledge and skills?

Students will be able to…