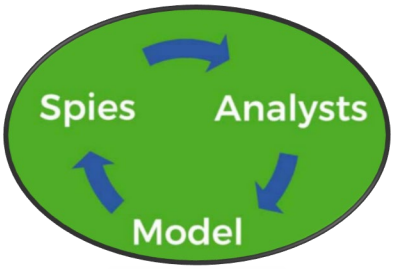
Name: _____ Date: _____

Driving for Gas Modeling Problem

The Problem



Gas prices change on a nearly daily basis, and not every gas station offers the same price for a gallon of gas. The gas station selling the cheapest gas may be across town from where you are driving. **Is it worth the drive across town for less expensive gas?** Create a mathematical model that can be used to help understand under what conditions it is worth the drive.

Step 1: Spies–What information do I need and how do I acquire it?

- Do I understand the problem?
  - Can I make a simpler more concrete problem to work with?
  - Can I draw a graph, table, picture, or other representation to help me understand it?

- What information do I need?

- How will I acquire it?

- What assumptions am I going to make? What facts or statements am I going to take for granted?

Step 2: Analysts– Take the information and work with it to figure out how to use it.

Part 1

- Decide what information to keep and what if any to discard? Is there other information still needed?

- Create a picture, graph, chart, or other representation (or revise the spies initial model) to help me and others understand the data?

- Do the math for the simple problem you created. Show calculations and label units.

- What is your solution?
  - Does it make sense?
  - Is it clear?
  - Does it answer the question?
  - Is the level of precision appropriate?

- Do I need to revise my model and/or solution?

Step 3: Model–Use the model and verify that it works.

- Does my model communicate the situation effectively?
    - Is my choice of model the most appropriate way to represent the situation?
- Can I use my model to make accurate predictions?
- What if our assumptions are wrong? How does that impact our answer?
- What if our scenario changes a little? Do our results change a little or a lot?
- Can my model be generalized to a broader situation? You may need to use variables.

Step 4: Report the Results

Turn in 4 PowerPoint slides.

- On the first slide list your problem and your assumptions.
- On the second slide show your model.
- On the third and fourth slides state your solution and your evaluation of your solution.

Be prepared to present your findings.