



What's Your Story

Student Activity

Name _____

Class _____

Open the TI-Nspire document *What's_Your_Story.tns*.

In this investigation, you will work individually and as part of a team to reverse engineer a word problem. Normally, you are given a situation for which you are asked to create an equation that would model the situation. The situation can then be generalized and used to predict results as the variables change.



Move to page 1.2.

Press **ctrl** **▶** and **ctrl** **◀** to navigate through the lesson.

1. Write a word problem you remember from an earlier mathematics class or from this class. Do you recall the equation or expression that matched it? Write the problem in the space below or on your TI-Nspire handheld.

Move to page 1.3.

2. On this page, you see the traditional set-up for a word problem. You select the equation that best models the cell phone story given. Notice the wording of the problem and how it matches up to the parts of the equations. You might be asked by the teacher to share your choice or reasoning.

Move to page 1.4.

3. Check your answer to the question on Page 1.3 by pressing **ctrl** **▲** to see if you got it right. The check mark means you picked the correct answer. How did you do?
4. Explain where you think the questions on Page 1.4 come from.



Move to page 1.5.

Now let's consider switching the point of view (POV) for the problem and look at outcomes first. On this page, you are given the equation $4F - 3.90 = G$.

- Since the value of G comes directly from the value of the expression $4F - 3.90$, we could just pick values for F, and plug them into the expression to get a value for G as shown in the example below where $F = 11$.
5. Fill in the Table below by selecting different values for F and recording the resulting values for G.

F	G
11	40.10

6. What would happen if $F = 0$? Could G ever be equal to zero?
7. What could the variables G and F represent in real life? Suggest some realistic possibilities.

Move to pages 1.6 and 1.7.

Next, let's look at a graph of the equation as a function to see how it illustrates the story problem in a different way.

8. Enter the value of $f1(x)$ as $4*x-3.90$. You might want to adjust the Window **[menu] 4 1**] or use Graph Trace **[menu] 5 1**] to explore different values for F (now x) and G (now $f1(x)$).



Move to page 1.8.

9. Explain what appears to be going on with the graph in the context of a real-life situation.

Now you are ready to write your own word problem from a given equation. Before you write, consider how the words of the problem matched up to the parts of the equation, how you experimented with the set of outcome values for F and G, and how the graph of the relationship between F and G gave you another perspective.

Move to page 1.9.

10. Write your story in the space below the question on this page. Try to keep it simple but real. Identify what the variables G and F represent in your story. Be prepared to share your story and explain to the class how the equation models the story.

Move to page 2.1.

11. Team up, and use what you learned above to repeat the process of writing a word problem that can be modeled by the equation given on Page 2.1.
12. Choose one team member to write the equation and story on a Notes page on their TI-Nspire handheld. Your team might want to add other pages such as Graph, Geometry, Calculator, List & Spreadsheet to help in the documentation of your story. Before you finish, document the names of your team in the document. Plan on reporting your story to the class.

Move to page 3.1.

13. Your teacher might re-group you for this last problem. Make sure you incorporate what you learned as you participate in the construction of the word problem for the given equation. Document as before, and plan to share with the class.



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