

8-Step Problem Solving vs The Scientific Method

The Scientific Method is the key concept of scientific inquiry. Around the world, scientists use the scientific method to produce results that are accurate and repeatable. In its purest form, what is the scientific method, really. It is a systematic approach to problem-solving. In this lesson, you are going to evaluate 2 different problem-solving approaches and try to determine which one produces superior results.

Activity:

The students will use the 8 Step Problem solving method, common to Japanese automotive manufacturing, in order to solve a problem that they are presented. This will then be related back to the Scientific Method.

- A. The students will meet in groups of 3 to analyze a random problem that they are given, based on the 8-step format. They will be given a template of the 8-step process to follow. They must complete each part of the template to design/create a viable solution to the problem. (They must be able to address the problem with materials and budgets that are available to them.)

8-Step Problem Solving Method

Clarify the Problem	
Grasp the Current Situation	
Set Targets	
Root Cause Analysis	
Action Plan	
Implement	
Results	
Maintain	

- B. The students must then put their plan into action. They will create a model that illustrates the original problem and demonstrates the process that they created for solving the problem.
- C. After these tasks are completed, the students will then review the steps of the Scientific Method and compare it to the 8-step process and match the steps of the Scientific Method to the applicable areas of the 8-step process.

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[Type text]

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**Match the steps of the Scientific Method to the best match in the 8-Step Method.
Explain why each step is a match for the other method.**

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- D. The final task will be for each group to determine a problem that they want to try and answer. It must be a science, technology, or engineering type of problem. They will then use both processes independently to try and find a solution for their problem. When completed, they will evaluate which process was more effective and do a 5 Why and How analysis of the more effective process.