

**Module 6: Learning and Memory**  
**Topic 4 Content: Strategies for Solving Problems**

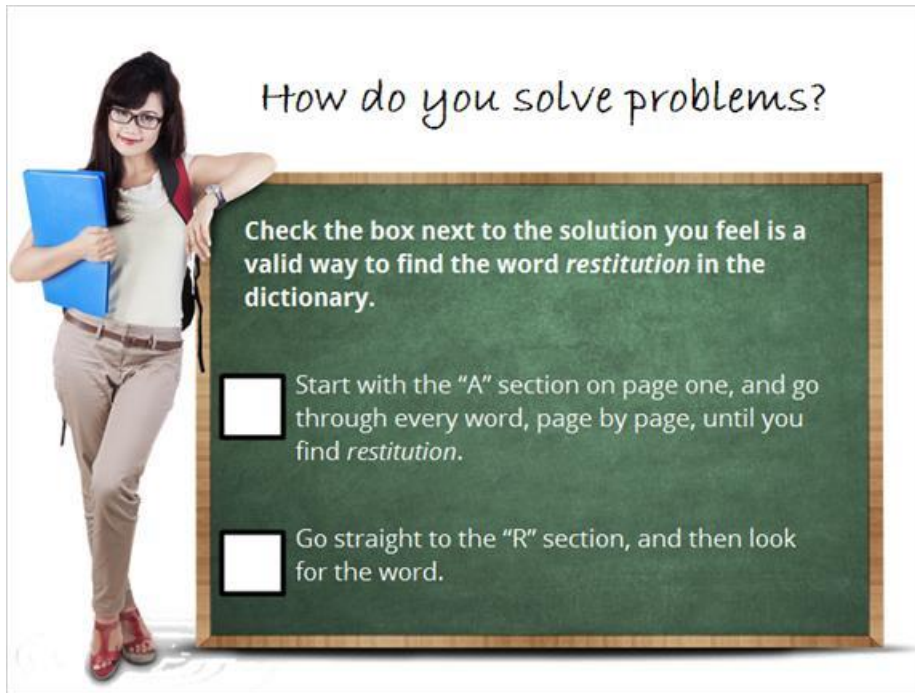
**Introduction**



Click the **NEXT** button to learn about strategies you can use to solve problems.

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**Dictionary Example**



How do you solve problems?

Check the box next to the solution you feel is a valid way to find the word *restitution* in the dictionary.

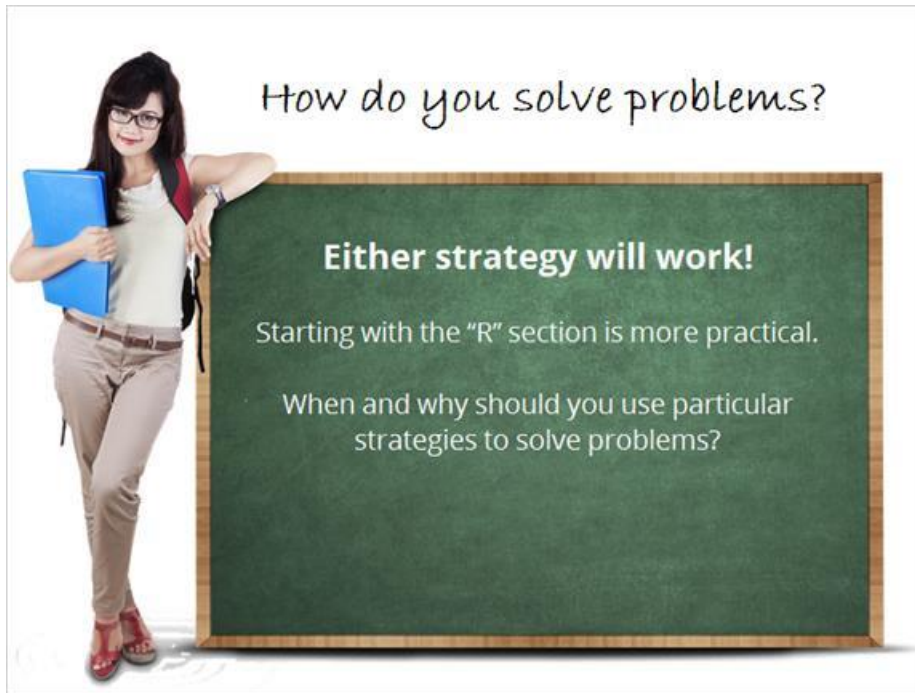
Start with the "A" section on page one, and go through every word, page by page, until you find *restitution*.

Go straight to the "R" section, and then look for the word.

There are many ways to solve problems, although some strategies are more reasonable than others. Check the box next to the solution you feel is a valid way to find the word *restitution* in the dictionary. Then click the **SUBMIT** button to check your answer.

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**Feedback for Dictionary Example**

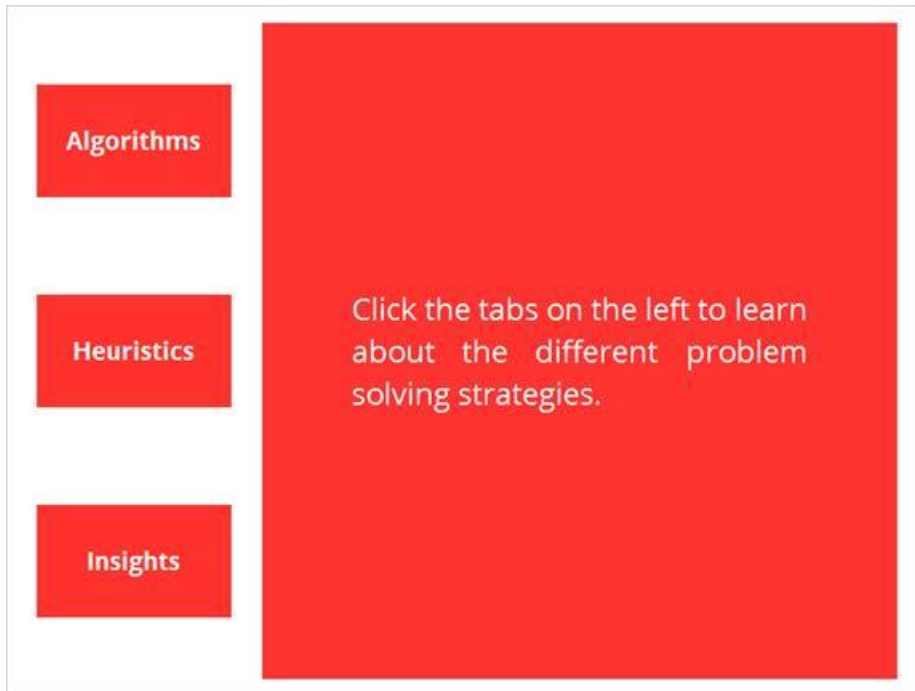


You can find the word *restitution* in the dictionary by either starting with the "A" section on page one and going through every word, page by page, or by going straight to the "R" section. While either strategy will work, you likely know from experience that starting in the "R" section is much more practical. Click the **NEXT** button to explore when and why to use particular strategies when solving problems.

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### Topic 4 Content: Strategies for Solving Problems

#### Strategies



The image shows a user interface for learning about problem-solving strategies. On the left side, there are three red rectangular tabs with white text: "Algorithms" at the top, "Heuristics" in the middle, and "Insights" at the bottom. To the right of these tabs is a large red rectangular area. Inside this area, the text "Click the tabs on the left to learn about the different problem solving strategies." is displayed in white.

Click the tabs on the left to learn about the different problem solving strategies.

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## Topic 4 Content: Strategies for Solving Problems

### Algorithms

**Algorithms**

**Heuristics**

**Insights**

**Step 1** Fill a pot with one gallon of water.

**Step 2** Turn on the heat.

**Step 3** Bring to a boil.

**Step 4** Add the pasta.

**Step 5** Cook 12 minutes.

**Step 6** Remove from heat and drain.

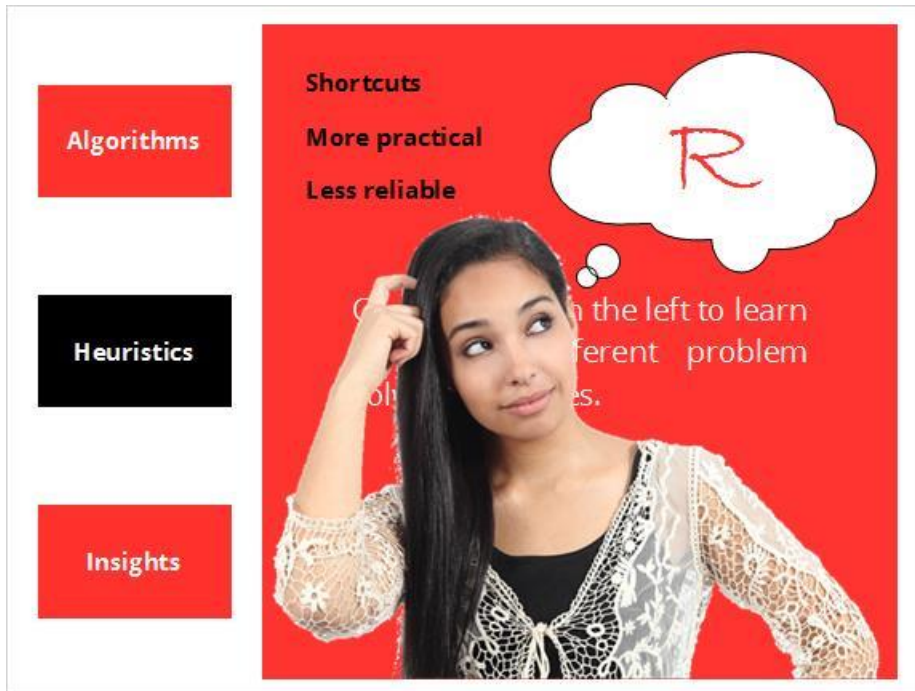
Going page by page is an algorithm, but not practical

Although you can solve some problems through trial and error, you can also solve them by following an algorithm, or a set of rules in a step-by-step process. This type of strategy guarantees a solution. For example, a recipe is an algorithm, because by following the instructions contained in a recipe, you will be guaranteed to produce the dish. Sometimes, however, algorithms are not practical due to how long they can take. In the previous example about finding *restitution* in a dictionary, beginning with the “A” section on page one and going through every word, page by page, until you found the correct word, was an example of an algorithm. This would bring you to a solution. However, it would take a long time.

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### Topic 4 Content: Strategies for Solving Problems

#### Heuristics

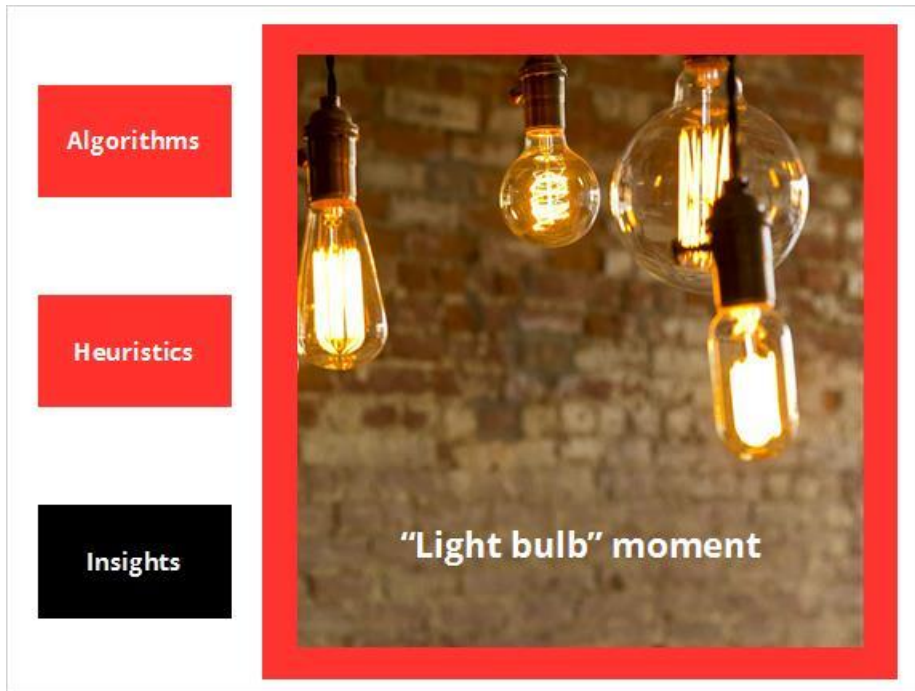


Heuristics are shortcuts to solving problems. They are faster, and more practical and efficient than algorithms, but not as reliable. For instance, think back to the dictionary example. Rather than going page by page to find the word *restitution*, like you would with an algorithm, it would make more sense to use heuristics, and go straight to the “R” section.

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#### Insights



When you have a sudden realization that offers a solution, you have gained an insight. Insights are not based on a strategy, but are more like “a ha” ways to solve a problem. Many people call this a “light bulb” moment, when a solution suddenly appears to you.