

## Who Needs a Better Mousetrap?



Have you ever heard this quote: “Build a better mousetrap, and the world will beat a path to your door.”

In the United States, these words are commonly credited to Ralph Waldo Emerson, one of the great American thinkers of the 19<sup>th</sup> century. The quote is often used to describe how one should become a successful inventor. The idea is that brand new solutions to unsolved problems aren’t necessary for success. Most inventors can simply come up with slightly better solutions and find success by staying ahead of the game.

However, the quote is inaccurate. Emerson never actually said these words, and when people recite this quote, they’re continuing one of the greatest misinterpretations of our time. Originally, Emerson described people’s desire to have the best product—for example, corn, pigs, chairs or knives. Over the years, the words “better mousetrap” found their way into the quote, and the effect has been so strong that the mousetrap is now the most reinvented device in United States history.

What exactly makes for a “better mousetrap”? A quick look at the market for mousetraps reveals a great variety of solutions. T-Rex traps, glue traps, catch traps, and bait-less traps are just a few examples. But what makes any of these mousetraps better than the others? Is there such a thing as a best mousetrap?

The trick to answering these questions is to understand a basic truth about solving problems in the real world: There is never one best solution to a problem. Whenever people are faced with a problem to overcome, there are a number of ways to arrive at a solution. And when deciding what solution is best, you are choosing the right balance between two things: *criteria* and *constraints*.

*Criteria* are the ways that you know your solution is working. People don’t always agree on the same criteria, so if you’re setting out to build (or buy) a better mousetrap, it’s important to decide what you want the mousetrap to do for you.

### Possible Criteria for a Better Mousetrap

- The trap should kill the mouse.
- The trap should catch the mouse, but not harm it. Don't hurt the mouse!
- The trap has to be very, very light.
- The trap can be as big as a shoebox, but it must fit under your kitchen sink.
- The trap shouldn't hurt any human who accidentally touches it.

Let's say that your goal is to catch the mouse, but you don't want to kill the mouse or hurt it in anyway. Instead, you want to put the mouse in a cage and bring it to school to show your classmates. It's easier to spot your ideal mousetrap, but you can't start building until you've considered all of your *constraints*.

*Constraints* are the things that stop you from doing whatever you want to meet your criteria. The most common constraint is cost. For example, some people would love to have a mousetrap that instantly puts the mouse to sleep, so they can safely move the mouse to another location without harming it. Unfortunately, this kind of technology is too expensive for the typical person to afford.

### Possible Constraints on Building a Better Mousetrap

- It's very expensive to capture a mouse without harming it.
- The only materials that are available to build the trap are not as light as you would like.
- The only traps that can fit under your kitchen sink also kill the mouse.
- Traps that only harm mice and never harm humans cost at least \$10 to build.

Another possible constraint is building materials. Maybe one of your criteria is that the mousetrap should be very light. However, if light materials like plastic are not available, then it might be very difficult to meet that criterion. The next best solution might be a mousetrap made of wood or metal.

When you're deciding which mousetrap is the best, you will always have to keep track of your constraints. You'll often find several different solutions, and each solution will fit a different combination of constraints and criteria. As a problem solver, your job is to decide which one is the best fit.

According to the United States Patent Office, over 4,000 people have tried to invent a better mousetrap. The misquoted words of Ralph Waldo Emerson are also used to describe the efforts of thousands of businesses, all of which are trying to write a smarter computer program, build a faster airplane, or make a better ice cream flavor to bring more customers to their doors. The promise of a better solution is something that many people try to fulfill every single day.

Think, though, about the last time you saw a mousetrap. Even if a hundred new mousetraps are invented every year, they're not always better than the ones that came before. At the end of the day, the criteria for a better mousetrap might be so simple there is no better solution out there. And the constraints of building a new mousetrap might outweigh any of the criteria you can think of for a better solution.

Build a better mousetrap, and the world might never notice.

Name: \_\_\_\_\_ Date: \_\_\_\_\_

1. What is the intended message of the quote “build a better mousetrap, and the world will beat a path to your door”?

- A Mice are an increasingly common pest in today’s world.
- B Even a slightly better solution to a common problem can be a valuable invention.
- C Making a popular invention is a very challenging task.
- D Brand new solutions to unsolved problems are necessary for success.

2. What argument does the author present at the end of the passage?

- A Brand new solutions to unsolved problems aren’t necessary for success.
- B There are no constraints to building a new mousetrap.
- C New solutions to common problems are not necessarily better or valuable.
- D Any new solution to a common problem is most likely better than older solutions.

3. The author claims that there is never one best solution to a problem. What evidence from the passage best supports this conclusion?

- A Each solution will fit a different combination of constraints and criteria.
- B The quote at the beginning of the passage was not actually said by Ralph Waldo Emerson.
- C According to the United States Patent Office, over 4,000 people have tried to invent a better mousetrap.
- D Criteria are the ways you know your solution is working. Constraints are the things that stop you from doing whatever you want to meet your criteria.

4. Based on the passage, why will you always have to keep track of the constraints while creating a better solution?

- A Constraints eliminate the need for criteria.
- B Constraints determine what are your criteria for a better solution.
- C Constraints can become opportunities for creating a more effective solution.
- D Constraints determine how you are able to meet your criteria.

5. What is this passage mostly about?

- A the development of different mousetraps
- B how criteria and constraints impact the development of new solutions
- C how criteria and constraints can be eliminated from the invention process
- D Ralph Waldo Emerson’s writing career

6. Read the following sentence: "Build a better mousetrap, and the world might never notice."

Why does the author end the passage with this phrase specifically?

- A to state that it is impossible to build a light mousetrap
- B to prove that he doesn't care about new mousetraps
- C to highlight that Ralph Waldo Emerson has been misquoted
- D to emphasize that the quote at the beginning of the passage may be incorrect

7. Choose the answer that best completes the sentence below.

People do not always agree on the same criteria. \_\_\_\_\_, one person may want to build a mousetrap that can kill mice while another person may want to build a mousetrap that only catches mice but does not kill them.

- A Namely
- B Therefore
- C Although
- D For example

8. Before you can start building an improved mousetrap that meets your criteria, what should you consider?

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9. One possible criteria someone may have for building a mousetrap may be that the mousetrap should be very light. According to the passage, what can one do if light materials like plastic are not available?

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10. How do constraints affect the way criteria are met when creating a new solution? Use information from the passage to support your answer.

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