

Problem Solving Steps Resource

Problem-solving involves identifying, analysing, and creating possible solutions. It requires creativity, critical thinking, and the ability to evaluate different solutions and make informed decisions. There are different kinds of challenges we may encounter, and thinking carefully and critically is an important part of exploring solutions and selecting the best way forward.

STEP 1:

Understand the problem: this is critical in the process because really understanding the challenge helps to create effective solutions.

This first step requires attention to detail and some thinking, so we have captured a list of questions you can use to unpack a problem.

1. Being as specific as possible, what exactly is the problem to be solved? A clearly and concisely defined problem avoids confusion.
 - A vaguely defined problem could be interpreted as something different.
2. Can the problem be broken down further?
 - A problem in its most simple form is in the best state for solving.
 - Complex problems are possibly multiple smaller problems.
3. Is the problem exactly the same from multiple perspectives? If not, can it be reworded so that it is?
 - Problems can look different to different people.
 - Solving for one person will not necessarily solve for everyone.
4. Is there anyone who thinks it is not a problem? Why not?
 - Any doubt is worth looking into, they could know something you don't.
 - It is always a possibility that you or your perceptions are the problem.
5. Is the problem a symptom of a deeper, underlying condition?
 - Fixing the problem will stop future symptoms.
 - Fixing a symptom is only temporary.
6. Is the problem one that can be solved? If not, can the problem be redefined?

- How to get to work with a broken leg is a problem that can be solved.
 - A broken leg itself is not a problem because it can't be solved, it's broken.
7. Can the problem be defined as an opportunity?
- An opportunity is something positive we generally look forward to and want to take advantage of.
 - A problem is generally something negative we don't like and simply want to get rid of.
8. Is the problem a beneficial one to solve? Why?
- The most beneficial problem is often a good place to start.
 - The world is full of problems and unfortunately we can't solve them all.
9. Are you trying to solve a problem? Or are you confusing cause and effect?
- Building an airstrip so a plane has somewhere to land can be solving a problem.
 - Building an airstrip because you know planes land on them does not guarantee a plane.

Once the above questions can be answered concisely you should be left with a well-defined problem which can also be described as an opportunity and more importantly you should have a better understanding of what you will be going to solve or achieve. It is time for the next step, analysing the problem.

STEP 2:

Analyse the problem: This is where you find out what you already know about the situation and what areas need further looking into.

To help discover all the facts it is a good idea to create a number of lists relating to the problem where you in turn list as many points as possible. In this stage writing down anything and everything that comes to mind can be a good starting point. There are quite a few questions that you can ask based on the "5 W's and 1 H".

Let's take a closer look in the following pages...

The 5 "W's"

What?

What does the problem currently affect?

- People or yourself?
- Environment?
- Equipment?
- Process?
- Organisation?

What will be the benefits of solving the problem? And by how much?

- Credibility?
- Financial?
- Knowledge?
- Legal?
- Marketing?
- Productivity?
- Quality?
- Quantity?
- Reputation?
- Respect?

What influences the problem?

- Does anything seem to aggravate or spread the problem?
- Does anything seem to reduce or delay the problem?
- Does anything tend to speed up / slow down the problem?
- Can the problem be simulated, recreated or acted out in another setting?
- Is there a specific example of an extreme case?

What would be needed to solve the problem?

- Will new tools and/or policies be required?
- Will new equipment be required?
- Will new people be required?
- Could any new problems arise?

What would happen if no solution can be found?

- Will a solution be available at a later date?

What would be the next best thing to finding a complete solution?

- Is there a way to delay the problem?

What would be the next best thing to solving the problem?

- Is there a chance the problem will go away on its own?
- Is there a way to change the problem for the better?

Why?

When you ask "Why?" you are asking for a reason or purpose - "Why did they do it?" or "Why is it the way it is?"

- Why do you want to achieve a solution?
- Is it something you personally want to do?
- Is it something you have been told to do?
- Is it something you feel you have to do?
- Why did the problem arise in the first place?
- Can the exact cause of the problem be pinpointed?
- Were there numerous reasons for the problem starting?
- Was a problem expected to occur at the time?
- Why was the problem allowed to escalate as far as it has?
- How much further can the problem escalate?
- Have previous attempts at solving the problem been made?
- Does the problem benefit anything/anyone else?

How?

When you ask "How?" you are asking in what way or manner; by what means "How does it work?" or used to ask about the condition or quality of something - How was your time there?"

- How long has the problem been around?
- Has it always been a problem?
- Has it got worse over time?
- Has the problem occurred at a previous time?
- How will the situation be different once the problem is solved?
- In particular, what will be different?
- Can you guarantee the situation will be different?
- How relevant is the information available?
- Is the information up to date?
- Was the information created for the specific purpose it will be used for?
- Does the information need to be modified?

- How can I find out more information on the problem and possible solutions?
- Is all available information available?
- Is any information not available? Why not?
- Will additional research be required?
- Can additional people get involved with finding a solution?
- Is there an expert who can be approached?
- Are additional resources required?

Where?

When you ask "Where?" you are asking what position something is or originates from or the location something is acting on or at - "Where did it come from?" or "Where is it affecting?"

- Where did the problem arise?
- Has the problem always existed?
- Can the exact starting point of the problem be pinpointed?
- Why did the problem arise where it did?
- Where is the problem currently located?
- Is the problem in a single or multiple locations?
- Can the problem be contained in its current location until it is dealt with?
- Is there a chance the problem will spread to different locations?
- Is the "where" component to the problem important? If so, why?

Who?

When you ask "Who?" you are asking what or which person or people are involved - "Who is that?" or "Who was there at the time?"

- Who are the stakeholders?
- Who is affected by this problem?
- Who will be affected once it is solved?
- Does anyone think that it is not a problem? What is different about their perspective?
- Who knows about the problem?
- Who has the information needed to solve or release the problem or issue?
- Who can do something or take action as a possible solution?
- Does anyone need to be informed about the problem?
- How do processes currently work where the problem is occurring?
- Who does what?

- With what information?
- Using what tools?
- Communicating with whom?
- In what time frame?
- Using what format?

When?

- When did the problem first appear?
- What was its initial impact?
- How was it identified?
- Who identified it first?
- How did it start?
- Where did it start?
- Why did it start?
- What initially started it?
- When did it start?
- When does a solution need to be found?
- Would it be better to wait for a better time to implement a solution?
- Is it too late to look for solutions?

STEP 3:

Define the Problem Statement: Only after the right problem has been identified and analysed can we be sure of the correct definition of the problem.

In most cases the definition will remain unchanged from STEP 1, but in some cases once other available information has been brought to light the problem, the opportunity or the desired outcome may have changed to accommodate either new information or a new perspective on the problem itself. These help you define the problem:

- Define exactly what the problem is.

- Define exactly what needs to be solved.
- Define your problem as an opportunity.
- Define the desired outcome.

STEP 4:

Opportunities and Possible Solutions: There are a number of ways to identify the best possible solution. A part of this process is to explore plenty of innovative and creative ideas; there is always more than one solution to problems we encounter (and sometimes a problem requires multiple solutions).

Identifying possible solutions can be achieved by using some of these methods:

Seek advice; ask an expert

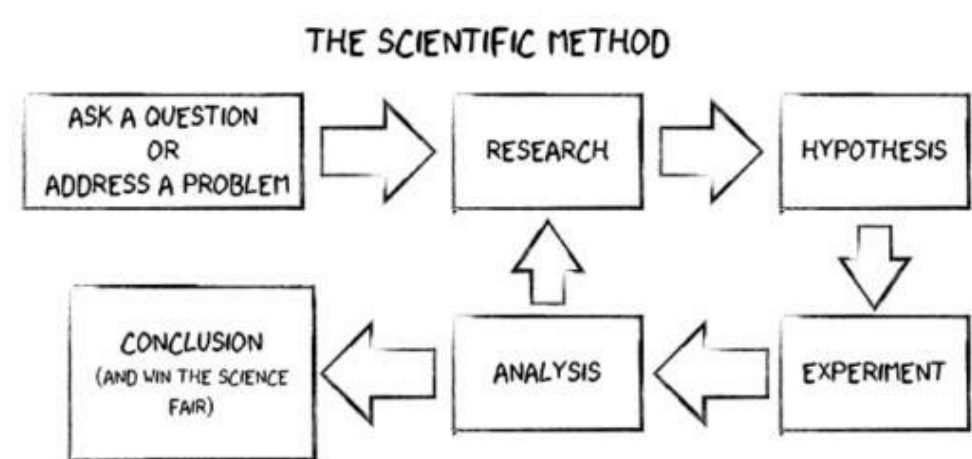
In today's day and age there is an expert on pretty much any topic you can imagine. Sometimes the best and fastest approach to getting the information we need can be simply to ask someone who knows more about the subject than we do. Of course finding that someone can be a challenge in itself, but the rewards in doing so could far outweigh other options. If the expert is unsure about the best approach for your situation they will probably be able to point you in the right direction.

Brainstorming

Best done with a group of individuals, brainstorming is always a good starting point. Brainstorming involves creating a list of ideas spontaneously contributed by an individual or group of individuals. With this method there is no wrong answer and wild or unexpected answers are often encouraged with all suggestions being written down. The process continues until no more suggestions can be thought of and the list of ideas can later be used to develop a solution.

The Scientific Method

A method for conducting an objective investigation which is a proven approach to solving problems in a way that is reliable, consistent and non-arbitrary. The scientific method can be seen to underlay the scientific revolution and has helped to create many of the great accomplishments of recent human history. A basic flow chart of the scientific method is shown below.



Have a Guess

If there is some indication, a technique you have heard of or a gut instinct about a possible solution, why not look into it further. Starting with an inkling and checking and adjusting it to suit the problem at hand could lead to the ideal solution. This method generally works better for a limited number of potential solutions where you can eliminate the options one at a time but there is no harm in employing the method in any case, it might just lead to the solution you have been looking for.

Work Backwards

If the “where to start” is not obvious, starting at the end goal and working backwards can be a good approach. Working backwards can sometimes offer the fastest solution because it gets you thinking with where you want to end up in mind. This approach to problem solving can also be effective when used at a point not quite at the end goal or even to back check the starting point from a different perspective.

Do the Opposite

What effect does doing the opposite to what you have been doing have on the situation? If you are at a dead-end or simply want to explore the opposite of something that clearly isn't working, doing the opposite can provide a new and refreshing perspective. Rather than avoiding a situation, doing a complete 180 and diving straight in can in some cases be the best and/or fastest approach.

A Randomized Approach

When all else fails or there is no indication whatsoever to what sort of approach should be taken a random approach may be required. By applying random solutions and seeing how they influence the problem at hand may eventually lead to something more meaningful. You might get lucky and find the solution you have been looking for or in the worst possible case you may just find yourself where you started.

STEP 5:

Select the best solution: With a list of possible solutions developed in the previous step it is time to select the best individual or best combination of solutions to be put into action and to eliminate the problem at hand.

The process of selecting the best solution is a matter of ranking all of the available solutions against one another and defining each option's "pluses and minuses". Some of the key areas that might need to be evaluated and prioritised have been listed below.

- Operational validity: Can the solution actually be implemented or is it just an idea?
- Economic validity: Is the solution economical? Will the solution bring an economic result?
- Degree of Complexity: Is the solution simple to implement or are there complexities involved?
- Ease of Implementation: Is the solution ready to go and easy to install?

- Stakeholder interest: Does the solution satisfy everyone's interests?
- Potential Risk: Does the solution bring any additional risk with it?
- Personal commitment: Is the solution something that reflects the ideals of all involved? Is the solution something you believe in?
- End result: Will the solution solve all parts of the problem or will the problem just be reduced or concealed?

Keeping in mind that the best solution will be the result of considerable deliberation and also that one solution that is available for any problem is to simply do nothing, everything should now be in place for putting the solution into action. If something happens so that the chosen solution/s cannot be used or if the solution stops working, there will now be a list of alternatives already assessed, prioritised and ready to go.

STEP 6:

Implement the Solution: The implementation plan is just as important as implementing the solution/s and monitoring the progress of this step is something that will need to be done also.

A brief guide to some of the things that will need to be considered have been detailed below.

- Planning and documentation of a new solution/s
- When will the solution be implemented?
- Where will the solution be implemented?
- How is the solution to be implemented?
- What has to be done before the solution is implemented?
- How long will the solution take to start working?
- What time frame is the solution expected to take before the problem is solved?
- Have monitoring provisions been put in place?
- What are the key signs to look for to indicate the solution is working?
- Who will need to be notified about the changes about to take place?
- At what stages will the progress be reviewed?

- Have contingency arrangements been put in place for if the solution doesn't work?
- What will be the next step if the solution doesn't work?
- If required, have all agreements been documented and signed?
- How will it be confirmed that the problem has been solved?
- Are steps required to remove or disable the solution?
- What will happen once the problem has been solved?
- Putting the solution into action
- Put the solution into action
- Monitor the progress and effect of the solution
- Test and ensure the solution is meeting expectations and outcomes

STEP 7:

Evaluate and Learn: Whether or not your solution worked, a crucial step in problem-solving is evaluating your process. This step is intended to not only provide a future reference but also a learning experience for future problem-solving.

At a very minimum the following questions should be answered:

- How effective was that particular solution?
- Did the solution achieve the desired outcomes?
- What consequences did problem-solving activity have on my situation?

With this seven-step tool in your pocket, go out and tackle those issues! There are always problems to be solved and now, there is one more well-equipped solution-finder to create innovative solutions!