## Activity: Solving problems

This activity aims to enable a worker, group of workers or enterprise to investigate problem-solving strategies to address workplace issues.

**Who is this activity aimed at?**

This activity is for workers or groups of workers who are required to solve problems in the workplace. It provides some theory and reading on techniques for solving problems and can be used to guide approaches to problem solving.

**Outcome:**

Workplaces often encounter problems, which require addressing as individuals, in groups or as an enterprise. This activity allows the participant/s to undertake some background reading in order for them to apply it to their workplace as the need arises.

**Preparation:**

It is suggested that this activity is undertaken as part of improving worker’s knowledge of methods to solve problems. It requires individual investigation via a series of readings and then a facilitated process where individuals can compare notes on the readings and their applicability to the enterprise problem solving techniques. It is therefore suggested that a colleague be identified and used to discuss methodologies and use in the particular enterprise.

**What will you need?**

You will need a quiet room away from day to day activities to undertake the reading. You will need access to a computer and printer to print references and make notes. A second process of review and discussion would be beneficial, facilitated by a workplace leader skilled at problem solving.

Problem solving consists of using generic or ad hoc methods, in an orderly manner, for finding solutions to problems.

There are a series of problem solving strategies that can be useful in solving problems:

* [Abstraction](http://en.wikipedia.org/wiki/Abstraction): solving the problem by using a model of the system and applying it to the real system
* [Analogy](http://en.wikipedia.org/wiki/Analogy): using a solution that solves a similar problem
* [Brainstorming](http://en.wikipedia.org/wiki/Brainstorming): (especially among groups of people) suggesting a large number of solutions or ideas and combining and developing them until an optimum solution is found
* [Divide and conquer](http://en.wikipedia.org/wiki/Analysis): breaking down a large, complex problem into smaller, solvable problems
* [Hypothesis testing](http://en.wikipedia.org/wiki/Hypothesis_testing): assuming a possible explanation to the problem and trying to prove (or, in some contexts, disprove) the assumption
* [Lateral thinking](http://en.wikipedia.org/wiki/Lateral_thinking): approaching solutions indirectly and creatively
* [Means-ends analysis](http://en.wikipedia.org/wiki/Means-ends_analysis): choosing an action at each step to move closer to the goal
* [Morphological analysis](http://en.wikipedia.org/wiki/Morphological_analysis_(problem-solving)): assessing the output and interactions of an entire system
* [Root cause analysis](http://en.wikipedia.org/wiki/Root_cause_analysis): identifying the cause of a problem by breaking it down into smaller parts
* [Trial-and-error](http://en.wikipedia.org/wiki/Trial-and-error): testing possible solutions until the right one is found

Each of these strategies is useful alone or in combination to resolve a problem.

## Further Reading:

#### Summary articles:

The 6 step problem solving model

<http://blog.gice.in/the-six-step-problem-solving-model/>

ASQ Problem Solving

<http://asq.org/learn-about-quality/problem-solving/overview/overview.html>

Problem solving and decision making

<http://managementhelp.org/personalproductivity/problem-solving.htm>

The stages of problem solving

<http://www.itseducation.asia/the-stages-of-problem-solving.htm>

Problem solving process at Toyota

<http://www.1000ventures.com/business_guide/crosscuttings/problem_solving_toyota_7steps.html>

Seven steps to effective problem solving in the workplace

<http://www.mediate.com/articles/thicks.cfm>

#### More in depth:

Problem solving strategies explained with examples

<http://www.une.edu.au/about-une/academic-schools/bcss/study-areas/psychology/research/psychology-community-activities/over-fifty-problem-solving-strategies-explained>

Systematic problem solving strategies

<http://www.educational-business-articles.com/problem-solving-strategies.html>

CPS model

<http://members.optusnet.com.au/charles57/Creative/Brain/cps.htm>

A3 process

<http://www.coe.montana.edu/ie/faculty/sobek/a3/>

What other reading can you find? Share with your work colleagues.