Activity name: Think outside the box

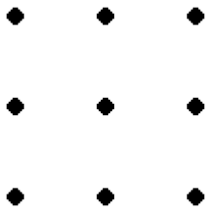
Method: Individual
Materials Needed: Pen and paper
Duration: 20 mins

Why Do It?
To develop problem solving techniques

How to do It

Task 1: 5 mins

Look at the nine dots arranged in a set of three rows (as below).



Your challenge is to draw four straight lines which go through the middle of all of the dots without taking the pencil off the paper.

If you are using a pencil, you must start from any position and draw the lines one after the other without taking your pencil off the page. Each line starts where the last line finishes.

Task 2: 3 mins

Draw nine dots on a piece of paper.

Task 3: 15 mins

Place your pencil somewhere, draw four straight lines without taking their pencil off the page. Each line must start where the last line finished. **Don't give up too easily!**

Task 4: 10 mins

The group will be shown the solution and get them to draw it

Task 5 - Review: 15 mins

How did you solve the puzzle?

Spend 30 seconds thinking about how you solved it and what changes in your thoughts they needed to have to get you there.

Task 6 – Discuss: 10 mins

The beauty of this nine-dot puzzle is that you **literally have to "think out of the box" to solve the puzzle**. Your pencil must go outside the box of the dots to be able to solve it.

The most frequent difficulty people have with this puzzle is that they try to draw all the lines within the dots and they do not initially want to draw lines outside it because:

- There is nothing outside the set of dots to associate to. There are no dots to join a line to outside the puzzle so they assume a boundary exists
- It is assumed that doing this is outside the scope of the problem, even though the problem definition does not say you are not allowed to
- You are so close to doing it that you keep trying the same way but harder.

Task 7 - Explain and discuss the following: 15 mins

Lessons to be learned from this puzzle:

1. Look beyond the current definition of the problem
    - Analyse the definition to find out what is allowed and what is not
    - Are there any real rules to the problem anyway? (especially valid in human related problems - there are only perceptions, not physical rules)
    - Look for other definitions of problems
    - Do not accept other people's definitions of problems. They may be either wrong or biased
    - If a problem definition is wrong, no number of solutions will solve the real problem

2. Investigate the boundaries
    - What are the boundaries which the solution must fit into?
    - Are the boundaries your own perceptions or reality?
    - What are the possibilities if you push the boundaries?
    - What are the benefits of small boundary changes?

- Repeating the same wrong process again and again with more vigour does not work.
- You can be very close to a solution while not getting any closer to it.
- Thought is the solution; physical hard work will not work.

Solution

The picture below will show you a solution to this problem.