

## Chemistry: Idea to Market

### How to Tackle a Problem

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## How to Tackle a Problem

In this session you will be learning about Intellectual Property and methods to protect your idea via Problem based learning (PBL). PBL has been used as a teaching technique in medical schools throughout the UK and US for some time. This model is used to instruct trainee doctors in medical biology and chemistry in the context of clinical cases. [Project LEAP, <http://www.le.ac.uk/leap/PBLwhat.html>]

### The Seven Step Model

The Maastricht Seven Step model was initially devised to provide students with a structured approach to tackling a problem<sup>1</sup>

In this model, students work together in small groups each with individual roles (see Group Roles overleaf) following seven defined steps.

1. *Clarify*. The students read through the problem, then identify and clarify any words, equations or physical concepts that they do not understand.
2. *Define*. The students work together to define what they think the problem is.
3. *Analyse*. The students discuss or 'brainstorm' the problem. At this stage there is no prioritisation or sifting of ideas.
4. *Review*. Students now try to arrange their ideas and explanations into tentative solutions.
5. *Identify learning objectives*. The group reaches a consensus on learning objectives, if necessary with the guidance of the facilitator.
6. *Self Study*. Students individually gather information towards the learning objectives and prepare to share their findings with the rest of the group.
7. *Report and synthesise* The students come together in their groups and share their results. The facilitator checks that the learning objectives have been met.

## Group Roles<sup>2</sup>

Many problem based learning approaches include a formal statement of roles within groups, which can be used to help structure group discussion. Some typical roles in groups include the following:

*Chair.* The chair keeps the group moving forward and helps to finalise strategies to solve the problem. The chair also helps to ensure that everyone is involved, and that each member of the group has a task to do.

*Researcher.* Researchers are responsible for recording research, summarising, and peer tutoring.

*Scribe.* The recorder or scribe keeps records of assignments to be done and strategies which have been chosen to solve problems, as well as ideas and issues the group has discussed at meetings.

*Author.* Authors are responsible for writing or preparing the final draft of any material to be handed in.

*Timekeeper.* The timekeeper is responsible for keeping the schedule to enable the group to meet deadlines.

If roles are used it is useful if they can be rotated so everyone can take a turn at each function.

Other roles which may be appropriate for Chemistry-based problems are:

- Accuracy checker
- Safety officer
- Experimental designer
- Experimenter
- Technical Editor

## References

1 Bloom, B. S., Mesia, B. B., and Krathwohl, D. R., (1964) Taxonomy of Educational Objectives New York (many websites also deal with this).

2 <http://www.le.ac.uk/leap/PBLgroups.html>