Assessment is a judgement based on goals, criteria and evidence. The assessment can serve many purposes:

- to provide feedback about how to improve;
- to provide a mark that will be used to determine the degree of progress;
- to develop skill is assessment;
- to ensure that the teacher is doing his/her job;
- to provide certification or a mark for admission to graduate school;
- to force students to study;
- to develop student's self-confidence.

This material focuses on the process of creating an assessment.

It is very difficult to realize how much we change in our thinking and research skills from the workshop activities that you are going to do. To help you develop your confidence and be proud of the progress you make, before you do the workshop activities, please mark your skill now.

---

**Concerning assessment, how aware are you of the process you use?**

<table>
<thead>
<tr>
<th>Unaware</th>
<th>A little</th>
<th>Very aware</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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**How skilled are you?**

<table>
<thead>
<tr>
<th>unskilled</th>
<th>A little</th>
<th>Very skilled</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td>6</td>
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<tr>
<td>7</td>
<td></td>
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</tbody>
</table>


**Issues in Assessment**

Use the following rating system: 7 = strongly agree  
6 = moderately agree  
5 = slightly agree  
4 = neutral, maybe  
3 = slightly disagree  
2 = moderately disagree  
1 = strongly disagree

Please rate each of the following statements:

Self assessment is:

1. Giving yourself (and your friends) a high but fair mark because only you know how much work they have done....................................................... ________
2. Giving yourself a high but fair mark relative to the dumbest kid in the class......................... _______
3. Giving yourself a high but fair mark compared with the smartest kid in the class (which could be you) _______
4. Giving yourself a high but fair mark relative to the average expectation for this class............... _______
5. A mix of all the above............................... . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . _______
6. Other ____________________________________________________________________________________________ _______
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Evidence-based targets for problem solving

<table>
<thead>
<tr>
<th>Evidence-based targets</th>
<th>Progress toward internalizing these targets</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>20%</td>
</tr>
<tr>
<td>● Performance improves if you have clear goals.</td>
<td></td>
</tr>
<tr>
<td>● Goals need to be described as results, not actions; in observable and unambiguous words.</td>
<td></td>
</tr>
<tr>
<td>● Measurable criteria are needed to tell us when a goal has been achieved.</td>
<td></td>
</tr>
<tr>
<td>● Evidence needs to be collected that relates to the goals and the criteria.</td>
<td></td>
</tr>
<tr>
<td>● Assessment is about performance and not about you as a person</td>
<td></td>
</tr>
<tr>
<td>● Assessment is based on evidence and not on gut feelings or wishful thinking</td>
<td></td>
</tr>
</tbody>
</table>

Objectives
MPS 3: Self assessment Objectives © copyright, Donald R. Woods, 1998

Self Assessment: is the ability to decide on the degree to which a performance has achieved the target goal. This is based on published goals, measurable criteria and on submitted evidence. Although this unit focuses on self assessment, this is based on the general principles of an evaluation, decision, judgement or assessment.

Skill development:
1. Accepting that assessment is about performance; it is not about personal worth.
2. Accepting that assessment is based on evidence; it is not based on wishful thinking or gut feelings.
3. Acknowledging that assessment is not possible without goals and criteria.
4. Realizing that if a judgement is to be made, incorrectly, without published goals or published measurable criteria, then judgements will be based on gut feelings, politics and intuitive criteria. This results in unfair decisions and judgements. Unfortunately, many organizations, agencies and people fail to understand this.
5. Ability to identify and create observable and unambiguous goals.
6. Realization that #5 is difficult, boring and tedious - but necessary.
7. Ability to identify and create measurable criteria related to the goals.
8. Realization that #7 is often neglected or expressed in unmeasurable terms. This task is difficult, boring and tedious - but necessary.
9. Ability to write out, gather and evaluate evidence as it relates to the goals.
10. Ownership in a task: setting personal goals, criteria and gathering evidence and making a judgement about the achievement of that task. Affects your self confidence and self esteem.
11. Acquire some skill in giving and receiving feedback.
12. Through self awareness, begin to improve self confidence.
13. Continue the development of an environment of trust where risking is OK.
15. Acquire skill is writing a resume.
16. Acquire skill and confidence in writing effective reflections, gathering evidence and documenting a case for a performance review.
17. Acquire skill in participating in a personal interview.
18. Acquire skill and confidence in self assessment that is needed in lifetime learning and in life.

********************************

Pretest:
Awareness: how aware are you of what you do when you use this ability? Rate with an “x”
Learning objectives:

**MPS 3 Self-assessment**

1.1 given a term listed under "concepts introduced", you should be able to give a word definition, list pertinent characteristics and cite an example.

1.1 given an evaluation or appraisal situation, you will be able to state the components necessary to do the assessment.

3.1 given an evaluation or appraisal situation, you will be able to write out in observable terms the goals and expectations. Your results should agree to within 90% of that of the tutor.

3.2 given an evaluation or appraisal situation and an observable goal, you will be able to write out measurable criteria that are consistent with that goal. Your results should agree to within 90% of that of the tutor.

4.1 given your written evidence, you will be able to objectively discuss your self assessment with another person and reach agreement as to the assessment.

4.2 given a workshop activity related to problem solving, you will be able to write down what you did before and what you can do after the unit, to provide evidence and interpret that evidence in terms of the goals and the degree to which you can achieve the goals. Your reflections will be judged to be consistent and objective by the tutor.

5.1 given situations encountered in other courses, at work or in your everyday life, you will be able to evaluate how well you can apply your problem solving skills to solve those problems. The goals, criteria and evidence and your interpretation will be assessed by the tutor to be consistent, complete and objective.

5.2 given a personal goal, you will write that in observable terms, create measurable criteria, select evidence and write a reflective journal such that an independent assessor will agree that you have achieved your personal goals.

**Concepts introduced**

Self-assessment, assessment, criteria, decisions or assessments are made based on measurable criteria, pertinent evidence, performance, observable and unambiguous goals, resume, reflections, journal.

**************

**MPS 3: Self-assessment: Example assessments.**

1. A friend says that he wants to "reduce his weight" and asks your advice on how to do it. For this goal "to reduce weight"
   (a) If pertinent, break this into further subgoals.
   (b) Rewrite the subgoal in "observable terms."
   (c) Create at least one measurable criterion that you be used to measure success in achieving the subgoal.
   (d) Write out one type of evidence you would collect to show progress toward your subgoal.

2. For the goal "_____________", create two measurable criteria.

3. List six issues or subgoals that you think are pertinent for the following situation/problem:

4. My subgoal is "to improve my creativity." Rewrite this as an observable goal.

5. My subgoal is "to develop confidence in statistical testing." Write two observable, measurable criteria to be used to measure progress.

6. For the goal "_____________" and the criteria "_____________", list three different types of evidence that could be used to show progress and achievement.

7. From the in-class activity, you have the following evidence:
   - your reflections that you wrote three times during the activity.
   - your worksheets and the statement of the exercises.
   - the DISCOVERY sheet.
- your awareness and skill checklist before and after
the activity.
Write up a reflective assessment of the degree to which
you have achieved the objectives. Refer to the evidence
by number and relate your evidence and claims to the
objectives by number.

8. Given the following objectives and criteria and given
the following evidence, assess the degree to which the
objectives have been achieved.
## MPS3-6

**Worksheet 301**

<table>
<thead>
<tr>
<th>Subgoals</th>
<th>Y?</th>
<th>Revised subgoal</th>
<th>Revised subgoal</th>
<th>Measurable criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</table>
Worksheet 302

**Identifying well-stated goals**

Circle the appropriate answer to identify whether or not the goal is unambiguous and observable. Can you observe Joe achieving the goal? Is there any room for disagreement or misunderstanding between and observer and Joe? Can you measure Joe’s success?

<table>
<thead>
<tr>
<th>Joe’s goal</th>
<th>Unambiguous and observable</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to know calculus</td>
<td>Yes No</td>
</tr>
<tr>
<td>2 to become aware of what a Chemical Engineer does</td>
<td>Yes Bi</td>
</tr>
<tr>
<td>3 to select the longest string</td>
<td>Yes No</td>
</tr>
<tr>
<td>4 to be creative</td>
<td>Yes No</td>
</tr>
<tr>
<td>5 to be able to think in terms of thermodynamics</td>
<td>Yes No</td>
</tr>
<tr>
<td>6 to write down three causes for the malfunction</td>
<td>Yes No</td>
</tr>
<tr>
<td>7 to write down three good causes for the malfunction</td>
<td>Yes No</td>
</tr>
</tbody>
</table>
What is the criterion used in deciding on the following?

<table>
<thead>
<tr>
<th>Objective or question</th>
<th>Criterion (How do you tell?)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1  Who is the tallest?</td>
<td></td>
</tr>
<tr>
<td>2  Who is the biggest in this room?</td>
<td></td>
</tr>
<tr>
<td>3  Who is the fastest writer?</td>
<td></td>
</tr>
<tr>
<td>4  Do the data agree with the hypothesis that this is a first order chemical reaction?</td>
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</tr>
<tr>
<td>5  Do you know the ideal gas law?</td>
<td></td>
</tr>
<tr>
<td>6  Can you write the equation of continuity in vector form?</td>
<td></td>
</tr>
<tr>
<td>7  What is the best or most useful object in the room?</td>
<td></td>
</tr>
</tbody>
</table>
Worksheet 304 Descriptions of experience as background for resume writing

<table>
<thead>
<tr>
<th>Skills Background worksheet</th>
<th>Work</th>
<th>Spare time</th>
<th>School</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name and location of employer or activity</td>
<td>Dates</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Job or activity title</td>
<td>Supervisor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>What you did</td>
<td>Quantitative: how much? How many?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initiative shown or needed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>What you enjoyed</td>
<td>Supervision received</td>
<td></td>
<td></td>
</tr>
<tr>
<td>What you learned</td>
<td>Originality /imagination needed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>What you achieved</td>
<td>Communication skills needed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>What you were commended for</td>
<td>People skills needed</td>
<td></td>
<td></td>
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</tbody>
</table>

Descriptors

<p>| |</p>
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<tr>
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</tbody>
</table>
Worksheet 305
In the first column, rate how much you enjoy using this skill; 10 = tops; 0 = use it if I have to

<table>
<thead>
<tr>
<th>Rate</th>
<th>Name of skill</th>
<th>Name of activity (from worksheets 304 completed for all work, spare time and school activities)</th>
<th>Other</th>
</tr>
</thead>
<tbody>
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<tr>
<td>MPS Unit ___</td>
<td>Title: ______________________________________________________</td>
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<td>-------------</td>
<td>---------------------------------------------------------------</td>
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<tr>
<td></td>
<td>Name: _____________________________________ Date:____________</td>
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</tr>
</tbody>
</table>

**Objectives**
Numbered on attached orange sheet. Plus personal objective of:

**Key Concepts:**
List five or six you feel were important: (Attach "Discovery" Sheet)

<table>
<thead>
<tr>
<th>Objective:</th>
<th>Before:</th>
<th>After:</th>
</tr>
</thead>
</table>

Comments about pre & post test on orange sheets:
<table>
<thead>
<tr>
<th>Objective no.</th>
<th>Rate degree objective is achieved</th>
<th>Green sheets from unit are attached and identified separately by Fig or table number: Discussion of this evidence as it supports a claim for achievement of the objective.</th>
</tr>
</thead>
</table>
Objective: **Bridge: Observations & Evidence from Application to ChE 2D4, other courses [red] and to everyday events [green].** Green sheet for the week is attached. Discussion of this evidence:

Additional applications:
<table>
<thead>
<tr>
<th>MPS Unit</th>
<th>Title: ________________________________</th>
<th>Name: ___________________________ Date: ____________</th>
</tr>
</thead>
</table>

**Objective:**
- Extend to everyday life: Other Evidence & discussion:

**Conclusions:**

**Progress in Achieving Objectives:**

<table>
<thead>
<tr>
<th>% overall achieved:</th>
<th>Date: __________</th>
<th>Date: __________</th>
<th>Date: __________</th>
<th>Date: __________</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<tr>
<td>MPS Personal Enrichment</td>
<td>Title: ______________________________________________________</td>
<td></td>
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<tr>
<td>-------------------------</td>
<td>---------------------------------------------------------------</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Name: ____________________________________________________________________________ Date: ________________</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Objectives</td>
<td>Attached:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Key Concepts: List five or six you feel were important: (Attach &quot;Discovery&quot; Sheet)</td>
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<tr>
<td></td>
<td>Objective: Before: After:</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Comments about pre &amp; post test:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Objective no.</td>
<td>Observations &amp; Evidence from the Your Proposed Activities: Attach worksheets and other evidence. Label with Figure or table number. Discussion of this evidence:</td>
<td></td>
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</tr>
</tbody>
</table>

**MPS Personal Enrichment:**

**Title: ________________________________**

**Name: ________________________________**

**Date: ______________**
<table>
<thead>
<tr>
<th>MPS Personal Enrichment:</th>
<th>Title: ____________________________</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Name: _________________________</td>
</tr>
<tr>
<td></td>
<td>Date: __________</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Objective no.</th>
<th>Other Evidence &amp; discussion:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Conclusions:</th>
<th></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Progress in Achieving Objectives:</th>
<th>Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>__________</td>
</tr>
<tr>
<td>Activity</td>
<td>Discovered</td>
</tr>
<tr>
<td>----------</td>
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</tr>
</tbody>
</table>

MPS3-18

DISCOVERY
Reflections about this as a learning activity

For teachers:

<table>
<thead>
<tr>
<th></th>
<th>already do this</th>
<th>would work</th>
<th>might work</th>
<th>not my style</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selecting purpose for assessment</td>
<td>O O O O</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Focus on performance</td>
<td>O O O O</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Focus on evidence</td>
<td>O O O O</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have clear and published objectives</td>
<td>O O O O</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have measurable and published criteria</td>
<td>O O O O</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Let the students self-assess</td>
<td>O O O O</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Using the DISCOVERY form to summarize</td>
<td>O O O O</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>O O O O</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>