



Office of Institutional
Effectiveness Planning



Assessment Tools

Assessment Overview

Student Learning Outcomes (SLO's)

Bloom's Taxonomy

Level I: Knowledge & Remembering

Level II: Comprehension & Understanding

Level III: Application & Applying

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Bloom's Wheel

Curriculum Map

Curriculum Mapping

Assessment is the systematic collection of data and information across courses, programs/departments, and the institution. As an integral part of teaching and learning, assessment is used to improve student learning. Assessment is also an essential component of insuring effectiveness of the achievement of the College's mission. The assessment process must include significant faculty involvement and leadership as well as being strongly supported by administration at all levels. Assessment should be institutionalized ensuring that it is ongoing and cyclical.

The basic process of assessment generally consists of five key components :

- **Intended Student Learning Outcomes (SLO's):** What should students know and be able to do when they complete the course, program and institution? These need to be specifically defined in terms of both content and skills.
- **Criteria for Success:** What are the standards by which these SLO's will be judged?
- **Assessment Tools:** What devices and methods are used to measure attainment of the SLO's? As in the other areas of learning, both direct and indirect measures should be used.
- **Assessment Results:** What are the assessment findings?
- **Use of Results:** What changes will be made as a result of faculty reflection on the assessment findings? What areas of concern need attention to promote student learning and departmental and institutional effectiveness?

Assessment Overview

Frequently Asked Questions

What are Student Learning Outcomes (SLO's)?

SLO's are specific statements identifying what a learner is expected to know, understand, or be able to do upon completion of the course where that SLO occurs.

Why are SLO's important?

1. SLO's communicate expectations to the learner.
2. SLO's act as a guide in selecting/designing appropriate assessment measures.
4. SLO's enable alignment of teaching strategies to expected outcomes.
5. SLO's enable assessment of impact of instruction.
6. SLO's communicate graduates' skills to interested stakeholders.
7. SLO's provide formative, summative, and prior learning assessment.

What are the components of a learning outcome?

1. Student learning behaviors – knowledge, skill or attitude to be gained
2. The method of assessment - conditions of performance
3. Criteria for achievement – the levels of acceptable performance

A statement of a learning outcome contains:

1. A verb describing the actions expected by the learner
2. An object describing the knowledge the learner is expected to acquire or construct (i.e. The student will be able to verb the object)

Student Learning Outcomes (SLO's)

Bloom's Taxonomy

Benjamin Bloom and his collaborators identified three domains of educational activities: cognitive, affective, and psychomotor domains. These domains are further divided into levels as described in the charts below. The following pages contain the key words and type of questions used for the six levels of the cognitive domain in Bloom's Revised Version.

Prior Version Bloom's Taxonomy



Revised Version Bloom's Taxonomy



Bloom's Taxonomy

Knowledge/Remembering — Retrieve relevant knowledge from long-term memory

Cite	Choose	Define	Label	List	Locate	Match	Name
Recall	Recognize	Record	Repeat	Select	State	Write	

Note: These verbs are difficult to measure and should be avoided: *Acquire, Appreciate, Believe, Consider, Exemplify, Have faith in, Know, Learn, Plan, Realize, Reflect, Revise, Transfer, Understand*

Level Attributes: Exhibits previously learned material by recalling facts, terms, basic concepts and answers

Keywords: who, what, why, when, omit, where, which, choose, find, how, define, label, show, spell, list, match, name, relate, tell, recall, select

Sample Assessment Questions:

What is ...?

When did ...?

How is ...?

Which one ...?

Where is ...?

Can you list three ...?

When did _____ happen?

Who was ...?

Why did ...?

Can you recall ...?

How would you describe ...?

Level I: Knowledge & Remembering

Comprehension/Understanding — Construct meaning from instructional messages, including oral, written, and graphic communications

Arrange	Associate	Clarify	Classify	Convert	Describe	Diagram	Draw	Discuss
Estimate	Explain	Express	Identify	Locate	Outline	Paraphrase	Report	Restate
Review	Sort	Summarize	Transfer	Translate				

Level Attributes: Demonstrating understanding of facts and ideas by organizing, comparing, translating, interpreting, giving descriptions and stating main ideas

Keywords: compare, contrast, demonstrate, interpret, explain, extend, illustrate, infer, outline, relate, rephrase, translate, summarize, show, classify

Sample Assessment Questions:

How would you classify the type of ...?

Which statements support ...?

How would you compare ...? contrast ...?

What is the main idea of ...?

Will you state or interpret in your own words ...?

What facts or ideas show ...?

How would you rephrase the meaning ...?

What can you say about ...?

Can you explain what is happening ...? What is meant ...?

How would you summarize ...?

Which is the best answer ...?

Level II: Comprehension & Understanding

Application/Applying — Carry out or use a procedure in a given situation

Adapt	Apply	Catalogue	Chart	Compute	Consolidate	Demonstrate	Develop
Employ	Extend	Extrapolate	Generalize	Illustrate	Infer	Interpolate	Interpret
Manipulate	Modify	Order	Predict	Prepare	Produce	Relate	Sketch
Submit	Tabulate	Transcribe	Use	Utilize			

Level Attributes: Solving problems by applying acquired knowledge, facts, techniques and rules in a different way

Keywords: apply, build, choose, construct, develop, interview, make use of, organize, experiment with, plan, select, solve, utilize, model, identify

Sample Assessment Questions:

What elements would you choose to change?

What other way would you plan to ...?

How would you organize _____ to show ...?

What examples can you find to ...?

How would you show your understanding of ...?

Can you make use of the facts to ...?

What facts would you select to show ...?

What approach would you use to ...?

How would you apply what you learned to develop ...?

What would result if ...?

How would you solve _____ using what you have learned ...?

Level III: Application & Applying

Analysis/Analyze — Break material into constituent parts and determine how parts relate to one another and to an overall structure or purpose

Analyze	Appraise	Audit	Break down	Calculate	Categorize	Certify	Compare
Contrast	Correlate	Criticize	Deduce	Defend	Detect	Diagram	Differentiate
Distinguish	Examine	Infer	Inspect	Investigate	Question	Reason	Separate
Solve	Survey	Test	Uncover	Verify			

Level Attributes: Examining and breaking information into parts by identifying motives or causes; making inferences and finding evidence to support generalizations

Keywords: analyze, categorize, classify, compare, contrast, discover, dissect, divide, examine, inspect, simplify, survey, take part in, test for, distinguish, list, distinction, theme, relationships, function, motive, inference, assumption, conclusion

Sample Assessment Questions:

What are the parts or features of ...?

What evidence can you find ...?

How is _____ related to ...?

What is the relationship between ...?

Why do you think ...?

Can you make a distinction between ...?

What is the theme ...?

What is the function of ...?

What motive is there ...?

What ideas justify ...?

Can you list the parts ...?

Can you identify the difference parts ...?

What inference can you make ...?

How would you classify ...?

What conclusions can you draw ...?

How would you categorize ...?

Level IV: Analysis & Analyze

Synthesis/Evaluating — Make judgments based on criteria and standards

Arrange	Assemble	Build	Combine	Compile	Compose	Conceive	Construct
Create	Design	Devise	Discover	Draft	Formulate	Generate	Integrate
Make	Manage	Organize	Plan	Predict	Prepare	Propose	Reorder
Reorganize	Set up	Structure	Synthesize				

Level Attributes: Compiling information together in a different way by combining elements in a new pattern or proposing alternative solutions

Keywords: build, choose, combine, compile, compose, construct, create, design, develop, estimate, formulate, imagine, invent, make up, originate, plan, predict, propose, solve, solution, suppose, discuss, modify, change, original, improve, adapt, minimize, maximize, delete, theorize, elaborate, test, improve, happen, change

Sample Assessment Questions:

What changes would you make to solve ...?

How would you improve ...?

What would happen if ...?

Can you elaborate on the reason ...?

Can you propose an alternative ...?

Can you invent ...?

How could you change (modify) the plot (plan) ...?

Can you predict the outcome if ...?

How would you estimate the results for ...?

What could be done to minimize (maximize) ...?

What way would you design ...?

What could be combined to improve (change) ...?

Suppose you could _____ what would you do ...?

How would you test ...?

Can you formulate a theory for ...?

What facts can you compile ...?

Can you think of an original way for the ...?

Can you construct a model that would change ...?

Level V: Synthesis & Evaluating

Evaluation/Creating — Put elements together to form a coherent whole; reorganize into a new pattern or structure; judging the value or worth of information or ideas

Appraise	Approve	Assess	Choose	Conclude	Confirm	Criticize	Diagnose
Judge	Justify	Prioritize	Prove	Rank	Rate	Recommend	Research
Resolve	Revise	Rule on	Select	Support	Validate		

Level Attributes: Presenting and defending opinions by making judgments about information, validity of ideas or quality of work based on a set of criteria

Keywords: award, choose, conclude, criticize, decide, defend, determine, dispute, evaluate, judge, justify, measure, compare, mark, rate, recommend, rule on, select, agree, interpret, explain, appraise, prioritize, opinion, support, importance, criteria, prove, disprove, assess, influence, perceive, value, estimate, influence, deduct

Sample Assessment Questions:

Do you agree with the actions ...? with the outcomes ...?

How would you evaluate ...?

What is your opinion of ...?

How could you determine ...?

How would you prove ...? disprove ...?

What choice would you have made.?

Can you assess the value or importance of ...?

What would you select ...?

Would it be better if ...?

How would you prioritize ...?

Why did they (the character) choose ...?

How would you justify ...?

What would you recommend ...?

How would you rate the ...?

What would you cite to defend the actions ...?

What judgment would you make about ?

Based on what you know, how would you explain ...?

How would you prioritize the facts ...?

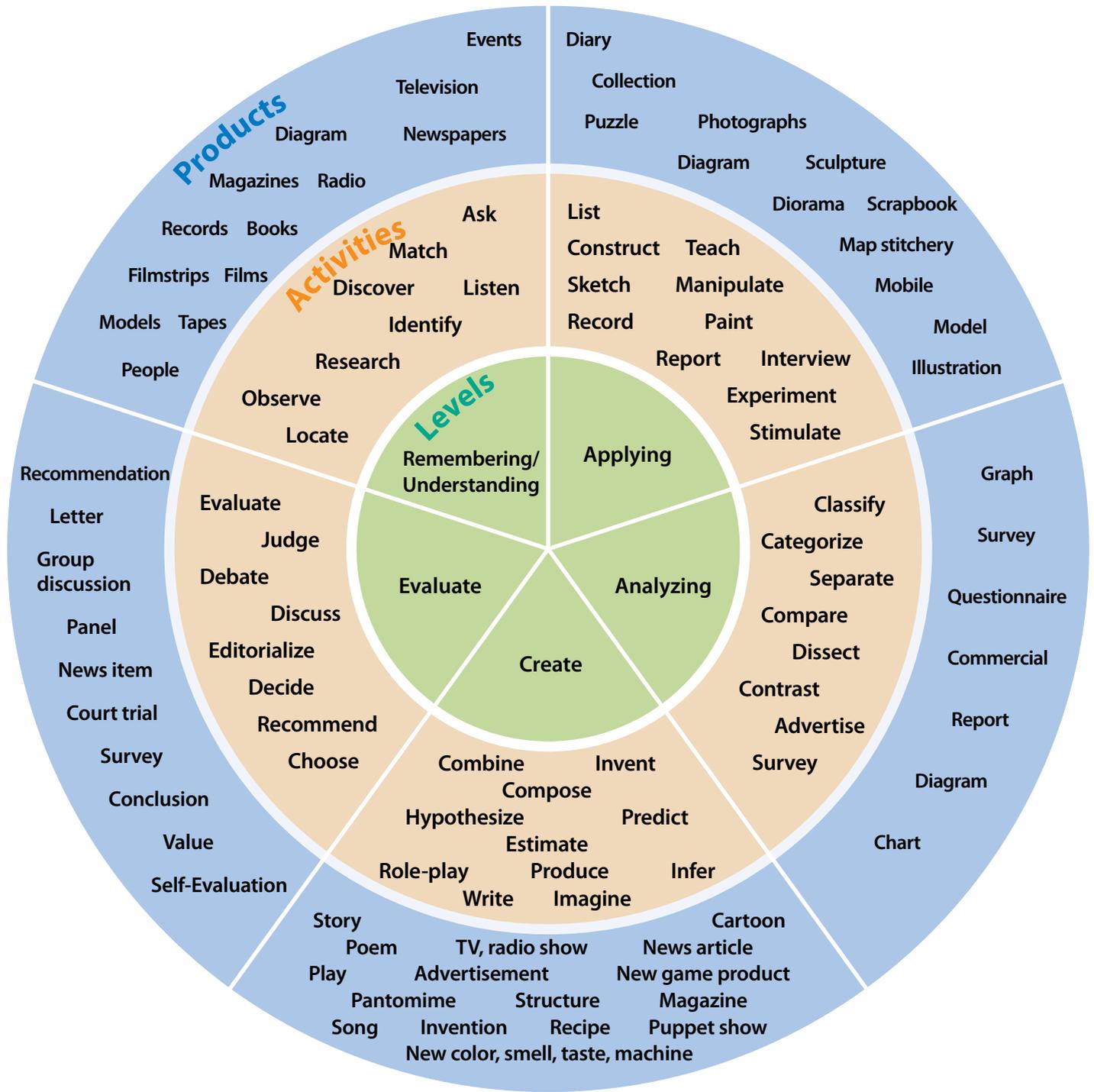
What information would you use to support the view ...?

Why was it better that ...?

What data was used to make the conclusion ...?

How would you compare the people ...?

Level VI: Evaluation & Creating



Bloom's Wheel

Curriculum mapping is a process used to align instruction with desired program student learning outcomes.

The map or matrix:

- Documents what is taught and when
- Reveals gaps in the curriculum
- Helps design an assessment plan
- Assists in identifying course and program improvements based on assessment findings

Benefits:

- Improves communication among faculty
- Improves program coherence
- Increases the likelihood that students achieve program-level outcomes
- Encourages reflective practice

The curriculum map is a matrix with one row for each learning outcome and one column for each course or required event/experience. Curriculum maps may be expanded to include both in-class and out-of class experiences. To create a curriculum map, the chair and faculty members begin with:

- the program's intended student learning outcomes,
- recommended and required courses (including General Education courses if appropriate) and
- other required events/experiences (e.g., internships, dept. symposium, advising session, national licensure exams).

The student learning outcomes are entered into the appropriate rows on the Curriculum Map Template. The courses are entered into the appropriate columns. For each outcome, indicate the level of achievement expected for the appropriate course(s).

- 1 -- Introduction
- 2 -- Provide Practice/Reintroduce and expand the topic
- 3 -- Expect Mastery

Faculty members analyze the curriculum map. They discuss and revise so that each outcome is introduced, reinforced through practice, and then mastered. Occasionally a technical outcome may occur in only one course but usually should occur throughout the curriculum. Every course should cover a program outcome or consideration should be made to redesign or eliminate the course.

To further enhance the benefit of curriculum mapping, each faculty member can make explicit connections across courses for the students. For example, at the beginning of the course or unit, a faculty member can remind students what they were introduced to in another course and explain how the current course will have them practice or expand their knowledge. Students may not necessarily be able to make those connections by themselves.

Adapted from:

S. DeMatteo, 2009-2010 www.kjds.org/pdf/curriculum.pdf

University of Hawaii Assessment Home <http://manoa.hawaii.edu/assessment/howto/mapping.htm>

University of Connecticut <http://www.assessment.uconn.edu/mapping1.htm>

Learner-Centered Assessment on College Campuses: shifting the focus from teaching to learning by Huba and Freed 2000



Assessment Resources

<http://www.celt.iastate.edu/?s=blooms>

<http://www.humber.ca/centreforteachingandlearning/instructional-strategies/teaching-methods/course-development-tools/blooms-taxonomy.html>

<http://zaidlearn.files.wordpress.com/2009/07/bloomwheel.png>

<http://faculty.indstate.edu/spenney/bdt.htm>

http://www.livebinders.com/play/play_or_edit?id=29493

<http://teachertools.londongt.org/index.php?page=classroomBloomsTaxonomy>

<http://byrdseed.com/differentiator/>

<http://www.cbv.ns.ca/sstudies/links/learn/1414.html>

http://upload.wikimedia.org/wikipedia/commons/2/24/Blooms_rose.svg



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