Creating a Useful Assessment Plan

Office of Academic Assessment
Northern Virginia Community College
**Spring 2018**

Objectives for today's workshop

- Distinguish different types of learning objectives
- Define purposes of assessment
- Align assessment methods with learning objectives
- Analyze an assessment method for content validity
- Evaluate your assessment methods and make improvements
- Integrate different assessment measures into your courses
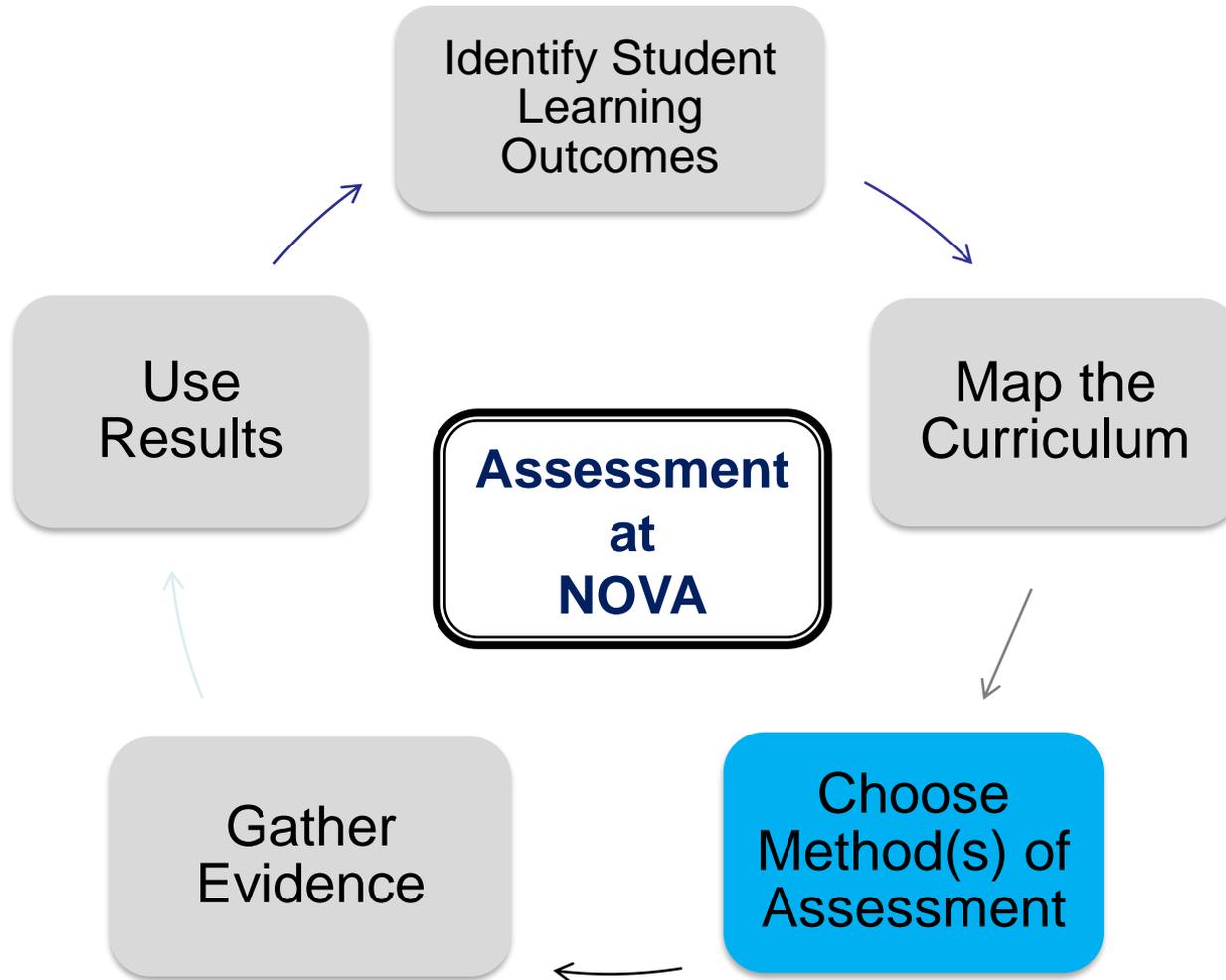
What is Learning?
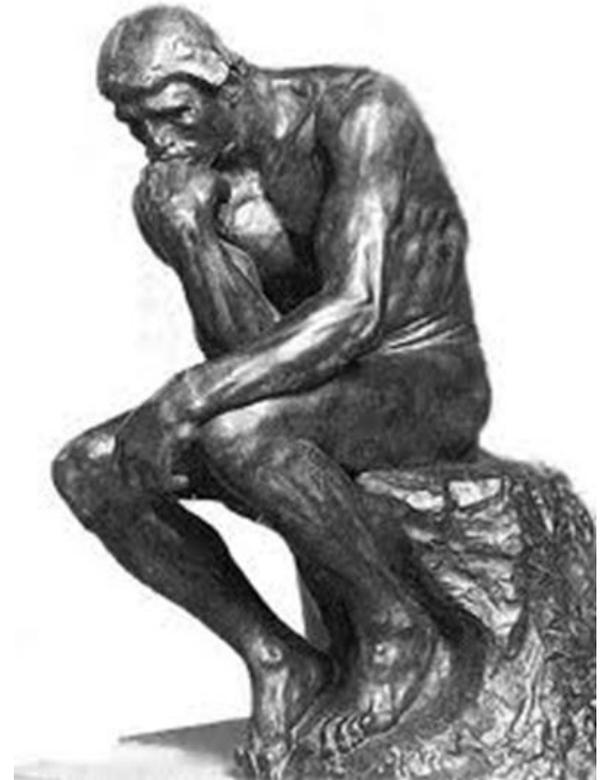
Three Critical Components of Learning:

1. Learning is a **process**, not a product. However, because this process takes place in the mind, we can only infer that it occurred from the students' products or performances.

2. Learning involves **change** in knowledge, beliefs, behaviors, or attitudes. This change unfolds over time; it is not fleeting but rather has a lasting impact on how students think and act.

3. Learning is not something done *to* students, but rather *by* students. Learning happens when students interpret and respond to their **experiences** (conscious and unconscious, past and present).

Ambrose, Susan & al. 2010. *How Learning Works: 7 Research-Based Principles for Smart Teaching.* SF: Jossey-Bass.

Aligning Assessments

1. Increases the probability that we will provide students with opportunities to learn and practice knowledge and skills to be assessed.

2. "Good grades" are more likely to translate into "good learning."

http://www.cmu.edu/teaching/designteach/design/assessments.html
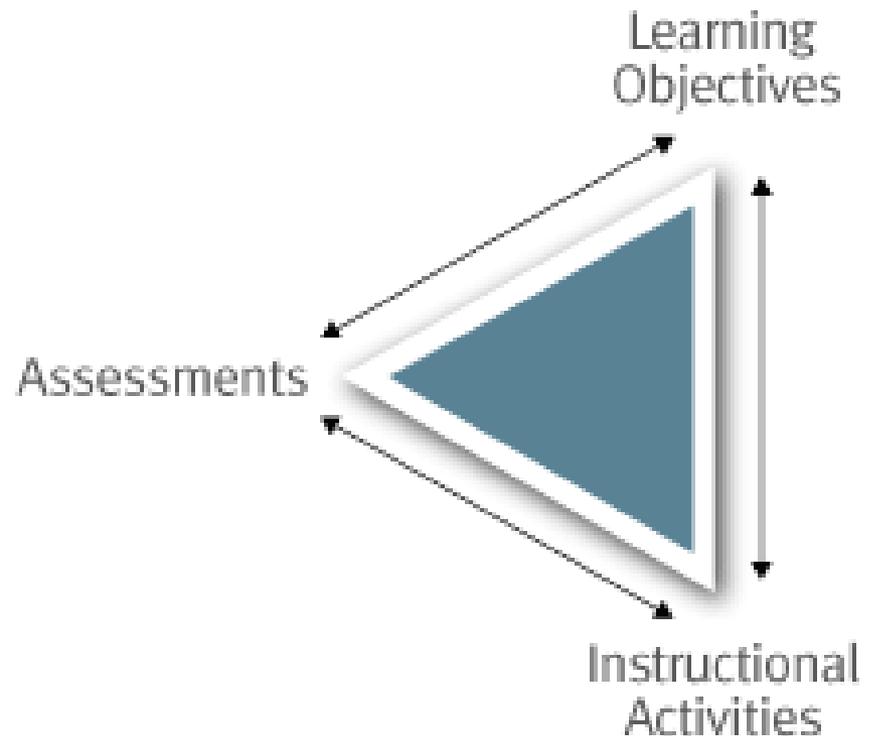
Classifying Student Goals

Goals serve as the basic organizing feature of motivated behavior. They act as the compass that guides and directs a broad range of purposeful actions.

Learning Goals vs. Performance Goals vs. Work-Avoidant Goals

Learning Goals: Students try to gain competency and truly learn what an activity or task can teach them.

Performance Goals: Students do what is necessary to get a good grade.

Work-Avoidant Goals : Students desire to finish work as quickly as possible with as little effort as possible.

Ambrose, Susan & al. 2010. *How Learning Works: 7 Research-Based Principles for Smart Teaching.* SF: Jossey-Bass.

So, how can teachers motivate students to learn?

When students find

- positive value in a learning goal or activity,

- expect to successfully achieve a desired learning outcome,

- and perceive support from their environment,

they are likely to be strongly motivated to learn.

Ambrose, Susan & al. 2010. How Learning Works: 7 Research-Based Principles for Smart Teaching. SF: Jossey-Bass.

Difference between…

Learning Objectives

- <u>Course</u>-level statements describing the **knowledge, skills, attitudes, and values that students gain from a course.**

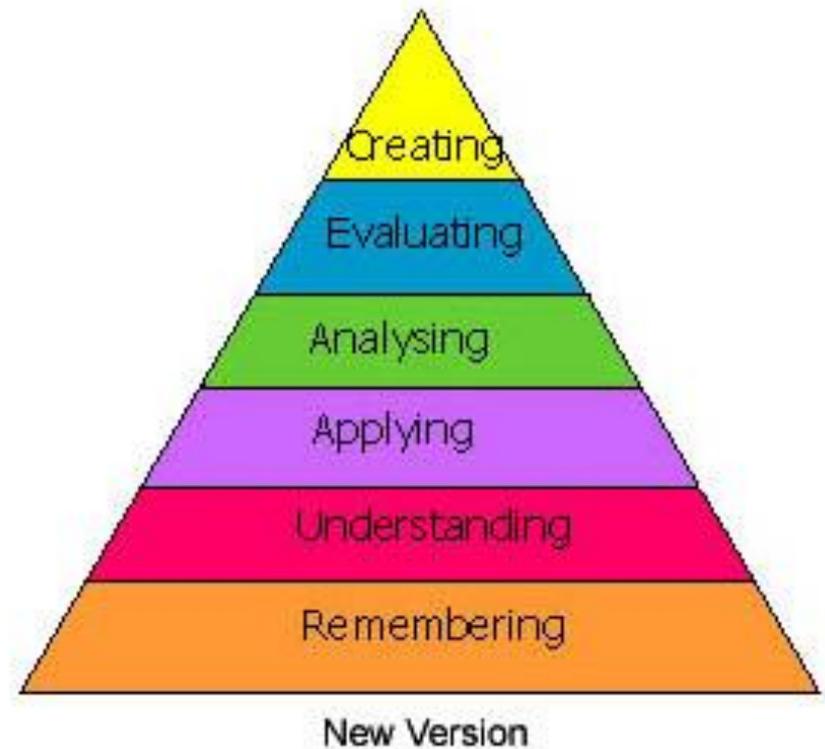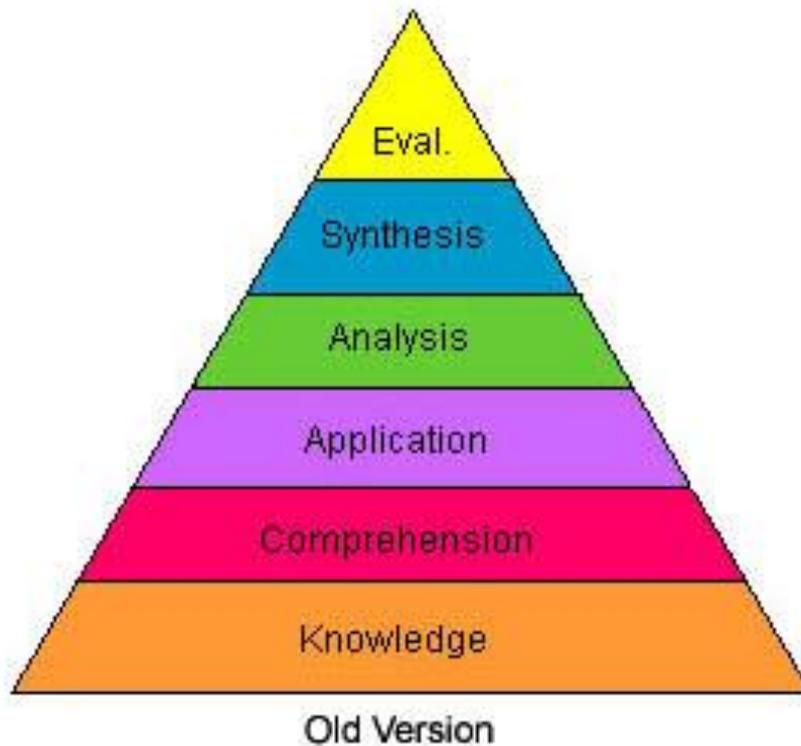- More detailed and course content-specific

Student Learning Outcomes

- <u>Program</u>-level statements describing the **knowledge, skills, attitudes, and values that students gain from the program.**

- More overarching and often encompass multiple courses

Categories of Learning Objectives

Bloom's Taxonomy

THE TAXONOMY OF SIGNIFICANT LEARNING

Learning How to Learn
- Becoming a better student
- Inquiring about a subject
- Self-directing learners

Foundational Knowledge
Understanding and remembering:
- Information
- Ideas

Application
- Skills
- Thinking:
  - Critical, creative & practical thinking
- Managing projects

Caring
Developing new...
- Feelings
- Interests
- Values

Human Dimension
Learning about:
- Oneself
- Others

Integration
Connecting:
- Ideas
- People
- Realms of life

Discussion

What is the purpose

of assessment?

Purpose of Assessment

Formative: To inform teaching and improve learning

Summative: "To provide evidence of how students have learned what we intended them to learn."

http://www.cmu.edu/teaching/designteach/design/assessments.html

Assessment is a diagnostic tool for students and teachers.

Assessment	For Teacher	For Student
Pre-assessment (finding out)	Reveals what students know/think/are interested in	Engages; helps connect (or integrate) previous knowledge/skills/attitude
Formative (keeping track/ checking-up)	Reveals what students understand/apply; helps with adjusting curriculum and teaching style	Helps self-assess, critique the quality of their work
Summative (making sure)	Determines student mastery; helps with course and program design	Provides integration Builds confidence

Summative Assessment:
Purpose

Means to determine student mastery, understanding of information, skills, concepts, or processes. Should align with formative assessments and instruction that preceded it. May be tied to a grade.

http://people.virginia.edu/~cat3y/presentations/ASCD09/RexOrlandoBreakouts/Assess FL.pdf

Summative Assessment: Making Sure

Benefits

- Should determine student's exit achievement/ability

- Can provide useful program-wide data

http://people.virginia.edu/~cat3y/presentations/ASCD09/RexOrlandoBreakouts/Assess FL.pdf

Our Challenge

Characteristics of Exemplary Assessment

1. **Valid**   Yields useful information to guide learning

2. **Coherent**   Is structured so that the activities lead to desired performance

3. **Authentic**   Addresses ill-defined problems/ issues that are enduring or emerging

4. **Rigorous**   Requires use of declarative, procedural, and metacognitive knowledge   Huba and Freed, 2000

8 Characteristics of Exemplary Assessment

5. **Engaging**   Provokes student interest and persistence

6. **Challenging**   Provokes, as well as evaluates, student learning

7. **Respectful**   Allows students to reveal their uniqueness as learners

8. **Responsive**   Provides feedback to students leading to improvement

Huba and Freed, 2000

"What is it that I hope that students would have learned, that will be there and have value, several years after the course is over?"

"What would students have to do to convince me that they have achieved those learning goals?"

Grant Wiggins, 1998 from Fink, 2003, p. 63.

Creating Exemplary Assessment

1. What **declarative knowledge** [*knowing the facts and concepts in the discipline*] do I expect students to draw upon in this task?

2. What **procedural knowledge** [*knowing how to reason, inquire, and present knowledge in the discipline*] do I expect students to use?

3. What **metacognitive knowledge** [*e.g., setting goals, determining when additional information is needed, and assessing the fruitfulness of a line of inquiry*] do I expect student to develop and reveal?

4. In what real-life settings do individuals use the knowledge that I identified and what ill-defined problems do they typically address?

Huba and Freed, 2000

Aligning Course Objectives with Assessment Methods

Assessment Methods for "Remembering" Learning Objectives

Type of Learning Objective	Examples of Types of Assessment	How to Measure
Remember Students will be able to: • recall • recognize • identify • list	•Objective Test items that require students to recall or recognize information: • Fill-in the Blank • Multiple Choice items with question stems such as, "what is a…", or "which of the following is the definition of…" • Labeling diagrams • Reciting (orally, musically, or in writing)	•Accuracy: correct vs. number of errors •Item Analysis (at the class level, are there items that had higher error rates? Did some items result in the same errors?)

http://www.cmu.edu/teaching/designteach/design/assessments.html

Assessment Methods for "Understanding"

Learning Objectives

| Type of Learning Objective	Examples of Types of Assessment	How to Measure
Understand Students will be able to: • interpret • exemplify • classify • summarize • infer • compare • explain	Papers, oral/written exam questions, problems, class discussions, concept maps, homework assignments that require (oral or written): Summarizing readings, films, speeches, etc. • Comparing and/or contrasting two or more theories, events, processes, etc. • Classifying or categorizing cases, elements, events, etc., using established criteria • Paraphrasing documents or speeches • Finding or identifying examples or illustrations of a concept, principle	**Scoring or performance rubrics** that identify critical components of the work and discriminates between differing levels of proficiency in addressing the components

http://www.cmu.edu/teaching/designteach/design/assessments.html

What is a rubric?

A scoring guide composed of:

- Criteria that you are looking for and
- Guidelines for evaluating each of those things (Suskie, 2004)
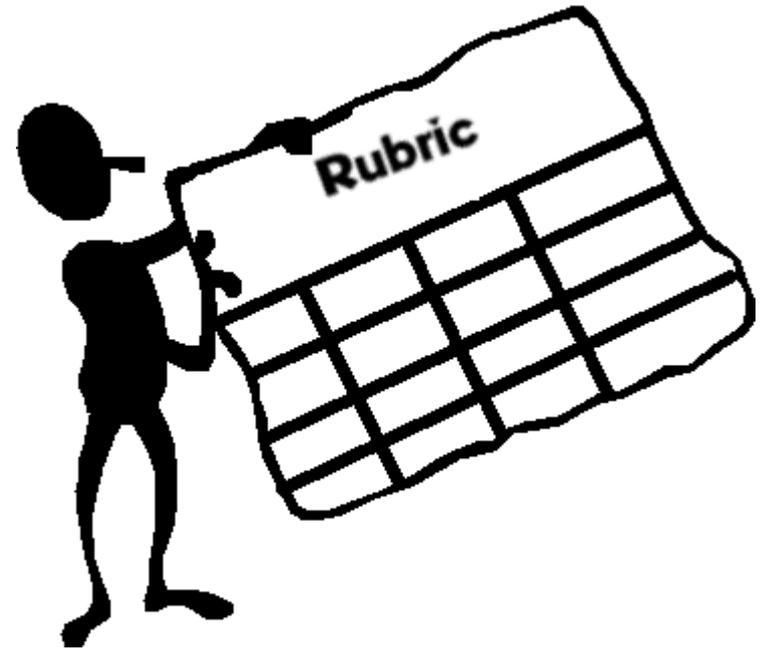
Why Use Rubrics?

- Useful when the assignment requires an answer more complicated than one that could be corrected with an answer key.

- When "complex products or behaviors" are being evaluated, which require more than a right or wrong answer.

- Rubrics are often used to assess how well students perform a task (speaking, writing, performing, etc.)
  - as opposed to whether an answer is *right* or *wrong*
  - "quality continuum" from not meeting expectations to exceptional

Assessment Methods for "Applying" Learning Objectives

Type of Learning Objective	Examples of Types of Assessment	How to Measure
Apply Students will be able to: • execute • implement • perform • produce • solve	Activities that require students to use procedures to solve or complete familiar or unfamiliar tasks; may also require students to determine which procedure(s) are most appropriate for a given task. • Labs • Performances • Problem sets • Prototyping • Simulations	• Accuracy scores • Checklists • Rubrics

http://www.cmu.edu/teaching/designteach/design/assessments.html

Assessment Methods for "Analyzing" Learning Objectives

Type of Learning Objective	Examples of Types of Assessment	How to Measure
Analyze Students will be able to: • differentiate • organize • attribute	Activities that require students to discriminate or select relevant from irrelevant parts, determine how elements function together, or determine bias, values or underlying intent in presented materials. These might include: Case studies, Critiques, Labs, Papers, Projects, Debates, Concept Maps	Rubrics scored by: • Instructor • Juries • External clients • Employers • Internship Supervisor

http://www.cmu.edu/teaching/designteach/design/assessments.html

Assessment Methods for "Evaluating" Learning Objectives

Type of Learning Objective	Examples of Types of Assessment	How to Measure
Evaluate Students will be able to: • check • critique • debate • justify	A range of activities that require students to test, monitor, judge or critique readings, performances, or products against established criteria or standards. These activities might include: Journals, Diaries, Critiques, Problem Sets, Product Reviews, Case Studies.	Rubrics scored by: • Instructor • Juries • External clients • Employers • Internship Supervisor

http://www.cmu.edu/teaching/designteach/design/assessments.html

Assessment Methods for "Creating"

Learning Objectives

Type of Learning Objective	Examples of Types of Assessment	How to Measure
Create Students will be able to: • generate • plan • produce	Research projects, musical compositions, performances, essays, business plans, website designs, prototyping, set designs	Rubrics scored by: • Instructor • Juries • External clients • Employers • Internship Supervisor

http://www.cmu.edu/teaching/designteach/design/assessments.html

Choosing Appropriate Types of Activities

After determining which type of test item would be appropriate for a given learning objective (**limited-choice items and open-ended items**), one must then decide which type of activity would effectively evaluate student learning.

Learning Objectives	Most Suitable Test Item	Type of Activity
The student will be able to **name** the parts of the human skeletal system.		
The student will be able to **identify** common characteristics of various genres of literature.		
The student will **explain** the processes and outcomes of communication and miscommunication within groups, teams, and leadership.		
The student will **describe** the differences between translating, transliterating, and interpreting.		
The student will **exhibit** appropriate laboratory safety skills.		

Sample Test Blueprint or Matrix (Table of Specifications)

Topic to be tested	% of period being tested devoted to topic	Level of Knowledge (from Bloom's Taxonomy)			# of quest-ions	% of test devoted to topic
		Questions measuring recall/ comprehension	Questions measuring application/ analysis	Questions measuring synthesis/ evaluation		
Number of Questions						
% of test devoted to each level of understanding						

Course Adjustments

Formative Assessment:

Keeping Track and Checking-Up

Purpose

Provides information about what a student understands of the concept, knowledge, skills, attitudes/values in order to make instructional decisions that will improve student learning.

Good assessment is good instruction.

Formative assessment tells us…

1. Are we teaching our course objectives? What are our students actually learning?

2. What can we do to help our students learn? What types of changes can we make (to assignments, activities, materials) to increase actual student learning?

Formative Assessment:
Keeping Track and Checking-Up
Benefits (1)

- Alerts the teacher about student misconceptions
- Allows students to build on previous experiences
- Engages students actively in the learning process

Formative Assessment:
Benefits (2)

- Provides regular feedback, and adapted instruction to meet identified needs
  - **Feedback: key to learning, reaching goals**
  - Speeds up the learning process
- **Uses varied instructional methods and approaches** to assessing students understanding and needs

Formative Assessment:
Benefits (3)

- **Establishes a classroom culture that empowers students and promotes self-awareness**
  - Teaches students to monitor and actively evaluate their own learning
  - Provides a challenging yet supportive environment
  - Students realize and have a say in their own role in learning
  - Students learn from other students

Formative Assessment:
Benefits (4)

- Provides an opportunity for trial and error without fear of consequences (allows students to make mistakes and learn from them)
- Provides evidence of progress
- Addresses both cognitive and motivational factors (teachers "seek to understand not just what students know, but also how they know it" (Huba and Freed 2000)

Formative Assessment:
Benefits (5)

- Contributes to general education goals: communication skills, self-awareness, critical judgment, diversity of human culture and experience, awareness of the process of acquiring knowledge (or learning process)

"Assessments are learning activities in their own right." (Suskie, 2009)

Discussion

What types of

formative

assessment do **I**

use in my courses?

Formative Assessment Examples

Self-assessment

Peer-assessment

Portfolio review

Conference

Discussion

Quiz

Exit card

Journal entry

Group work

Clickers

Keeping in Tune

with Student Learning and Attitudes:

Classroom Assessment Techniques (CATs)

"**in-class activities** designed to give you and your students useful feedback on the teaching-learning process."

Angelo, T. A., & Cross, P.H. *Classroom Assessment Techniques: A Handbook for College Teachers.* (2nd ed.) San Francisco: Jossey-Bass, 1993

Classroom Assessment Techniques Benefits

Provides short-term feedback about the day-to-day learning and teaching process at a time when it is still possible to make mid-course corrections.

Classroom Assessment Technique Examples

Type of Learning Content	Question	CATs
Content/ Material	What are students learning?	Focused Listing, Empty outlines, Memory Matrix
Process/ Barriers	How are students learning?	Minute Papers, Muddiest Point, Punctuated Pauses, Fish Bowl
Application	How do students use knowledge/skills?	Directed Paraphrasing, Application Cards, Student-Generated Test Questions
Study Skills	Do students have the tools needed?	Course-related self-confidence survey
Attitudes	What do students think/feel/value?	Reading rating sheet, group work evaluation, Minute papers

Classroom Assessment Techniques (CATs)

Muddiest Point: At the end of class, ask students to jot down a quick response to one question:

"What was the muddiest point in the … [class meeting, readings, homework assignment, lecture, etc.] ? (Angelo & Cross, 1993)

Additional question (Bateman & Roberts, 1992):
What percent of mud was due to:
a. Unclear presentation by instructor?
b. Lack of opportunity to ask questions?
c. Your lack of preparation?
d. Your lack of participation in class instruction?
e. Other?

Pre-Assessment:
Finding Out

To determine students':

- Readiness: skills, concepts, content knowledge
- Interests
- Learning Profile: Strengths/weaknesses
- Work preferences
- Self-awareness

…in order for instructor to plan/adjust options for students

Discussion

What types of pre-assessments do you use?

Examples:
  Portfolios
  Pretests
  Auditions or "Elevator Talks"
  Concept Map
  CATs: Prior (Concept) Knowledge,
        Misconception/Preconception
  Journal Prompt

Pre-Assessment: Prior Knowledge

For each of the following Shakespearean plays, place a check mark in the cell if it describes your experience.

Play	Have Read it	Have seen a live performance	Have seen a TV or movie production	Have written a college-level paper on it
Hamlet				
King Lear				
Othello				
Edward II				

http://www.cmu.edu/teaching/assessment/priorknowledge/selfassessments%20.html

Graphic representation of students' understandings
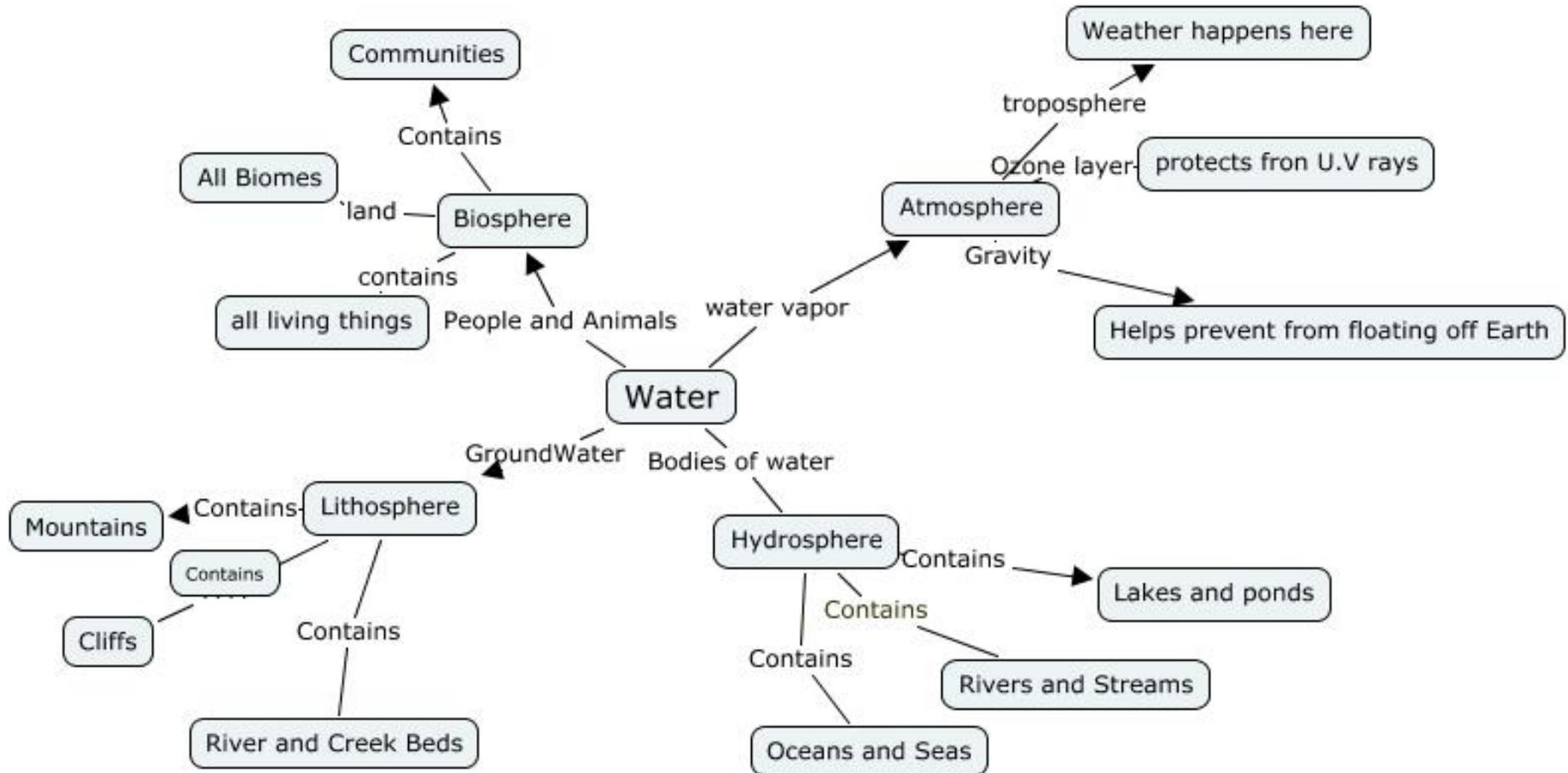
Misconception/Preconception
Classroom Assessment Technique (CAT)

Discussion: A college education is necessary to a successful life today. (SDV)

What do you know about _____?

How does _____relate to you?

When we mention _____, what do you want to learn about it? _____

What learning experiences have you had with _____?

List all the words you know that best explains _____.

If I asked you to tell me about _____, you would say _____.

Quick Write Example: Tell me everything you know about the events that led to eruption of World War I.

Assessment: An Ongoing Process

- Assessment is an ongoing process, iterative process
  - Each assessment is a "pilot test" for the next one
  - Keep a record of what worked, and what did not
  - There is always error
- Each iteration brings you:
  - The benefit of experience
  - A more accepting environment
  - Baselines for future measurements
- Goal: A valid and reliable assessment
  - Student work: Does it reflect the learning objective?
  - Assessment method: Does it measure the learning objective? Does it measure what you intend it to measure?
  - Assessment: Is scoring consistent?

From "The "Nuts and Bolts" of Implementing An Assessment Plan" at http://www.web.virginia.edu/iaas/assessment

Objectives for today's workshop

- **Distinguish** different types of learning objectives
- **Define** purposes of assessment
- **Align** assessment methods with learning objectives
- **Analyze** an assessment method for content validity
- **Evaluate** your assessment methods and make improvements
- **Integrate** different assessment measures into your courses.

http://www.nvcc.edu/assessment/loop/index.html

Further Resources

- Ambrose, Susan & al. 2010. *How Learning Works: 7 Research-Based Principles for Smart Teaching.* SF: Jossey-Bass.
- Angelo, T. A., & Cross, P.H. *Classroom Assessment Techniques: A Handbook for College Teachers.* (2nd ed.) San Francisco: Jossey-Bass, 1993.
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- NILOA (National Institute for Learning Outcomes Assessment) http://learningoutcomeassessment.org/
- Roberts, J. Aligning Test Items with Course Learning Objectives (Workshop 7). http://www.nvcc.edu/about-nova/directories--offices/administrative-offices/assessment/resources/index.html
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Questions?

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