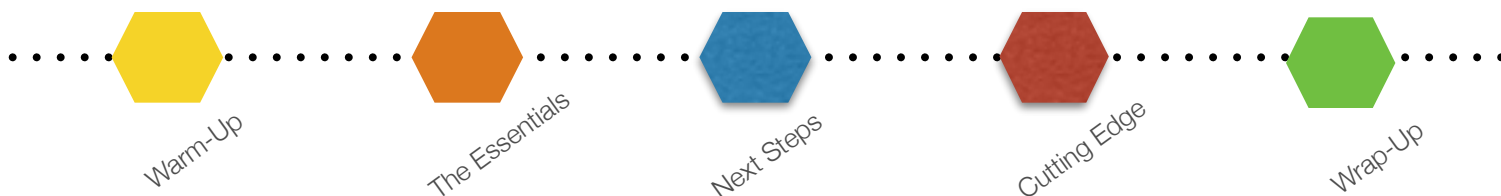


Learning Outcomes Workshop



WARM-UP

STUDENT LEARNING OUTCOMES (SLOs)

What Students Will Accomplish By The End Of A Course

PLACE YOUR OUTCOME SLIP HERE

THE ESSENTIALS



BASIC INFORMATION ON WHAT LEARNING OUTCOMES ARE & HOW TO WRITE THEM

Outcomes Focus Our Attention On Student Learning

WHAT IS THE STRUCTURE OF AN OUTCOME?

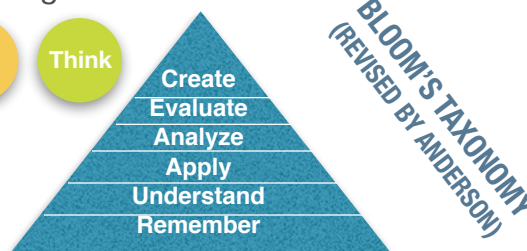
OUTCOMES START WITH STUDENTS

By The End Of This Course Students Will...



INCLUDE A MEASURABLE ACTION VERB

What Do You Want Students To Know (Cognitive), Do (Behavioral), Or Think (Affective)?



THE VERB DESCRIBES AN OBSERVABLE OR IDENTIFIABLE ACTION

Ineffective Verbs: understand, appreciate, know, be aware of...

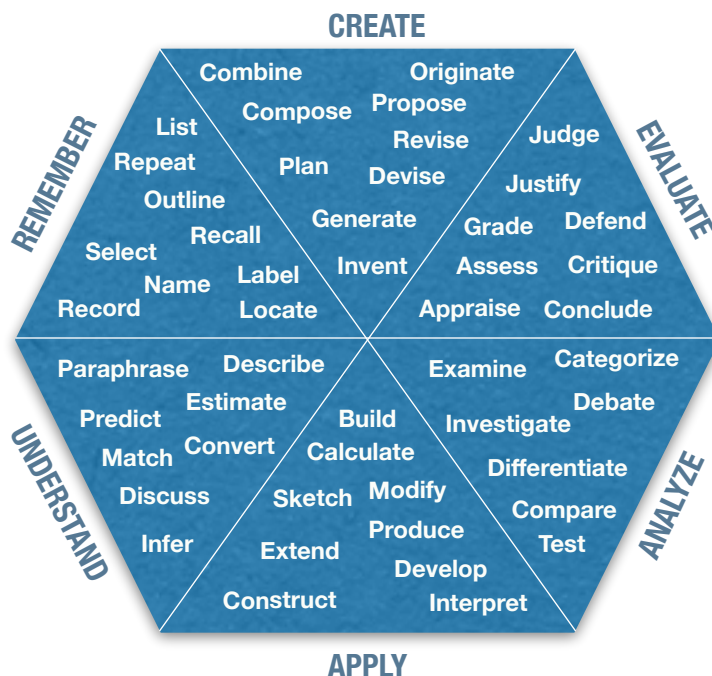
Common mistakes: *FIX each outcome*

Vague Verb: *Students will understand the consequences of various forms of pollution.*

Not Assessable: *Students will appreciate the benefits of exercise for the cardiovascular system.*

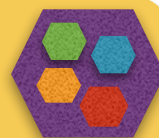
Not Specific Enough: *Students will develop effective science skills.*

More than One Outcome: *Students will demonstrate problem-solving skills and learn how to work with peers.*



FAST FACTS:

- Teaching Goals are general and can guide outcome development
- Course outcomes focus on student knowledge, skills or attitudes
- One course outcome can be made up of sub-outcomes (objectives)



SUB-OUTCOMES (OBJECTIVES)

- There is no universal agreement on the use of the terms “outcome” vs. “objective.”
- Sometimes course outcomes focus on what students will achieve and instructional objectives focus on intended results of specific activities.
- Sub-outcomes (objectives) can be used as building blocks to produce the **behavior** that demonstrates mastery of an outcome.
- Every lecture, lab, recitation, and assigned reading can have sub-outcomes (objectives).

Behavior: What do you expect the student to be able to do?

Condition: Under what conditions (timeframe, circumstances, or context) will the learning occur?

Degree: What is the measurement; how much, how well, and to what level?

Write a sub-outcome (objective) based on your outcome slip:

WHO USES OUTCOMES?

TEACHING TEAM

Instructors
Teaching Assistants



ADMINISTRATORS

Program Outcomes
University Goals



STUDENTS

Current Students
Future Students

WHERE DO OUTCOMES APPEAR?

**SYLLABUS
ACTIVITIES
STUDY GUIDES**

WHEN ARE OUTCOMES TYPICALLY WRITTEN?

BEFORE: Directs how the course is developed
DURING: Students contribute to outcomes
AFTER: Outcomes are revised over time

WHY ARE OUTCOMES IMPORTANT?

Shared Outcomes Experiences

Student Success

Transparency lets students know what they need to do to succeed

Teaching Strategies

Activities and assignments are designed with students in mind

Appropriate Assessments

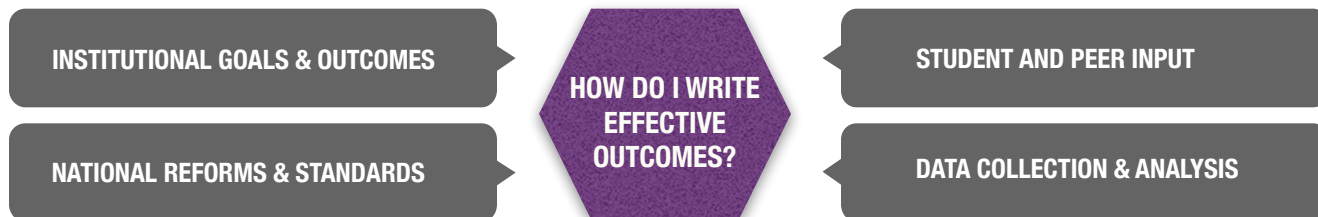
Outcomes define course impact; how students are expected to change

Your Idea?



FAST FACTS:

- The achievement of learning outcomes (student success) measures institutional effectiveness
- Write outcomes in language that students are able to understand
- One activity or assignment can address multiple outcomes



BRAINSTORMING

What Are Things You Want Students To Know, Do, And Think (Or Value)?

Brainstorm HERE:

1. What broad goal would you like to accomplish? Think BIG
3. What do you want students to be able to know, do, or think?
4. What conditions (circumstances or context) will assist students?
5. How will you measure learning?
6. Write a possible student learning outcome.

QUICK START: WORK BACKWARDS

Think of an activity, demonstration, product, or assessment that you like, and try to summarize in one sentence what the students get out of the experience.



PUT YOUR OUTCOMES INTO ACTION

Match Activities And Assessments With Outcomes



COLLECT AND ORGANIZE

Develop A Group Of Outcomes That Document Student Course Experiences



**MATCHING
ACTIVITIES WITH
OUTCOMES**

ALIGNING COURSE ACTIVITIES WITH LEARNING OUTCOMES

Three Steps To An Organized Course Experience

Step 1: Selecting Activities

Research possible activities
(start: NSTA's Journal of
College Science Teaching)

Develop a variety of activities
to address diverse outcomes

Match activities to breadth and
depth of outcomes

Step 2: Activity Support

What background skills and
content knowledge do
students need to complete
these activities?

What resources are likely to
make these activities
successful?

How do I need to prepare to
teach?

Step 3: Activity Sequencing

Lay out the entire schedule
including readings, homework,
and assessments

Reevaluate: Do the activities
reflect the emphasis of the
student learning outcomes?

Keep notes and revise the
curriculum as needed

**MATCHING
ASSESSMENTS
WITH OUTCOMES**

DEFINITIONS

ASSESSMENT: Collecting Data On Student Learning

EVALUATION: Assigning A Grade Or Value To An Assessment

RUBRIC: An Indication Of Varying Degrees Of Achievement

ALIGNING ASSESSMENTS WITH LEARNING OUTCOMES

Measuring Student Success In Courses

Outcomes - Activities - Assessment Grid

Student Learning Outcome	Pre-Class Homework	Student Self-Assessment	In-Class Activity	Follow-up Assessment	Learning Reflection
<i>Modify this grid as needed; include frequent and varied assessments that students can use to monitor their learning</i>					

EFFECTIVE ASSESSMENTS MATCH THE DEPTH AND BREADTH OF OUTCOMES AND COURSE ACTIVITIES

BOTH STUDENTS AND INSTRUCTORS CAN ADJUST PERFORMANCE BASED ON MID-COURSE (FORMATIVE) ASSESSMENTS

ASSESSMENT IS MOST EFFECTIVE WHEN ON-GOING, NOT EPISODIC

SAMPLE ASSESSMENTS PROVIDE STUDENTS WITH GOAL INSIGHT

SOME ASSESSABLE OUTCOMES MAY BE DIFFICULT TO EVALUATE

Consider

INVESTIGATE NEW ASSESSMENT TECHNOLOGIES AND RUBRICS

ESTABLISH CLEAR ASSESSMENT EXPECTATIONS TO SUPPORT STUDENTS FROM DIVERSE BACKGROUNDS

THROUGH OUTCOMES AND ASSESSMENTS, INSTRUCTORS MEET RESPONSIBILITIES TO STUDENTS AND THE PUBLIC



Student Voice

Teacher as Learner

Unique Offerings



**CUTTING
EDGE**

REACHING THE FULL POTENTIAL OF LEARNING OUTCOMES

Use Learning Outcomes To Develop Curricular Innovations



**STUDENT
VOICE**

WHAT ARE YOUR STUDENTS' OWN LEARNING OUTCOMES?

- What Do Students Want To Get Out Of A Course?
- Building Metacognition Into The Curriculum
- Valuing And Representing Student Perspectives
- Monitoring Cultural And Social Changes Through Student Input

Develop a strategy to include students in the curricular design process:



**TEACHERS AS
LEARNERS**

TEACHER LEARNING OUTCOMES (WHY NOT US TOO?)

- Lifelong Learning As A Critical Component Of Teaching
- Assessing Our Progress As Educators
- Reflection And Self-Assessment
- Developing, Revising, And Applying A Teaching Philosophy

Write a learning outcome for yourself.



**UNIQUE
OFFERINGS**

DEVELOPING UNIQUE COURSE OFFERINGS

- Learning Outcomes Beyond The Textbook
- Courses That Reflect Personal & Institutional Identity
- Meaningful Courses That Support Departmental Missions And Goals
- Teaching As A Creative Endeavor



Sketch three new potential class experiences for you and your students



WRAP-UP

What Is A Step You Can Take To Continue Your Exploration Of Learning Outcomes?



THANK-YOU!



Outcomes

Resources

READING LIST

TEACHING AT ITS BEST: A RESEARCH-BASED RESOURCE FOR COLLEGE INSTRUCTORS. (2010) L. NILSSON. JOSSEY-BASS.

EFFECTIVE GRADING: A TOOL FOR LEARNING AND ASSESSMENT IN COLLEGE. (2009) B. WALVOORD & V. ANDERSON. JOSSEY-BASS.

HOW LEARNING WORKS: SEVEN RESEARCH-BASED PRINCIPLES FOR SMART TEACHING. (2010) S. AMBROSE ET. AL. JOSSEY-BASS.

MORE VERBS

Remember (Knowledge): Match, Memorize, Order, Quote, Arrange, Recognize, Reproduce, Restate, Retain, Define, Duplicate

Understand (Comprehension): Characterize, Translate, Classify, Complete, Review, Sort, Relate, Illustrate, Identify, Explain, Express, Establish, Depict

Apply: Solve, Administer, Calculate, Compute, Choose, Conduct, Dramatize, Perform, Demonstrate, Employ, Interpret, Operate



CROSS-DISCIPLINARY BRAINSTORMING RESOURCES

Design Thinking for Educators Toolkit (FREE download)
<http://www.ideo.com/work/toolkit-for-educators>

101 Design Methods: A Structured Approach for Driving Innovation in Your Organization (2013). V. Kumar. John Wiley & Sons

EVEN MORE VERBS

Analyze: Test, Research, Appraise, Contrast, Question, Critique, Diagram, Distinguish, Explore, Experiment, Examine, Discriminate

Evaluate: Grade, Rank, Rate, Review, Inspect, Assign, Estimate, Argue, Value

Create (Synthesis): Design, Envision, Write, Unite, Construct, Consolidate, Formulate, Merge, Integrate, Organize, Propose, Hypothesize, Theorize

BIOLOGY EDUCATION REFORM DOCUMENTS

VISION AND CHANGE IN UNDERGRADUATE EDUCATION. (2011) AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE. <HTTP://VISIONANDCHANGE.ORG>

A NEW BIOLOGY FOR THE 21ST CENTURY. (2009) NATIONAL RESEARCH COUNCIL. <HTTP://WWW.NAP.EDU/OPENBOOK.PHP?>

BIO 2010: TRANSFORMING UNDERGRADUATE EDUCATION FOR FUTURE RESEARCH BIOLOGISTS. (2003) NATIONAL RESEARCH COUNCIL. <HTTP://WWW.NAP.EDU/OPENBOOK.PHP?ISBN=0309085357>



WORKSHOP MATERIALS AVAILABLE AT SCIENCE.OREGONSTATE.EDU/BI10X/ CLICK "OUTCOMES AND ASSESSMENTS"

COME VISIT US

- PDF of worksheets
- YouTube video of presentation
- Photo gallery of outcomes in action

