Student Assessments: Are We Doing It The Right Way?

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Assessment: A definition

How much students have learned, not how much they know--------

Assessment

Four parts:

1. Clear, measurable, learning objectives

"Critical Thinking"

Objectives

Bloom's Cognitive Domain Taxonomy

- Knowledge – Information recall

Recognizes all major internal organs of yellow perch (N = XX) listed on handout

Objectives

Bloom's Cognitive Domain Taxonomy

- Knowledge
- Comprehension – Understand meaning

<u>Predicts</u> which fish belong in the minnow family based on morphological traits found in key

Objectives

Bloom's Cognitive Domain Taxonomy

- Knowledge
- Comprehension
- Application – use concept in novel situations

Operates safely backpack electrofishing gear in small streams

Objectives

Objectives

Bloom's Cognitive Domain Taxonomy

- Knowledge
- Comprehension
- Application
- Analysis – Separates material into parts

Compare and contrast morphological traits used to characterize minnow and salmon families

Objectives

Bloom's Cognitive Domain Taxonomy

- Knowledge
- Comprehension
- Application
- Analysis
- Synthesis – Builds a structure or pattern

Modifies electronic settings of electrofishing gear for maximum effectiveness using logical deduction

Objectives

Bloom's Cognitive Domain Taxonomy

- Knowledge
- Comprehension
- Application
- Analysis
- Synthesis
- Evaluation – Makes judgments

Determine why the "Fishes of Missouri " key works better than the "Fishes of Ohio" key for Indiana fish species ID

Objectives

Bloom's Cognitive Domain Taxonomy

- Knowledge
- Comprehension
- Application
- Analysis
- Synthesis
- Evaluation

} ≥70%

Assessment

Four parts:

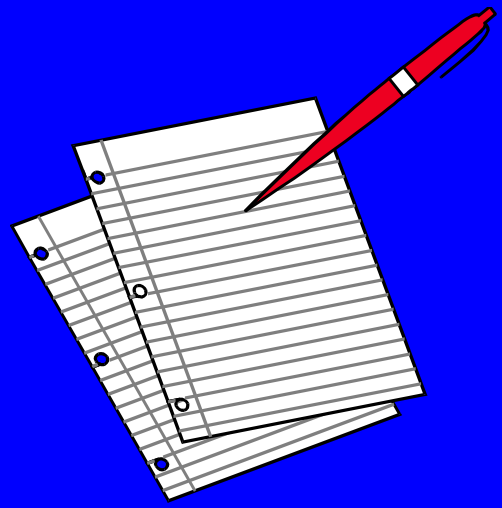
1. Clear, measurable objectives
2. Communicate these objectives to students

Communication of Objectives

Syllabus

Wrong:

Learn Indiana fish ID



Right:

Recognize 100 Indiana fish species found in the appendix by common and scientific name by sight

Communication of Objectives

Test #1

Wrong:

Know the fish we covered in lab for the next test

Right:

Recognize (N = 52) fish by sight and know common and scientific names in the following families (Centrarchidae, Percidae, etc.) from the class listing

Communication of Objectives

Individual lab

Wrong:

Learn the fish we have out on the desktops today

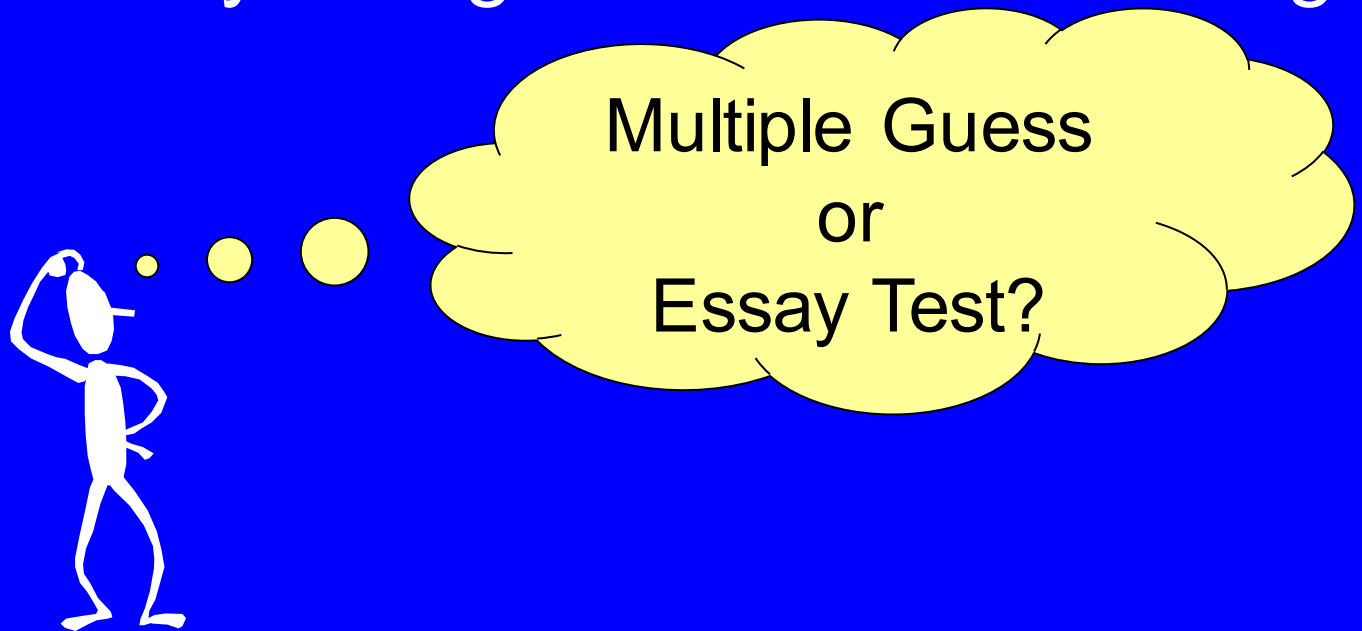
Right:

Recognize Etheostoma *(darters, N = 6 from class listing) by sight and know common and scientific names*

Assessment

Four parts:

1. Clear, measurable objectives
2. Communicate these objectives to students
3. Identify change in student knowledge



Identify change in student knowledge

Student #1 – 95% grade “A”

Student #2 – 80% grade “B”

Which student learned more?

Alewife *Alosa pseudoharengus*

Identify change in student knowledge

Ichthyology course:

Student #1

- Came in knowing 70 of the 100 fish
- Learned 25 new ones
- Scores 95% on exam

Identify change in student knowledge

Ichthyology course:

Student #2

- Came in knowing 5 of the 100 fish
- Learned 75 new ones
- Scores 80% on exam

Identify change in student knowledge

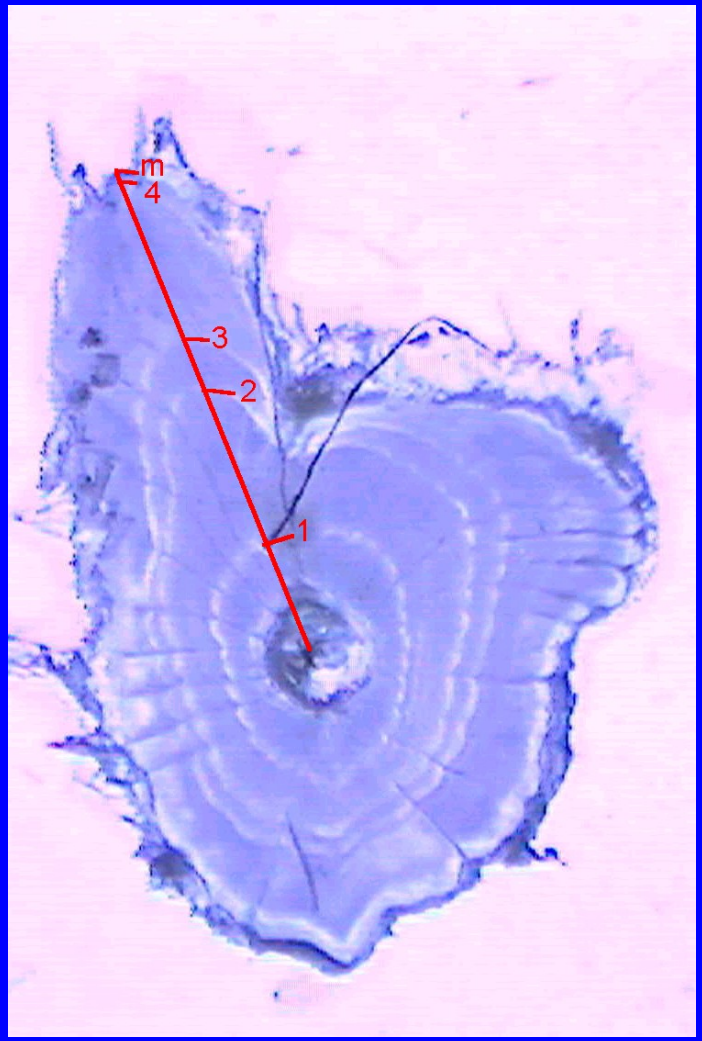
Pre and post testing:

Large scale

- First day testing
- Final day testing

Small scale

- Beginning of a class
- End of a class



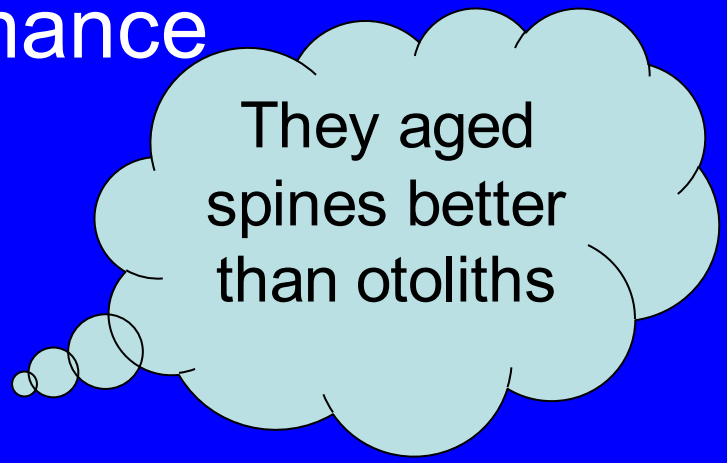
Identify change in student knowledge

What does pre and post testing do?

Assesses student learning

Assesses instructor performance

- Points to strengths
- Identifies weaknesses



Assessment

Four parts:

1. Clear, measurable objectives
2. Communicate these objectives to students
3. Identify change in student knowledge
4. Evaluate student attitudes, values, interests

Evaluate student attitudes, values, interests

Not necessarily for current students

Evaluation for instructors and future students

Pre and Post testing

Likert scale

(1= strongly disagree, 5 = strongly agree)

Evaluate student attitudes, values, interests

Statement:

Learning common and scientific names for 100 Indiana fish is a reasonable expectation for this class

This statement evaluates the content material

Evaluate student attitudes, values, interests

Statement:

The small group discussions helped in my learning and comprehension of the content material

This statement addresses pedagogy

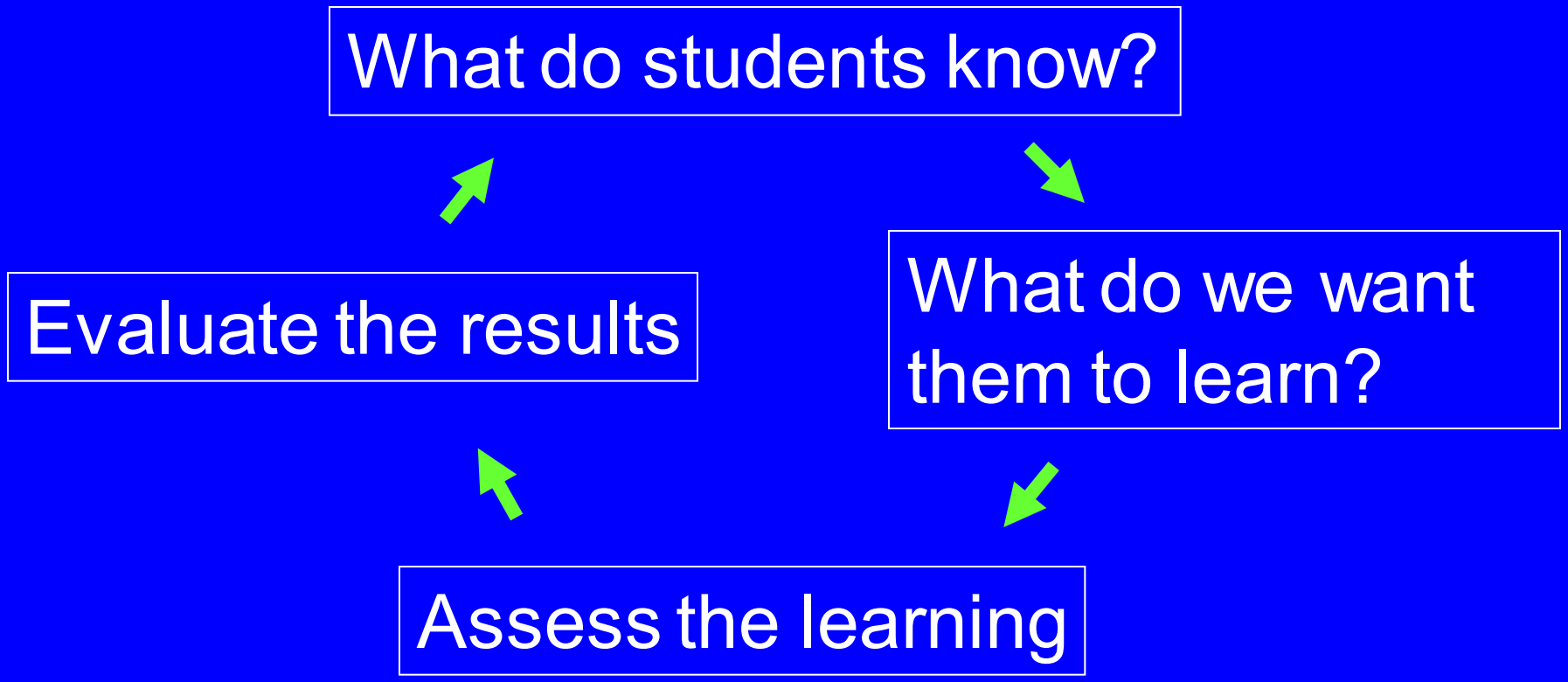
Evaluate student attitudes, values, interests

Statement:

The extra fees needed for the field trips were well worth the money

This statement “values” the cost of the class

Modeling Assessment



Acknowledgements

Jon Hendrix

Objectives

Recognizes all major internal organs of yellow perch (*N* = XX) listed on handout

Constructs dichotomous key for (*N* = XX) local county fish

Objectives

Follow Bloom's Cognitive Domain Taxonomy

- Knowledge
- Comprehension – Understand meaning