

Workshop Topics



- ✓ Lessons and Backward Design
- ✓ Teaching for Understanding - AMT
- ✓ Using the W.H.E.R.E.T.O. Elements
- ✓ A Lesson Planning Template
- ✓ Planning the "Bookend" Lessons
- ✓ Synthesis and Closure

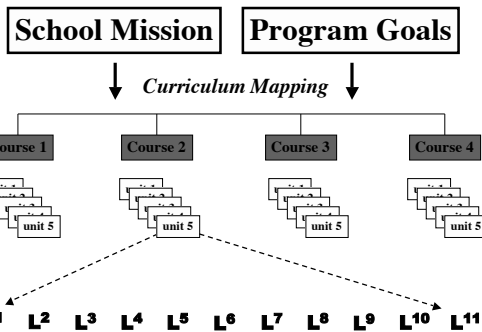
Workshop Materials



- ✓ Handouts
- ✓ Power Point Slides
(available by request)

3 Stages of Backward Design

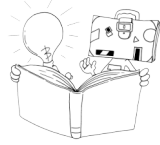
1. Identify desired results.
2. Determine acceptable evidence.
3. Plan learning experiences & instruction.



3 Stages of Backward Design

1. Identify desired results.
2. Determine acceptable evidence.
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Understanding =



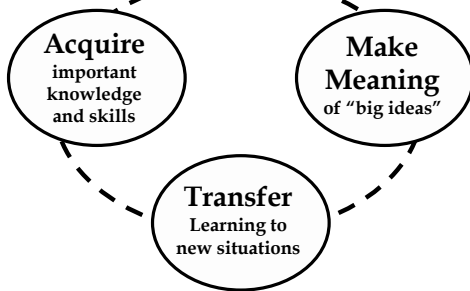
- Making sense of “big ideas” through an active process of inference; i.e., Making Meaning
- Effective application of one’s learning in novel, important, and realistic situations; i.e., Transfer

What’s my job?

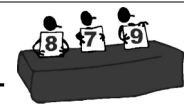


- What content should I cover? What “big ideas” should I help the students *uncover*; i.e., to make meaning of on their own?
- What do the transfer performances imply for learning and the needed instruction?
- What learning *sequence* will maximize student engagement, understanding and transfer?

Teaching and Learning for Understanding



Unit on Statistics



- What is fair?
- How can math help us judge fairly?

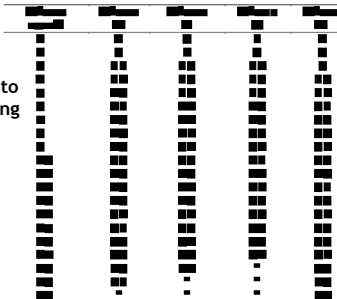
Unit on Statistics - Mean, Median, Mode

“What is Fair?”

Individual ranking of runners in a race by all 7th-grade classes

Initial problem:

Four 7th-grade classes had a race of all the students. Devise as many ways as you can to determine a *fair* ranking of the 4 classes, given the individual runner results in the table. Identify the two best ways you think would be most fair. Be prepared to explain your answer.



EQ – What mathematical tools can help us judge fairness?

Other meaning-making questions and activities

- What do we mean when we say that the rules of a game of chance are “not fair”? What role does mathematics play in our judgment?
- Why is it fair to have one person cut the cake and the other person to choose the piece?
- When is straight majority voting “fair” and when is it “not fair”?
- When is it “fair” to consider an “average” in ranking performance (e.g. salaries, home prices, batting average) and when is it “unfair”?

NOTE: The content* is learned as a means to answer questions and help solve problems!

**Measures of central tendency:*

- > Mean
- > Median
- > Mode
- > Standard Deviation (range/variance)

Meaning Making & Transfer Activity

Based on our study in this unit of various measures of central tendency, and the pros and cons of using "averages" (and other such measures) in various situations, propose and defend a "fair" grading system for use in this school.

How should students' grades be calculated? Explain why is your grading system would be more fair than the current system?

Performance Task:

Making the Grade



Your math teacher will allow you to select the measure of central tendency (i.e., *mean, median or mode*) by which your quarterly grade will be calculated.

Review your grades for quizzes, tests, and homework to decide which measure of central tendency will be best for your situation. Write a note to your teacher explaining *why* you selected that method.

Other Evidence:

Measures of Central Tendency



- quizzes on specific skills (e.g., calculating mean, identifying median)
- finding and explaining "real world" examples of each measure (e.g., scoring in diving competitions)

research on

Learning and Cognition



"A major assumption shared by a number of cognitive scientists is that new knowledge must be actively constructed by the learner. One cannot simply 'transmit' the secrets of expertise."

- John Bransford and Nancy Vye

research on

Learning and Cognition



"This does not mean that information provided by teachers and texts is not important. However, it suggests that students must have the opportunity to actively use that information and to experience its effects on their performance."

- John Bransford and Nancy Vye

Covering a textbook is *not* the goal.



The textbook should be used as a *resource*, but not the syllabus!

Nine Research-Based Strategies

Making Meaning

1. Identifying similarities and differences
2. Summarizing and note taking*
3. Reinforcing effort & providing recognition
4. Homework and practice*
5. Nonlinguistic representations
6. Cooperative learning
7. Setting objectives and providing feedback
8. Generating and testing hypotheses
9. Cues, questions, and advance organizers

Marzano, et. al. *What Works in Classrooms*

Teaching as Coaching!

- ✓ Allow opportunities to perform, provide feedback, and chances to act on it.
- ✓ Chunk it: *drill -- scrimmage -- game*
- ✓ Use “just in time” teaching versus “just in case” teaching (aka “coverage”).
- ✓ Adjust lesson plans as performance dictates.



Important Distinction!



“Just in time” teaching

“Just in case” teaching

- Knowledge and skills taught “as needed” to prepare for authentic performance

- “covering” lists of knowledge and skills just in case...
- Often, students don’t see the purpose or the need.

Stage 3 – Plan Learning Experiences & Instruction.



Plan for engaging and effective learning, “by design.”

- ✓ *What learning experiences and instruction will promote the desired understanding, knowledge and skill?*
- ✓ *What sequence will best engage learners and deepen their insight?*

W. H. E. R. E.T.O.



- W = Where are we headed? why?
- H = How might we “hook” the students?
- E = How will we help students explore the “big” ideas and equip them for performance?
- R = How will we provide opportunities to rethink, rehearse, refine and revise?
- E = How will help students evaluate their own performance and reflect on their learning?
- T = How will we tailor/personalize instruction?
- O = How will we organize and sequence work?

“W” from the students’ perspective



How will you help students know where they have come from: assess prior knowledge and interests; and where they are headed and why: orient them toward purpose of work, key assignments, performance tasks, and the criteria by which their work will be judged?

Ideas for “W”



- state the unit/course goals
- discuss the rationale
- ask students to re-state the goals
- post essential questions
- present assessment tasks
- review scoring rubric(s)
- show models/exemplars
- Other: _____

Do learners know where...?

Ask the learners:

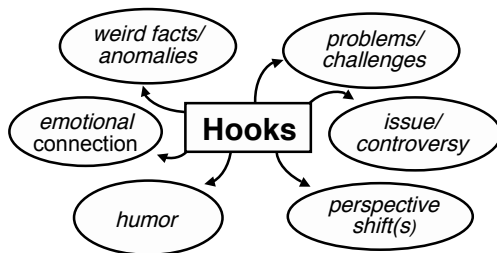
- What are our learning goals?
- What are *your* learning goals?
- How will you show your learning?
- What are you doing today and how will it help you achieve the goals?
- How will your grade be determined?

H = “hook” the students



How will you hook and hold the student through engaging and thought-provoking experiences (issues, oddities, problems, or challenges) that point toward big ideas, essential questions, and performance tasks?

Hook the student via...

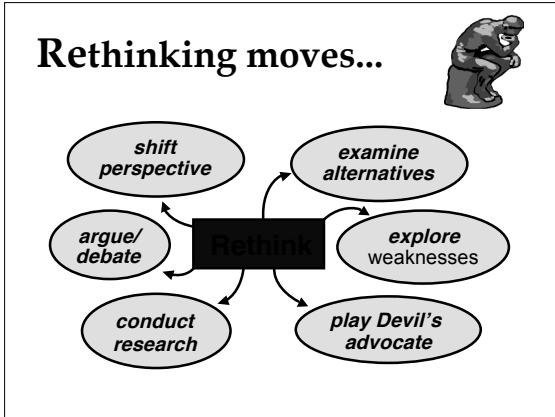


“E” = experience, explore, and equip



What learning experiences will help students to explore the big ideas and essential questions?

What instruction is needed to equip students for their final performance(s)?

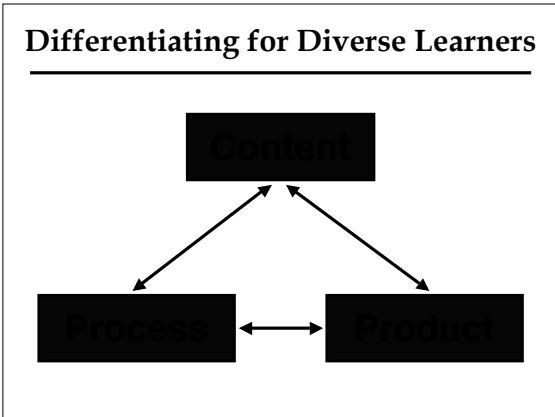


- ### Encouraging Self Evaluation, Reflection and Goal Setting
- ✦ What do you *really* understand about ___?
 - ✦ What are you most proud of?
 - ✦ How could you improve ___?
 - ✦ What would you do differently next time?
 - ✦ What grade do you deserve? Why?
 - ✦ How does what you've learned connect to previous learnings? ... the real world?

"T" = tailor

How will we tailor our instruction in response to learners' differences in background knowledge, interests and learning profile?

How might we responsibly differentiate student assessment?



"O" = organize

- *How will we organize our instruction to help learners acquire, make meaning and transfer?*
- *What learning sequence will maximize student engagement, understanding and transfer?*

- ### Lesson Plan Elements
-
- ✓ Objectives - K, U, D
 - ✓ Materials/Resources Needed
 - ✓ Assessments
 - ✓ Lesson Sequence, Description & Commentary
 - ✓ Closure
 - ✓ Homework
 - ✓ Reflection

