



Student Engagement – Depth of Knowledge and Cognitive Complexity

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Alignment to Learning Forward Standards

- The federal education law, Every Student Succeeds Act (ESSA), redefines professional development with a purposeful influence from Learning Forward.
- Learning Forward, a national association recognized as leaders in professional learning, has established [standards for professional learning](#) that set a high bar for quality learning experiences.
- This session aligns to the following standard(s):
 - Resources **Professional learning that increases educator effectiveness and results for all students** requires prioritizing, monitoring, and coordinating resources for educator learning.
 - Learning Communities **Professional learning that increases educator effectiveness and results for all students** occurs within learning communities committed to continuous improvement, collective responsibility, and goal alignment.
 - Learning Designs **Professional learning that increases educator effectiveness and results for all students** integrates theories, research, and models of human learning to achieve its intended outcomes.
 - Implementation **Professional learning that increases educator effectiveness and results for all students** applies research on change and sustains support for implementation of professional learning for long-term change.
 - Outcomes **Professional learning that increases educator effectiveness and results for all students** aligns its outcomes with educator performance and student curriculum standards.

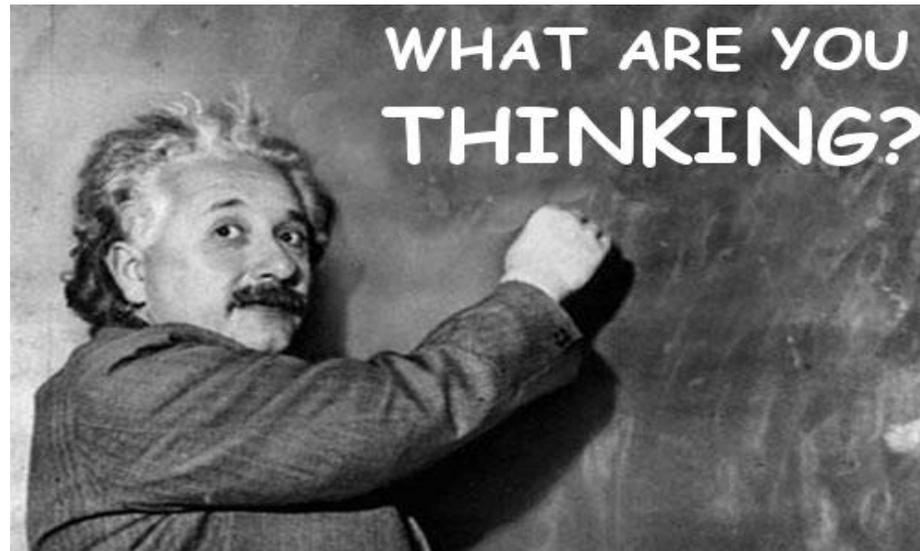
Agenda

- Why Depth of Knowledge (DOK)?
- What is Depth of Knowledge? - Anticipation Guide
- Difficulty vs. Complexity
- DOK Levels Defined
- DOK Card Sort
- Strategy Cards
- Reflections

What do you think?

Activity: Take a minute.....

How does increasing the rigor in your classroom instruction enhance the learning of your students?



Understanding Depth of Knowledge (DOK) Teaching, Learning & Assessing at all Levels

LEARNING GOAL:

Learn Ways to Apply Depth of Knowledge to classroom instruction in order to strengthen student learning.

Why DOK?

- Provides a **vocabulary and a frame of reference** when thinking about our students and how they engage with content
- Offers a **common language** to understand “rigor,” or cognitive demand, in assessments, as well as curricular units, lessons, and tasks
- **Aligns instruction with standards with assessment**
- **Key component** of quality assessments
- **Guides item development** for state and national assessments



ACTIVITY:

Anticipation Guide Table Talk

After you individually decide on your responses, share with a partner and table group the reasoning for your responses.

I think.

You think.

We think.

Anticipation Guide – Depth of Knowledge

Place a \checkmark next to each sentence that is true. Hint: Not all are true!

- ___ 1. Depth of Knowledge is about difficulty.
- ___ 2. Depth of Knowledge is about complexity.
- ___ 3. Depth of Knowledge is about the verb.
- ___ 4. Depth of Knowledge is a system for categorizing cognitive demand.
- ___ 5. Depth of Knowledge is the same as Bloom's Taxonomy.
- ___ 6. Depth of Knowledge has four levels:
(recall, basic reasoning, strategic thinking, extended thinking).

What is Depth Of Knowledge (DOK)?

DOK **measures the degree** to which knowledge is elicited from students.

DOK is a common language educators use to describe the **cognitive complexity of learning tasks** and test items.



Beginning at the Beginning

What Depth of Knowledge (DOK) IS, can best be explained by identifying what DOK IS NOT!

- DOK is not a verb.
- DOK is not about the “difficulty” of the task.
- DOK is not a grade-level indicator.

DOK Is Not About Difficulty

Difficulty is a reference to how many students answer a question correctly.

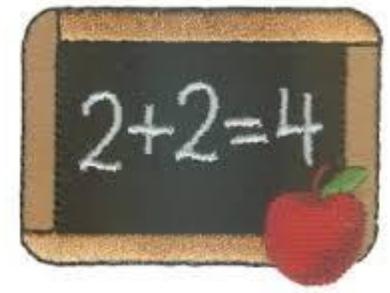
“How many of you know the definition of ‘*exaggerate*’?”
If all of you know the definition, this is an **easy** question.

“How many of you know the definition of ‘*vociferous*’?”
If most of you **do not know** the definition, this is a **difficult** question.

Both are DOK 1 - recall



DOK Is Not About Difficulty



- DOK is a **reference to the complexity of mental processing** that must occur to answer a question, perform a task, or generate a product

Example:

Adding is a mental process

Knowing the rule for adding is the intended outcome that influences the DOK

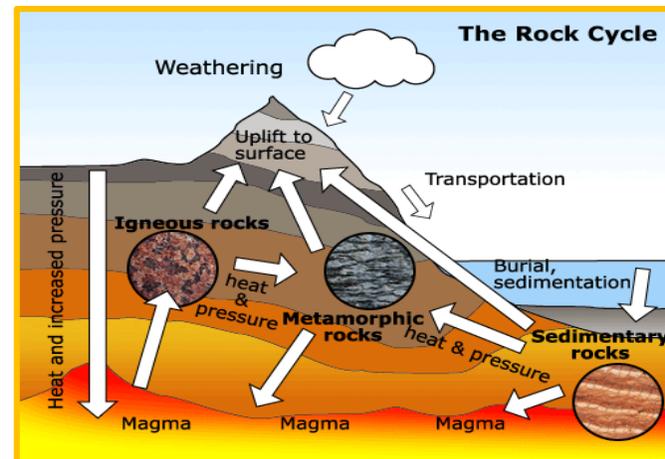
Once someone learns the “rule” of how to add, $4 + 3$ is a **DOK of 1** and is also “easy”

Adding $4,678,895 + 9,578,886$ is **still a DOK of 1** but may be more “difficult”

Same Verb – Three DOK Levels

- **DOK 1-Describe** three characteristics of metamorphic rocks.
Requires simple recall
- **DOK 2-Describe** the difference between metamorphic and igneous rocks.
Requires cognitive processing to determine the differences in the two rock types.
- **DOK 3-Describe** a model that you might use to represent the relationships that exist within the rock cycle.

Requires deep understanding of rock cycle and a determination of how best to represent it.



DOK is About Cognitive Complexity

- **Level 1** requires students to use simple skills or abilities.
- **Level 2** includes the engagement of some mental processing beyond recalling.
- **Level 3** requires some higher level mental processing like reasoning, planning, and using evidence.
- **Level 4** requires complex reasoning, planning, developing, and thinking over an extended period of time.

DOK IS About Complexity

- **DOK focuses on the cognitive complexity of content standards** in order to successfully complete a task or assessment. The outcome (product) is the focus of the depth of understanding.
- **The intended student learning goal determines the DOK level.**
- Instruction and classroom assessments **must reflect the DOK level** of the objective or intended learning outcome.

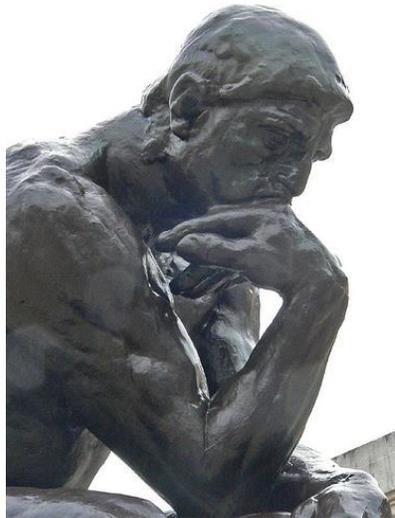
Depth of Knowledge (DOK) Review

1. As a 3-4 person group, sort the questions from the DOK cards by DOK Levels 1, 2, 3, and 4.
2. When you complete the sort, check with other groups.

How should teachers use DOK levels in their classroom?

HOW?

How can strategies be used to provide cognitive complexity for teaching and learning?



STRATEGY CARDS SPAN LEVELS OF DEPTH OF KNOWLEDGE





VOTE WITH YOUR FEET

Students choose a response (strongly agree or agree or disagree or strongly disagree).

Students write the reason for their choice before moving to the corner of the room for their choice.

Interaction between students occurs as they defend their position on an issue.

Use as a pre-unit, mid-unit, or end-of-unit learning activity.



WHAT DOK LEVEL(S) ARE POSSIBLE IN THIS STRATEGY?

THINK/WRITE/PAIR/SHARE

THINK/PAIR/SHARE

Question: _____

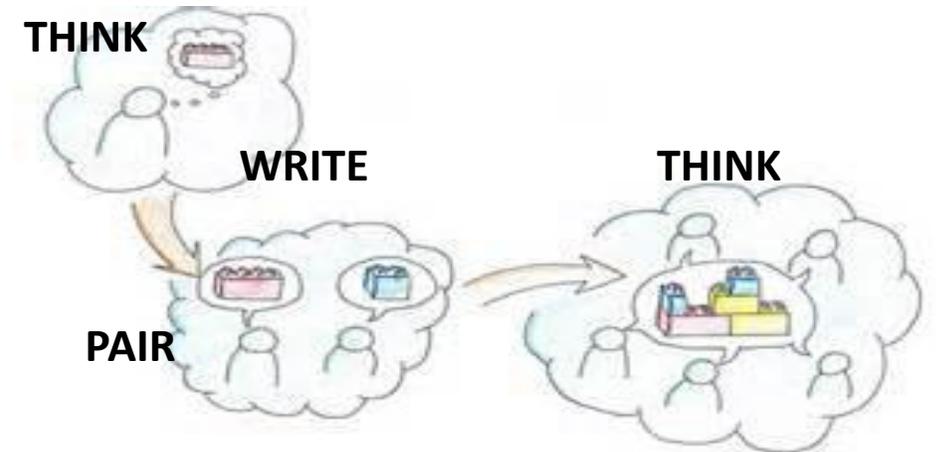
Think about your answer. Write it down, if needed.

Select A Partner

Listen to or explain answers

Switch Roles

State your answer in class discussion, a written assignment, or a speech.



ANNOTATE (Record of Thinking)

√ I Agree & Know This

? Raises a Question

+ Connection

* Interesting

! Important

X Disagree

Engaging work,...work that *stimulated their curiosity*, permitted them to *express their creativity*, and *fostered positive relationships* with others. It was also work at which they were good.

How, then, would we define engagement? Perhaps the best definition comes from the work of Phil Schlechy (1994), who says students who are engaged exhibit three characteristics: (1) they are *attracted to their work*, (2) they *persist in their work despite challenges and obstacles*, and (3) they take *visible delight in accomplishing their work*.

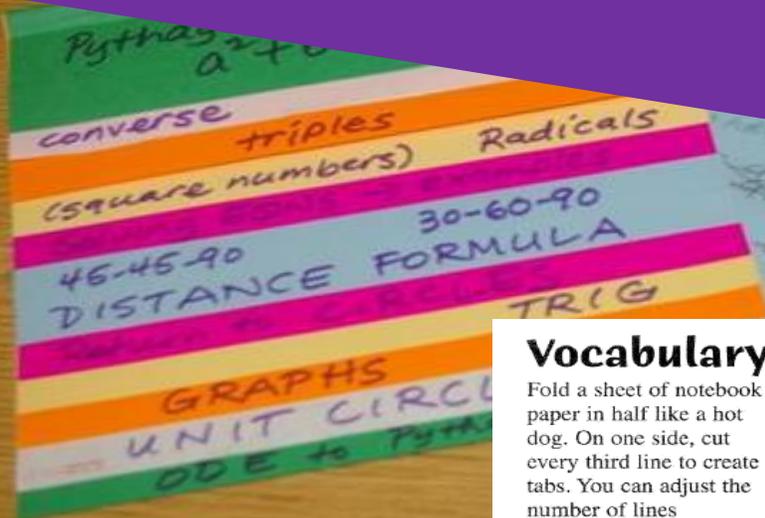
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Strengthening Student Engagement: What Do Students Want (and what really motivates them)?

Richard Strong, Harvey F. Silver and Amy Robinson

WHAT DOK LEVEL(S) ARE POSSIBLE
WITH THIS STRATEGY?

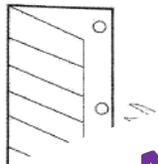
FOLDABLES



WHAT DOK LEVEL(S) ARE POSSIBLE WITH THIS STRATEGY?

Vocabulary Book

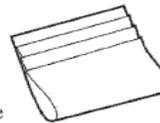
Fold a sheet of notebook paper in half like a hot dog. On one side, cut every third line to create tabs. You can adjust the number of lines depending on the paper and the desired size of the tabs. Label the tabs with vocabulary and write



Refold so that the newly formed tabs are on the inside. Use glue or staples to hold the edges. Students can use these sheets of paper to

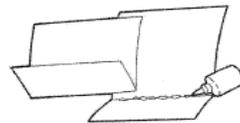
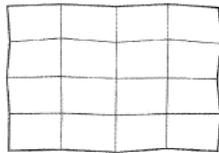
Layered-Look Book

Stack two or more sheets of paper so that the top edges are an equal distance apart. Bring the bottom edges up and align the sheets so that all of the layers (or tabs) are the same distance apart. Fold and crease well to form the Layered-Look Book. Use glue or staples to hold the sheets together. Students can label the tabs and record information inside the Layered-Look Book.



Folded Table or Chart

Fold a sheet of paper in half (for two columns), then in half again (for four columns). Do the same in the other direction for the desired number of rows, or simply make one fold along the top for column headings.



Some General Tips

If there is only one correct answer, it is probably level DOK 1 or DOK 2

- DOK 1: you either know it (can recall it, locate it, do it) or you don't.
- DOK 2: (conceptual) apply one concept, then make a decision before applying a second concept.

If more than one solution/approach, requiring evidence, it is DOK 3 or DOK 4

- DOK 3: **Must provide supporting evidence and reasoning** (not just HOW solved, but WHY – explain reasoning).
- DOK 4: all of “3” + **use multiple sources or texts.**

Cognitive Complexity & Implications for Classroom Assessment

- **Assessing only at the highest DOK level will miss opportunities** to know what students do and don't know – use a range; end “high” in selected/prioritized content.
- **Performance assessments** can offer varying levels of DOK embedded in a larger, more complex task.
- **Planned formative assessment strategies and tools should focus on differing DOK levels.**

STRATEGY CARDS SPAN LEVELS OF DEPTH OF KNOWLEDGE

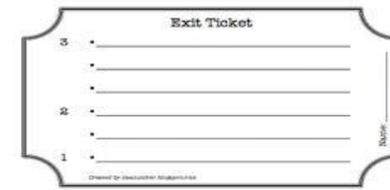
Reflecting on Your Learning

What is one way you might apply these ideas?

THINK ABOUT...

How can classroom/instructional practices support the different levels of DOK?

THANK YOU!!



An exit ticket form with a decorative border. It is titled "Exit Ticket" at the top. On the left side, there are three numbered sections: "3", "2", and "1", each followed by a horizontal line for writing. On the right side, there is a vertical line labeled "Name". At the bottom, it says "Created by www.engageok.com".

Please complete at least two sentences on your index card! THANK YOU!

- 1. Today was perfect because...*
- 2. Today would have been better if...*
- 3. If I were in charge, we would have...*
- 4. Next time, I hope we...*
- 5. I'm leaving feeling...*