Increasing Cognitive Complexity
Leveling Up

Leveling-up DOK
A Step-by-Step Approach
Steps for Leveling-up DOK

1. Analyze

- What is being asked of the students?
- What is the DOK level?

2. Determine

- **Where** do we see a similar concept in future standards?
- Where can we provide **fewer supports**?
- What other questions can we ask about this problem?

3. Construct

- Select from the standards and/or additional questions created.
- **Rewrite** the problem to remove supports and insert updated elements.

4. Re-Evaluate

Now that you have leveled-up the question, re-evaluate what students are being asked to do at the new DOK level.
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Original Problem

A photographer has files saved in three online albums.
• The Wedding album has 2,073 files.
• The Birthday album has 1,860 files.
• The Pets album has 2,370 files.

Which album has the most files? Show your work.

Hint: You might want to use a place-value chart to compare these numbers.
(Curriculum Associates, 2015)

Currently, what is this question asking the student to do?
• Compare place value
• Order numbers least to greatest

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Currently, what is the DOK of this problem?

• DOK 2: Classifying a number and requiring students to make an informed decision using multiple steps to solve.

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Looking Ahead: When will we see a similar concept like this in the future?

• Comparing and ordering decimals

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Where can we provide fewer supports for students?

• Eliminate the hint

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What other questions can we ask about this problem?

• Show two ways to answer the question, “Which album has the most files?”
• Use a diagram to help you solve this problem
• Order the files from least to greatest
• Explain your thought process
• Provide students the opportunity to use new math vocabulary (least and greatest) and symbols (<,>,=)
• Allow students to see that “most” is the same as “greatest”
How can we implement these questions? (Building the new problem)

New Problem
A photographer has picture files saved in three online albums. The Wedding album has 2,073 files. The Birthday album has 1,860 files. The Pets album has 2,370 files.

a. Order the files from least to greatest. Then, describe how you came up with an order for the numbers.

b. Now, come up with another way to compare the number of files in each album. What makes this way different than the first way you solved this problem?

c. After ordering the number of files, which album has the greatest (or most) number of files? Which album has the least (or smallest) number of files?

*Part (c) is so the students can explicitly state their answer, and they self-correct by ensuring parts (a) and (b) are the same.

Now, what is this question asking the student to do?

(This should be the same as the original question/task.)

• Compare place value of the numbers
• Order numbers from least to greatest
Now, what is the DOK of this problem?

(DOK should increase & look at Bloom’s Taxonomy)

• DOK 3
  • Explain their thinking
  • Another way to approach the problem
  • Compare answers
  • Analyze their responses.

Thank you!