

Support Materials for Core Content for Assessment

Version 4.1

Reading

August 2007
Kentucky Department of Education

Introduction to Depth of Knowledge (DOK) - Based on Norman Webb’s Model (Adapted from Karin Hess, Center for Assessment/NCIEA, 2005)

According to Norman L. Webb (“Depth of Knowledge Levels for Four Content Areas,” March 28, 2002), interpreting and assigning depth of knowledge levels to both objectives within standards and assessment items is an essential requirement of alignment analysis.

Four Depth of Knowledge (DOK) levels were developed by Norman Webb as an alignment method to examine the consistency between the cognitive demands of standards and the cognitive demands of assessments. The DOK reading levels discussed below are based on Valencia and Wixson (2000, pp.909-935).

Depth of Knowledge (DOK) Levels for Reading

Recall or Reproduction—Depth of Knowledge (DOK) Level 1

Recall or Reproduction asks students to receive or recite facts or to use simple skills or abilities. Reading that does not include analysis of the text, as well as basic comprehension of a text, is included. Items require only a shallow understanding of the text presented and often consist of verbatim recall from text, slight paraphrasing of specific details from the text, or simple understanding of a single word or phrase.

Some examples that represent, but do not constitute all of, Level 1 performance are:

- Students will locate key ideas or information in a passage.
- Students will identify essential information needed to accomplish a task.
- Students will identify the correct sequence.

Skills and Concepts/Basic Reasoning—Depth of Knowledge (DOK) Level 2

A Level 2 assessment item may require students to apply skills and concepts that are covered in Level 1. However, items require closer understanding of the text, possibly through the item’s paraphrasing of both the question and the answer. This includes the engagement of some mental processing beyond recalling or reproducing a response; it requires both comprehension and subsequent processing of text or portions of text. Inter-sentence inference is often required. Some important concepts are covered, but not in a complex way. Literal main ideas are stressed.

Some examples that represent, but do not constitute all of, Level 2 performance are:

- Students will identify an author’s purpose in a passage.

- Students will identify and explain the characteristics of short stories, novels, poetry, or plays.
- Students will interpret concrete or abstract terms.

Strategic Thinking/Complex Reasoning—Depth of Knowledge (DOK) Level 3

Standards and items at Level 3 often involve reasoning and planning. Students must be able to support their thinking. Deep knowledge becomes a greater focus at Level 3. Students are encouraged to go beyond the text; however, they are still required to show understanding of the ideas in the text. Students may be encouraged to explain, generalize, or connect ideas. Items may involve abstract theme identification, inference across an entire passage, or students' application of prior knowledge. Items may also involve more superficial connections between texts.

Some examples that represent, but do not constitute all of, Level 3 performance are:

- Students will describe characters, plot, setting, or problem/solution of a passage.
- Students will interpret the use of literary elements (e.g., characterization, setting, plot, theme, point of view).
- Students will critique author's word choice, style, tone, or content.

Extended Thinking/Reasoning—Depth of Knowledge (DOK) Level 4

Higher-order thinking is central and knowledge is deep at Level 4. Students take information from at least one passage of a text and are asked to apply this information to a new task. They may also be asked to develop hypotheses and perform complex analyses of the connections among texts. The standard or assessment item at this level will probably be an extended activity, with extended time provided for completing it. The extended time period is not a distinguishing factor if the required work is only repetitive and does not require the application of significant conceptual understanding and higher order thinking.

Some examples that represent, but do not constitute all of, Level 4 performance are:

- Students will compare and contrast elements, views, ideas, or events presented in one or more passages.
- Students will identify the interrelationships (themes, ideas, concepts) that are developed in more than one literary work.
- Students will analyze the ways in which similar themes or ideas are developed in more than one text.

Depth of Knowledge as a “Ceiling”

Core Content statements are identified with a Depth of Knowledge level. This level represents the highest level (ceiling) that items will be designed for the Kentucky Core Content Test. It is important to note, however, that items will also be developed below the ceiling level. For example, if a core content statement requires students to “evaluate the use of literary devices,” it could be developed below the ceiling as “identify examples of similes.”

Table 2 provides examples of **Reading Content Standards Across 4 Levels**. It shows four core content statements around the same idea—using information.

Recall and Reproduction DOK 1	Skills and Concepts/Basic Reasoning DOK 2	Strategic Thinking/ Complex Reasoning DOK 3	Extended Thinking/Reasoning DOK 4
Students will locate key ideas or information in a passage.	Students will identify information in a passage that is supported by fact.	Students will use evidence from a passage to formulate opinions in response to a reading passage.	Students will analyze the ways in which similar themes or ideas are developed in more than one text.

Depth of Knowledge and Verbs

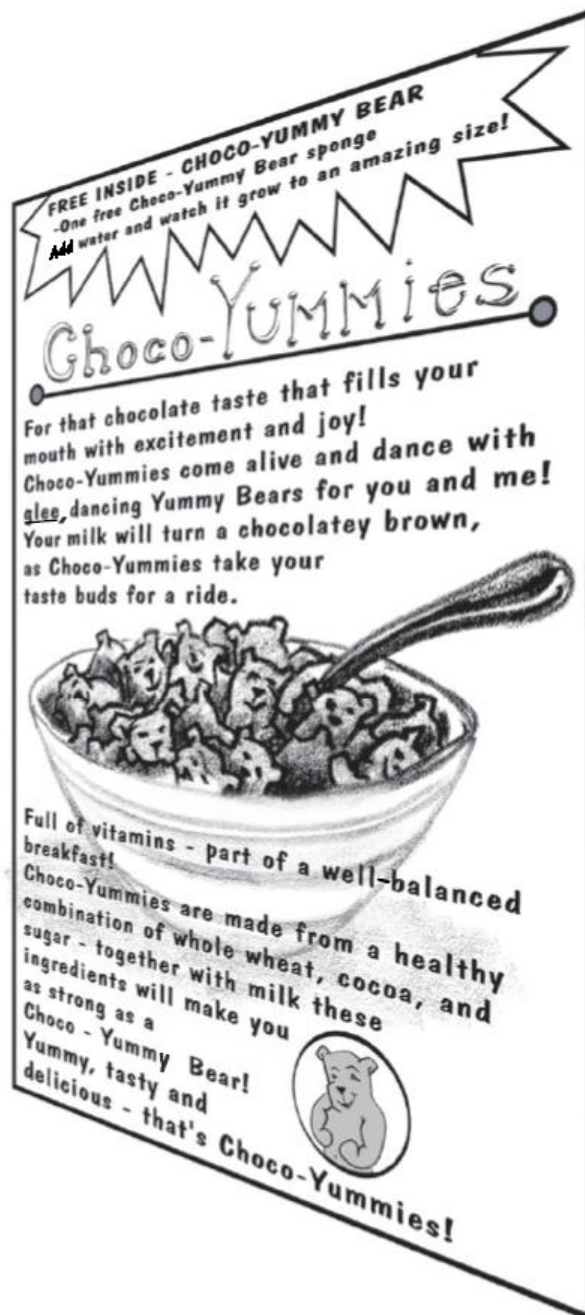
Depth of Knowledge is not verb dependent. It is based on the cognitive complexity of the standard.

Table 3 shows **A Verb Across 4 DOK Levels** to illustrate that DOK is not verb dependent

Recall and Reproduction DOK 1	Skills and Concepts/Basic Reasoning DOK 2	Strategic Thinking/ Complex Reasoning DOK 3	Extended Thinking/Reasoning DOK 4
Students will identify essential information needed to accomplish a task.	Students will identify information in a passage that is supported by fact.	Students will identify the appropriateness of an argument using supporting evidence.	Students will identify interrelationships (themes, ideas, concepts) developed in more than one literary work.

Reading—4th grade

Cereal boxes advertise as well as give information. Read the cereal box shown below. Then answer the questions that follow.



FREE INSIDE - CHOCO-YUMMY BEAR
-One free Choco-Yummy Bear sponge
Add water and watch it grow to an amazing size!

Choco-Yummies

For that chocolate taste that fills your mouth with excitement and joy! Choco-Yummies come alive and dance with glee, dancing Yummy Bears for you and me! Your milk will turn a chocolatey brown, as Choco-Yummies take your taste buds for a ride.

Full of vitamins - part of a well-balanced breakfast!
Choco-Yummies are made from a healthy combination of whole wheat, cocoa, and sugar - together with milk these ingredients will make you as strong as a Choco - Yummy Bear!
Yummy, tasty and delicious - that's Choco-Yummies!

Nutrition Facts

Serving Size: 3/4 cup (30g)
Servings Per Container: About 19

Amount per serving	Choco-Yummies	with 1/2 cup skim milk
Calories	130	170
Calories from Fat	30	30
% Daily Value**		
Total Fat 3g*	5%	6%
Saturated Fat 0.5g	2%	3%
Polyunsaturated Fat 0g		
Monounsaturated Fat 1g		
Cholesterol 0mg	0%	1%
Sodium 210mg	9%	11%
Potassium 45mg	1%	7%
Total Carbohydrate 24g	8%	10%
Dietary Fiber 1g	4%	4%
Sugars 10g		
Other Carbohydrates 13g		
Protein 1g		
Vitamin A	5%	10%
Vitamin C	15%	15%
Calcium	4%	20%
Iron	25%	25%
Vitamin D	0%	10%
Thiamin	25%	30%
Riboflavin	25%	35%
Niacin	25%	25%
Vitamin B6	25%	25%
Folic Acid	25%	25%
Zinc	25%	30%

* Amount in Cereal. A serving of cereal plus skim milk provides 3.5g fat, less than 5mg cholesterol, 270mg sodium, 250mg potassium, 30g carbohydrate (16g sugars) and 5g protein.

** Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

	Calories	2,000	2,500
Total Fat	Less than	65g	80g
Sat Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Potassium		3,500mg	3,500mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

INGREDIENTS: SUGAR, COCOA, WHOLE WHEAT, NATURAL FLAVORINGS, SALT, CORN SYRUP, COCONUT OIL AND ARTIFICIAL FLAVOR, BHA ADDED TO PACKAGE TO PRESERVE FRESHNESS.

Mark your answer choices for multiple-choice questions 6 through 9 in the spaces provided.

6. In the phrase “Choco-Yummies come alive and dance with glee,” what does glee mean?

- A. joy
- B. singers
- C. strength
- D. Dancers

This question would be a DOK 2 because it requires interpretation, using context clues to identify the meanings of words. CCA 1.0.1

7. Which is true according to the Nutrition Facts chart?

- A. Brown sugar is listed as an ingredient.
- B. Servings have 25 grams of carbohydrates.
- C. **There are about 19 servings in each box.**
- D. There is more vitamin D than niacin.

This question would be a DOK 1 because students are locating information in the text. CCA 2.0.3

8. Which statement below is a fact?

- A. Yummy, tasty, and delicious—that’s Choco-Yummies!
- B. Choco-Yummies are low in fat and sugar.
- C. **Choco-Yummies contain 3 grams of fat.**
- D. Every bite is full of fun and excitement.

This question would be a DOK 2 because the answer isn’t directly in the text; it requires students to know the difference between fact vs. opinion and then find examples. CCA 3.0.5

9. Why is the name Choco-Yummies in large print on the front of the box?

- A. It reminds the reader of all the ingredients.
- B. **It draws attention to the name of the cereal.**
- C. It reminds the reader that the cereal tastes good.
- D. It makes the box look bigger.

This question would be a DOK 2 because students have to understand the purpose of text features in order to answer the question. It could be higher with rewording that requires interpretation or analysis (i.e. The name is printed large across the box in order to...). CCA 5.0.3

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10. On the Choco-Yummies cereal box, there are several examples of facts and opinions.

- a. List TWO statements from the box that are opinions.
- b. Explain how these TWO statements make customers want to buy and eat Choco-Yummies.

**This would be a DOK 3 because students are asked to explain and connect ideas. Part B requires a text-to-self connection.
(not state assessed in CCA version 4.1 – can be locally assessed)**

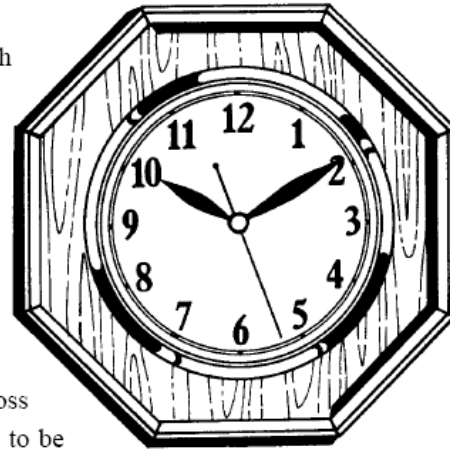
Reading—7th Released

Do you use dial or digital clocks? Isaac Asimov believes there are reasons to prefer one kind of clock to the other. Read why he is concerned about the use of digital clocks. Then answer the questions that follow.

Dial Versus Digital

Isaac Asimov

There seems no question but that the clock dial, which has existed in its present form since the seventeenth century and in earlier forms since ancient times, is on its way out. More and more common are the digital clocks that mark off the hours, minutes, and seconds in ever-changing numbers. This certainly appears to be an advance in technology. You will no longer have to interpret the meaning of “the big hand on the eleven and the little hand on the five.” Your digital clock will tell you at once that it is 4:55. And yet there will be a loss in the conversion of dial to digital, and no one seems to be worrying about it.



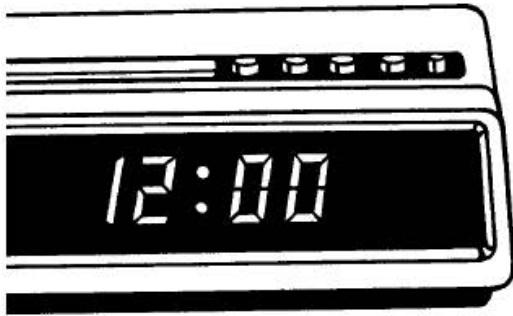
When something turns, it can turn in just one of two ways, clockwise or counterclockwise, and we all know which is which. Clockwise is the normal turning direction of the hands of a clock and counterclockwise is the opposite of that. Since we all stare at clocks (dial clocks, that is), we have no trouble following directions or descriptions that include those words. But if dial clocks disappear, so will the meaning of those words for anyone who has never stared at anything but digitals. There are no *good* substitutes for clockwise and counterclockwise. The nearest you can come is by a consideration of your hands. If you clench your fists with your thumbs pointing at your chest and then look at your fingers, you will see that the fingers of your right hand curve counterclockwise from knuckles to tips while the fingers of your left hand curve clockwise. You could then talk about a “right-hand twist” and a “left-hand twist,” but people don’t stare at their hands the way they stare at a clock, and this will never be an adequate replacement.

Nor is this a minor matter. Astronomers define the north pole and south pole of any rotating body in such terms. If you are hovering above a pole of rotation and the body is rotating counterclockwise, it is the north pole; if the body is rotating clockwise, it is the south pole. Astronomers also speak of “direct motion” and “retrograde motion,” by which they mean counterclockwise and clockwise, respectively.

Here is another example. Suppose you are looking through a microscope at some object on a slide or through a telescope at some view in the sky. In either case, you might wish to point out something to a colleague and ask him or her to look at it, too. “Notice that object

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at eleven o'clock," you might say—or five o'clock or two o'clock. Everyone knows exactly where two, five, or eleven—or any number from one to twelve—is located on the clock dial, and can immediately look exactly where he is told. (In combat, pilots may call attention to the approach of an enemy plane or the location of anti-aircraft bursts or the target, for that matter, in the same way.)



Once the dial is gone, location by "o'clock" will also be gone, and we have nothing to take its place. Of course, you can use directions instead: "northeast," "southwest by south," and so on. However, you will have to know which direction is north to begin with. Or, if you are arbitrary and decide to let north be straight ahead or straight up, regardless of its real location, it still remains true that very few people are as familiar with a compass as with a clock face.

Here's still another thing. Children learn to count and once they learn the first few numbers, they quickly get the whole idea. You go from 0 to 9, and 0 to 9, over and over again. You go from 0 to 9, then from 10 to 19, then from 20 to 29, and so on till you reach 90 to 99, and then you pass on to 100. It is a very systematic thing and once you learn it, you never forget it. Time is different! The early Sumerians couldn't handle fractions very well, so they chose 60 as their base because it can be divided evenly in a number of ways. Ever since, we have continued to use the number 60 in certain applications, the chief one being the measurement of time. Thus, there are 60 minutes in an hour.

If you are using a dial, this doesn't matter. You simply note the position of the hands and they automatically become a measure of time: "half past five," "a quarter past three," "a quarter to ten," and so on. You see time as space and not as numbers. In a digital clock, however, time is measured *only* as numbers, so you go from 1:01 to 1:59 and then move directly to 2:00. It introduces an irregularity into the number system that is going to insert a stumbling block, and an unnecessary one, into education. Just think: 5.50 is halfway between 5 and 6 if we are measuring length or weight or money or anything but time. In time, 5:50 is nearly 6, and it is 5:30 that is halfway between 5 and 6.

What shall we do about all this? I can think of nothing. There is an odd conservatism among people that will make them fight to the death against making time decimal and having a hundred minutes to the hour. And even if we do convert to decimal time, what will we do about "clockwise," "counterclockwise," and locating things at "eleven o'clock"? It will be a pretty problem for our descendants.

11. The Sumerians chose 60 as the base for their number system because
- A. there are 60 minutes in an hour.
 - B. they invented dial clocks.
 - C. **60 can be divided easily.**
 - D. there were six sacred directions on the Sumerian compass.

This is a DOK 1 because it requires locating/recalling information. CCA 2.0.4

12. The author says that using dial references when viewing objects under a microscope helps to show the
- A. **position of an object.**
 - B. time that the object is observed.
 - C. frequency of appearance of the object.
 - D. duration of time that the object is evident.

This is a DOK 2 because students have to make inter-sentence inferences to find the answer, and it requires comprehension and processing of information. CCA 2.0.7

13. Which feature of a dial clock do astronomers use to define Earth's rotation?
- A. its numbering system
 - B. **its direction of hand movement**
 - C. its relationship to a compass
 - D. its movement over time

This is a DOK 2 because students have to make inter-sentence inferences to find the answer, and it requires comprehension and processing of information. CCA 2.0.7

14. The author concludes that in the future
- A. only scientists will use dial clocks.
 - B. new clock terms will be invented.
 - C. **the clock problem will continue.**
 - D. children will learn to count differently.

This is a DOK 1 because the answer is directly in the text. CCA 2.0.4

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Open Response

Discuss **three** arguments that the author uses in trying to convince the reader that dial clocks are better than digital clocks.

This is a DOK 2. The answer is in the text, but students have to paraphrase to answer. “Discuss” is not a verb used in CCA Version 4.1; might use “Explain” instead. CCA 3.0.4

Reading –10th Released

In William Shakespeare's The Tragedy of Julius Caesar, Marc Antony delivers a funeral oration to honor Caesar. Caesar had been murdered by a group of Roman citizens who believed that he had become too powerful. Read the scene below to learn about Marc Antony's oratory skills. Then answer the questions that follow.

The Tragedy of Julius Caesar Act III, Scene ii

ANTONY. Friends, Romans, countrymen, lend me
your ears;

I come to bury Caesar, not to praise him.
The evil that men do lives after them,
The good is oft interrèd¹ with their bones;
So let it be with Caesar. The noble Brutus
Hath told you Caesar was ambitious.
If it were so, it was a grievous fault,
And grievously hath Caesar answered² it.
Here, under leave of Brutus and the rest
(For Brutus is an honorable man,
So are they all, all honorable men),
Come I to speak in Caesar's funeral.
He was my friend, faithful and just to me;
But Brutus says he was ambitious,
And Brutus is an honorable man.
He hath brought many captives home to Rome,
Whose ransoms did the general coffers fill;
Did this in Caesar seem ambitious?
When that the poor have cried, Caesar hath wept;
Ambition should be made of sterner stuff.
Yet Brutus says he was ambitious;
And Brutus is an honorable man.
You all did see that on the Lupercal³
I thrice presented him a kingly crown,
Which he did thrice refuse. Was this ambition?
Yet Brutus says he was ambitious;
And sure he is an honorable man.
I speak not to disprove what Brutus spoke,
But here I am to speak what I do know.
You all did love him once, not without cause;
What cause withholds you then to mourn for him?
O judgment, thou art fled to brutish beasts,
And men have lost their reason! Bear with me;
My heart is in the coffin there with Caesar,
And I must pause till it come back to me.

FIRST PLEBEIAN. Methinks there is much reason in
his sayings.

SECOND PLEBEIAN. If thou consider rightly of the
matter, Caesar has had great wrong.

THIRD PLEBEIAN. Has he, masters?
I fear there will a worse come in his place.

FOURTH PLEBEIAN. Marked ye his words? He
would not take the crown,
Therefore 'tis certain he was not ambitious.

FIRST PLEBEIAN. If it be found so, some will dear
abide it.⁴

SECOND PLEBEIAN. Poor soul, his eyes are red as
fire with weeping.

THIRD PLEBEIAN. There's not a nobler man in
Rome than Antony.

FOURTH PLEBEIAN. Now mark him, he begins
again to speak.

ANTONY. But yesterday the word of Caesar might
Have stood against the world; now lies he there,
And none so poor to⁵ do him reverence.
O masters! If I were disposed to stir
Your hearts and minds to mutiny and rage,
I should do Brutus wrong and Cassius wrong,
Who, you all know, are honorable men.
I will not do them wrong; I rather choose
To wrong the dead, to wrong myself and you,
Than I will wrong such honorable men.

¹ interrèd: buried

² answered: paid the penalty for

³ Lupercal: an ancient Roman festival celebrated
on Feb. 15

⁴ dear abide it: pay dearly for it

⁵ to: as to

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Mark your answer choices for multiple-choice questions 1 through 4 in the spaces provided.

1. What purpose does repeating the phrase, “and Brutus is an honorable man,” serve in Marc Antony’s first speech?
- A. to raise doubt about whether Brutus is an honorable man**
 - B. to emphasize that Marc Antony agrees with Brutus
 - C. to express Marc Antony’s grief over Caesar’s death
 - D. to praise Caesar’s life and accomplishments

This is a DOK 3 because it requires the student to process the text; the student must understand verbal irony and be able to conclude that the speaker means the opposite of what he says. The student must process what he actually means. CCA 3.0.8

2. Which two persuasive techniques does Marc Antony use in his first speech?
- A. logical reasoning and name-calling
 - B. emotional appeal and imitation
 - C. circular reasoning and testimonial
 - D. rhetorical questions and repetition**

This is a DOK 3 because students aren’t just identifying a persuasive technique. They have to determine what is persuasive by finding examples and then have knowledge of the techniques. It involves reasoning. CCA 3.0.8

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3. Marc Antony’s words, “my heart is in the coffin there with Caesar,” are an example of
- A. inferred meaning.
 - B. literal meaning.
 - C. figurative language.**
 - D. colloquial language.

This is a Level 2 because it requires some analysis and comprehension of text. CCA 1.0.1

4. The **main** purpose of the dialogue between the plebeians is to
- A. keep the crowd’s attention.
 - B. raise doubts about why Caesar was murdered.**
 - C. prove Brutus was an honorable man.
 - D. express satisfaction with the new leadership.

This is a Level 2 because students have to understand author’s purpose. CCA 3.0.2m 1m – 2003-2004

Open Response

Marc Antony uses evidence to convince the crowd that Caesar was not ambitious.

- a. Identify **three** examples of the evidence that Marc Antony uses to support his claim that Caesar was not ambitious.
- b. Explain why these examples are effective support for his claim.

This is a Level 3 because students have to evaluate Anthony’s use of evidence in the speech. CCA 3.0.7