Support Materials for Core Content for Assessment

Version 4.0

Reading

February 2006 Kentucky Department of Education

Introduction to Depth of Knowledge (DOK) - Based on Norman Webb's Model (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:

- Identify essential information needed to accomplish a task.
- Follow the sequence of information from a passage.
- Locate key ideas or information in a passage.

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

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 analysis of inference is required. Some important concepts are covered, but not in a complex way. Standards and items at this level may include words such as summarize, interpret, infer, classify, organize, collect, display, compare, and determine whether fact or opinion. Literal main ideas are stressed. 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.

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

- Interpret literal and non-literal meanings of words or phrases, based on context.
- · Make inferences or draw conclusions based on what is read.
- Apply knowledge of organizational patterns to understand a passage.

Strategic Thinking/Complex Reasoning—Depth of Knowledge (DOK) Level 3 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. Standards and items at Level 3 involve reasoning and planning. Students must be able to support their thinking. 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:

- Explain the appropriateness of an argument for an intended audience.
- Analyze or evaluate the use of supporting details as they relate to the author's message.
- Explain the main ideas and their importance in a passage.

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

Higher-order thinking is central and knowledge is deep at Level 4. 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. 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.

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

- Compare and contrast elements, views, ideas, or events presented in one or more passages.
- Identify the interrelationships (themes, ideas, concepts) that are developed in more than one literary work.
- · Analyze the ways in which similar themes or ideas are developed in more than one text.

Table 1: Depth-of-Knowledge Level Descriptors for Reading from CCA Version 4.0 (grades 4, 7,10)

(Adapted from Karin Hess, Center for Assessment/NCIEA by the Kentucky Department of Education, 2005)

Recall and	Skills and Concepts/	Strategic Thinking/ Complex	Extended
Reproduction	Basic Reasoning	Reasoning	Thinking/Reasoning
(DOK 1)	(DOK 2)	(DOK 3)	(DOK 4)
Students will identify the purpose of capitalization, punctuation, boldface type, italics, or indentations to make meaning of the text. Students will scan to find key information. Students will skim to get the general meaning of a passage. Students will locate key ideas or information in a passage. Students will identify essential information from a passage needed to	Students will apply word recognition strategies (e.g., phonetic principles, context clues, structural analysis) to determine pronunciations or meanings of words in passages. Students will apply knowledge of synonyms, antonyms, or compound words for comprehension. Students will know that some words have multiple meanings and identify the correct meaning as the word is used. Students will formulate questions to guide reading. Students will identify and describe the characteristics of fiction, nonfiction, poetry, or plays. Students will describe characters, plot, setting, or problem/solution of a passage. Students will interpret the meaning of	Students will explain a character's actions based on a passage. Students will make predictions, draw conclusions, make generalizations, or make inferences based on what is read. Students will use evidence from a passage to formulate opinions in response to a reading passage. Students will explain or analyze how a conflict in a passage is resolved. Students will accept or reject an argument, giving supporting evidence from the passage. Students will analyze an argument, giving supporting evidence from the passage.	Students will compare or contrast elements, views, ideas, or events presented in one or more passages. Students will analyze the ways in which similar themes or ideas are developed in more than one text. Students will identify the interrelationships (themes, ideas, concepts) that are developed in more than one literary work. Students will compare and contrast elements, views, ideas, or events presented in one or more passages.

Table 1: Depth-of-Knowledge Level Descriptors for Reading from CCA Version 4.0 (grades 4, 7,10)

accomplish a task. Students will follow the sequence of information from a passage. specialized vocabulary (words and terms specific to understanding the content).

Students will identify and explain why the correct sequence is important.

Students will make inferences or draw conclusions based on what is read.

Students will identify main ideas and details that support them.

Students will identify information in a passage that is supported by fact.

Students will identify informative or persuasive passages.

Students will select, based on context, the appropriate meaning for a word that has multiple meanings.

Students will apply the meanings of word parts (prefixes, suffixes, roots) to comprehend unfamiliar words in a passage.

Students will interpret literal and nonliteral meanings of words or phrases, based on context.

Students will interpret the meaning of jargon, dialect, or specialized vocabulary used in a passage.

Students will analyze the relationship between a speaker's or character's motivation and behavior in a passage, as revealed by the dilemmas.

Students will analyze or evaluate the use of supporting details as they relate to the author's message.

Students will analyze or evaluate the use of persuasive or propaganda techniques within a passage.

Students will explain the appropriateness of an argument for an intended audience.

Students will use evidence from a passage to formulate opinions in response to a reading passage.

Students will compare and contrast the characteristics of a variety of literary genres.

Students will explain, analyze or evaluate the effectiveness of literary elements (e.g., theme,

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Students will summarize information from a paragraph, a section of a passage, or an entire passage.

Students will explain the meaning of concrete and abstract terms, based on the context from a passage (e.g., "loaded" words, connotation, and denotation).

Students will identify or explain an author's purpose in a passage.

Students will distinguish between informative and persuasive passages.

Students will distinguish between fact or opinion.

Students will identify or explain an author's opinion about a subject.

Students will identify the argument or supporting evidence from a passage.

Students will identify persuasive techniques (e.g., expert opinion, logical/emotional/ethical appeal, repetition, rhetorical question) or propaganda techniques (e.g., testimonial, bandwagon).

Students will make predictions based on what is read.

Students will paraphrase information

characterization, setting, point of view, conflict and resolution, plot, structure) within a passage.

Students will analyze the author's use of literary devices in a passage (e.g., symbolism, irony, analogies, imagery, figurative language).

Students will critique the author's word choice, style, tone, or content.

Students will analyze the effectiveness of the organizational patterns in a passage (e.g., cause and effect, repetition, comparison and contrast, sequence, generalizations) for fulfilling the purpose of the passage.

Students will explain main ideas and their importance in a passage.

Students will interpret how meaning is influenced by the author's word choice, style, content, or use of literary elements.

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in a passage.

Students will apply the information contained in a passage to accomplish a task/procedure or to answer questions about a passage.

Students will explain an author's position based on evidence in a passage.

Students will identify and explain literary devices such as foreshadowing, imagery, or figurative language (e.g., similes, metaphors, personification, hyperbole).

Students will identify or explain an author's use of symbolism, irony, or analogy found in a passage.

Students will apply knowledge of organizational patterns (e.g., cause and effect, comparison, contrast, sequence) to understand a passage.

Students will evaluate the effectiveness of organization or format in fulfilling the purpose of a passage.

Students will explain or analyze how the use of text features (e.g., subheadings, bullets, fonts, white space, layout, charts, diagrams, labels, pictures, and captions) enhances the reader's understanding of a passage.

Students will analyze the content or make connections as it applies to students' lives (text-to-self), real world issues (text-to-world) or other texts (text-to-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.

2004 Released Items Annotated for DOK

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



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
- 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.
- 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.
- 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.

Read all parts of the question before you begin. Write your answer to open response question 10 in the space provided on the next page.

- 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.

Reading—7th Released

Do you use dial or digital clocks? Isaac Asimov believes there are reasons to prefer on 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 everchanging 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.

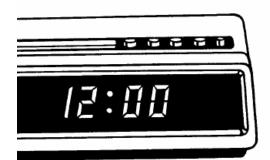
When something turns, it can turn in just one of two ways, clockwise or counterclockwise, and we all know which is which. Clockwise is the normal turning direction of the hands of a clock and counterclockwise is the opposite of that. Since we all stare at clocks (dial clocks, that is), we have no trouble 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

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 antiaircraft 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.
- 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.
- 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
- 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.

Open Response

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

Reading -10th Released

In William Shakespeare's The Tragedy of Julius Caesar, Marc Antony delivers a funeral oration to bonor 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.

- 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
- 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
- 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.
- 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.

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.

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Annotations

Choco-Yummies

- 6. **A**--This question is a DOK 2 because it requires interpretation, using context clues to identify the meanings of words. CCA 1.3
- 7. **C**--This question is a DOK 1 because students are locating information in the text. CCA 2.3
- 8. **C**--This question is 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 3.5
- 9. **B**--This question is 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 5.2
- 10. This question is a DOK 3 because students are asked to explain and connect ideas. Part B requires a text-to-self connection. CCA 4.1 (not state assessed)

Dial vs. Digital

- 11. C-- This is a DOK 1 because it requires locating/recalling information. CCA 2.4
- 12. **A**--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 2.7
- 13. **B**-- 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 2.7
- 14. D--This is a DOK 1 because the answer is directly in the text. CCA 2.4
- OR. 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; might use "Explain" instead. CCA 3.4

Julius Caesar

- 1. **A**--This is a DOK 3 because it requires analyzing the use of persuasive techniques. CCA 3.8
- 2. **D**--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 3.8
- 3. **C**--This is a DOK 2 because it requires some interpretation and comprehension of text. CCA 1.1
- 4. **B**--This is a DOK 2 because students have to understand author's purpose. CCA 3.2
- OR. This is a DOK 3 because students have to evaluate Anthony's use of evidence in the speech. CCA 3.7