

Webb's Alignment Information
Depth of Knowledge Levels Explained and Sample Test Items

Mathematics

Mathematics Depth-Of-Knowledge Definitions

Mathematics Level 1

Level 1 (Recall) includes the **recall of information** such as a **fact, definition, term,** or a **simple procedure**, as well as **performing a simple algorithm** or **applying a formula**. That is, in mathematics a **one-step, well-defined,** and **straight algorithmic procedure** should be included at this lowest level. Other key words that signify a Level 1 include "identify," "recall," "recognize," "use," and "measure." Verbs such as "describe" and "explain" could be classified at different levels depending on what is to be described and explained.

Examples:

- Recall or recognize a fact, term or property
- Represent in words, pictures or symbols in a math object or relationship
- Perform routine procedure like measuring

Level 1

Recall of a fact or information procedure

Objective 1:1

Read, write and compare decimals in scientific notation

This objective is an example of level 1. The highest demand for students to successfully meet this expectation requires them to use recall and use a routine method to convert a decimal to scientific notation.

Objective 1:2

Compute with numbers (that is, add, subtract, multiply, divide)

This objective requires students to conduct basic calculations. This is level 1 because it involves routine processing and involves a one step process.

Level 2 (Skill/Concept) includes the engagement of some **mental processing beyond** a **habitual response**. A Level 2 assessment item requires students to make some decisions as to **how to approach the problem or activity**, whereas Level 1 requires students to demonstrate a **rote response**, perform a well-known algorithm, follow a **set procedure** (like a recipe), or perform a clearly defined series of steps. Keywords that generally distinguish a Level 2 item include “**classify**,” “**organize**,” “**estimate**,” “**make observations**,” “**collect and display data**,” and “**compare data**.” These actions **imply** more than one step. For example, to compare data requires first identifying characteristics of the objects or phenomenon and then grouping or ordering the objects.

Some action verbs, such as “explain,” “describe,” or “interpret” could be classified at different levels depending on the object of the action. For example, if an item required students to explain how light affects mass by indicating there is a relationship between light and heat, this is considered a Level 2.

Level 2

Basic Reasoning: Use information or conceptual knowledge, two or more steps

Objective 2:1

Construct two-dimensional patterns for three-dimensional models, such as cylinders and cones.

This objective is an example of level 2. Although recognizing and drawing a two-dimensional pattern or a regular cylinder is expected to be routine (level 1), building a three-dimensional model would not be as routine. It would require at least two steps: first recognizing the shape, second building a two-dimensional object to reflect the shape in three-dimensions.

Level 2 Vs. Level 3

Interpreting information from a **simple graph**, requiring reading information from the graph, also is a Level 2. Interpreting information from a **complex graph** that requires some decisions on what **features of the graph need to be considered** and how information from the graph can be **aggregated** is a Level 3. **Caution** is warranted in interpreting Level 2 as only skills because some reviewers will interpret skills very narrowly, as primarily numerical skills, and such interpretation excludes from this level other skills such as visualization skills and probability skills, which **may** be more complex simply because they are less common. Other Level 2 activities include **explaining** the purpose and **use of experimental procedures**; **carrying out experimental procedures**; **making observations and collecting data**; **classifying, organizing, and comparing data**; and **organizing and displaying data** in tables, graphs, and charts.

- Specify and explain relationships between facts, terms, properties or operations
- Select procedure according to criteria and perform it
- Solve routine multiple-step problems

Mathematics Level 3

Level 3 (Strategic Thinking) requires reasoning, planning, using evidence, and a higher level of thinking than the previous two levels. In most instances, requiring students to explain their thinking is a Level 3. Activities that require students to make conjectures are also at this level. The cognitive demands at Level 3 are complex and abstract. The complexity does **not** result from the fact that there are multiple answers, a possibility for both Levels 1 and 2, but because the task requires more demanding reasoning. An activity, however, that has more than one possible answer and requires students to justify the response they give would most likely be a Level 3. Other Level 3 activities include drawing conclusions from observations; citing evidence and developing a logical argument for concepts; explaining phenomena in terms of concepts; and using concepts to solve problems.

- Analyze similarities and differences between procedures
- Formulate original problem given situation
- Formulate mathematical model for complex situation

Level 3

Complex Reasoning: Requires reasoning, developing a plan or a sequence of steps, working with some complexity, and considering more than one possible approach and answer

Objective 3:1

Grade 8: Solve two-step linear equations and inequalities in one variable over the rational numbers, interpret the solution or solutions in the context from which they arose, and verify the reasonableness of results.

This objective is an example of level 3. The expectation expressed in this objective is that students will not only solve a two-step linear equation, but will also interpret the solution and verify the results. This will require students to do some reasoning in order to interpret the solution and could be fairly complex depending on the context. If students were only required to solve linear equations and verify solutions, then the expectation would be level 2

Mathematics Level 4

Level 4 (Extended Thinking) requires **complex reasoning, planning, developing, and thinking most likely** over an extended period of time. The extended time period is **not** a distinguishing factor if the required work is only **repetitive** and does **not** require applying **significant conceptual understanding** and **higher-order thinking**. For example, if a student has to take the water temperature from a river each day for a month and then construct a graph, this would be classified as a Level 2. However, if the student is to conduct a river study that requires taking into consideration a number of variables, this would be a Level 4. At Level 4, the cognitive demands of the task should be high and the work should be very complex. Students should be required to **make several connections—relate ideas within the content area** or among content areas—and have to **select** one approach among **many alternatives** on how the situation should be solved, in order to be at this highest level. Level 4 activities include **designing and conducting experiments; making connections** between a **finding and related concepts and phenomena; combining and synthesizing ideas** into new concepts; and **critiquing experimental designs**.

- Apply mathematical model to illuminate a problem, situation
- Conduct a project that specifies a problem, identifies solution paths, solves the problem, and reports results
- Design a mathematical model to inform and solve a practical or abstract situation

Level 4

Extended Reasoning: Requires an investigation, time to think and process multiple conditions of the problem

Objective 4:1

Grade 8 (from NEAP Math Framework): Design a statistical experiment to study a problem and communicate the outcomes.

This standard requires students to plan a statistical experiment. To do this a student must define the problem and develop a procedure for solving it. This involves the student identifying the correct statistical model, applying the model to data and communicating the outcome of the selected model. The student must interpret findings and make reasonable and rationed inferences from obtained data. This represents complex, multi-step reasoning and reflects a level 4 task.

Sample test items

Sam can purchase his lunch at school. Each day he wants to have juice that costs 50¢, a sandwich that costs 90¢, and fruit that costs 35¢. His mother has only \$1.00 bills. What is the least number of \$1.00 bills that his mother should give him so he will have enough money to buy lunch for 5 days?

- Level 1
- Level 2
- Level 3
- Level 4

Correct, In this 4th grade question a student needed to add together the cost of a juice, the cost of a sandwich, and the cost of a piece of fruit for one day. The total cost for lunch each day is \$1.75. Once the total is found for each day, the student needs to multiply the total for each day by 5 days. This gives a total for the week of \$8.75. The least number of dollar bills that Sam's mother needs to give him is 9. To earn full credit the student needed to give an answer of nine \$1 bills (or one \$5 bill and four \$1 bills). Partial credit could be earned in a variety of ways, such as giving only the total for 5 days (\$8.75), or rounding the per day total to \$2 and multiplying by 5 days, which would have given an answer of \$10. The question presented students with an opportunity to demonstrate their understanding of money in a real-world situation. For 4th graders, this requires complex reasoning and requires the student to make several connections between math concepts. This activity reflects level 4.

In the figure above, what fraction of rectangle ABCD is shaded?

- a. $\frac{1}{6}$
- b. $\frac{1}{5}$
- c. $\frac{1}{4}$
- d. $\frac{1}{3}$
- e. $\frac{1}{2}$

- Level 1
- Level 2
- Level 3
- Level 4

Correct, This grade 8 item is an example of level 1. Students are required to recognize what is the shaded region compared to the whole region.

A car odometer registered 41,256.9 miles when a highway sign warned of a detour 1,200 feet ahead. What will the odometer read when the car reaches the detour? (5280 feet = 1 mile)

- a. 42,456.9
- b. 41,279.9
- c. 41,261.3
- d. 41,259.2
- e. 41,257.1

- Level 1
- Level 2
- Level 3
- Level 4

Correct, This grade 8 item requires students to compute in decimal form the proportion of a mile that is equivalent to 1,200 feet and then add this decimal to the current odometer reading. This item requires students to think about what operation or operations to use, what numbers to use, and what conversion to make. These required skills along with some skills in computation, makes this a level 2.

If each of the counting numbers from 1 through 10 is multiplied by 13, how many of the resulting numbers will be even?

- a. One
- b. Four
- c. Five
- d. Six
- e. Ten

- Level 1
- Level 2
- Level 3
- Level 4

Correct, This grade 8 item is an example of level 2. Students are required to use properties of multiplication and odd and even numbers. Although for some students this may be routine, the item requires students to consider more than one concept.

This question requires you to show your work and explain your reasoning. You may use drawings, words, and numbers in your explanation. Your answer should be clear enough so that another person could read it and understand your thinking. It is important that you show ALL of your work.

Julie wants to fence in an area of her yard for her dog. After paying for the materials to build her doghouse, she can afford to buy only 36 feet of fencing.

She is considering various different shapes for the enclosed area. However, she wants all of her shapes to have 4 sides that are whole number lengths and contain 4 right angles. All 4 sides are to have fencing.

What is the largest area that Julie can enclose with 36 feet of fencing?

Support your answer by showing work that would convince Julie that your area is the largest.

- Level 1
- Level 2
- Level 3
- Level 4

Correct, This grade 8 activity, from NAEP, is an example of a level 3. A student is required to do what has become a standard assessment activity. The extensive wording of the problem can be distracting and creates a problem with the source-of-challenge. However, how the problem is stated does require the student to do some interpretation to understand what is being asked and to give an argument.

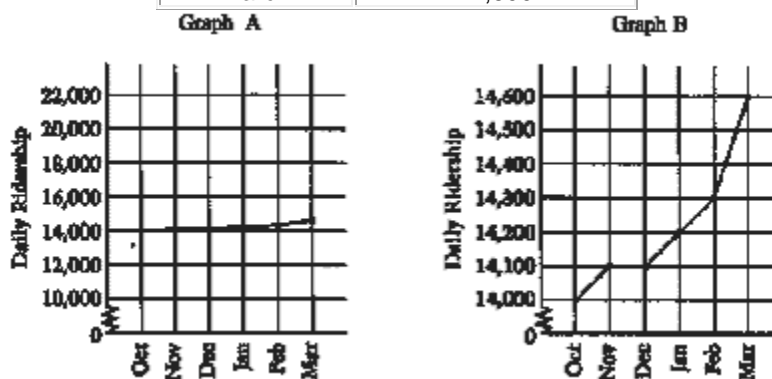
1. Which of the following numbers, when rounded to the nearest thousand, becomes 27,000?
- a. 26,099
 - b. 26,490
 - c. 27,381
 - d. 27,550
 - e. 27,640

- Level 1
- Level 2
- Level 3
- Level 4

Correct, This grade 8 item is an example of level 1. Students are required to recall and compare a simple rounding procedure.

This question requires you to show your work and explain your reasoning. You may use drawings, words, and numbers in your explanation. Your answer should be clear enough so that another person could read it and understand your thinking. It is important that you show all of your work.

Month	Daily Ridership
October	14,000
November	14,100
December	14,100
January	14,200
February	14,300
March	14,600



The data in the table above has been correctly represented by both graphs shown below.

Which graph would be best to help convince others that the Metro Rail Company made a lot more money from ticket sales in March than in October?

Explain your reasons for making this selection.

Why might people who thought that there was little difference between October and March ticket sales consider the graph you chose to be misleading?

- Level 1
- Level 2
- Level 3
- Level 4

This task requires students to relate a table of numbers to two graphs of the same information displayed differently. Students must then decide which of the two graphs will convince others of increased sales. The student is required to explain her/his answer. Following this the student is asked to take the opposite position and argue why the graph they are misleading. The task requires extended time to complete, involves complex restructuring of data, and requires the student to opposing views of the same information. This is activity is at a level 4.

SCIENCE

Science Depth-Of-Knowledge Definitions

Science Level 1

Level 1. Recall and Reproduction

Level 1 is the recall of information such as a **fact**, **definition**, **term**, or a **simple procedure**, as well as performing a **simple science process or procedure**. Level 1 only requires students to demonstrate a **rote response**, use a **well-known formula**, follow a **set procedure** (like a recipe), or perform a clearly defined series of steps. A “simple” procedure is well-defined and **typically** involves only one-step. Verbs such as “**identify**,” “**recall**,” “**recognize**,” “**use**,” “**calculate**,” and “**measure**” generally represent cognitive work at the recall and reproduction level. Simple word problems that can be directly translated into and solved by a formula are considered Level 1. Verbs such as “describe” and “explain” could be classified at different DOK levels, depending on the complexity of what is to be described and explained.

A student answering a Level 1 item either knows the answer or does not: that is, the answer does **not** need to be “figured out” or “solved.” In other words, if the knowledge necessary to answer an item automatically provides the answer to the item, then the item is at Level 1. If the knowledge necessary to answer the item does **not** automatically provide the answer, the item is at least at Level 2. Some examples that represent but do **not** constitute all of Level 1 performance are:

- Recall or recognize a fact, term, or property.
- Represent in words or diagrams a scientific concept or relationship.
- Provide or recognize a standard scientific representation for simple phenomenon.
- Perform a routine procedure such as measuring length.

Science Depth-Of-Knowledge Definitions

Science Level 2

Level 2. Skills and Concepts

Level 2 includes the engagement of some mental processing beyond recalling or reproducing a response. The content knowledge or process involved is more complex than in level 1. Items require students to make some decisions as to how to approach the question or problem. Keywords that generally distinguish a Level 2 item include “**classify**,” “**organize**,” “**estimate**,” “**make observations**,” “**collect and display data**,” and “**compare data**.” These actions **imply more than one step**. For example, to compare data requires first identifying characteristics of the objects or phenomenon and then grouping or ordering the objects. Level 2 activities include **making observations** and **collecting data**; **classifying**, **organizing**, and **comparing data**; and **organizing** and **displaying data** in tables, graphs, and charts.

Some action verbs, such as “explain,” “describe,” or “interpret,” could be classified at different DOK levels, depending on the complexity of the action. For example, interpreting information from a **simple** graph, requiring reading information from the graph, is a Level 2. An item that requires interpretation from a **complex** graph, such as **making decisions** regarding features of the graph that need to be **considered** and how information from the graph can be **aggregated**, is at Level 3. Some examples that represent, but do **not** constitute all of Level 2 performance, are:

- Specify and explain the relationship between facts, terms, properties, or variables.
- Describe and explain examples and non-examples of science concepts.
- Select a procedure according to specified criteria and perform it.
- Formulate a routine problem given data and conditions.
- Organize, represent and interpret data.

Science Depth-Of-Knowledge Definitions Science Level 3

Level 3. Strategic Thinking

Level 3 requires **reasoning, planning, using evidence**, and a higher level of thinking than the previous two levels. The cognitive demands at Level 3 are **complex** and **abstract**. The complexity does **not** result only from the fact that there could be multiple answers, a possibility for both Levels 1 and 2, but because the multi-step task requires **more demanding reasoning**. In most instances, requiring students to **explain their thinking** is at Level 3; requiring a very simple explanation or a word or two should be at Level 2. An activity that has more than one possible answer and requires students to **justify the response** they give would **most likely** be a Level 3. Experimental designs in Level 3 **typically** involve more than one dependent variable. Other Level 3 activities include **drawing conclusions from observations; citing evidence and developing a logical argument** for concepts; **explaining phenomena in terms of concepts**; and **using concepts to solve non-routine problems**. Some examples that represent, but do **not** constitute all of Level 3 performance, are:

- Identify research questions and design investigations for a scientific problem.
- Solve non-routine problems.
- Develop a scientific model for a complex situation.
- Form conclusions from experimental data.

Science Depth-Of-Knowledge Definitions Science Level 4

Level 4. Extended Thinking

Tasks at Level 4 have **high cognitive demands** and are **very complex**. Students are required to **make several connections—relate ideas within the content area or among content areas—and have to select or devise one approach among many alternatives** on how the situation can be solved. Many on-demand assessment instruments will **not** include any assessment activities that could be classified as Level 4. However, standards, goals, and objectives can be stated in such a way as to expect students to perform extended thinking. “Develop generalizations of the results obtained and the strategies used and apply them to new problem situations,” is an example of a Grade 8 objective that is a Level 4. Many, but **not** all, **performance assessments** and **open-ended assessment activities** requiring **significant thought** will be Level 4.

Level 4 requires **complex reasoning, experimental design** and planning, and probably will require an **extended period of time** either for the science investigation required by an objective, or for carrying out the multiple steps of an assessment item. However, the extended time period is **not** a distinguishing factor if the required work is only repetitive and does not require applying significant conceptual understanding and higher-order thinking. For example, if a student has to take the water temperature from a river each day for a month and then construct a graph, this would be classified as a Level 2 activity. However, if the student conducts a river study that requires **taking into consideration a number of variables**, this would be a Level 4. Some examples that represent but do

not constitute all of a Level 4 performance are:

- Based on provided data from a complex experiment that is novel to the student, deduct the fundamental relationship between several controlled variables.
- Conduct an investigation, from specifying a problem to designing and carrying out an experiment, to analyzing its data and forming conclusions.

Level 1

Recall

Objective 1:1

Students should identify the structure and function of the major parts of animal and plant cells. (8)

["Identifying" the cell parts and their functions only involves recalling and naming/labeling.]

Objective 1:2

Students should be able to recognize the phases of mitosis. (10)

["Recognizing" phases of mitosis only involves recalling the basic parts of the cell and their changes.]

Level 2

Skills and Concepts

Objective 2:1

Students should be able to collect data for a single variable over time and represent them in a line graph. (8)

[Students are being asked to gather data and represent it in a graph – a two step procedure.]

Objective 2:2

Students should be able to explain the process of photosynthesis in detail. (10)

[At grade 10, a common expectation for this objective would be to require fairly detailed (complex) explanations, including a word or chemical equation of the substances involved.]

Level 3**Strategic Thinking**Objective 3:1

Students should understand the fundamentals of how plate tectonics explain the cause and nature of major types of earthquakes (8).

[Understanding the concepts of earth plate movements and how they result in different types of earthquakes involves abstract, complex reasoning.]

Objective 3:2

Students should be able use common species to illustrate the advantages of sexual reproduction over asexual reproduction. (10)

["Illustrating" the difference would involve choosing some examples of each and providing a detailed explanation of the relative effects of each reproduction type on the species. While these concepts are less abstract than example 3.1, explaining them is fairly complex.]

Level 4**Extended Thinking**Objective 4:1

Students should design and conduct a science investigation in their home or community that involves data collection, display and interpretation. (8)

[Requires major aspects of a scientific investigation over time.]

Sample test items

[This item was contributed to the PALS (Performance Assessment Links in Science) website (<http://www.ctl.sri.com/pals/>) by the Kentucky Department of Education.]

The purpose of this task is to determine where, how high, and for what purpose (flood control, recreation, hydroelectric power, etc.) to build a dam. You will have a total of 45 minutes to complete this task. You may use up to 20 minutes to complete the group work, found on the first two pages of this form. When you finish the group activity, someone from your group should tell the facilitator.

Then you may open this form and follow the directions inside by yourself.

Your group should have the following materials:

- Plastic model
- Clay
- Water in a pitcher
- Map
- Ruler
- Paper towels
- Pencils

GROUP ACTIVITY

1. Examine the model of the river valley as well as the map you have been provided. Using this information, discuss possible sites for a dam.
2. Use the clay to construct a dam on the model. With the water, test the impact of your dam on the nearby areas. Try different locations and dam heights based upon the dam's purpose. Record the different locations on the group's map. Record information from the trials in the chart on the next page.

Record information from your group's tests in this chart.

Site #	Location	Purpose	Impact

Make sure that each group member's name appears on the map. One member of the group should insert the map into his or her response form when passing in the completed form.

When you are finished with the work on this page, one member of the group should tell the facilitator that your group has finished its group work. Then go on to the individual work. Remember that you must work alone on those pages. You may not discuss the questions or share information.

INDIVIDUAL ACTIVITY

3. After reviewing the work your group has done, where would you place the dam and how high would you make it? Why?
4. What social, environmental, and economic impacts would the location you chose for the dam have on the surrounding community?
5. Describe concerns you would include in an environmental impact statement for dam sites other than the one you selected in question 3.

Be sure one member of the group inserts the map inside his or her form for collection.



- Level 2
- Level 3
- Level 4

Correct

Make a graph of your heart rate as you walk in place for five minutes. (grade 8)

- Level 1
- Level 2
- Level 3
- Level 4

Correct, Students must decide appropriate intervals for measuring pulse and procedures for graphing data.

The results of one of her experiments are shown in the table below:

Average tumor size in millimeters by dosage and days of treatment							
	Days of Treatment						
Dosage	1	7	14	21	28	35	42
150mg	5	6	8	11	13	15	18
300mg	5	5	6	7	7	9	10
600mg	5	5	4	4	5	4	3

What can she conclude from these results?

- The effectiveness of the drug over time depends on the size of the dosage.
- The drug is effective over time regardless of the size of the dosage.
- The size of the dosage affects tumor size regardless of the length of time.
- The drug is ineffective regardless of the dosage or length of time.

- Level 1
- Level 2
- Level 3
- Level 4

Correct, Students must discern patterns in the data and apply them to the provided statements.

What is the volume of liquid in the graduated cylinder? depicted (grade 8)

- Level 1

- Level 2
- Level 3
- Level 4

Correct, Reading a meniscus should be a standard measuring procedure in grade 8.

Language Arts Depth-Of-Knowledge Definitions

Language Arts is broken into two areas: Reading and Writing.

Reading

Writing

Language Arts Reading Level 1

Level 1 Recall of Information

Level 1 requires students to **receive** or **recite facts** or to use simple skills or abilities. Oral 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 text presented and often consist of **verbatim recall** from text or simple understanding of a single word or phrase. Some examples that represent but do **not** constitute all of Level 1 performance are:

- Support ideas by reference to details in the text.
- Use a dictionary to find the meaning of words.
- Identify figurative language in a reading passage.

Language Arts Reading Level 2

Level 2 Basic Reasoning

Level 2 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. Intersentence 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 some of the skills and concepts that are covered in Level 1. Some examples that represent but do **not** constitute all of Level 2 performance are:

- Use context cues to identify the meaning of unfamiliar words.
- Predict a logical outcome based on information in a reading selection.
- Identify and summarize the major events in a narrative.

Language Arts Reading Level 3

Level 3 Complex Reasoning

Deep knowledge becomes more of a 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:

- Determine the author's purpose and describe how it affects the interpretation of a reading selection.
- Summarize information from multiple sources to address a specific topic.
- Analyze and describe the characteristics of various types of literature.

Language Arts Reading Level 4

Level 4 Extended Reasoning

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**. The extended time period is **not** a distinguishing factor if the required work is only repetitive and does not require applying significant conceptual understanding and higher-order thinking. Students take information from at least one passage 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:

- Analyze and synthesize information from multiple sources.
- Examine and explain alternative perspectives across a variety of sources.
- Describe and illustrate how common themes are found across texts from different cultures.

Language Arts Writing Level 1

Level 1 Recall of Information

Level 1 requires the student to **write** or **recite simple facts**. This writing or recitation does **not** include complex synthesis or analysis but basic ideas. The students are engaged in **listing ideas** or words as in a brainstorming activity prior to written composition, are engaged in a **simple spelling** or **vocabulary assessment** or are asked to **write simple sentences**. Students are **expected** to write and speak using Standard English conventions. This includes using appropriate **grammar**, **punctuation**, **capitalization** and **spelling**. Some examples that represent but do **not** constitute all of Level 1 performance are:

- Use punctuation marks correctly.
- Identify Standard English grammatical structures and refer to resources for correction.

Language Arts Writing Level 2

Level 2 Basic Reasoning

Level 2 requires **some mental processing**. At this level students are engaged in **first draft writing** or **brief extemporaneous speaking** for a limited number of purposes and audiences. Students are beginning to connect ideas using a **simple organizational structure**. For example, students **may** be engaged in **note-taking**, **outlining** or **simple summaries**. Text **may** be limited to one paragraph. Students demonstrate a basic understanding and appropriate use of such **reference materials** as a dictionary, thesaurus, or web site. Some examples that represent but do **not** constitute all of Level

2 performance are:

- Construct compound sentences.
- Use simple organizational strategies to structure written work.
- Write summaries that contain the main idea of the reading selection and pertinent details.

Language Arts Writing Level 3

Level 3 Complex Reasoning

Level 3 requires some higher level mental processing. Students are engaged in **developing compositions** that include multiple paragraphs. These compositions may include **complex sentence structure** and may demonstrate some **synthesis** and **analysis**. Students show **awareness of their audience** and **purpose** through focus, organization and the use of appropriate compositional elements. The use of appropriate compositional elements includes such things as **addressing chronological order** in a narrative or **including supporting facts and details** in an informational report. At this stage students are engaged in **editing** and **revising** to **improve the quality** of the composition. Some examples that represent but do **not** constitute all of Level 3 performance are:

- Support ideas with details and examples.
- Use voice appropriate to the purpose and audience.
- Edit writing to produce a logical progression of ideas.

Language Arts Writing Level 4

Level 4 Extended Reasoning

Higher-level thinking is central to Level 4. The standard at this level is a **multi-paragraph composition** that demonstrates **synthesis** and **analysis** of complex ideas or themes. There is evidence of a **deep awareness of purpose and audience**. For example, informational papers include **hypotheses** and **supporting evidence**. Students are expected to **create compositions** that demonstrate a **distinct voice** and that **stimulate the reader or listener** to consider new perspectives on the addressed ideas and themes. An example that represents but does **not** constitute all of Level 4 performance is:

Write an analysis of two selections, identifying the common theme and generating a purpose that is appropriate for both.

Level 1

Recall of Information

Objective 1:1

Recall and comprehend information and details presented in informational texts.

This objective is an example of level 1. Students most commonly meet this expectation by recalling information explicitly stated in functional or informational texts.

Objective 1:2

Know or can decode meaning of words or phrases at grade level.

This objective is also an example of level 1. Students most commonly demonstrate this skill through successful recall of specific words, phrases, and idioms.

Objective 1:3

Recall elements and details of story structure, such as sequence of events, character, plot, and setting.

This objective is an example of level 1. Reading and comprehending literature are aided by knowledge of common literary structures as well as recall of important events, characters, etc. developed in the work.

Level 2**Basic Reasoning****Objective 2:1**

Edit final copies for correct use of language, spelling, punctuation, and capitalization.

This objective is an example of level 2. Students would be required to apply their knowledge of mechanics and conventions to written text generated by themselves or others.

Objective 2:2

Understand main idea and purpose implied by text.

This objective is also an example of level 2. Students would be required to move beyond recall and literal comprehension to summarize the main points of a text.

Level 3**Complex Reasoning****Objective 3:1**

Evaluate the relative accuracy and usefulness of information from different sources.

This objective illustrates a level 3. Students must understand a variety of kinds of texts, make inferences across entire passages, and demonstrate the ability to evaluate information according to various criteria. Students must be able to support their thinking.

Objective 3:2

Understands the relationships between and among elements of literature, including characters, plot, setting, tone, figurative language, point of view, and theme.

This objective also illustrates level 3. Analyzing and describing the relationship of part-to-whole in imaginative texts requires at least some depth of knowledge and understanding, ability to abstract, and to make more complex inferences.

Level 4

Extended Reasoning

Objective 4:1

Locate, gather, analyze and evaluate written information for the purpose of drafting a reasoned report that supports and appropriately illustrates inferences and conclusions drawn from research.

This objective illustrates level 4. An assessment of this objective would require an extended activity that allowed students time to gather, read, and evaluate materials; select and record information according to a specific purpose; and generate an original composition shaped for a specific audience and purpose.

Objective 4:2

Generate and edit media work as appropriate to audience and purpose.

This objective is also a level 4. Students are required to perform a variety of higher order tasks similar to those identified in the previous example; in addition, this task requires students to manage the necessary technology required to create a media piece.

Sample test items:

Gary Soto's style is characterized by similes like these found in "The Jacket":

"bitter as a penny"

"flapped the jacket like a bird's wings"

"my forearms stuck out like the necks of turtles"

Which of these best explains the effect of these similes on Soto's writing?

- They create a formal tone.
- They create a soft sound.
- They create unsentimental images.
- They create a flowery, ornamental style.

Level 1

Level 2

- Level 3
- Level 4

Correct, This item illustrates the objective in Objective 3:2. Students are required to think abstractly about connotative dimensions of language to reach a conclusion about the figures of speech habitually chosen by an author.

The crisis, or turning point, in a play is also referred to as the

- a. chorus.
- b. climax.
- c. rising action.
- d. falling action.

- Level 1
- Level 2
- Level 3
- Level 4

Correct, This item is an example of level 1 for the objective in Objective 1:3. Students demonstrate an ability to recall an important element of dramatic structure.

“You will become a storyteller. You will research and write the story of someone who has emigrated to the United States and/or migrated within the United States. You will get a role card from your native country, and you will become that person.”

The role cards feature many countries and many time periods: gender and age are mixed. For example:

Moira Adair, 50, arriving from Northern Ireland in 1980. Your husband was killed in an IRA bombing. You are a computer expert and have family in Minneapolis.

Sean Dolan, 21, arriving from Ireland in 1853. You are alone but you have a relative in New York. You are an apprentice stone mason.

Students must produce an original map showing their home country as it was when they left. They describe the culture (social, economic, political, dominant religious affiliation, educational system, legal system), including the dominant values, customs, and traditions of the culture. Further, they note specific problems in their homeland, explaining why people emigrate to America at that time. The trip to America is the bridge to researching settlement in a specific area or community; this is where imagination takes over for a time, although students will also need to maintain accuracy. The next major research involves the assimilation process in America. Additionally, students need to research the contributions of their ethnic group to America.

To guide them through this project, students receive a packet of materials that includes everything from graphic organizers to specific prompts. The project culminates in an Ellis Island simulation and

a “feast” for which students research and prepare food, music, and dance from their assigned homeland.

- Level 1
- Level 2
- Level 3
- Level 4

Correct, This task is an example of level 4. The description of this secondary school model is taken from the Wisconsin Department of Public Instruction document, Planning Curriculum in English Language Arts (280-1). Credit for the assignment belongs to two Washington State Teachers, Norma Coombe and Margaret Garrison, of Peninsula High School of Gig Harbor, Washington. The extended activity described below several assignments that would clearly represent Level 4 reasoning in a variety of objectives, including those in Objectives 4:1 and 4:2.

Here is a paragraph from a student’s report about Maya Angelou. The paragraph has six mistakes in grammar, punctuation, and capitalization. Draw a line through each part that has a mistake, and write the correction above it.

I Know Why the Caged Bird Sings is the first of five volumes in Maya Angelou's autobiography. This book is about Mayas childhood in the South during the 1930s. Her autobiography also cover her life as an adult in San Francisco, where she had many extraordinary experiences. She work as a streetcar conductor and trained to become a singer and a dancer. She toured europe and North America in the musical Porgy and Bess. The end of her autobiography deals with Angelou’s career as a civil rights activist, and exploring the relationship between African Americans and Africa.

- Level 1
- Level 2
- Level 3
- Level 4

Correct, This item illustrates a level 2 for the objective in Objective 2:1. Students demonstrate their understanding of editing conventions by correcting errors in another student’s rough draft.

Which of these best describes what the passage is about?

- how a young man started a successful business after coming to America
- why blue jeans are superior to pants made by other manufacturers
- how clothing styles were affected by the work of the gold miners
- why immigrants came to America to improve their lives

- Level 1
- Level 2

- Level 3
- Level 4

Correct, This item illustrates a level 2 for the objective in Objective 2:3. Students demonstrate their ability to do more than simply recall an explicitly stated main point. Here, students show basic reasoning skills as they select a statement that best captures the informational emphasis of an article.

Which of these conclusions is best supported by information from the passage?

- a. If a candidate meets the personal and educational qualifications and is in fair physical shape, his or her chances of becoming an agent are very good.
- b. Compared with other law enforcement agencies in the country, the F.B.I. has a low success rate for tracking down and apprehending suspected offenders.
- c. The job of an agent is not for everyone; it takes someone with special training who is not afraid of danger and doesn't mind being socially isolated at times.
- d. The life of a federal investigator is not as interesting as most people think; agents spend most of their time working at desks.

- Level 1
- Level 2
- Level 3
- Level 4

Correct, This item illustrates the objective in Objective 3:1. Students are required to consider an article as a whole, reflecting on emphasis, author's purpose, tone, etc. in order to determine the relationship among the alternatives presented and the source text.

Social Studies

Social Studies Level 1

Level 1. Recall and Reproduction

Level 1 asks students to recall facts, terms, concepts, trends, generalizations and theories or to recognize or identify specific information contained in graphics. This level generally requires students to identify, list, or define. The items at this level usually ask the student to recall who, what, when and where. Items that require students to “describe” and “explain” could be classified at Level 1 or 2 depending on what is to be described and explained. A Level 1 “describe or explain” would recall, recite or reproduce information. Items that require students to recognize or identify specific information contained in maps, charts, tables, graphs or drawings are generally level 1. Examples:

- Recall or recognize an event, map or document.
- Describe the features of a place or people.
- Identify key figures in a particular context.

Social Studies Level 2

Level 2. Basic Reasoning

Level 2 includes the engagement of some mental processing beyond recalling or reproducing a response. This level generally requires students to contrast or compare people, places, events and concepts; convert information from one form to another; classify or sort items into meaningful categories; describe or explain issues and problems, patterns, cause and effect, significance or impact, relationships, points of view or processes. A Level 2 “describe or explain” would require students to go beyond a description or explanation of recalled information to describe or explain a result or “how” or “why.” Examples:

- Describe the causes/effects of particular events.
- Identify patterns in events or behavior.
- Categorize events or figures into meaningful groupings

Social Studies Level 3

Level 3 Application

Level 3 requires reasoning, using evidence, and a higher level of thinking than the previous two levels. Students would go beyond knowing “how and why” to justifying the “how and why” through application and evidence. The cognitive demands at Level 3 are more complex and more abstract than Levels 1 or 2. Items at Level 3 include drawing conclusions; citing evidence; using concepts to explain “how and why;” using concepts to solve problems; analyzing similarities and differences in issues and problems; proposing and evaluating solutions to problems; recognizing and explaining misconceptions or making connections across time and place to explain a concept or big idea.

Examples:

- Analyze how changes have affected people or places.
- Apply concept in other contexts.
- Form alternate conclusions

Social Studies Level 4

Level 4 Extended Reasoning

Level 4 requires even more **complex reasoning** and the **addition of planning, investigating, or developing** that will most **likely** require an extended period of time. The extended time period is **not** a distinguishing factor if the required work is only repetitive and does **not** require applying **significant conceptual understanding** and **higher-order thinking**. At this level the **cognitive demands** should be **high** and the work should be very **complex**. Students should be required to **connect and relate ideas and concepts *within*** the content area or ***among*** content areas in order to be at this highest level. The distinguishing factor for Level 4 would be **evidence through a task or product** that the cognitive demands have been met. A Level 4 performance will require students to **analyze** and **synthesize information** from **multiple sources**, **examine** and **explain alternative perspectives** across a variety of sources and/or **describe** and **illustrate** how **common themes and concepts** are found across time and place. In some Level 4 performance students will **make predictions** with evidence as support, develop a logical argument, or **plan and develop solutions** to problems. Examples:

- Given a situation/problem research, define and describe the situation/problem and provide alternative solutions.
- Describe, define and illustrate common social, historical, or geographical themes and how they interrelate.

Level 1

Recall of Information

Objective 1:1

Students will identify new technologies in the United States in the early 1900's

This objective is an example of Level 1. The highest demand for students to successfully meet this expectation requires them to use recall of information to identify new technologies during a specific time period.

Objective 1:2

Students will describe the physical features of the regions of the world.

This objective is also an example of Level 1 with the expectation requiring a recall of a description.

Level 2

Basic Reasoning

Objective 2:1

Students will compare different historians' descriptions of the same event in history.

This objective is an example of Level 2. Students would be required to determine the differences and/or similarities in the descriptions of the same event by two or more historians. This engages the students in a process of basic reasoning that goes beyond simple recall.

Level 3

Complex Reasoning

Objective 3:1

Students will analyze how changes in technology, costs, and demand interact in competitive markets to change the price of goods.

This objective is an example of a Level 3. The expectation in this objective is that students will know the changes, will see the cause and effect of those changes, and then will analyze why these changes have occurred. There is the process of application of understanding of the concepts of supply and demand to a specific time and place through the specific technology, the costs, and demand in the market place.

Objective 3:2

Students will apply the protections guaranteed in the Bill of Rights to an analysis of everyday situations.

This objective is another example of Level 3. Students are required to use a combination of recalled information about the protections in the Bill of Rights and the impact of the Bill of Rights in order to apply to a given situation.

Level 4

Extended Reasoning

Objective 4:1

Students will research and analyze mapped patterns in order to develop strategies that can be applied to the solution of problems.

This objective is Level 4. Students are required to analyze and synthesize information from multiple sources in order to translate this information into strategies. These strategies must then become part of a plan that would be applied to a specific problem.

Objective 4:2

Students will demonstrate understanding of the Earth's physical environment as a set of interconnected systems by analyzing the ways that humans have perceived, reacted to, and changed environments at the local/or global level and developing a plan to implement a change.

This objective is also a Level 4. Students are required to research the necessary data to analyze a specific situation in order to develop a plan to implement change

Sample test items

There was a sharp decline in immigration into the United States during the second decade of the 20th century. Which of the following best accounts for that decline?

- a. The outbreak of World War I in Europe.
- b. Improved political conditions in Europe.
- c. Overcrowding in the rural mid-western US.
- d. Increased costs of transatlantic transportation.

- Level 1
 Level 2
 Level 3
 Level 4

Correct, This item is a Level 2 because it requires the students to think about the decline of immigration during a specific time period in conjunction with the major events of that same period. It is Level 2 because two pieces of recalled information are called forth for the purpose of cause and effect.

The Great Awakening of the 1730's was important because it led to people in the American colonies to

- a. increase toleration for Roman Catholics
- b. examine the different positions of men and women in society
- c. reaffirm that God gave kings their right to rule

d. question the authority of church and government leaders

- Level 1
- Level 2
- Level 3
- Level 4

Correct, This item from NAEP is an example of Level 2. Students are required to think about an event and its importance or impact on people in the American colonies.

A newspaper prints a story that criticizes the current administration's Policies.

The Bill of Rights allows a government official to respond to this headline by

- a. arresting the publisher of the newspaper
- b. closing down the newspaper
- c. demanding that the newspaper print a new headline
- d. writing a letter of protest to the editor

- Level 1
- Level 2
- Level 3
- Level 4

Correct, This item from released samples from the Delaware Department of Education requires students to apply the concepts of the Bill of Rights to a given situation represented by the newspaper headline to determine the correct answer.

Who was responsible for important contributions in the automobile industry?

- a. Thomas Edison
- b. Eli Whitney
- c. Henry Ford
- d. George Washington Carver

- Level 1
- Level 2
- Level 3
- Level 4

Correct, This item is an example of Level 1. Students are required to recall a specific fact by naming the person responsible for new technologies in the automobile industry.

In the 19th Century, passengers who did not want to go overland by Stagecoach could have traveled from the East Coast to the West Coast of the United States by ship. Which route would they Probably have followed?

- a. north in the Atlantic and then east in the Arctic Ocean
- b. south in the Atlantic and then south in the Indian Ocean
- c. south around Africa and north through the Indian Ocean
- d. south around South America and north in the Pacific Ocean

- Level 1
- Level 2
- Level 3
- Level 4

Correct, This item from a set of released items from the Missouri Department of Education is another example of Level 2. The students are required to recall a map of the western hemisphere and to see the relationship of east to west travel to that map.

What was the main reason that many leaders in Great Britain leaned toward supporting the Confederacy in the Civil War?

- a. Plantation owners in Britain held slaves
- b. Most British immigrants to the United States lived in the South
- c. Britain relied on Southern cotton for its factories
- d. British politicians wanted to make the United States weaker so they could conquer it.

- Level 1
- Level 2
- Level 3

Level 4

Correct, This item from NAEP is a Level 1. Students are to recall the “main reason” for an event in US history

Students are given the scenario of acid rain potentially causing problems in a specific farming community. Students are to define and describe the problems with supporting data. There should be a proposal of alternative solutions to the problem, a selection of one solution, and an explanation of why it would be the best alternative. The selected solution must include a plan for implementation

Level 1

Level 2

Level 3

Level 4

Correct, The students would investigate, plan, and develop solutions to a problem. This task goes beyond using concepts to solve problems and citing evidence by requiring evidence of the process and the inclusion of an implementation plan. An activity that required students to apply problem-solving criteria to possible solution in order to select the best solution would be Level 3. The addition of both the investigation to gather data that will be used as evidence of the problem and implementation plan makes this task a Level 4.