

Chapter

1

Assessment Guide ^{for} Educators

A guide to the 2014 assessment content from GED Testing Service

July 2013 | Update

A Comparison: Bloom's Taxonomy and Webb's Depth of Knowledge²

BLOOM'S TAXONOMY	WEBB'S DEPTH OF KNOWLEDGE ³
<p>KNOWLEDGE</p> <p>"The recall of specifics and universals, involving little more than bringing to mind the appropriate material"</p>	<p>RECALL</p> <p>Recall of a fact, information, or procedure (e.g. What are three critical skill cues for the overhand throw?)</p>
<p>COMPREHENSION</p> <p>"Ability to process knowledge on a low level such that the knowledge can be reproduced or communicated without a verbatim repetition."</p>	
<p>APPLICATION</p> <p>"The use of abstractions in concrete situations."</p>	<p>BASIC APPLICATION OF SKILL/CONCEPT</p> <p>Use of information, conceptual knowledge, procedures, two or more steps, etc. (e.g. Explain why each skill cue is important to the overhand throw. "By stepping forward you are able to throw the ball further.")</p>
<p>ANALYSIS</p> <p>"The breakdown of a situation into its component parts."</p>	<p>STRATEGIC THINKING</p> <p>Requires reasoning, developing a plan or sequence of steps; has some complexity; more than one possible answer; generally takes less than ten minutes to do (e.g. Design 2 different plays in basketball and explain what different skills are needed and when the plays should be carried out.)</p>
<p>SYNTHESIS AND EVALUATION</p> <p>"Putting together elements & parts to form a whole, then making value judgments about the method."</p>	<p>EXTENDED THINKING</p> <p>Requires an investigation; time to think and process multiple conditions of the problem or task; and more than ten minutes to do non-routine manipulations (e.g. Analyze three different tennis, racquetball, and badminton strokes for similarities, differences, and purposes. Then, discuss the relationship between the mechanics of the stroke and the strategy for using the stroke during game play.)</p>

² Bloom's Taxonomy and Webb's Depth of Knowledge comparison table source: <http://www.palmbeachschools.org/qa/documents/WebbsDepthofKnowledge.pdf>

³ Each of the four descriptions below correspond with a DOK level. For example, "Recall" corresponds to DOK 1, "Basic Application" to DOK 2, "Strategic Thinking" to DOK 3, and "Extended Thinking" to DOK 4.

English Language Arts⁴

Subject	Depth of Knowledge			
	Level 1	Level 2	Level 3	Level 4
English Language Arts	<p>Requires students to recall, observe, question, or represent facts or simple skills or abilities. Requires only surface understanding of text, often verbatim recall or slight paraphrasing. Use conventions of standard English.</p> <p>Examples:</p> <ul style="list-style-type: none"> • Support ideas by reference to specific details in text • Use dictionary to find meaning • Use punctuation marks correctly • Identify figurative language in passage • Identify correct spelling or meaning of words 	<p>Requires processing beyond recall and observation. Requires both comprehension and subsequent processing of text. Involves ordering, classifying text as well as identifying patterns, relationships and main points. Connect ideas using simple organizational structures. Requires some scrutiny of text.</p> <p>Examples:</p> <ul style="list-style-type: none"> • Use contextual clues to identify unfamiliar words • Predict logical outcome • Construct or edit compound or complex sentences • Identify and summarize main points • Apply knowledge of conventions of standard American English • Compose accurate summaries 	<p>Requires students to go beyond text. Requires students to explain, generalize, and connect ideas. Involves inferencing, prediction, elaboration, and summary. Requires students to support positions using prior knowledge and to manipulate themes across passages. Students develop compositions with multiple paragraphs.</p> <p>Examples:</p> <ul style="list-style-type: none"> • Determine effect of author's purpose on text elements • Summarize information from multiple sources • Critically analyze literature • Edit writing to produce logical progression • Compose focused, organized, coherent, purposeful prose 	<p>Requires extended higher order processing. Typically requires extended time to complete task, but time spent not on repetitive tasks. Involves taking information from one text/passage and applying this information to a new task. May require generating hypotheses and performing complex analyses and connections among texts.</p> <p>Examples:</p> <ul style="list-style-type: none"> • Analyze and synthesize information from multiple sources • Examine and explain alternative perspectives across sources • Describe and illustrate common themes across a variety of texts • Create compositions that synthesize, analyze, and evaluate

⁴ The English Language Arts table is used with permission of Dr. Norman L. Webb from the University of Wisconsin Center for Educational Research.

Mathematics⁵

Subject	Depth of Knowledge			
	Level 1	Level 2	Level 3	Level 4
Mathematics	<p>Requires students to recall or observe facts, definitions, or terms. Involves simple one-step procedures. Involves computing simple algorithms (e.g. sum, quotient).</p> <p>Examples:</p> <ul style="list-style-type: none"> 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 	<p>Requires students to make decisions of how to approach a problem. Requires students to compare, classify, organize, estimate, or order data. Typically involves two-step procedures.</p> <p>Examples:</p> <ul style="list-style-type: none"> Specify and explain relationships between facts, terms, properties or operations Select procedure according to criteria and perform it Solve routine multiple-step problems 	<p>Requires reasoning, planning, or use of evidence to solve problem or algorithm. May involve activity with more than one possible answer. Requires conjecture or restructuring of problems. Involves drawing conclusions from observations, citing evidence, and developing logical arguments for concepts. Uses concepts to solve non-routine problems.</p> <p>Examples:</p> <ul style="list-style-type: none"> Analyze similarities and differences between procedures Formulate original problem given situation Formulate mathematical model for complex situation 	<p>Requires complex reasoning, planning, developing, and thinking. Typically requires extended time to complete problem, but time spent not on repetitive tasks. Requires students to make several connections and apply one approach among many to solve the problem. Involves complex restructuring of data, establishing and evaluating criteria to solve problems.</p> <p>Examples:</p> <ul style="list-style-type: none"> 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

⁵ The Mathematics table is used with permission of Dr. Norman L. Webb from the University of Wisconsin Center for Educational Research.

Science⁶

Depth of Knowledge Level Descriptors for Science			
Level 1 Recall & Reproduction	Level 2 Skills & Concepts	Level 3 Strategic Thinking	Level 4 Extended Thinking
<p>a. Recall or recognize a fact, term, definition, simple procedure (such as one step), or property</p> <p>b. Demonstrate a rote response</p> <p>c. Use a well-known formula</p> <p>d. Represent in words or diagrams a scientific concept or relationship</p> <p>e. Provide or recognize a standard scientific representation for simple phenomenon</p> <p>f. Perform a routine procedure, such as measuring length</p> <p>g. Perform a simple science process or a set procedure (like a recipe)</p> <p>h. Perform a clearly defined set of steps</p> <p>i. Identify, calculate, or measure</p> <p>NOTE: If the knowledge necessary to answer an item automatically provides the answer, it is a Level 1.</p>	<p>a. Specify and explain the relationship between facts, terms, properties, or variables</p> <p>b. Describe and explain examples and non-examples of science concepts</p> <p>c. Select a procedure according to specified criteria and perform it</p> <p>d. Formulate a routine problem given data and conditions</p> <p>e. Organize, represent, and compare data</p> <p>f. Make a decision as to how to approach the problem</p> <p>g. Classify, organize, or estimate</p> <p>h. Compare data</p> <p>i. Make observations</p> <p>j. Interpret information from a simple graph</p> <p>k. Collect and display data</p> <p>NOTE: If the knowledge necessary to answer an item does not automatically provide the answer, then the item is at least a Level 2. Most actions imply more than one step.</p> <p>NOTE: Level 3 is complex and abstract. If more than one response is possible, it is at least a Level 3 and calls for use of reasoning, justification, evidence, as support for the response.</p>	<p>a. Interpret information from a complex graph (such as determining features of the graph or aggregating data in the graph)</p> <p>b. Use reasoning, planning, and evidence</p> <p>c. Explain thinking (beyond a simple explanation or using only a word or two to respond)</p> <p>d. Justify a response</p> <p>e. Identify research questions and design investigations for a scientific problem</p> <p>f. Use concepts to solve non-routine problems/more than one possible answer</p> <p>g. Develop a scientific model for a complex situation</p> <p>h. Form conclusions from experimental or observational data</p> <p>i. Complete a multi-step problem that involves planning and reasoning</p> <p>j. Provide an explanation of a principle</p> <p>k. Justify a response when more than one answer is possible</p> <p>l. Cite evidence and develop a logical argument for concepts</p> <p>m. Conduct a designed investigation</p> <p>n. Research and explain a scientific concept</p> <p>o. Explain phenomena in terms of concepts</p>	<p>a. Select or devise approach among many alternatives to solve problem</p> <p>b. Based on provided data from a complex experiment that is novel to the student, deduct the fundamental relationship between several controlled variables</p> <p>c. Conduct an investigation, from specifying a problem to designing and carrying out an experiment, to analyzing its data and forming conclusions</p> <p>d. Relate ideas within the content area or among content areas</p> <p>e. Develop generalizations of the results obtained and the strategies used and apply them to new problem situations</p> <p>NOTE: Level 4 activities often require an extended period of time for carrying out multiple steps; however, time alone is not a distinguishing factor if skills and concepts are simply repetitive over time.</p>

⁶ © Karin K. Hess, National Center of Assessment, Dover, NH. khess@nciea.org.
Link: http://www.nciea.org/publications/DOKscience_KH11.pdf

Social Studies⁷

Depth of Knowledge Level Descriptors for Social Studies			
Level 1 Recall of Information	Level 2 Basic Reasoning	Level 3 Complex Reasoning	Level 4 Extended Reasoning
<ul style="list-style-type: none"> a. Recall or recognition of: fact, term, concept, trend, generalization, event, or document b. Identify or describe features of places or people c. Identify key figures in a particular context meaning of words d. Describe or explain: who, what, where, when e. Identify specific information contained in maps, charts, tables, graphs, or drawings 	<ul style="list-style-type: none"> a. Describe cause-effect of particular events b. Describe or explain: how (relationships or results), why, points of view, processes, significance, or impact c. Identify patterns in events or behavior d. Categorize events or figures in history into meaningful groups e. Identify and summarize the major events, problem, solution, conflicts f. Distinguish between fact and opinion g. Organize information to show relationships h. Compare and contrast people, events, places, concepts i. Give examples and non-examples to illustrate an idea/concept 	<ul style="list-style-type: none"> a. Explain, generalize, or connect ideas, using supporting evidence from a text/source c. Apply a concept in other contexts d. Make and support inferences about implied causes and effects e. Draw conclusion or form alternative conclusions f. Analyze how changes have affected people or places g. Use concepts to solve problems h. Analyze similarities and differences in issues or problems i. Propose and evaluate solutions j. Recognize and explain misconceptions related to concepts 	<ul style="list-style-type: none"> a. Analyze and explain multiple perspectives or issues within or across time periods, events, or cultures b. Gather, analyze, organize, and synthesize information from multiple (print and non print) sources c. Make predictions with evidence as support d. Plan and develop solutions to problems e. Given a situation/problem, research, define, and describe the situation/problem and provide alternative solutions f. Describe, define, and illustrate common social, historical, economic, or geographical themes and how they interrelate

⁷ © Karin K. Hess, National Center of Assessment, Dover, NH. khess@nciea.org.
Link: http://www.nciea.org/publications/DOKsocialstudies_KH08.pdf

2014 GED® Test Mathematics Formula Sheet²⁴

Area of a:

parallelogram

$$A = bh$$

trapezoid

$$A = \frac{1}{2}h(b_1 + b_2)$$

Surface Area and Volume of a:

rectangular/right prism

$$SA = ph + 2B$$

$$V = Bh$$

cylinder

$$SA = 2\pi rh + 2\pi r^2$$

$$V = \pi r^2 h$$

pyramid

$$SA = \frac{1}{2}ps + B$$

$$V = \frac{1}{3}Bh$$

cone

$$SA = \pi rs + \pi r^2$$

$$V = \frac{1}{3}\pi r^2 h$$

sphere

$$SA = 4\pi r^2$$

$$V = \frac{4}{3}\pi r^3$$

(p = perimeter of base B ; $\pi \approx 3.14$)

Algebra

slope of a line

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

slope-intercept form
of the equation of a line

$$y = mx + b$$

point-slope form of the
equation of a line

$$y - y_1 = m(x - x_1)$$

standard form of a
quadratic equation

$$y = ax^2 + bx + c$$

quadratic formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Pythagorean Theorem

$$a^2 + b^2 = c^2$$

simple interest

$$I = prt$$

(I = interest, p = principal, r = rate, t = time)

²⁴ The Mathematics Formula Sheet contains basic, essential information necessary for answering items on the Mathematics test. It will be available to test-takers during the entire Mathematics Test.