

Depth of Knowledge by Subject Descriptors

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. Examples:</p> <ul style="list-style-type: none"> ◆ Support ideas by reference to details in text. ◆ Use dictionary to find meaning ◆ 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. Examples:</p> <ul style="list-style-type: none"> ◆ Use context to identify unfamiliar words ◆ Predict logical outcome ◆ 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 making inferences, prediction, elaboration and summary. Requires students to support positions using prior knowledge and to manipulate themes across passages. 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 ◆ 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. 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
Mathematics	<p>Requires students to recall or observe facts, definitions, and terms. Involves simple one-step procedures. Involves computing simple algorithms (e.g., sum, quotient). 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. 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. 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. 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

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Science	<p>Requires students to recall facts, definitions or simple procedures or processes. Involves rote responses, use of well-known formulae, or following a set of clearly defined one-step procedures. Examples:</p> <ul style="list-style-type: none"> ◆ 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 or simple phenomenon 	<p>Requires students to make some decisions as to how to approach the question or problem. Involves comparing, classifying, organizing, estimating, ordering, or displaying (e.g., tables, graphs, charts) data. Typically involves multiple-step procedures. Examples:</p> <ul style="list-style-type: none"> ◆ 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 	<p>Requires students to solve problems with more than one possible answer and requires students to justify responses. Experimental design involve more than on dependent variable. Requires drawing conclusions from observations, citing evidence and developing logical argument for concepts; explaining phenomena in terms of concepts, and using concepts to solve non-routine problems. Examples:</p> <ul style="list-style-type: none"> ◆ Identify research questions and design investigations for a scientific problem ◆ Develop a scientific model for a complex situation ◆ Form conclusions from experimental data 	<p>Requires students to make several connections and apply one approach among many to solve problems. Involves developing generalizations from obtained results and formulating strategies to solve new problems in a variety of situations. Requires extended time to complete problem, but time spent not on repetitive tasks. Examples:</p> <ul style="list-style-type: none"> ◆ Based on provided data from a complex experiment that is novel to the student, deduct the fundamental relationship between several controlled variables ◆ Conduct and investigation, from specifying a problem to designing and carrying out an experiment, to analyzing its data and formulating conclusions
Social Studies	<p>Requires students to recall facts (who, what, when & where), terms, concepts, trends, generalizations, and theories or to recognize or identify specific information contained in maps, charts, tables graphs or drawings. Example:</p> <ul style="list-style-type: none"> ◆ Recall or recognize and event, map or document ◆ Describe the features of a place or people ◆ Identify key figures in a particular context 	<p>Requires students to contrast or compare people, places, events and concepts; give examples, classify or sort items into meaningful categories; describe, interpret or explain issues and problems, patterns, reasons, causes, effects significance or impact, relationships, and points of view or processes. Example:</p> <ul style="list-style-type: none"> ◆ Describe the causes/effects of particular events ◆ Identify patterns in events or behavior ◆ Categorize events or figures into meaningful groupings 	<p>Requires students to draw conclusions, cite evidence, apply concepts to new situations; use concepts to solve problems, analyze similarities and differences in issues and problems; propose and evaluate solutions; recognize and explain misconceptions; make connections and explain main concepts: Example</p> <ul style="list-style-type: none"> ◆ Analyze how changes have effected people or places ◆ Apply concept in other contexts ◆ Form alternate conclusions 	<p>Requires students to connect and relate ideas and concepts within and among content areas. Involves analyzing and synthesizing information from multiple sources; examining and explaining alternative perspectives across a variety of sources; making predictions with evidence as support; planning and developing solutions to problems. Example</p> <ul style="list-style-type: none"> ◆ 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

