

Coding Procedures for Curriculum Content Analyses

Materials included in this packet:

Rating Sheet
Comments & Suggestions worksheet
Subject Topic List
Categories of Student Expectations (Cognitive Demand) List

Introduction

Thank you for your participation in this content analysis workshop. Your assistance will assist us in collecting descriptive information about the subject matter content contained in the assessments and standards documents to be analyzed. Our goal is to content analyze several state standards and assessments using a two-dimensional taxonomy for describing subject matter content.

The data collected will be summarized into content maps and graphs that can be used to highlight the relative emphasis of academic content embedded in these curriculum related documents. The resulting content maps and graphs permit graphic comparisons of teacher reports of instructional content with locally relevant assessment instruments or standards. Content analysis will also serve to support alignment analyses into the relationships between instruction, assessment and standards. Results will be used to support the information needs of participating states, districts and schools, and will also be used in analyses associated with several NSF funded studies being conducted in the states and districts represented at this workshop.

Coding Dimensions

Topics

Each assessment item is to be rated on two intersecting dimensions. The first dimension relates to subject topic. Topic lists are organized by subject. The appropriate topic lists are contained in this packet, covering K-12 curriculum content for Mathematics, Science, English Language Arts/Reading and Social Studies. The topic lists are organized at two levels. The more general level identifies content areas (e.g. Number Sense, Measurement, Algebraic Concepts in math; or Energy, Biochemistry, Genetics in science, etc.) Within each of these content areas are listed some number of topics associated with that content area. You will note that each topic has a three- or four-digit number listed to its left. This number is the >topic code= and is to be entered on the rating sheet to identify the particular topic(s) associated with a given assessment item or standard strand or goal. Though each content area also has a number code associated with it, most coding is done at the fine grain, or topic level that most content coding is to be done. Exceptions to this rule are discussed in the coding conventions section below.

Expectations for Students (Cognitive Demand)

In addition, assessment items are coded in terms of the expectations for student performance (or cognitive demand) targeted by a given item or standard. Your packet contains a list of cognitive expectations for the appropriate subject(s), organized into five categories. Each category is defined using a list of descriptors to identify the types of cognitive demand associated with a given category of student expectation. It should be noted that the descriptors listed for each category are not exhaustive, but intended to be illustrative of the types of activities associated with each category. Unlike the topic list, raters are not asked to code at this fine-grain level of cognitive demand descriptors. Cognitive demand is coded only at the broader categorical level of student expectation. Each category is given a letter designation (B-F) to be used for coding purposes.

Procedures

1. *Pre-coding Exercise*

A sample set of assessment items will be content analyzed individually by each rater using the coding procedures described below. These sample items and their related content codes will then be discussed by each rating team in order to establish a common understanding and set of coding conventions for conducting the content analyses of the various documents. Note the coding conventions listed at the end of this handout. Any additional conventions agreed upon by your team should be noted in the “Comments & Suggestions Worksheet” located in your packet.

2. *Rating Form Identification*

Please make sure that you complete the information listed at the top of each rating form. This includes:

- § District/State (as applicable)
- § Assessment Name (e.g. Terra Nova, SAT-9, or relevant state assessment)
- § Rater# (refer to the label on your folder)
- § Subject (mathematics, science or language arts)
- § Test Form (if applicable)
- § Rating form page # (if more than two rating forms are required)

3. *Coding Procedures.*

Below is an excerpted line from the sheet you will record content codes on.

Item Number	Content Code 1		Content Code 2		Content Code 3	
	Topic Code 1	Expectation Code 1	Topic Code 2	Expectation Code 2	Topic Code 3	Expectation Code 3
1	503	B				

The correct way to record a content code (**503B**) is illustrated in the column in the above table labeled **Content Code 1**. Note that the number for the Sub-Topic and the letter for the Student Expectation are placed in separate cells. Every content code should consist of both a topic

number and a cognitive demand letter, even if one or the other repeats a previous code for that item.

Every item should be given at least 1 content code. **Up to three separate *topic by expectation combinations*** may be selected for any one assessment item, and up to six ***topic by expectation combinations*** may be coded for standards and/or other curriculum materials. For example, an assessment item might relate to two distinct topic areas, while involving only one student expectation category. In that case, the coder would enter two different topic codes in cells **Topic Code 1** and **Topic Code 2** on the Coding Sheet, but would enter the same expectation code in cells **Expectation Code 1** and **Expectation Code 2**. As another example, an item might be coded with three distinct topic by expectation combinations, with perhaps one topic being associated with two types of expectations, while a second topic is associated with yet a third category of expectation. Such an example might be coded as follows:

Item Number	Content Code 1		Content Code 2		Content Code 3	
	Topic Code 1	Expectation Code 1	Topic Code 2	Expectation Code 2	Topic Code 3	Expectation Code 3
1	103	B	103	D	102	C

Again, up to 3 topic by expectation combinations may be coded for each assessment item, and six combinations for each standard strand or curriculum materials section. Should a coding item be so complex as to suggest more than these limits, select the most dominant elements of the item to code up to the accepted limit of content codes.

Coding Conventions

Occasionally items are difficult to code with the taxonomy. The following coding conventions have been established to cover most situations.

1. If you determine that an item or standard cannot be associated with a specific topic in the taxonomy, then:

If the content to code fits a general content area, but is ***not specific enough to identify a particular topic***, use the code for the major content area, (e.g., A200" for "Measurement" in mathematics, or "200" for "Science & Technology" in science).

If the content pertains to a ***specific topic not listed in the taxonomy***, use the code for the most appropriate content area, and add "90" for the last two digits, (e.g., A290" for "Measurement" in mathematics, or "290" for "Science & Technology" in science).

Use the Topic code “000” cases where you determine there is *no appropriate content code whatsoever in the topic list* that fits a given item or standard.

Use the Topic code A999" in cases where you determine the item *refers to content out of subject area* (e.g., science content on a mathematics test).

2. If you determine that an item or standard *cannot be associated with a specific category of cognitive demand*, enter a “Z” in the cognitive demand cell.
3. If you use any of the above conventions, please include a suggestion for an additional content area, topic or cognitive demand descriptor on the *Comments & Suggestions worksheet* in your packet. This will assist us in considering future revisions to the taxonomies. (Please be sure to return the “Comments and Suggestions” worksheet to one of the workshop staff before leaving.)
4. **If your coding team establishes additional conventions for coding items, please note these as well on the Comments & Suggestions worksheet.**

Rater:

Document:

Date:

Page

of

	Test Item Nbr	Content Code 1		Content Code 2		Content Code 3	
		TPC1	CGD1	TPC2	CGD2	TPC3	CGD3
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	Test Item Nbr	Content Code 1		Content Code 2		Content Code 3	
		TPC1	CGD1	TPC2	CGD2	TPC3	CGD3
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SEC K-12 Mathematics Taxonomy

100	Nbr. sense /Properties/ Relationships
200	Operations
300	Measurement
400	Consumer Applications
500	Basic Algebra
600	Advanced Algebra
700	Geometric Concepts
800	Advanced Geometry

900	Data Displays
1000	Statistics
1100	Probability
1200	Analysis
1300	Trigonometry
1400	Special Topics
1500	Functions
1600	Instructional Technology

Other Coding Conventions

Topics:

0	All
999	Out of Subject Area

Cognitive Demands:

B	Memorize
C	Perform Procedures
D	Demonstrate Understanding
E	Conjecture/Analyze
F	Solve Non-Routine Problems
Z	Non-Specific Cognitive Demand

K-12 Mathematics Taxonomy

100	Nbr. sense /Properties/ Relationships
101	Place value
102	Whole numbers and Integers
103	Operations
104	Fractions
105	Decimals
106	Percents
107	Ratio and proportion
108	Patterns
109	Real and/or Rational numbers
110	Exponents and scientific notation
111	Factors, multiples, and divisibility
112	Odd/even/prime/composite/square numbers
113	Estimation
114	Number Comparisons (order, magnitude, relative size, inverse, opposites, equivalent forms, scale or number line)
115	Order of operations
116	Computational Algorithms
117	Relationships between operations
118	Number Theory (e.g. base-ten and non-base-ten systems)
119	Mathematical properties (e.g., distributive property)
190	Other
200	Operations
201	Add/subtract whole numbers and integers
202	Multiply whole numbers and integers
203	Divide whole numbers and integers
204	Combinations of operations on whole numbers or integers
205	Equivalent and non-equivalent fractions
206	Add/subtract fractions
207	Multiply fractions
208	Divide fractions
209	Combinations of operations on fractions
210	Ratio and proportion
211	Representations of fractions
212	Equivalence of decimals, fractions, and percents
213	Add/ subtract decimals
214	Multiply decimals
215	Divide decimals
216	Combinations of operations on decimals
217	Computing with percents
218	Computing with exponents and radicals
290	Other

300	Measurement
301	Use of measuring instruments
302	Theory (arbitrary, standard units and unit size)
303	Conversions
304	Metric (SI) system
305	Length and perimeter
306	Area and volume
307	Surface Area
308	Direction, Location, Navigation
309	Angles
310	Circles (e.g., pi, radius, area)
311	Mass (weight)
312	Time and temperature
313	Money
314	Derived measures (e.g., rate and speed)
315	Calendar
316	Accuracy and Precision
390	Other
400	Consumer Applications
401	Simple interest
402	Compound interest
403	Rates (e.g., discount and commission)
404	Spreadsheets
490	Other
500	Basic Algebra
501	Absolute value
502	Use of variables
503	Evaluation of formulas, expressions, and equations
504	One-step equations
505	Coordinate Planes
506	Patterns
507	Multi-step equations
508	Inequalities
509	Linear and non-linear relations
510	Rate of change/slope/line
511	Operations on polynomials
512	Factoring
513	Square roots and radicals
514	Operations on radicals
515	Rational expressions
516	Multiple representations
590	Other

K-12 Mathematics Taxonomy

600	Advanced Algebra
601	Quadratic equations
602	Systems of equations
603	Systems of inequalities
604	Compound Inequalities
605	Matrices and determinants
606	Conic sections
607	Rational, negative exponents/radicals
608	Rules for exponents
609	Complex numbers
610	Binomial theorem
611	Factor/remainder theorem
612	Field properties of real number system
613	Multiple representations
690	Other
700	Geometric Concepts
701	Basic terminology
702	Points, lines, rays, segments, and vectors
703	Patterns
704	Congruence
705	Similarity
706	Parallels
707	Triangles
708	Quadrilaterals
709	Circles
710	Angles
711	Polygons
712	Polyhedra
713	Models
714	3-D relationships
715	Symmetry
716	Transformations (e.g., flips or turns)
717	Pythagorean Theorem
790	Other
800	Advanced Geometry
801	Logic, reasoning, and proofs
802	Loci
803	Spheres, cones, and cylinders
804	Coordinate Geometry
805	Vectors
806	Analytic Geometry
807	Non-Euclidean Geometry
808	Topology
890	Other

900	Data Displays
901	Summarize data in a table or graph
902	Bar graph and histograms
903	Pie charts and circle graphs
904	Pictographs
905	Line graphs
906	Stem and Leaf plots
907	Scatter plots
908	Box plots
909	Line plots
910	Classification and Venn diagrams
911	Tree diagrams
990	Other
1000	Statistics
1001	Mean, median, and mode
1002	Variability, standard deviation, and range
1003	Line of best fit
1004	Quartiles and percentiles
1005	Bivariate distribution
1006	Confidence intervals
1007	Correlation
1008	Hypothesis testing
1009	Chi Square
1010	Data Transformation
1011	Central Limit Theorem
1090	Other
1100	Probability
1101	Simple probability
1102	Compound probability
1103	Conditional probability
1104	Empirical probability
1105	Sampling and Sample spaces
1106	Independent vs. dependent events
1107	Expected value
1108	Binomial distribution
1109	Normal curve
1190	Other
1200	Analysis
1201	Sequences and series
1202	Limits
1203	Continuity
1204	Rates of change
1205	Maxima, Minima, and Range
1206	Differentiation
1207	Integration
1290	Other

K-12 Mathematics Taxonomy

1300	Trigonometry
1301	Basic ratios
1302	Radian measure
1303	Right triangle trigonometry
1304	Law of Sines and Cosines
1305	Identities
1306	Trigonometric equations
1307	Polar coordinates
1308	Periodicity
1309	Amplitude
1390	Other
1400	Special Topics
1401	Sets
1402	Logic
1403	Mathematical induction
1404	Linear programming
1405	Networks
1406	Iteration and recursion
1407	Permutation combinations
1408	Simulations
1409	Fractals
1490	Other
1500	Functions
1501	Notation
1502	Relations
1503	Linear
1504	Quadratic
1505	Polynomial
1506	Rational
1507	Logarithmic
1508	Exponential
1509	Trigonometric and circular
1510	Inverse
1511	Composition
1590	Other
1600	Instructional Technology
1601	Use of calculators
1602	Use of graphing calculators
1603	Use of computers and internet
1604	Computer programming
1605	Use of Spreadsheets
1690	Other

Cognitive Demand Categories for Mathematics

B	C	D	E	F
Memorize Facts, Definitions, Formulas	Perform Procedures	Demonstrate Understanding of Mathematical Ideas	Conjecture, Analyze, Generalize, Prove	Solve Non-Routine Problems / Make Connections
<u>Recite basic mathematical facts</u>	<u>Use numbers to count, order, denote</u>	<u>Communicate mathematical ideas</u>	<u>Determine the truth of a mathematical pattern or proposition</u>	<u>Apply and adapt a variety of appropriate strategies to solve non-routine problems</u>
<u>Recall mathematics terms and definitions</u>	<u>Do computational procedures or algorithms</u>	<u>Use representations to model mathematical ideas</u>	<u>Write formal or informal proofs</u>	<u>Apply mathematics in contexts outside of mathematics</u>
<u>Recall formulas and computational procedures</u>	<u>Follow procedures / instructions</u>	<u>Explain findings and results from data analysis strategies</u>	<u>Recognize, generate or create patterns</u>	<u>Apply to real world situations</u>
_____	<u>Solve equations/formulas/routine word problems</u>	<u>Develop/explain relationships between concepts</u>	<u>Find a mathematical rule to generate a pattern or number sequence</u>	<u>Synthesize content and ideas from several sources</u>
_____	_____	_____	_____	_____
_____	<u>Organize or display data</u>	<u>Show or explain relationships between models, diagrams, and/or other representations</u>	<u>Make and investigate mathematical conjectures</u>	_____
_____	_____	_____	_____	_____
_____	<u>Read or produce graphs and tables</u>	_____	<u>Identify faulty arguments or misrepresentations of data</u>	_____
_____	_____	_____	_____	_____
_____	<u>Execute geometric constructions</u>	_____	<u>Reason inductively or deductively</u>	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

K-12 Science Taxonomy
K-12 Science Content Areas

100	Nature of Science
200	Science & Technology
300	Science, Health & Environment
400	Measurement & Calculation in Science
500	Components of Living Systems
600	Biochemistry
700	Botany
800	Animal Biology
900	Human Biology
1000	Genetics
1100	Evolution
1200	Reproduction & Development
1300	Ecology
1400	Energy

2000	Earth Systems
2100	Astronomy
2200	Meteorology
2300	Elements & The Periodic System
2400	Chemical Formulas & Reactions
1500	Motion & Forces
1600	Electricity
1700	Waves
1800	Kinetics and Equilibrium
1900	Properties of Matter
2500	Acids, Bases, & Salts
2600	Organic Chemistry
2700	Nuclear Chemistry

Other Coding Conventions

Topics:

0	All
999	Out of Subject Area

Cognitive Demands:

B	Memorize Facts/Definitions/Formulas
C	Conduct Investigations/Perform Procedures
D	Communicate Understanding
E	Analyze Information
F	Apply Concepts/Make Connections
Z	Non-Specific Cognitive Demand

K-12 Science Taxonomy

100	Nature of Science
101	Nature and structure of science
102	Nature of scientific inquiry/method
103	Scientific habits of mind, logic, and reasoning
104	Issues of diversity, culture, and gender in science
105	History of scientific innovations
106	Ethical issues and critiques of science
190	Other
200	Science & Technology
201	Technological benefits, trade-offs, and consequences
202	Relationship between scientific inquiry and technological design
203	Science tools and lab safety
204	Design or implement a solution or product
290	Other
300	Science, Health & Environment
301	Personal health, behavior, disease, and nutrition
302	Environmental health, pollution, and waste disposal
303	Acid rain
304	Ozone depletion
305	Resources and conservation
306	Toxic and nuclear waste
307	Greenhouse effect
308	Natural and human-caused hazards
390	Other
400	Measurement & Calculation in Science
401	The International System
402	Mass and weight
403	Length
404	Volume
405	Time
406	Temperature
407	Accuracy and precision vs. estimation
408	Significant digits
409	Derived units (e.g., rate and speed)
410	Conversion factors
411	Density
412	Data displays (e.g., tables, charts, maps, and graphs)
490	Other
500	Components of Living Systems
501	Cell structure and function
502	Cell Theory
503	Transport of cellular material
504	Cell metabolism
505	Cell response
506	Cellular respiration
507	Cell specialization
508	Organs
509	Organ systems
510	Microbiology
590	Other

600	Biochemistry
601	Living elements (C, H, O, N, P)
602	Atomic structure and bonding
603	Synthesis reactions (proteins)
604	Hydrolysis
605	Organic Compounds (e.g., carbon, proteins, nucleic/amino Acids, and enzymes)
690	Other
700	Botany
701	Nutrition and photosynthesis
702	Circulation
703	Respiration
704	Growth/development/behavior
705	Health and disease
706	Structure and function
790	Other
800	Animal Biology
801	Nutrition
802	Circulation
803	Excretion
804	Respiration
805	Growth/development/behavior
806	Health and disease
807	Structure and function
808	Skeletal and muscular systems
809	Nervous and endocrine systems
810	Habitat
890	Other
900	Human Biology
901	Nutrition and digestive system
902	Circulatory system and blood
903	Excretory system
904	Respiration and respiratory system
905	Growth/development/behavior
906	Health and disease/immune system
907	Skeletal and muscular systems
908	Nervous and endocrine systems
990	Other
1000	Genetics
1001	Mendelian genetics
1002	Modern genetics
1003	Inherited diseases
1004	Biotechnology
1005	Human genetics
1006	Transcription and translation
1007	Mutation
1090	Other

K-12 Science Taxonomy

1100	Evolution
1101	Evidence for evolution
1102	Lamarckian theories
1103	Modern evolutionary theory
1104	Life origin theories
1105	Human evolution
1106	Classification
1107	Causes
1108	Natural selection
1190	Other
1200	Reproduction and Development
1201	Mitotic and meiotic cell division
1202	Asexual reproduction
1203	Inherited traits
1204	Reproduction and development in plants
1205	Reproduction and development in animals
1206	Reproduction and development in humans
1290	Other
1300	Ecology
1301	Food webs and chains
1302	Competition and cooperation
1303	Energy flow relationships
1304	Biotic and abiotic factors
1305	Ecological succession
1306	Ecosystems
1307	Population dynamics
1308	Environmental chemistry
1309	Adaptation and variation
1310	Niche populations
1390	Other
1400	Energy
1401	Potential energy
1402	Kinetic energy
1403	Conservation of mass and energy
1404	Heat energy and transfer
1405	Light energy
1406	Sound energy
1407	Laws of thermodynamics and entropy
1408	Work and energy
1409	Mechanical energy and machines
1410	Nuclear energy
1490	Other

1500	Motion & Forces
1501	Vector and scalar quantities
1502	Displacement as a vector quantity
1503	Velocity as a vector quantity
1504	Relative position and velocity
1505	Acceleration
1506	Newton's First Law
1507	Newton's Second Law
1508	Newton's Third Law
1509	Momentum, impulse, and conservation
1510	Equilibrium
1511	Friction
1512	Universal gravitation
1590	Other
1600	Electricity
1601	Static electricity (production, transfer, and distribution)
1602	Coulomb's Law
1603	Electric fields
1604	Current electricity
1605	Current, voltage, and resistance
1606	Series and parallel circuits
1607	Magnetism
1608	Effects of interacting fields
1609	Conductors and insulators
1690	Other
1700	Waves
1701	Characteristics and behavior
1702	Visible light (direction /speed/transformation)
1703	Non-visible light/electromagnetic spectrum (e.g. ultraviolet, infrared)
1704	Sound (e.g. direction, speed, transformation)
1705	Earthquakes, tsunamis, and ocean waves
1790	Other
1800	Kinetics and Equilibrium
1801	Molecular motion
1802	Pressure
1803	Kinetics and temperature
1804	Equilibrium
1805	Reaction rates
1890	Other

K-12 Science Taxonomy

1900	Properties of Matter
1901	Characteristics and composition
1902	Elements, molecules, and compounds
1903	States of matter (S-L-G-P)
1904	Solutions and mixtures
1905	Physical and chemical changes
1906	Physical and chemical properties
1907	Isotopes, atomic number, and atomic mass
1908	Photons and spectra
1909	Atomic theory
1910	Quantum theory and electron clouds
1990	Other
2000	Earth Systems
2001	Earth's shape, dimension, and composition
2002	Earth's origins and history
2003	Maps, locations, and scales
2004	Measuring using relative and absolute time
2005	Mineral and rock formations and types
2006	Erosion and weathering
2007	Plate tectonics
2008	Formation of: volcanoes, earthquakes, and mountains
2009	Topography
2010	Dynamics and energy transfer
2011	Oceanography
2090	Other
2100	Astronomy
2101	Stars
2102	Galaxies
2103	Origins of the universe
2104	Asteroids and comets
2105	The solar system
2106	The Moon
2107	The Earth's motion: rotation and revolution
2108	Relationship of Earth, moon, and sun
2109	Location, navigation, and time
2190	Other
2200	Meteorology
2201	The Earth's atmosphere
2202	Air pressure and winds
2203	Evaporation, condensation, and precipitation
2204	Weather
2205	Climate
2290	Other
2300	Elements and The Periodic System
2301	Early classification system(s)
2302	Modern periodic table
2303	Interaction of elements
2304	Element characteristics (families and periods)
2390	Other

2400	Chemical Formulas & Reactions
2401	Names, symbols, and formulas
2402	Molecular and empirical formulas
2403	Representing chemical change
2404	Balancing chemical equations
2405	Stoichiometric relationships
2406	Oxidation-reduction reactions
2407	Chemical bonds
2408	Electrochemistry
2409	The Mole
2410	Types of reactions
2490	Other
2500	Acids, Bases, and Salts
2501	Arrhenius/Bronsted-Lowry/Lewis Theories
2502	Naming acids
2503	Acid/Base behaviors and strengths
2504	Salts
2505	pH
2506	Hydrolysis
2507	Buffers
2508	Indicators
2509	Titration
2590	Other
2600	Organic Chemistry
2601	Hydrocarbons, alkenes, alkanes, and alkynes
2602	Aromatic hydrocarbons
2603	Isomers and polymers
2604	Aldehydes, ether, ketones, esters, alcohols, and organic acids
2605	Organic reactions
2606	Carbohydrates, proteins, and lipids
2690	Other
2700	Nuclear Chemistry
2701	Nuclear structure
2702	Nuclear equations
2703	Fission
2704	Radioactivity
2705	Half-life
2706	Fusion
2790	Other

K-12 English Language Arts/Reading Taxonomy

K-12 ELAR Content Areas

100	Phonemic awareness
200	Phonics
300	Vocabulary
400	Text and print features
500	Fluency
600	Comprehension
700	Critical Reasoning
800	Author's craft
900	Writing processes

1000	Elements of Presentation (Verbal and Written)
1100	Writing applications
1200	Language Study
1300	Listening and Viewing
1400	Speaking and Presenting
1500	Forms of Text
1600	Genre (fiction or non-fiction)
1700	Sources of Text
1800	Choice

Other Coding Conventions

Topics:

0	All
999	Out of Subject Area

Cognitive Demands:

B	Memorize/Recall
C	Perform Procedures
D	Generate/Create
E	Analyze/Investigate
F	Evaluate/Integrate
Z	Non-Specific Cognitive Demand

100	Phonemic awareness
101	Phoneme isolation(e.g.,the distinct sounds /c/ /a/ ,and /t/)
102	Phoneme blending (e.g., c/a/t = cat)
103	Phoneme segmentation
104	Onset-rime
105	Sound patterns
106	Rhyme recognition
107	Phoneme deletion, substitution, and addition
108	Identify Syllables
190	Other
200	Phonics
201	Alphabetic principle (includes alphabet recognition and order)
202	Consonants
203	Consonant blends
204	Consonant digraphs (e.g., ch, sh, th, etc.)
205	Diphthongs (e.g., oi, ou, ow, oy [as in "boy"], etc.)
206	R-controlled vowels (e.g., farm, torn, turn, etc.)
207	Patterns within words
208	Vowel letters (a, e, i, o, u, y)
209	Vowel phonemes (15 sounds)
210	Sound and symbol relationships
211	Blending sounds
290	Other
300	Vocabulary
301	Compound words and contractions
302	Inflectional forms (e.g., -s, -ed, -ing)
303	Suffixes, prefixes, and root words
304	Word definitions (including new vocabulary)
305	Word origins
306	Synonyms, antonyms, homonyms
307	Word or phrase meaning from context
308	Denotation and connotation
309	Analogies
310	Sight words
311	Use of references
390	Other
400	Text and print features
401	Book handling
402	Directionality; sequence of text
403	Parts of a book (e.g., cover, title, front, back)
404	Letter, word, and sentence distinctions
405	Structural elements (e.g., index, glossary, table of contents, subtitles, and headings)
406	Graphical elements (e.g., graphs, charts, images, illustrations)
407	Technical elements (e.g., bullets, instructions, forms, sidebars)
408	Electronic elements (e.g., hypertext links, animations)
409	Environmental print, i.e. prints or symbols found in students' everyday environment
490	Other

500	Fluency
501	Prosody (e.g., phrasing, intonation, and inflection)
502	Automaticity of words and phrases (e.g. sight and decodable words)
503	Speed and pace
504	Accuracy
505	Independent reading (e.g. repeated/silent reading for fluency)
590	Other
600	Comprehension
601	Word meaning from context
602	Phrase
603	Sentence
604	Paragraph
605	Main idea(s), key concepts, and sequence(s) of events
606	Descriptive elements (e.g., detail, color, condition)
607	Narrative elements (e.g., events, characters, setting, and plot)
608	Persuasive elements (e.g. propaganda, advertisement, and emotional appeal)
609	Expository or informational elements (e.g., explanation, lists, and organizational patterns such as description, cause-effect, and compare-contrast)
610	Technical elements (e.g., bullets, instruction, form, sidebars, etc.)
611	Electronic elements (e.g., hypertext links, animations)
612	Strategies (e.g., activating prior knowledge, questioning; making connections, predictions; inference, imagery, summarization, re-telling)
613	Self-correction strategies (e.g., monitoring, cueing systems, and fix-up)
614	Metacognitive processes (e.g., reflecting about one's thinking)
615	Interpreting maps, graphs, charts
616	Test-taking strategies
690	Other

700	Critical Reasoning
701	Fact and opinion
702	Appealing to authority, reason, or emotion
703	Validity and significance of assertion or argument
704	Relationships among purpose, organization, format, and meaning in text
705	Author's assumptions or bias
706	Comparison of topic, theme, treatment, scope, or organization across texts
707	Inductive/deductive approaches (e.g., making inferences and drawing conclusions from texts)
708	Logical reasoning in text (e.g. implications, authors' rationale, development of argument, etc.)
709	Textual evidence and/or use of references to support
710	Drawing meaning from allegory and myth
711	Distinguishing real from fantastical events in literature
790	Other
800	Author's craft
801	Theme/thesis
802	Purpose (e.g., inform, perform, critique, or appreciate)
803	Characteristics of genre and forms
804	Point of view (e.g., first or third person, multiple perspectives, etc.)
805	Literary devices (e.g., analogy, simile, metaphor, hyperbole, flashbacks, structure, and archetypes)
806	Literary analysis (e.g., symbolism, voice, style, tone, and mood)
807	Influence of time and place on authors and texts (e.g., historical era or culture)
808	Aesthetic aspects of text (e.g. dramatic or poetic elements)
890	Other
900	Writing processes
901	Printing, cursive writing, and penmanship
902	Pre-writing (e.g., essential questions, topic selection, brainstorming, etc.)
903	Drafting and revising
904	Editing for conventions (e.g., usage, spelling, and structure)
905	Manuscript conventions (e.g., indenting, margins, citations, references, etc.)
906	Final draft and publishing
907	Use of technology (e.g., word processing, multimedia, etc.)
990	Other

1000	Elements of Presentation (Verbal and Written)
1001	Purpose, audience, and context
1002	Main ideas
1003	Organization
1004	Word choice
1005	Support and elaboration
1006	Style, voice, technique, and use of figurative language
1007	Writing Conventions (e.g. capitalization, punctuation, indentation, citation, etc.)
1008	Transitional Devices
1090	Other
1100	Writing applications
1101	Narrative (e.g., stories, fiction, and plays)
1102	Poetry
1103	Expository (e.g., report, theme, essay, etc.)
1104	Critical/evaluative (e.g., review)
1105	Expressive (e.g., journals or reflections)
1106	Persuasive (e.g., editorial, advertisement, argumentative)
1107	Procedural (e.g., instructions, brochure, lab report)
1108	Technical(e.g., manuals, specifications, research
1109	Real world applications of writing (e.g., resumes, letters to editor, note taking)
1190	Other
1200	Language Study
1201	Syllabication
1202	Spelling
1203	Capitalization and punctuation
1204	Signs and symbols (e.g., semiotics)
1205	Syntax and sentence structure
1206	Grammatical analysis
1207	Standard and non-standard language usage
1208	Linguistic knowledge (including dialects and diverse forms)
1209	History of language
1210	Relationships of language forms, contexts, and purposes (e.g., rhetoric and semantics)
1211	Effects of race, gender, ethnicity on language and language use
1290	Other
1300	Listening and Viewing
1301	Listening
1302	Viewing
1303	Nonverbal communication
1304	Consideration of others' ideas
1305	Similarities/differences of print, graphic, and nonprint communications
1306	Literal and connotative meanings
1307	Diction, tone, syntax, convention, rhetorical structure in speech
1308	Media-supported communication
1390	Other

K-12 English Language Arts/Reading Taxonomy

1400	Speaking and Presenting
1401	Public speaking and oral presentation
1402	Diction, tone, syntax, convention, and rhetorical structure in speech
1403	Demonstrating confidence
1404	Effective nonverbal skills(e.g., gesture, eye contact, etc.)
1405	Knowledge of situational and cultural norms for expression
1406	Conversation and discussion (e.g., Socratic seminars, literature circles, and peer discussion)
1407	Debate and structure of argument
1408	Dramatics and creative interpretation
1409	Media-supported communication
1410	Selecting presentation format
1411	Interviewing
1490	Other
1500	Forms of Text
1501	Myths, tales, fables, or epics
1502	Short stories
1503	Novels (including chapter books)
1504	Picture books
1505	Drama
1506	Poetry
1507	Public documents
1508	Consumer, technical, and business writing (e.g., manuals, how-to texts, ads, memos)
1509	Newspaper or magazine articles
1510	Speeches
1511	Essays
1512	Criticism and commentary
1513	Historical accounts
1514	Biography and autobiography
1515	Content area materials
1590	Other

1600	Genre (fiction or non-fiction)
1601	Traditional literature
1602	Contemporary literature
1603	Multicultural literature
1690	Other
1700	Sources of Text
1701	Basic readers
1702	Anthologies
1703	"Leveled" books
1704	Textbooks
1705	Children's trade books
1706	Young adult trade books
1707	Other supplementary texts
1708	Periodicals
1709	Non-print media
1790	Other
1800	Choice
1801	Teacher assigned
1802	Class or group choice
1803	Individual student choice
1890	Other

K-12 Social Studies Content Areas

100	Social Studies Skills
200	Human Culture
300	Innovation and Cultural Change
400	Multicultural Diversity
500	Social Problems
600	Foundations of Government
700	Principles of American Democracy
800	American Constitutionalism
900	Political and Civic Engagement
1000	Limited Resources and Choice
1100	How Markets Work
1200	Economic Systems
1300	Economic Interdependence
1400	Personal Finance
1500	Map Skills

1600	Places and Regions
1700	Physical Geography
1800	Human and Cultural Geography
1900	Human/Environment Interactions
2000	The Uses of Geography
2100	State History
2200	US History (People, Events, and Documents)
2300	US History (Growth and Development)
2400	US History (Other Themes)
2500	World History (Pre-History)
2600	World History (Early Empires and Religions)
2700	World History (Emergence of the Global Age)
2800	Psychology
2900	Sociology

Other Coding Conventions

Topics:

0	All
999	Out of Subject Area

Cognitive Demands:

B	Recall/Memorize
C	Process Information
D	Demonstrate Understanding
E	Analyze/Hypothesize
F	Synthesis/Evaluate
Z	Non-Specific Cognitive Demand

K-12 Social Studies Taxonomy

100	Social Studies Skills
101	Chronological and historical thinking
102	Deductive and/or inductive reasoning
103	Causality and unpredictability
104	Developing a reasonable argument
105	Research, analysis, and interpretation
106	Data collection (collect data, gather information)
107	Data interpretation
108	Bias, opinion, and perspective (credibility, point of view)
109	Issue analysis and decision making
110	Use of primary sources (artifacts and documents)
111	Use of secondary sources
112	Cause and effect
113	Compare and contrast
114	Conflict management
115	Work cooperatively in groups
116	Formulating a question or topic
190	Other
200	Human Culture
201	Enculturation
202	Kinship patterns and descent
203	Social stratification (e.g., caste and class)
204	Influence of social class
205	Subcultures within the dominant culture
206	Language and communication
207	Characteristics of culture
208	Contributions
209	Cooperation, conflict, and interdependence
210	Belief system
211	Individual identity
290	Other
300	Innovation and Cultural Change
301	Invention and the role of technology
302	Individual will and social influence
303	Cultural diffusion
304	Adaptation
305	Acculturation
306	Assimilation
307	Extinction
390	Other
400	Multicultural Diversity
401	Ethnocentrism and cultural relativity
402	Race, ethnicity, and religion
403	Pluralism
404	Diversity
405	Gender
490	Other

500	Social Problems
501	Poverty, hunger, and homelessness
502	Crime, delinquency, and prisons
503	Drug, alcohol, and substance abuse
504	Discrimination and prejudice
505	Slavery
590	Other
600	Foundations of Government
601	The need for government (e.g., conflict resolution, collective decision-making, and national security)
602	Forms of government (e.g., monarchy, dictatorship, theocracy, democracy, or oligarchy)
603	Political theory (e.g., Hobbes, Locke, and Marx)
604	Fundamental political concepts (e.g., legitimacy, power, authority, responsibility, rule of law, sovereignty, and compromise)
605	Meaning of democratic theory
606	International Systems (e.g., UN, EU, NAFTA, WTO)
607	International Relations
690	Other
700	Principles of American Democracy
701	Limited government
702	Republicanism
703	Majority rule vs. minority rights
704	Federalism
705	Separation of powers
706	Checks and balances
707	Popular sovereignty
708	Individual rights
709	Common good
710	Diversity
711	Equality
712	General welfare
713	Liberty
714	Patriotism
715	Self-Government
716	Justice
717	Civic virtue
790	Other

K-12 Social Studies Taxonomy

800	American Constitutionalism
801	Foundation documents (e.g., Magna Carta, Declaration of Independence, and Federalist Papers)
802	Electoral process
803	Legislative powers and functions
804	Judicial powers and functions
805	Executive powers and functions
806	Basic content and structure of the U.S. Constitution: limited government, enumeration and separation of powers, federalism, and republicanism
807	Interpretation of the Constitution
808	Amendments of the Constitution
809	Relationships among various branches of the government (i.e., checks and balances)
810	Landmark Supreme Court cases (e.g., Marbury v. Madison, Brown v. Board, and Miranda v. Arizona)
811	State and local government (e.g. county, tribal, town)
812	Individual rights and responsibilities
813	Due process (e.g., substantive and procedural)
814	Equal protection
890	Other
900	Political and Civic Engagement
901	Political participation
902	Citizens' rights and responsibilities
903	Debate and issues clarification
904	Political constituencies
905	Political activism
906	Civil disobedience
907	Polls, bias, and spin
908	Political orientation (e.g., liberal, moderate, and conservative)
909	Public service
910	Volunteerism
911	Non-constitutional political institutions (e.g., political parties, interest groups, media, and public opinion)
912	Informed citizenry
913	Public policy (local, state, national, international)
914	Social Institutions
990	Other
1000	Limited Resources and Choice
1001	Choice (e.g., wants vs. needs)
1002	Investing
1003	Opportunity cost
1004	Productive resources (e.g., natural, human, capital, entrepreneurship)
1005	Scarcity
1006	Spending
1090	Other

1100	How Markets Work
1101	Competition (e.g., perfect, lack of)
1102	Supply and Demand
1103	Exchange
1104	Incentive
1105	Circular flow
1106	Market failure (e.g., externalities)
1107	Money
1108	Price
1109	Productivity
1110	Substitute and complementary goods
1111	Public and private goods
1112	Risk
1113	Role of government (e.g., taxes and regulation)
1114	Goods and services
1115	Profit
1190	Other
1200	Economic Systems
1201	Stock market
1202	Basic economic questions
1203	Command economy
1204	Consumption
1205	Banking system (e.g., central bank)
1206	Economic development
1207	Distribution
1208	Market economic system
1209	Fiscal policy
1210	Monetary policy
1211	Production
1212	Societal goals (e.g., equity, freedom, growth, security, and stability)
1213	Traditional economic system
1214	Mixed system
1215	Gross domestic product
1216	Economic indicators (e.g., unemployment, inflation, and CPI)
1290	Other

1300	Economic Interdependence (Globalization)
1301	Balance of systems
1302	Trade (e.g., free trade, barriers to trade, subsidies, tariffs, quotas, and embargoes)
1303	Comparative advantage
1304	Exchange rates
1305	Interdependence
1306	International aspects of growth and stability
1307	Money
1308	Specialization
1309	Voluntary exchange
1310	Sustainability
1311	Foreign aid (state)
1390	Other
1400	Personal Finance
1401	Money management/budgeting
1402	Credit and interest
1403	Financial planning
1404	Job skills
1405	Income
1406	Taxes
1407	Entrepreneurship
1408	Investing
1409	Banking and financial institutions
1410	Insurance
1411	Savings and borrowing
1490	Other
1500	Map Skills
1501	Diagrams, graphs, models, maps, globes, and atlases
1502	Photographs, aerial photos, and satellite imagery
1503	Map properties (e.g., size, shape, distance, and direction)
1504	Map elements (e.g., title, scale, symbols, and legend)
1505	Direction (e.g., cardinal points, magnetic, and polar)
1506	Location (e.g., latitude, longitude, absolute, and relative)
1507	Location of features on the earth (e.g., continents, countries, states, cities, mountains, oceans, and rivers)
1508	Spatial organization (e.g., pattern, hierarchy, distribution, linkage, and accessibility)
1509	Movement and spatial interaction
1510	Mental maps (creation and use of)
1511	Geospatial technologies (e.g., geographic information systems and global positioning systems)
1590	Other

1600	Places and Regions
1601	Physical characteristics of places in the U.S. and the world
1602	Human characteristics of places in the U.S. and the world
1603	Place creation (e.g., meaning and social relations)
1604	Place and identity (e.g., personal, community, ethnic, national, regional, and global)
1605	The concept of regions and regionalization
1606	Types of regions (formal, functional, and perceptual)
1607	The influence of culture and experience on people's perceptions of places and regions
1690	Other
1700	Physical Geography
1701	Climate, world climate regions, and major biomes
1702	Earth/sun relationships and the seasons
1703	Weather and weather systems
1704	Formation of and change to landforms
1705	The hydrologic cycle (i.e., water cycle)
1706	The oceans
1707	Ecosystems and ecological processes (e.g., global warming and energy)
1708	Physical systems
1790	Other
1800	Human and Cultural Geography
1801	Population
1802	Migration
1803	Economic processes and systems
1804	Transportation and communication networks
1805	Trade and movement of ideas
1806	Human settlements and urban systems
1807	Conflict and cooperation over territory
1808	Geo-political systems and interactions
1809	Cultural landscape (e.g., religion, ethnicity, and language)
1810	Locations and characteristics of major culture groups of the world
1890	Other
1900	Human/Environment Interactions
1901	Human modification of, and adaptation to, the physical environment
1902	Carrying capacity of environmental systems
1903	Resources and energy use
1904	Pollution and environmental problems
1905	Natural hazards and disasters (e.g., hurricanes, earthquakes, and floods)
1990	Other

K-12 Social Studies Taxonomy

2000	The Uses of Geography
2001	The spatial perspective
2002	The ecological perspective
2003	Interpreting the past and present
2004	Forecasting and planning for the future
2005	Identifying and solving problems
2006	Connecting self and the world from local to global scales
2007	Patterns of change
2090	Other
2100	State History
2101	Indigenous peoples
2102	Early settlement and statehood
2103	Immigration and settlement
2104	Structure of state government
2105	Contemporary times
2106	Geographic, economic, and political influences
2107	Key historic figures
2190	Other
2200	US History (People, Events, and Documents)
2201	Indigenous people and cultures of North America
2202	Three worlds converge (i.e., native, Colonial, and European)
2203	The American Revolution
2204	Revolution and New Nation
2205	Foundational documents of American government (e.g., Articles of Confederation, Declaration of Independence, Constitution, Bill of Rights, other amendments)
2206	Expansion and Reform (e.g., election of 1800, Jacksonian period, and antebellum period)
2207	Causes and consequences of the Civil War (e.g., regionalism and slavery)
2208	Civil War and Reconstruction
2209	Rise of industrial America and cities
2210	The Progressive Era
2211	Causes and consequences of World War I
2212	The Great Depression
2213	The New Deal
2214	Causes and consequences of World War II
2215	Causes and consequences of Cold War (e.g., Korean Conflict and Vietnam conflict)
2216	Rights revolution (e.g., civil rights, women's rights, expansion of civil liberties, and environmental and consumer protection)
2217	Key historic figures
2218	Colonial America
2219	Federal period
2290	Other

2300	US History (Growth and Development)
2301	Expansion, innovation, and reform
2302	Expansion of territory (e.g., westward expansion)
2303	Industrial Revolution
2304	Immigration
2305	Emergence of Modern America
2306	Industrialization and urbanization
2307	Nationalism
2390	Other
2400	US History (Other Themes)
2401	Cultural, religious, and social reform movements
2402	Social and economic changes
2403	Social Policies (e.g., Federal Indian policies, Prohibition)
2404	Role of art, literature, and music (e.g., Jazz Age, Lost Generation, Harlem Renaissance)
2405	Evolution of foreign and domestic policy (e.g., post- Cold War era, terrorism, and relations with the developing world)
2406	Contemporary United States
2490	Other
2500	World History (Pre-History)
2501	Beginnings of human society and early civilizations
2502	Emergence of civilizations (e.g., Ice Age, hunting and gathering societies, and development of agriculture)
2503	Development of early civilizations (e.g., Hittites, Nubians, Meso and South America, Egypt, and Mesopotamia)
2590	Other
2600	World History (Early Empires and Religions)
2601	Rise of world religions and the great empires
2602	Early empires (e.g., Persian, Greek, Roman, and Asian empires)
2603	Eurasian thinkers (e.g., Chinese, Indian, and Greek)
2604	Religions (e.g., Christianity, Islam, and Buddhism)
2605	Global encounters, exchanges, and conflicts
2606	Expansion of Europe (e.g., Byzantine and Medieval Periods)
2607	Interactions between Christendom and the Muslim World
2608	Interactions through regional and overseas exploration and trade (e.g., Mongol Empire, African kingdoms, Marco Polo, exploration of the Americas)
2609	Patterns of crises (e.g., weather and plague)
2690	Other

K-12 Social Studies Taxonomy

2700	World History (Emergence of the Global Age)
2701	Expansion of overseas exploration and trade
2702	Convergence of cultures (e.g., ecological revolution)
2703	Renaissance, Reformation, and political revolutions in Europe
2704	An Age of Empires and Revolutions
2705	Political, agricultural, industrial, and scientific revolutions
2706	Nationalism, imperialism, and expansion of trade-based empires
2707	Western dominance and global empires
2708	Causes and consequences of global wars (e.g., World War I, World War II, the Holocaust, United Nations)
2709	Global politics (e.g., Cold War, Communist China, independence movements in Africa, nation building, balkanization of states)
2710	Civil Society (e.g., immigration, civil rights, ethnic and religious conflicts, advances in science and medicine)
2711	Rise of global economy (NAFTA, EU)
2712	Key historic figures
2790	Other
2800	Psychology
2801	Scientific method
2802	Behavior (ie. Anti-social, altruistic, obedient)
2803	Ethical issues
2804	Human development
2805	Cognitive development
2806	Moral development
2807	Brain function and structure
2808	Memory and learning
2809	Mental health (ie. Disorders)
2810	Personality
2811	Perceptions and attitudes
2812	Heredity
2813	Identity
2890	Other

2900	Sociology
2901	Socialization
2902	Norms and values
2903	Conformity and non-conformity
2904	Sociological research
2905	Cultural diversity
2906	Group behavior
2907	Social groups
2908	Deviance
2909	Human interaction
2910	Cultural patterns
2911	Social institutions (eg. religious, educational, familial, economical, political)
2912	Stereotypes
2913	Social structure
2914	Collective behavior
2915	Social problems
2916	Social movements
2917	Conflict resolution
2918	Cultural assimilation
2919	Cultural preservation
2990	Other

