DOCUMENT RESUME

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ABSTRACT

The student performance standards of excellence in mathematics, science, social studies, and writing for Florida schools were developed cooperatively by the Florida Department of Education, local school district personnel and representatives of institutions of higher education. These standards and skills were reviewed by teachers and supervisors throughout the state. A second revision was sent to superintendents in each district for review by appropriate persons with subject area expertise. Input from reviews was used to prepare the final document for State Board of Education approval. The standards represent general and higher-level competencies at grades 3, 5, 8, and 12. Written in broad general terms, the standards are intended to communicate with the general public. The skill statements provide teachers and curriculum specialists with more specific information concerning the performance expected of high-achieving students at specific grade levels. These skills will form the basis for a state assessment program in each of the areas of mathematics, science, social studies and writing. Tables summarize the number of applicable standards and skills for each grade level. A listing by subject area of standards and skills and the grade levels to which they apply, comprises the balance of the document. Upon the authority of the Educational Reform Act of 1983 the Florida State Board of Education approved these standards of excellence on September 20, 1983 and required each district school board to adopt by July 1, 1984, rules which provide for appropriate instruction based upon these standards. (LMO)

STUDENT PERFORMANCE STANDARDS OF EXCELLENCE FOR FLORIDA SCHOOLS IN MATHEMATICS, SCIENCE, SOCIAL STUDIES AND WRITING

1984-85 THROUGH 1988-89

STATE OF FLORIDA
DEPARTMENT OF EDUCATION
TALLAHASSEE, FLORIDA
RALPH D. TURLINGTON, COMMISSIONER
AFFIRMATIVE ACTION/EQUAL OPPORTUNITY EMPLOYER

Division of Public Schools
Florida Department of Education

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Commissioner's Message

Florida's major thrust in education, as indicated by our state's current goal to become a state of educational distinction, is focused upon higher achievement in all academic areas. The students in Florida's public schools have been demonstrating continuous progress as reflected through improved scores on the State Student Assessment Tests based on the state adopted minimum student performance standards.

The educational leadership throughout this state has provided the knowledge and resources that account for this improvement, and I am sure that the strong support of students, parents and the general public for our educational programs will ensure continued improvement in student achievement.

In keeping with our success and our goal to make Florida a state of educational distinction, the Division of Public Schools has developed student performance standards of excellence in mathematics, science, social studies and writing. These standards were developed and reviewed statewide through the cooperative efforts of teachers, district supervisors and administrators, community college and university personnel, department of education personnel and lay citizens.

These standards represent a broad spectrum of higher-level competencies expected of those students who demonstrate progress toward academic excellence in specified fields of study in our public schools. The skills will form the basis for a state assessment program in each of the areas of mathematics, science, social studies and writing. Information obtained through assessment will be used to evaluate the effectiveness of programs in helping students obtain these competencies.

The Florida Legislature passed the Educational Reform Act of 1983, which requires the State Board of Education to approve student performance standards of excellence in mathematics and science and other areas which the Commissioner of Education determines shall best indicate the status of the state system of public education. Upon the authority of this Act, the State Board of Education, on September 20, 1983, approved the standards of excellence contained herein and adopted State Board of Education Rule 6A-1.9411 which requires each district school board to adopt by July 1, 1984, rules which provide for appropriate instruction based upon these student performance standards of excellence.

We are proud of Florida's role in providing a new dimension to the competency movement, as Florida continues its thrust to the upper quartile.

Sincerely,

Ralph D. Turlington

Ralph D. Turlington

Preparation of the Student Performance Standards of Excellence

The student performance standards of excellence for Florida schools were developed cooperatively by the Florida Department of Education, local school district personnel and representatives of institutions of higher education. The development of these standards was initiated in 1982 by the Division of Public Schools with the Performance Standards Section of the Bureau of Program Support Services coordinating this development in cooperation with the Program Assistance Section of the Bureau of Curriculum Services. These standards and skills were reviewed by teachers and supervisors in school districts throughout the state. A second revision was mailed to each district superintendent for a final review by appropriate persons with expertise in the subject area being reviewed. More than four thousand persons (mathematics, science, social studies and writing) from over fifty districts and all regions, representing elementary, middle, junior high and senior high schools were involved in the reviews. The input received through all of the reviews was used to prepare the final document for State Board of Education approval.

Organization of the Student Performance Standards of Excellence

As these standards are incorporated into each district's program of studies, it should be noted that the standards represent general and higher-level competencies at grades 3, 5, 8 and 12. The standards developed in each academic area are written in broad general terms and are intended to communicate with the general public. The skill statements provide teachers and curriculum specialists with more specific information concerning the performance expected of high-achieving students at specified grade levels.

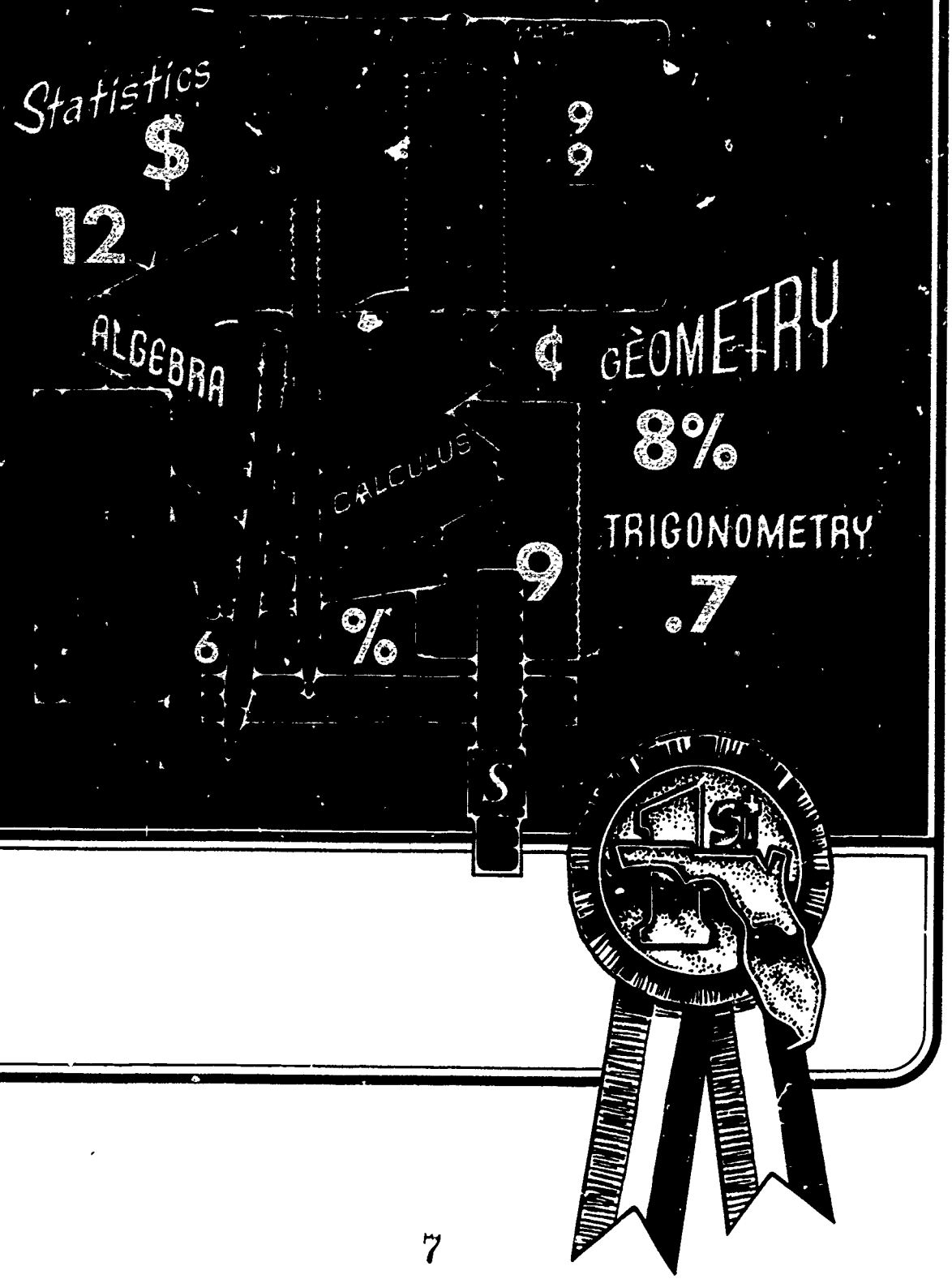
The following table summarizes the number of applicable standards and skills for each grade level.

STANDARDS OF EXCELLENCE IN MATHEMATICS, SCIENCE, SOCIAL STUDIES AND WRITING

SUBJECT	GRADE THREE		GRADE FIVE		GRADE EIGHT		GRADE TWELVE		TOTAL	
	Standards	Skills	Standards	Skills	Standards	Skills	Standards	Skills	Standards	Skills
MATHEMATICS	10	45	10	68	10	53	8	52	10	218
SCIENCE	11	97	11	148	12	191	12	226	12	662
SOCIAL STUDIES	8	22	8	50	8	69	8	44	8	185
WRITING	5	25	5	34	5	34	5	34	5	127

Questions concerning the performance standards of excellence may be directed to the Performance Standards Section, Bureau of Program Support Services, or the Program Assistance Section, Bureau of Curriculum Services, Department of Education, Knott Building, Tallahassee, Florida 32301.

MATHEMATICS



Total Number of Skills by Standard Per Grade in the Mathematics Standards of Excellence

STANDARDS	GRADE THREE	GRADE FIVE	GRADE EIGHT	GRADE TWELVE	TOTAL
A	8	10	9	4	31
B	5	6	5	0	16
C	2	9	4	4	19
D	6	7	6	9	28
E	3	8	8	17	36
F	4	5	4	6	19
G	7	9	6	6	28
H	4	5	2	0	11
I	2	4	5	3	14
J	4	5	4	3	16
TOTAL	45	68	53	52	218

MATHEMATICS

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)			
A. THE STUDENT WILL APPLY PROBLEM-SOLVING TECHNIQUES.	1001. Solve word problems requiring multi-step computation.	3	5	8	
	1002. Solve problems appropriate for a table, chart, or list organizational plan.	3	5	8	
	1003. Solve problems appropriate for drawing a diagram.	3	5	8	
	1004. Solve problems appropriate for a guess (or estimate)-check-revise technique.	3	5		
	1005. Solve problems appropriate for a working backwards technique.	3	5		
	1006. Solve problems requiring visual discrimination.	3	5	8	
	1007. Solve problems involving sequential numeric and geometric patterns.	3	5	8	
	1008. Check the results of a problem-solving attempt in terms of the original problem.	3	5	8	
	1009. Solve word problems that include extraneous information.		5		
	1010. Form tentative hypotheses in problem-solving situations.		5	8	
	1011. Solve problems appropriate for an inductive reasoning technique.			8	
	1012. Solve problems dealing with applications from Algebra I.			8	
	1013. Use proof by contradiction to solve problems.				12
	1014. Solve problems dealing with applications from Algebra II.				12

MATHEMATICS

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)
A. (continued) THE STUDENT WILL APPLY PROBLEM-SOLVING TECHNIQUES.	1015. Solve problems dealing with applications from trigonometry.	12
	1016. Solve problems dealing with applications from calculus.	12
B. THE STUDENT WILL APPLY MATHEMATICS TO EVERYDAY, REAL-WORLD SITUATIONS.	1017. Compute the value of a set of coins and bills, and write it in decimal notation using the dollar sign.	3
	1018. Compute the total cost of several items including tax.	3 5
	1019. Compute the change which would be received in making purchases.	3 5
	1020. Solve problems related to managing personal income.	3 5
	1021. Solve problems related to managing personal time.	3 5
	1022. Solve problems which require interpreting time schedules from a chart.	5
	1023. Compute the sale price of an item discounted by a fraction.	5
	1024. Solve problems involving discounts and percent of increase or decrease.	8
	1025. Compute gross income (using hourly rate, piece rate and commission).	8
	1026. Compute net pay given deductions (such as insurance, withholding tax, savings and FICA tax).	8

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)			
B. (continued) THE STUDENT WILL APPLY MATHEMATICS TO EVERYDAY, REAL-WORLD SITUATIONS.	1027. Solve problems involving installment payments.			8	
	1028. Determine and compare costs of credit buying and cash purchases.			8	
C. THE STUDENT WILL DEMONSTRATE ESTIMATION AND APPROXIMATION PROCEDURES.	1029. Estimate the solution to computational exercises involving whole numbers.	3	5		
	1030. Estimate the solution to money problems.	3	5		
	1031. Estimate linear measurements.		5		
	1032. Round any decimal number less than 1, with up to 3 decimal places, to the nearest designated place.		5		
	1033. Estimate the solution to computational exercises involving + and - of mixed decimal numbers.		5		
	1034. Estimate the solution to computational exercises involving + and - of mixed fraction numbers.		5		
	1035. Give reasonable responses based on personal knowledge of a situation rather than rounding and computing.		5		
	1036. Estimate any appropriate measure (length, area), given geometric figures of two dimensions.		5		
	1037. Determine whether or not a proposed answer is reasonable in a given problem situation.		5		

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)			
C. (continued) THE STUDENT WILL DEMONSTRATE ESTIMATION AND APPROXIMATION PROCEDURES.	1038. Estimate the square root of a whole number to the nearest whole number or tenths.			8	
	1039. Estimate the solution to computations involving decimals and percents.			8	
	1040. Estimate the result within one order of magnitude when given "large scale" problems (population, transportation, etc.).			8	
	1041. Estimate an answer to problems that require the use of Algebra I.			8	
	1042. Estimate an answer to problems that require the use of Algebra II (e.g., mixture problems, work problems, etc.).				12
	1043. Estimate an answer to problems that require the use of geometry.				12
	1044. Estimate an answer to problems that require the use of trigonometry.				12
	1045. Estimate an answer to problems that require the use of calculus.				12
D. THE STUDENT WILL PERFORM MATHEMATICAL COMPUTATIONS.	1046. Determine the relationship ($>$, $<$, $=$) between expressions using + and - of whole numbers.	3			
	1047. Add or subtract multi-digit whole numbers, using standard algorithms.	3			
	1048. Add or subtract multi-digit whole numbers, using alternative methods.	3			

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)			
D. (continued) THE STUDENT WILL PERFORM MATHEMATICAL COMPUTATIONS.	1049. Multiply or divide a 2- or more digit whole number by a 1-digit number.	3			
	1050. Solve computational puzzles for whole numbers that demonstrate understanding of, and ingenuity with, computational principles.	3	5		
	1051. Determine the relationship ($>$, $<$, =), between proper fractions.	3	5		
	1052. Multiply or divide multi-digit whole numbers, using standard algorithms.		5		
	1053. Multiply or divide multi-digit whole numbers, using alternative methods.		5		
	1054. Compute sums, differences, products and quotients in exercises that involve parentheses.		5		
	1055. Add or subtract two mixed numbers.		5		
	1056. Multiply 2 decimal numbers.		5		
	1057. Add, subtract, multiply and divide rational numbers.			8	
	1058. Add, subtract, multiply and divide polynomials.			8	
	1059. Factor polynomials, using the difference of two squares, perfect square trinomials, trinomials of the form $x^2 + bx + c$, and by grouping.			8	
	1060. Simplify algebraic rational expressions.			8	

STANDARDS	SKILLS - The student will:		GRADE LEVEL(S)			
D. (continued) THE STUDENT WILL PERFORM MATHEMATICAL COMPUTATIONS.	1061.	Change repeating decimals to rational numbers.			8	
	1062.	Find a fraction or decimal between any two given fractions or decimals.			8	
	1063.	Perform operations with radicals.				12
	1064.	Perform operations with matrices (i.e., sums, differences, products and inverses).				12
	1065.	Find the sum of vectors.				12
	1066.	Find the horizontal and vertical components in vectors.				12
	1067.	Perform operations using exponential and/or logarithmic functions.				12
	1068.	Evaluate the slope of a graph of a polynomial relation at a given point.				12
	1069.	Evaluate expressions involving rational exponents.				12
	1070.	Find sums, products and roots of complex numbers.				12
	1071.	Evaluate trigonometric expressions involving any of the six functions and their inverses.				12
E. THE STUDENT WILL USE MATHEMATICAL SYMBOLS AND CONCEPTS TO SOLVE PROBLEMS WITHIN MATHEMATICAL SYSTEMS.	1072.	Write the standard base-ten numeral for an expanded numeral.	3			
	1073.	Determine whether any given whole number is odd or even.	3			

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)			
E. (continued) THE STUDENT WILL USE MATHEMATICAL SYMBOLS AND CONCEPTS TO SOLVE PROBLEMS WITHIN MATHEMATICAL SYSTEMS.	1074. Solve simple equations of the form $a \pm x = b$ for x a whole number.	3	5		
	1075. Rename a base-ten numeral as a base-two numeral, or conversely.		5		
	1076. Classify the sum, difference, product or quotient of odd or even numbers as odd or even.		5		
	1077. Solve equations of the form $a \cdot x = b$ or $x \div a = b$, for x a whole number.		5		
	1078. Solve simple algebraic inequalities involving + and −.		5		
	1079. Determine if a given number is prime or composite.		5		
	1080. Write composite numbers as the product of prime numbers.		5		
	1081. Determine the Greatest Common Factor (Divisor) and Least Common Multiple for 2 whole numbers.		5		
	1082. Find the solution set algebraically for linear equations and inequalities in one variable, with integral coefficients.			8	
	1083. Find the solution set graphically for linear equations and inequalities in two variables, with integral coefficients.			8	
	1084. Determine the equation of a line, given the slope and a point or given two points.			8	
	1085. Identify functions, given sets of ordered pairs or graphs.			8	

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)			
E. (continued) THE STUDENT WILL USE MATHEMATICAL SYMBOLS AND CONCEPTS TO SOLVE PROBLEMS WITHIN MATHEMATICAL SYSTEMS.	1086. Solve linear equations in one variable, involving absolute value.			8	
	1087. Give the expression for any specific variable in a given formula.			8	
	1088. Apply properties of the real number system.			8	
	1089. Apply laws of exponents to polynomial expressions.			8	
	1090. Solve equations and inequalities involving absolute value algebraically and/or graphically.				12
	1091. Solve a system of equations in which at least one equation contains at least one second degree variable.				12
	1092. Find the real roots of third and and higher degree polynomial equations.				12
	1093. Find the real roots of equations involving exponential and/or logarithmic functions.				12
	1094. Solve quadratic equations with irrational or complex coefficients.				12
	1095. Graph polynomial functions of the third degree.				12
	1096. Graph exponential and logarithmic functions.				12
	1097. Graph trigonometric functions of varying amplitudes, periods and phases.				12

STANDARDS		SKILLS - The student will:	GRADE LEVEL(S)			
E.	(continued) THE STUDENT WILL USE MATHEMATICAL SYMBOLS AND CONCEPTS TO SOLVE PROBLEMS WITHIN MATHEMATICAL SYSTEMS.	1098. Apply identities in solving trigonometric equations.				12
		1099. Find all real and complex roots of a number using DeMoivre's Theorem.				12
		1100. Use the binomial theorem to expand a binomial to an integral power.				12
		1101. Use the binomial theorem to find the kth term.				12
		1102. Find the sum of an arithmetic series.				12
		1103. Find the sum of a geometric series.				12
		1104. Form a generalization by examining arithmetic or geometric sequence.				12
		1105. Find derivatives of functions.				12
		1106. Evaluate integrals.				12
F.	THE STUDENT WILL RECOGNIZE AND APPLY GEOMETRIC CONCEPTS.	1107. Identify fundamental geometric figures.	3	5		
		1108. Recognize fundamental geometric concepts.	3	5		
		1109. Classify geometric figures.	3	5		
		1110. Recognize and apply topological concepts.	3	5		
		1111. Perform basic line and angle constructions.		5		
		1112. State the relationship between the circumference of a circle and its diameter.			8	

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)			
F. (continued) THE STUDENT WILL RECOGNIZE AND APPLY GEOMETRIC CONCEPTS.	1113. Solve problems that involve indirect measurement by using proportions and similar triangles			8	
	1114. Use the Pythagorean Theorem to solve acute triangle problems.			8	
	1115. Construct the following geometric figures given a straightedge and a compass: triangles, circles, squares, parallelograms, rhombuses, rectangles and hexagons.			8	
	1116. Solve problems and write proofs involving angles and angle relationships, (supplementary, complementary, vertical, perpendicular lines, angle addition postulate, etc.).				12
	1117. Solve problems related to planes, polygons and circles.				12
	1118. Write proofs related to planes, polygons and circles.				12
	1119. Solve problems using principles of coordinate geometry.				12
	1120. Write equations for circles, parabolas, ellipses and hyperbolas.				12
	1121. Draw graphs for circles, parabolas, ellipses and hyperbolas.				12
G. THE STUDENT WILL RECOGNIZE AND APPLY MEASUREMENT CONCEPTS.	1122. Convert within given units of measuring time.	3			
	1123. Apply the concept of measuring elapsed time.	3	5		

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)			
G. (continued) THE STUDENT WILL RECOGNIZE AND APPLY MEASUREMENT CONCEPTS.	1124. Apply the concept of measuring temperature.	3	5		
	1125. Apply the concept of measuring length.	3	5		
	1126. Apply the concept of measuring area.	3	5		
	1127. Apply the concept of measuring volume and/or surface area.	3	5		
	1128. Apply the concept of measuring mass.	3	5		
	1129. Convert given measures of mass to equivalent answers.		5		
	1130. Convert given measures of length to equivalent answers.		5		
	1131. Determine the degree measure of an angle.		5		
	1132. Find the area of a given plane figure that combines more than one geometric shape.			8	
	1133. Compute the area remaining when sections are cut out of a given figure where the figures used are combinations of triangles, squares, rectangles, parallelograms, trapezoids or circles.			8	
	1134. Compute the total surface area of cubes, cylinders and pyramids using metric measures.			8	
	1135. Compute the volume of pyramids, cylinders, cones and spheres using metric measures.			8	

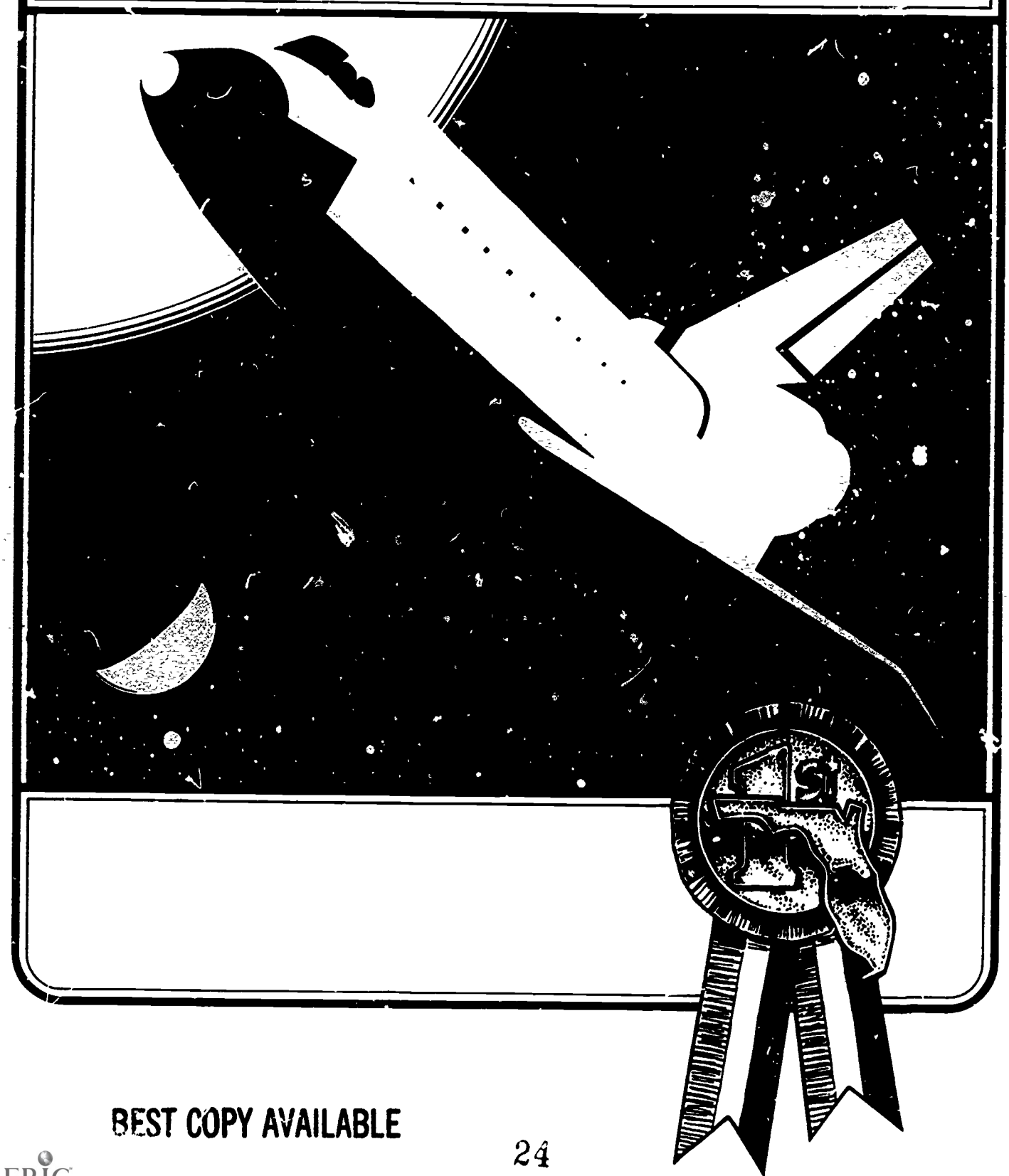
STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)			
G. (continued) THE STUDENT WILL RECOGNIZE AND APPLY MEASUREMENT CONCEPTS.	1136. Determine the change in the area of a plane figure when its dimensions are altered.			8	
	1137. Determine the change in the volume of a solid when one or more of its dimensions are altered.			8	
	1138. Compute the area and perimeter of regular and irregular polygons.				12
	1139. Compute the area and perimeter of a sector of a circle and a segment of a circle.				12
	1140. Solve measurement problems involving areas of plane figures and volumes of solids.				12
	1141. Use and apply the relationships between corresponding measurements of similar triangles.				12
	1142. Compute measurements of angles and segments formed by chords, secants, and/or tangents of a circle.				12
	1143. Use trigonometric functions to compute linear, area or degree measurements of oblique triangles.				12
H. THE STUDENT WILL COLLECT DATA AND CONSTRUCT, INTERPRET AND DRAW CONCLUSIONS FROM DESCRIPTIVE TABLES, CHARTS AND GRAPHS.	1144. Read, interpret and construct pictographs.	3			
	1145. Read, interpret and construct bar graphs, line graphs and tables.	3			
	1146. Graph ordered pairs of numbers using a Cartesian coordinate system.	3	5		

STANDARDS	SKILLS - The student will:		GRADE LEVEL(S)			
H. (continued) THE STUDENT WILL COLLECT DATA AND CONSTRUCT, INTERPRET AND DRAW CONCLUSIONS FROM DESCRIPTIVE TABLES, CHARTS AND GRAPHS.	1147.	Collect, organize and represent data using an appropriate pictograph, bar or line graph, or table.	3	5		
	1148.	Read, interpret and construct circle graphs.		5		
	1149.	Predict specific outcomes from a set of data, given that the present trend continues.		5		
	1150.	Read and determine relationships represented by multiple line and bar graphs.		5		
	1151.	Determine whether graphs are constructed in such a way as to promote fallacious or ambiguous conclusions.			8	
	1152.	Determine the appropriateness of the use of a circle graph in a given problem situation.			8	
I. THE STUDENT WILL RECOGNIZE AND APPLY THE CONCEPTS OF PROBABILITY AND STATISTICS.	1153.	Collect and record data for a simple probability experiment.	3			
	1154.	Determine measures of central tendency for a set of data.	3	5		
	1155.	Use common fractions to describe the probability of an event.		5		
	1156.	Use common fractions to describe the probability of the complement of an event.		5		
	1157.	Design a simple experiment, collect data and draw appropriate conclusions.		5		
	1158.	Organize and use data to make predictions.			8	

STANDARDS	SKILLS - The student will:		GRADE LEVEL(S)			
I. (continued) THE STUDENT WILL RECOGNIZE AND APPLY THE CONCEPTS OF PROBABILITY AND STATISTICS.	1159.	Determine the number of specific outcomes of a given event.			8	
	1160.	Find the probability of two or more events connected by "or" or "and."			8	
	1161.	Find the odds of an event.			8	
	1162.	Interpret graphical data involving measures of location (e.g., percentiles, stanines and quartiles).			8	
	1163.	Use the fundamental counting principle (multiplication rule).				12
	1164.	Use and solve problems involving permutation and combination rules.				12
	1165.	Find the probabilities of compound events (e.g., A and B, A or B), with or without conditional probability.				12
J. THE STUDENT WILL DEMONSTRATE KNOWLEDGE OF CALCULATORS AND COMPUTERS AS APPLIED TO MATHEMATICS.	1166.	Organize, complete, or follow the logic of a flowchart for a daily activity.	3	5		
	1167.	Perform the computation involved in a mathematical flowchart with specific input.	3	5		
	1168.	Use a calculator to perform computations.	3	5		
	1169.	Determine whether an answer on a calculator or computer is reasonable for the given problem.	3	5		
	1170.	Demonstrate knowledge of calculator and computer input and output displays.		5		

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)
J. (continued) THE STUDENT WILL DEMONSTRATE KNOWLEDGE OF CALCULATORS AND COMPUTERS AS APPLIED TO MATHEMATICS.	1171. Use a calculator to solve basic computation problems involving more digits than can be entered into the display.	8
	1172. Interpret information relating to the execution of the program from a computer printout.	8
	1173. Write a computer program to solve a simple mathematics problem.	8
	1174. Determine the difference between the algebraic use of equality and computer use of equality.	8
	1175. Follow the logic of a program which includes nested loops.	12
	1176. Write a computer program using loops and conditionals (choice of language).	12
	1177. Debug a computer program that has an error in its logic (choice of language).	12

SCIENCE



Total Number of Skills by Standard Per Grade in the Science Standards of Excellence

STANDARDS	GRADE THREE	GRADE FIVE	GRADE EIGHT	GRADE TWELVE	TOTAL
A	31	46	35	13	125
B	1	10	13	11	35
C	14	13	28	27	82
D	7	14	18	25	64
E	8	8	22	17	55
F	10	14	15	42	81
G	10	18	9	16	53
H	4	7	9	27	47
I	9	9	9	9	36
J	1	3	8	9	21
K	2	6	18	25	51
L	0	0	7	5	12
TOTAL	97	148	191	226	662

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)			
A. THE STUDENT WILL APPLY PROCESS SKILLS AS TOOLS FOR SCIENTIFIC INVESTIGATION.	COMMUNICATING				
	1001. Construct a simple data table containing two variables, and label columns, rows and accurately enter data.	3			
	1002. Construct a simple bar graph properly labeled and scaled.	3			
	1003. Describe a series of events orally and in writing.	3	5		
	1004. Construct a simple line graph which has at least four (4) sets of coordinates and label all scales and axes.		5		
	1005. Write an accurate and documented paper describing events.		5	8	
	1006. Represent scientific principles using mathematical format.			8	12
	TIME/SPACE				
	1007. Identify two dimensional objects or drawings from a group which show bilateral and radial symmetry.	3			
	1008. Identify objects as one, two, or three dimensional.	3			
	1009. Observe and describe continuous or periodic changes.	3			
	1010. Recognize that chemical and physical changes may occur at various rates and patterns.	3			
	1011. Sequence the stages of events according to order of occurrence.	3	5		

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)			
A. (continued) THE STUDENT WILL APPLY PROCESS SKILLS AS TOOLS FOR SCIENTIFIC INVESTIGATION.	TIME/SPACE (continued)				
	1012. Apply the rule that the speed at which an object changes position is the distance moved per unit of time.		5		
	1013. Locate positions on a map given sets of coordinates.		5		
	MEASURING				
	1014. Use International System of units (SI) as the appropriate measure of linear distance, temperature and time.	3	5		
	1015. Quantify information through the use of balances, graphs, diagrams and other visual aids.	3	5	8	
	1016. Select the appropriate tool for measuring various physical properties of objects.	3	5	8	12
	1017. Use International System of units (SI) as the appropriate measure of volume, mass and angle.		5		
	1018. Estimate the length and mass of common environmental objects using International System of units (SI).		5		
	1019. Determine speed of objects given the appropriate information.		5		
	1020. Record measurement using appropriate scientific notation.		5	8	
	1021. Demonstrate knowledge of how instruments are calibrated using units of a known quantity.		5		
	1022. Determine density and specific gravity of common material.			8	

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)			
A. (continued) THE STUDENT WILL APPLY PROCESS SKILLS AS TOOLS FOR SCIENTIFIC INVESTIGATION.	MEASURING (continued)				
	1023. Calculate efficiency of simple machines by measuring work output and input.			8	
	1024. Express measurement in significant figures.			8	
	OBSERVING				
	1025. Differentiate between actual observations and personal interpretations.	3			
	1026. State observations in quantitative terms using more than one of the senses.	3			
	1027. Describe a situation, event, or life form using more than one of the senses.	3			
	1028. Identify observations which describe changes in properties of an object.	3	5		
	1029. Distinguish between qualitative and quantitative observations.	3	5		
	1030. Distinguish between observation and inference.	3	5		
	CLASSIFYING				
	1031. Sort a set of objects according to similarities and differences.	3	5		
	1032. Develop classification systems.	3	5	8	
	1033. Use quantitative measurements as criteria for grouping.		5		
	1034. Use a dichotomous key to classify objects/phenomena.		5	8	

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)			
A. (continued) THE STUDENT WILL APPLY PROCESS SKILLS AS TOOLS FOR SCIENTIFIC INVESTIGATION.	CLASSIFYING (continued)				
	1035. Construct two or more classification schemes for the same set of objects.		5	8	
	INFERRING				
	1036. Recognize that two people may make different inferences from the same observation and neither be wrong.	3			
	1037. Identify observations that support an inference.	3	5		
	1038. Describe additional observations needed to test alternative inferences.	3	5		
	1039. Identify inferences that should be accepted, rejected, or modified on the basis of additional observations.	3	5		
	PREDICTING				
	1040. Order a set of predictions in terms of his/her confidence in them.	3	5		
	1041. Predict the consequences of removing or altering one or more components in a system.	3	5	8	
	1042. Predict the outcome of an event based upon previously observed conditions.	3	5	8	
	1043. Construct tests for a prediction.	3	5	8	
	1044. Interpolate or extrapolate conclusions when given appropriate data tables and graphs.	3	5	8	

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)			
A. (continued) THE STUDENT WILL APPLY PROCESS SKILLS AS TOOLS FOR SCIENTIFIC INVESTIGATION.	PREDICTING (continued)				
	1045. Identify and demonstrate a relationship between two variables that can be used to make a prediction.			8	12
	INTERPRETING DATA				
	1046. Distinguish between relevant and irrelevant data.	3	5		
	1047. Communicate supporting data for inference or prediction.	3	5		
	1048. Extract important ideas from reading, listening or watching a presentation.	3	5		
	1049. Read and interpret numerical values from charts, tables or graphs, and apply results to answering questions.		5	8	
	1050. Interpret cause and effect relationships within a scientific problem solving situation.		5	8	
	1051. Examine biases and how they can affect/distort data.		5	8	
	1052. Construct one or more inferences or hypotheses from the information given in a table of data, graphs or pictures.		5	8	12
	1053. Interpret the information provided by the shape of a graph.			8	
	1054. Name coordinates of points in three-dimensional graphs.				12
	1055. Construct a three-dimensional graph given number triples.				12

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)			
A. (continued) THE STUDENT WILL APPLY PROCESS SKILLS AS TOOLS FOR SCIENTIFIC INVESTIGATION.	INTERPRETING DATA (continued)				
	1056. Describe certain kinds of data using the mean, median and mode; construct predictions, inferences or hypotheses from this information.				12
	DEFINING OPERATIONALLY				
	1057. Explain physical requirements under which an experiment must operate.		5	8	
	1058. Distinguish between operational definitions and non-operational definitions.			8	
	1059. Identify variables or words for which an operational definition is needed, given a problem, hypothesis, inference, question, graph, or table of data.			8	
	IDENTIFYING VARIABLES (MANIPULATIVE, CONTROL)				
	1060. Identify conditions that cause or influence a change in variables.		5	8	
	1061. Determine which variables should be manipulated to investigate a given situation.		5	8	
	1062. Identify variables which are manipulated, responded to or held constant in an investigation or an experiment.		5	8	12
	1063. Construct a test to determine the the effects of one or more variables on a responding variable.			8	12

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)			
A. (continued) THE STUDENT WILL APPLY PROCESS SKILLS AS TOOLS FOR SCIENTIFIC INVESTIGATION.	FORMULATING HYPOTHESES				
	1064. Distinguish between hypotheses and problems.		5		
	1065. Distinguish among opinion, hypotheses, theory and law.		5		
	1066. Identify hypotheses based on data.		5		
	1067. Distinguish between observations that support a hypothesis and those that do not.		5	8	
	1068. Revise a hypothesis based upon observations of the test.		5	8	12
	1069. Deduce cause/effect relationships from given data.			8	
	1070. Construct and demonstrate a test of a hypothesis.			8	12
	EXPERIMENTING				
	1071. Suggest appropriate experiments to solve simple problems.			8	12
	1072. Recognize the elements of good experimental design (problem, hypothesis, data, purpose, method and conclusion).			8	
	1073. Design, conduct and report an experiment involving all the science processes where appropriate.			8	12
B. THE STUDENT WILL APPLY PROBLEM SOLVING SKILLS IN SCIENCE.	1074. Apply appropriate questions when a problem is stated.	3	5	8	12

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)		
B. (continued) THE STUDENT WILL APPLY PROBLEM SOLVING SKILLS IN SCIENCE.	1075. Recognize solutions to simple problems and appropriately modify an effective solution.	5	8	
	1076. Transform known information into a familiar representation which clearly shows the path to the solution.	5	8	
	1077. Recognize alternative factors to be considered when examining possible solutions to a problem.	5	8	12
	1078. Propose alternative strategies to the solution of a problem.	5	8	12
	1079. Establish criteria by which a solution will be judged.	5	8	12
	1080. Collect, group, analyze, regroup and synthesize information relative to a problem.	5	8	12
	1081. Identify alternative courses of action which may result in a solution to the problem.	5	8	12
	1082. Demonstrate an open-minded and imaginative approach to problem solving.	5	8	12
	1083. Use a model or drawing to visualize the solution to a problem.	5	8	12
	1084. Recognize and define a problem, then formulate a research question.		8	12
	1085. Recognize and list limitations which influence conclusions.		8	12
	1086. Use analogies to identify the elements of a problem as parts of a more complex situation.		8	12

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)			
C. THE STUDENT WILL KNOW LIFE SCIENCE CONCEPTS AND RELATED THEORIES, LAWS, ASSUMPTIONS AND FACTS.	GENERAL				
	1087. Identify the characteristics of living and non-living things.	3			
	1088. Identify the similarities and differences between plants and animals.	3			
	1089. List the requirements necessary for life, as we know it.		5		
	1090. Identify the various means of determining the age of fossils.		5		
	1091. Indicate that life may be described as a chemical process.			8	
	1092. Identify major bio-chemical compounds and the reactions in which they are involved.				12
	PLANTS				
	1093. Compare the structure of plants that live in water to those that live on land.	3			
	1094. State what environmental factors plants need to grow and reproduce.	3			
	1095. Identify the process by which plants produce food.	3			
	1096. Identify physical changes in a germinating plant seed.	3			
	1097. Identify the place of plant transpiration in the water cycle.	3			
	1098. Identify a producer, consumer and decomposer.	3			
	1099. Recognize that coal and oil were formed from plants.		5		

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)			
C. (continued) THE STUDENT WILL KNOW LIFE SCIENCE CONCEPTS AND RELATED THEORIES, LAWS, ASSUMPTIONS AND FACTS	PLANTS (continued)				
	1100. Identify differences and similarities between fungi and green plants.		5		
	1101. State the principal steps involved in photosynthesis.			8	
	1102. State the effects of varying durations and wave lengths of light exposures on plant growth.			8	
	1103. Recall the processes of sexual and asexual reproduction in principal seed plants.			8	
	1104. Identify the various tropisms in plants.			8	
	1105. Identify the principal biochemical steps in the light and dark photosynthetic reactions.				12
	1106. State the mechanisms by which water, nutrients and waste products are transported within plants.				12
	1107. Identify the major structures and functions of seed plants.				12
	ANIMALS				
	1108. Identify similarities and differences in animals on the basis of body parts.	3			
	1109. Identify physical characteristics of vertebrates that aid them in adapting to their environment.	3			
	1110. Identify unique characteristics of fish, amphibians, reptiles, birds and mammals.	3			

STANDARDS	SKILLS - The student will:		GRADE LEVEL(S)			
C. (continued) THE STUDENT WILL KNOW LIFE SCIENCE CONCEPTS AND RELATED THEORIES, LAWS, ASSUMPTIONS AND FACTS	ANIMALS (continued)					
	1111.	Identify the impact invertebrates have upon people.	3			
	1112.	Operationally define cells, tissues, organs and systems.		5		
	1113.	Identify and differentiate among the various body tissues (skin, blood, muscle, bone and nerve).		5		
	1114.	Identify those cells in the human body that are not capable of regeneration.		5		
	1115.	Identify the general functions of the major organs and systems of the human body.		5		
	1116.	Identify differences, in detail, between fats, proteins and carbohydrates.			8	
	1117.	Recognize the antigen - antibody reaction and how it protects the body against foreign organisms and substances.			8	
	1118.	Identify the principal theories of origin and transmission of nerve impulses.			8	
	1119.	Indicate how water, waste and nutrients are transported in humans and how equilibrium is maintained.			8	
	1120.	State the structure of muscle cells and how scientists explain muscle contraction.			8	

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)
C. (continued) THE STUDENT WILL KNOW LIFE SCIENCE CONCEPTS AND RELATED THEORIES, LAWS, ASSUMPTIONS AND FACTS.	ANIMALS (continued)	
	1121. Indicate the path of blood through the human circulatory system beginning with and ending at the right atrium.	8
	1122. Indicate the characteristics of parasitism, symbiosis and mutualism.	8
	1123. State the principal biochemical steps in the process of fertilization in human reproduction.	12
	1124. Identify the effects of anges in temperature, pH, or ɔactant concentration on enzyme activity.	12
	1125. State the principal macromolecule characteristics of carbohydrates, proteins and fats.	12
	1126. Indicate the structure and function of sensory, motor and connecting neurons.	12
	1127. Identify the effects of diseases (nutritional, pathogenic and genetic) upon the physiology of the human body.	12
	1128. Identify the hormones produced by the principal human endocrine glands and their physiological and morphological effects.	12
	1129. State the principal biochemical processes of blood clotting.	12
	1130. Identify the physiological changes in blood as it passes through the human circulatory system.	12

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)
C. (continued) THE STUDENT WILL KNOW LIFE SCIENCE CONCEPTS AND RELATED THEORIES, LAWS, ASSUMPTIONS AND FACTS.	ANIMALS (continued)	
	1131. Identify principal biochemical changes that occur in muscle cells during exercise and biochemical definition for "fatigue."	12
	CELLS	
	1132. Identify the structure of typical plant and animal cells and the functions of their principal parts.	8
	1133. Identify active transport as a function of osmosis and diffusion.	8
	1134. State the function of meiosis and mitosis.	8
	1135. Indicate the principal stages in the processes of mitosis and meiosis.	8
	1136. State the principal steps in cellular respiration.	8
	1137. Recall the chemical changes that occur in the catabolic and anabolic phases of cellular metabolism as they pertain to cellular respiration, energy, cycle of ATP, messenger RNA and protein synthesis.	12
	1138. Identify the structure of the DNA molecule and how this is assumed to relate to gene replication and transfer of genetic information.	12
	1139. State the principal steps in cellular synthesis of protein molecules with predetermined amino acids.	12

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)
C. (continued) THE STUDENT WILL KNOW LIFE SCIENCE CONCEPTS AND RELATED THEORIES, LAWS, ASSUMPTIONS AND FACTS.	PROTISTS	
	1140. Operationally define micro-organisms.	5
	1141. Identify the types of micro-organisms and their importance in a food chain.	5
	1142. Identify the types of respiration in protists.	8
	1143. Identify segments of the bacterial growth curve.	8
	1144. Identify some common foods that are produced using protists.	8
	1145. Identify major components of a virus.	8
	1146. Recognize how vaccines, toxins and serum stimulate immunity.	8
	1147. State the principal steps in the process of fermentation.	12
	1148. Identify modes of reproduction of protists: conjugation, transformation, transduction and transverse binary fusion.	12
	1149. Identify common tests used to identify bacteria.	12
	1150. Identify pro and con arguments regarding the "aliveness" of viruses.	12
	GENETICS	
	1151. Recognize the role of heredity and environment in gene expression.	8

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)
C. (continued) THE STUDENT WILL KNOW LIFE SCIENCE CONCEPTS AND RELATED THEORIES, LAWS, ASSUMPTIONS AND FACTS.	GENETICS (continued)	
	1152. Recognize the nature of mutations and their effects on organisms.	8
	1153. State what is meant by sex-linked, sex-limited and sex-influenced characteristics, and characters that show "incomplete dominance."	12
	1154. Identify multiple alleles and how blood and Rh factors are inherited.	12
	1155. State the nature of mutations and the effects of known mutagenic agents.	12
	1156. Identify the changes in a gene pool caused by: mutation, isolation and genetic drift.	12
	ECOLOGY	
	1157. Operationally define and give examples of habitats.	3
	1158. Identify the relationship between population and a community.	3
	1159. List ways that arthropods, particularly insects, affect people.	5
	1160. Identify some economic benefits of invertebrates.	5
	1161. Describe the physical and behavioral adaptations that allow animals to live successfully in their environment.	5

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)			
C. (continued) THE STUDENT WILL KNOW LIFE SCIENCE CONCEPTS AND RELATED THEORIES, LAWS, ASSUMPTIONS AND FACTS.	ECOLOGY (continued)				
	1162. Recognize that for most species change is necessary for survival.			8	
	1163. Operationally define equilibrium in a living ecosystem.			8	
	1164. Identify evidences of interdependence between organisms.			8	
	1165. Recognize and describe biological systems in equilibrium.			8	
	1166. State the importance of soil, water, air, sunlight, temperature, producers, consumers and decomposers in an ecosystem.				12
	1167. State how biological succession is responsible for establishing new communities.				12
	1168. Identify the principal theories to explain the environmental specificity and variation of plants and animals as they relate to distribution and population.				12
D. THE STUDENT WILL APPLY LIFE SCIENCE CONCEPTS AND RELATED THEORIES, LAWS, ASSUMPTIONS AND FACTS.	GENERAL				
	1169. Construct a test of an inference or hypothesis about animal behavior.		5		
	1170. Construct inferences or hypotheses about animal behaviors based on observation.		5		
	1171. Summarize the similarities and differences between plants and animals.				12

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STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)			
D. (continued) THE STUDENT WILL APPLY LIFE SCIENCE CONCEPTS AND RELATED THEORIES, LAWS, ASSUMPTIONS AND FACTS.	GENERAL (continued)				
	1172. Explain the relationships among numbers of eggs, methods of fertilization and rates of embryonic development, as related to species survival.				12
	1173. Explain the relationship between chemistry and physics to living things.				12
	PLANTS				
	1174. Describe the process by which plants produce food.	3			
	1175. Generalize that there are many different ways seeds can scatter.	3			
	1176. Describe adaptations of plants to special conditions.	3			
	1177. Describe the role of plant transpiration in the water cycle.		5		
	1178. Classify leaves and flowers as monocots or dicots.		5		
	1179. Operationally define photosynthesis.		5		
	1180. Differentiate between asexual and sexual reproduction in plants (including vegetative propagation).		5		
	1181. Interpret the equation describing photosynthesis.			8	
	1182. Describe photoperiodicity and its effect on plant development and reproduction.				12
	1183. Explicate the gas laws pertinent to respiration and write examples of each.				12

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)			
D. (continued) THE STUDENT WILL APPLY LIFE SCIENCE CONCEPTS AND RELATED THEORIES, LAWS, ASSUMPTIONS AND FACTS.	ANIMALS				
	1184. Classify organisms in a standard classification system as to whether they are insects, arachnids, fish, birds, amphibians, reptiles or mammals.	3			
	1185. Construct a classification system to identify animals.	3			
	1186. Describe how instinctive behavior helps animals.	3			
	1187. Explain the exchange of gases in the lungs.		5		
	1188. Describe how the ribs and diaphragm make it possible for one to breathe.		5		
	1189. Illustrate the behavior of marine or fresh water organisms as different environmental variables are experienced.		5		
	1190. Construct a dichotomous key for familiar vertebrates.			8	
	1191. Explain how the Rh factor in human blood may effect childbirth.			8	
	1192. Interpret the importance of invertebrates to man.			8	
	1193. Predict the influence of the following factors on prenatal development: nutrition, drugs, diseases, inadequate medical care and age of the mother.			8	
	1194. Compare the human menstrual cycle with and without successful fertilization of the egg.			8	

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)
D. (continued) THE STUDENT WILL APPLY LIFE SCIENCE CONCEPTS AND RELATED THEORIES, LAWS, ASSUMPTIONS AND FACTS.	ANIMALS (continued)	
	1195. Classify animals by reproductive style: external fertilization, internal fertilization, placental development, egg laying, budding, etc.	8
	1196. Classify described animal behaviors as learned, unlearned, habit, instinct, reflex, conditioned or innate.	8
	1197. Describe the antigen-antibody reaction and explain how it protects the body against foreign organisms and substances.	12
	1198. Distinguish between the process of oogenesis and spermatogenesis.	12
	1199. Explain how the various hormones affect the uterine cycle and how a minor change in hormone production could affect the cycle.	12
	1200. Apply the concept that solid parts of blood are primarily responsible for transportation of gases, protection against pathogens, and prevention of excessive loss of blood, by graphically outlining the chemical functions of marrow, erythrocytes, leukocytes and thrombocytes.	12
	CELLS	
	1201. Discuss the nature and role of enzymes in a living cell.	8
	1202. Interpret the equation describing cellular respiration.	8

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)
D. (continued) THE STUDENT WILL APPLY LIFE SCIENCE CONCEPTS AND RELATED THEORIES, LAWS, ASSUMPTIONS AND FACTS.	CELLS (continued)	
	1203. Predict cell functions from diagrams of specialized cells.	8
	1204. Determine osmotic equilibrium involving two cells.	8
	GENETICS	
	1205. Explain the mechanism of genetic analysis such as gene pools, statistical application and recombinant alternatives.	12
	1206. Solve genetic problems involving test crosses, dihybrid crosses, complete and incomplete dominance, sex-linked traits and probability.	12
	1207. Explain changes in the population on the basis of the HARDY- WEINBERG Principle.	12
	1208. Explain the role heredity and environment have in determining the characteristics of an individual.	12
	1209. Explain the frequent difference between the theoretical phenotypic ratio and the actual results from a breeding in which several offspring result.	12
	1210. Discuss the significance of "crossing over" as it applies to the study of genetics.	12
	1211. Explain how a single mutation can affect the "gene pool" in the human population.	12
	1212. Describe DNA replication.	12

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)			
D. (continued) THE STUDENT WILL APPLY LIFE SCIENCE CONCEPTS AND RELATED THEORIES, LAWS, ASSUMPTIONS AND FACTS.	PROTISTS				
	1213. Differentiate among bacteria, viruses and protozoans.		5		
	1214. Determine conditions for optimal growth and reproduction of bacteria, viruses and protozoans.			8	
	1215. Differentiate between helpful and harmful bacteria, viruses and protozoans.			8	
	1216. Evaluate the importance of each major group of protists to humans.			8	
	1217. Compare and contrast aerobic, anaerobic respiration and fermentation.				12
	1218. Contrast certain microbial processes as being helpful or harmful to humans (decay, fermentation, toxin production, antibiotic production and genetically engineered chemicals).				12
	ECOLOGY				
	1219. Construct a food chain to show producers and consumers.	3			
	1220. Diagram a pyramid of energy.		5		
	1221. Construct an operational definition of a member of an ecosystem such as producer, consumer or decomposer.		5		
	1222. Diagram an energy food web.		5		

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)
D. (continued) THE STUDENT WILL APPLY LIFE SCIENCE CONCEPTS AND RELATED THEORIES, LAWS, ASSUMPTIONS AND FACTS.	ECOLOGY (continued)	
	1223. Explain the importance in an ecosystem of each of the following: soil, water, air, sunlight, temperature, producer, consumer and decomposer.	5
	1224. Interpret the effects of the increase or decrease of five variables on population growth: food, space, disease, predators and environmental change.	8
	1225. Evaluate the effects of human and industrial influences on coastal areas.	8
	1226. Distinguish among the different world biomes and their characteristics.	8
	1227. Analyze the properties of water that cause it to be vital to life as we know it.	12
	1228. Demonstrate an understanding of limiting factors that effect population.	12
	1229. Describe the impact of variations in the patterns of societal use of water.	12
	1230. Analyze the developing water problems facing Florida citizens.	12
	1231. Distinguish between density-dependent and density-independent factors affecting human populations.	12
	1232. Describe the biological magnification of certain toxic substances, such as pesticides, in a food chain.	12

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)			
E. THE STUDENT WILL KNOW PHYSICAL SCIENCE CONCEPTS AND RELATED THEORIES, LAWS, ASSUMPTIONS AND FACTS	GENERAL				
	1233. Recognize the meaning of selected terms used in the field of physical science.			8	12
	1234. Identify the individuals responsible for major advances in chemistry and physics.				12
	MATTER				
	1235. Classify common changes in matter as physical or chemical.	3			
	1236. Distinguish among elements, compounds and mixtures.	3			
	1237. State the simple properties of matter.	3			
	1238. Identify some factors which can affect a change in the state of matter.	3			
	1139. Identify chemical properties of matter.		5		
	1240. Identify the differences between mixtures and solutions.		5		
	1241. Identify the differences between mass and weight.		5		
	1242. Recognize water as a unique substance essential to many natural chemical changes.			8	
	1243. List factors related to linear expansion of a solid.			8	
	1244. Identify the charge, location and relative mass of protons, neutrons and electrons.			8	

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)			
E. (continued) THE STUDENT WILL KNOW PHYSICAL SCIENCE CONCEPTS AND RELATED THEORIES, LAWS, ASSUMPTIONS AND FACTS.	MATTER (continued)				
	1245. Identify the physical and chemical properties of acids, bases and salts.			8	
	1246. Identify the non-quantitative relationships between volume, pressure and temperature in gases.			8	
	1247. State the basis for the arrangement of the periodic table.			8	
	1248. State observations that suggest that radioactivity is not a chemical reaction.			8	
	1249. Identify the principal types of chemical bonds, how they are formed and examples of substances that contain these bonds.				12
	1250. Identify the definition of quantum numbers which identify the relative position and shape of an orbital.				12
	1251. Identify unique properties of oxygen, hydrogen and carbon, and their role in basic life processes.				12
	1252. State the basis of the QUARK theory of *elementary* particle structure.				12
	1253. Identify the relationships among gram formula mass, Avogadro's number and the mole.				12
	ENERGY/FORCES				
	1254. State the action observed when two magnets influence each other.	3			

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)
E. (continued) THE STUDENT WILL KNOW PHYSICAL SCIENCE CONCEPTS AND RELATED THEORIES, LAWS, ASSUMPTIONS AND FACTS.	ENERGY/FORCES (continued)	
	1255. Identify simple machines and their use.	3
	1256. Identify the general effects on molecules when heat is applied.	5
	1257. State that every object exerts a pulling force on every other object.	5
	1258. Identify the properties of heat, light, electricity, mechanics, magnetism and sound as energy forms.	5
	1259. State those characteristics of an electromagnet which determine its strength.	5
	1260. Identify the production of light as electrical or chemical energy conversion.	5
	1261. Identify the results of the interaction of forces on objects.	8
	1262. Recognize ray diagrams describing the laws of correct refraction and reflection in concave and convex mirrors and lenses.	8
	1263. Recognize variables affecting electrical resistence in wires.	8
	1264. Recognize what will happen if the centripetal force acting on a satellite in orbit were suddenly removed.	8
	1265. Recognize that the Laws of Gravitation control the motion of celestial objects.	8

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)
E. (continued) THE STUDENT WILL KNOW PHYSICAL SCIENCE CONCEPTS AND RELATED THEORIES, LAWS, ASSUMPTIONS AND FACTS.	ENERGY/FORCES (continued)	
	1266. Recognize that all bodies, regardless of mass, fall at the same rate.	8
	1267. Identify energy quantitatively as a work equivalent in a conserved system (i.e., total work done equals energy consumed).	8
	1268. Identify the interactions between current in wires and magnetic fields (relative motion).	8
	1269. Identify means of production and propagation of sound.	8
	1270. Recognize examples of static and dynamic equilibrium and systems not in equilibrium.	8
	1271. Indicate the difference between atomic fission and atomic fusion.	8
	1272. Identify the relationship among the electromagnetic spectrum and radio, light, ultraviolet, x-ray and other waves.	8
	1273. Identify the similarities and differences between theories of light propagation.	12
	1274. State mathematically, the Law of Universal Gravitation and indicate the relationship between the masses of two objects, the distance between them and their resultant gravitational force of attraction.	12
	1275. State Coulomb's Law qualitatively and quantitatively.	12

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)			
E. (continued) THE STUDENT WILL KNOW PHYSICAL SCIENCE CONCEPTS AND RELATED THEORIES, LAWS, ASSUMPTIONS AND FACTS.	ENERGY/FORCES (continued)				
	1276. List the events occurring during electrical production by a photo-electric cell.				12
	1277. Recognize patterns resulting from various diffraction grating.				12
	1278. State the contributions of Roemer, Michelson, Moreley and Huygens to our understanding of the velocity of light.				12
	1279. State the basic tenets of quantum mechanics.				12
	MATTER/ENERGY				
	1280. Identify clues that tell whether an object is in motion.	3			
	1281. Infer from visual clues the direction an object is moving.	3			
	1282. State the Kinetic Theory of Matter.			8	
	1283. Identify a graphic representation of uniform accelerated motion.			8	
	1284. Define or recognize examples of different frames of reference.				12
	1285. Identify and define in an operational setting the tnree Newtonian Laws of Motion.				12
	INTERACTION/MAN				
	1286. List the major pro and con arguments for the further development of nuclear power.				12

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)			
F. THE STUDENT WILL APPLY PHYSICAL SCIENCE CONCEPTS AND RELATED THEORIES, LAWS, ASSUMPTIONS AND FACTS.					
	GENERAL				
	1287. Draw Lewis' dot structures.			8	
	1288. Apply Le Chatelier's Principle.				12
	MATTER				
	1289. Given the properties of a substance, classify it as a solid, liquid or gas.	3			
	1290. Demonstrate that chemical reactions produce new substances.		5		
	1291. Explain the difference between an atom and a molecule.		5		
	1292. Predict basic characteristics of elements using the periodic table.			8	
	1293. Determine when a chemical reaction has taken place.			8	
	1294. Balance chemical equations.			8	
	1295. Calculate the concentration of an acid or base from titration data.				12
	1296. Calculate pH from concentration data.				12
	1297. Calculate the concentration of solutions as expressed in molarity, normality and molality.				12
	1298. Identify pi and sigma bonds.				12
	1299. Determine the properties of a substance based on its bond type.				12
	1300. Predict the type of bonding between two elements based on the location of those two elements on the periodic chart.				12

STANDARDS	SKILLS - The student will:		GRADE LEVEL(S)
F. (continued) THE STUDENT WILL APPLY PHYSICAL SCIENCE CONCEPTS AND RELATED THEORIES, LAWS, ASSUMPTIONS AND FACTS.	MATTER (continued)		
	1301.	Predict the effect of the addition of buffers to a solution.	12
	1302.	Describe bonding in terms of molecular orbitals.	12
	1303.	Predict the direction and extent of chemical reactions at equilibrium.	12
	1304.	Apply molar stoichiometric equations.	12
	1305.	Balance redox equations.	12
	1306.	Generate solutions to qualitative chemical analysis problems.	12
	1307.	Demonstrate an understanding of measuring various forms of nuclear radiation.	12
	1308.	Name organic compounds using International Union of Chemists criteria.	12
	1309.	Solve stoichiometric problems.	12
	1310.	Identify oxidizing and reducing agents from a redox equation.	12
	1311	Select the appropriate indicator for a given titration.	12
	1312.	Predict if a replacement reaction will take place based on the activity series.	12
	1313.	Explain the use of a mass spectrometer.	12

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)
F. (continued) THE STUDENT WILL APPLY PHYSICAL SCIENCE CONCEPTS AND RELATED THEORIES, LAWS, ASSUMPTIONS AND FACTS.	MATTER (continued)	
	1314. Explain Rutherford's and Millikin's experiments and their implications for the structure of the atom.	12
	1315. Solve Graham's Law problems.	12
	1316. Explain the role of energy in the formation of chemical bonds.	12
	1317. Predict isomers from a molecular formula.	12
	ENERGY/FORCES	
	1318. Describe the shape of the magnetic field around a bar magnet.	3
	1319. Predict the pitch of a sound compared to the size of the instrument.	3
	1320. Use simple machines.	3
	1321. Differentiate between physical and chemical changes.	3
	1322. Describe methods used to reduce noise.	3
	1323. Construct an electromagnet.	3
	1324 Explain that friction causes objects to become warmer.	3
	1325. Demonstrate how sounds are produced by vibrations.	3
	1326. Predict the path taken by waves when influenced by objects.	5
	1327. Differentiate between parallel and series circuits.	5

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)
F. (continued) THE STUDENT WILL APPLY PHYSICAL SCIENCE CONCEPTS AND RELATED THEORIES, LAWS, ASSUMPTIONS AND FACTS.	ENERGY/FORCES (continued)	
	1328. Construct series and parallel circuits.	5
	1329 Construct a simple generator changing one form of energy to another.	5
	1330. Explain the differences among kinetic, potential and radiant energy.	5
	1331. Explain the difference between temperature and heat.	5
	1332. Explain the relationship between molecular motion and heat.	5
	1333. Compare the effects of heat and light on substances of different colors and materials.	5
	1334. Predict the effect of a lamp when the circuits are opened or closed at any point with parallel and series circuits.	5
	1335. Analyze how materials vary in their ability to conduct sound.	5
	1336. Demonstrate how to change the pitch of a simple musical instrument.	5
	1337. Describe the relationship between force and acceleration.	8
	1338. Explain the qualifying statement, "Matter can neither be created nor destroyed by *ordinary means*."	8

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)
F. (continued) THE STUDENT WILL APPLY PHYSICAL SCIENCE CONCEPTS AND RELATED THEORIES, LAWS, ASSUMPTIONS AND FACTS.	ENERGY/FORCES (continued)	
	1339. Trace several energy sources (nuclear, chemical and electrical) back to the ultimate source, the sun.	8
	1340. Describe energy losses occurring during energy transformations.	8
	1341. Predict force changes of direction and magnitude using simple machines.	8
	1342. Demonstrate the nature of light control through optical devices such as mirrors and lenses.	8
	1343. Explain effects of friction on the relative motion of objects.	8
	1344. Predict what will be seen with combinations of colored light reflected from colored pigment.	8
	1345. Compare AC and DC generators.	8
	1346. Apply Coulomb's Law to electrochemical systems.	12
	1347. Calculate change in energy as matter changes state.	12
	1348. Identify and apply factors in refraction of light including indexes of refraction.	12
	1349. Read and interpret simple electronic circuit diagrams.	12
	1350. Apply the second law of thermodynamics to practical situations.	12
	1351. Solve for an unknown resistance using a Wheatstone Bridge.	12

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)
F. (continued) THE STUDENT WILL APPLY PHYSICAL SCIENCE CONCEPTS AND RELATED THEORIES, LAWS, ASSUMPTIONS AND FACTS.	ENERGY/FORCES (continued)	
	1352. Solve a three power source Kirchhoff's mesh (loop) problem.	12
	1353. Discuss the operating principles of a gas laser including population inversion, superposition, optical cavity (resonator) and characteristics of laser light.	12
	1354. Derive and discuss Young's single and double slit diffraction equations.	12
	1355. Calculate gravitational acceleration and quantify energy equivalents using weight times height.	12
	1356. Predict interference patterns of wave phenomena (sound and light).	12
	1357. Explain the effect of enthalpy, temperature and entropy on free energy.	12
	MATTER/ENERGY	
	1358. Interpret the direction an object is moving from visual clues.	3
	1359. Explain how everyday tools or devices change the strength or direction of a force.	5
	1360. Describe systems for converting energy such as engines, electricity generation, light generation, radio, television and computers.	8
	1361. Explain motion relationships involved in circular motion.	12

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)
F. (continued) THE STUDENT WILL APPLY PHYSICAL SCIENCE CONCEPTS AND RELATED THEORIES, LAWS, ASSUMPTIONS AND FACTS.	MATTER/ENERGY (continued)	
	1362. Describe the length, time and mass changes that occur at relativistic speeds.	12
	INTERACTION/MAN	
	1363. Describe the chemical formation and effects of acid rain.	8
	1364. Describe the chemical reactions involved in the production of photochemical smog.	12
	1365. Describe the chemical effect of fluorides on the teeth.	12
	1366. Explain steps and proper sequences in the Carnot cycle (isothermal expansion, adiabatic expansion, isothermal compression and adiabatic compression).	12
	1367. Discuss the characteristics of electron capture, pair production/ annihilation, neutron decay, Bremsstrahlund and Compton scattering.	12
G. THE STUDENT WILL KNOW EARTH/SPACE SCIENCE CONCEPTS AND RELATED THEORIES, LAWS, ASSUMPTIONS AND FACTS.	SPACE	
	1368. Operationally define the meaning of satellite.	3
	1369. Indicate why moonlight is in reality reflected sunlight.	3
	1370. Identify the relative features of bodies within our solar system (e.g., size, brightness and temperature).	5
	1371. Recognize seasons as a result of the earth's motion and tilt.	5

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)			
G. (continued) THE STUDENT WILL KNOW EARTH/SPACE SCIENCE CONCEPTS AND RELATED THEORIES, LAWS, ASSUMPTIONS AND FACTS.	SPACE (continued)				
	1372. Identify some benefits derived from space technology.		5		
	1373. Relate the motion of the moon to its phases.		5		
	1374. Identify the relative positions of heavenly bodies in the formation of a solar and lunar eclipse.		5		
	1375. State at least three theories of the formation of the universe.			8	
	1376. Identify the impact of the sun upon communication and the environment.			8	
	1377. Identify the major techniques used in astronomy today to gain new knowledge of our universe.			8	
	1378. Identify the formation, life cycle and properties of the sun and other stars.			8	
	1379. Identify the formation, size and properties of galaxies and other objects outside the solar system.				12
	1380. Identify the importance of the Doppler effect in determining the relative direction of moving stars.				12
	EARTH				
	1381. Recognize that the forces of weathering and erosion are constantly changing the earth's surface.	3			
	1382. Identify various earth materials (rocks, soil, sand and clay).	3			

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)
G. (continued) THE STUDENT WILL KNOW EARTH/SPACE SCIENCE CONCEPTS AND RELATED THEORIES, LAWS, ASSUMPTIONS AND FACTS.	EARTH (continued)	
	1383. List major types of energy sources in the United States.	3
	1384. State the effects of weathering erosion, volcanism, earthquakes and glaciation upon the earth's surface.	5
	1385. Identify examples of rocks and minerals.	5
	1386. Identify how the igneous, metamorphic and sedimentary rocks are formed.	5
	1387. List soil types and describe their physical and chemical properties.	8
	1388. List the six most abundant elements in the earth's crust.	8
	1389. Cite examples of natural resources and describe their finite nature.	8
	1390. Identify the importance of land-use planning.	8
	1391. Trace the history of the earth in terms of formation and geologic time.	12
	1392. Identify those finite resources that the United States is expected to have depleted by the year 2000.	12
	1393. Identify radioactive and physical methods used to estimate the age of the earth and rock strata.	12

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)
G. (continued) THE STUDENT WILL KNOW EARTH/SPACE SCIENCE CONCEPTS AND RELATED THEORIES, LAWS, ASSUMPTIONS AND FACTS.	EARTH (continued)	
	1394. Indicate the usefulness of fossils in understanding geologic time tables, fossil fuels, formations and depositions.	12
	1395. Identify some problems caused by waste materials from mining activities and possible solutions to these problems.	12
	WATER	
	1396. Identify living and non-living products from the sea and describe their benefit to man.	3
	1397. List reasons for protecting the water environment.	3
	1398. Identify water movement in the ocean including waves, tides and currents.	3
	1399. Identify steps necessary for cleaning wastes from water.	5
	1400. Identify ways in which people benefit from the ocean.	5
	1401. List factors that affect the movement of ocean water, including wind, temperature and gravitation.	5
	1402. Indicate the common geologic formations of the ocean floor.	12
	1403. Trace the water cycle and identify factors which affect the cycle.	12
	1404. Identify the causes of ocean movement (waves, tides and currents).	12

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)
G. (continued) THE STUDENT WILL KNOW EARTH/SPACE SCIENCE CONCEPTS AND RELATED THEORIES, LAWS, ASSUMPTIONS AND FACTS.	WATER (continued)	
	1405. Identify factors which influence the chemistry of the ocean including salinity, minerals, runoff, etc.	12
	1406. Explain the origin of continents and ocean basins in terms of the theory of plate tectonics.	12
	AIR	
	1407. Identify climates of the world.	3
	1408. Identify the components of weather, including temperature, clouds, wind and percipitation.	3
	1409. Identify and associate cloud types with weather patterns.	5
	1410. Identify frontal lines on a map and assess weather conditions pertaining to it.	5
	1411. State the processes of evaporation and condensation in relation to cloud formation and humidity.	5
	1412. Operationally define weather.	5
	1413. Identify characteristics of hurricanes, tornadoes and thunderstorms, and related safety precautions.	5
	1414. Identify instruments used to forecast weather including thermometer, barometer, psychrometer and anemometer, and state their functions.	5
	1415. Recognize the effect that oceans have upon climate.	5

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)
G. (continued) THE STUDENT WILL KNOW EARTH/SPACE SCIENCE CONCEPTS AND RELATED THEORIES, LAWS, ASSUMPTIONS AND FACTS.	AIR (continued)	
	1416. Identify and describe prevailing wind belts on the earth.	8
	1417. Identify the nature and formation of breezes, winds and wind belts.	12
	1418. Identify factors which lead to the formation of dew, sleet, hail, fog, snow and humidity.	12
	1419. Indicate factors which influence weather, including latitude, oceans, mountains and currents.	12
	1420. Identify factors which contribute to air pollution and their impact upon the atomosphere.	12
H. THE STUDENT WILL APPLY EARTH/SPACE SCIENCE CONCEPTS AND RELATED THEORIES, LAWS, ASSUMPTIONS AND FACTS.	GENERAL	
	1421. Describe the impact of catastrophic events upon man and the environment.	12
	SPACE	
	1422. Explain how the sun may be used to determine time.	3
	1423. Explain how our units of time are based on astronomical motions.	5
	1424. Describe our solar system.	5
	1425. Compare and contrast comets, meteoroids, meteors and meteorites.	8
	1426. Demonstrate the method of measuring distant bodies indirectly.	8

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)
H. (continued) THE STUDENT WILL APPLY EARTH/SPACE SCIENCE CONCEPTS AND RELATED THEORIES, LAWS, ASSUMPTIONS AND FACTS.	SPACE (continued)	
	1427. Chart the life cycle of stars.	8
	1428. Determine which of two stars are farther from the earth using two sets of spectral data.	12
	1429. Explain the effect that planetary motion, wind, temperature and gravitation have on the movement of ocean water.	12
	1430. Describe methods for determining the age and size of the universe.	12
	1431. Compare past, present and future aspects of space exploration.	12
	EARTH	
	1432. Use concrete examples to illustrate the results of forces that change the surface of the earth.	5
	1433. Classify mineral samples according to hardness, luster, streak and color.	8
	1434. Describe the internal structure of the earth.	8
	1435. Construct and interpret geographic and topographic maps.	8
	1436. Describe the effects of crustal movement, plate tectonics and volcanism in terms of the formation of mountains, plains, islands and plateaus.	12
	1437. Explain how the study of earthquakes provides information about the earth's interior.	12

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)			
H. (continued) THE STUDENT WILL APPLY EARTH/SPACE SCIENCE CONCEPTS AND RELATED THEORIES, LAWS, ASSUMPTIONS AND FACTS.	EARTH (continued)				
	1438. Analyze the effects man has had upon changing the surface of the earth.				12
	WATER				
	1439. Discuss how the ocean is important for mineral and energy resources.		5		
	1440. Describe how water influences the formation and erosion of soil and beaches.			8	
	1441. Specify the biological consequences of up-welling.				12
	1442. Explain the importance of the terms permeable, aquifer, porous and impermeable in describing the movement of underground water.				12
	1443. Describe the major features of Florida hydrology (aquifers, sinkholes, ground water, salt water intrusion and springs).				12
	1444. Use a water budget table to predict the seasons in which water surpluses and deficits would occur.				12
	1445. Explain the effects of organic wastes on fresh water bodies.				12
	1446. Explain the effects of lowering the water table and the impact in terms of salt water intrusion and the formation of sinkholes.				12
	1447. Analyze the chemical, physical and biological impact of man and the ocean upon each other.				12

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)			
H. (continued) THE STUDENT WILL APPLY EARTH/SPACE SCIENCE CONCEPTS AND RELATED THEORIES, LAWS, ASSUMPTIONS AND FACTS.	WATER (continued)				
	1448. Propose methods to measure the depth, speed and width of the Gulf Stream.				12
	1449. Explain why a ship could not be capsized by a tidal wave at mid ocean.				12
	AIR				
	1450. Describe common factors that areas with similar climates share.	3			
	1451. Demonstrate the ability to track hurricanes.	3			
	1452. Predict weather based upon information regarding temperature, cloud types and wind.	3			
	1453. Use weather forecasting instruments to record the weather and to predict changes.		5		
	1454. Predict weather based on given data.		5		
	1455. Explain why some types of violent storms are more common in one region than in another.		5		
	1456. Compare and contrast weathering and erosion in humid and arid regions.			8	
	1457. Explain the greenhouse effect.			8	
	1458. Relate the tilt of the polar axis to seasonal variations.				12
	1459. Explain why hurricanes occur much more frequently on the east coast of the United States than upon the west coast.				12

STANDARDS	SKILLS - The student will:		GRADE LEVEL(S)			
H. (continued) THE STUDENT WILL APPLY EARTH/SPACE SCIENCE CONCEPTS AND RELATED THEORIES, LAWS, ASSUMPTIONS AND FACTS.	AIR (continued)					
	1460.	Explain why atmospheric conditions of the United States bring about more tornadoes than do atmospheric conditions in most other areas of the world.				12
	1461.	Relate two theories which explain why glaciers have occurred at such widely separated times and places.				12
	1462.	Describe how technology is used to study weather.				12
	1463.	Predict weather through the observation and analysis of weather instruments or weather maps.				12
	1464.	Identify the topographical factors which tend to produce desert areas.				12
	1465.	Describe the formation, movement and interrelationship of air masses.				12
	1466.	Explain the factors which are destroying the ozone layer and discuss the problem which its destruction would cause.				12
	1467.	Explain how carbon 14 is made in the atmosphere and how it enters the organic carbon cycle.				12
I. THE STUDENT WILL APPROPRIATELY EMPLOY SCIENTIFIC MATERIALS, EQUIPMENT AND TECHNIQUES.	1468.	Manipulate scientific materials and equipment appropriate to his/her grade level.	3	5	8	12
	1469.	Properly care for scientific equipment.	3	5	8	12

STANDARDS	SKILLS - The student will:		GRADE LEVEL(S)			
I. (continued) THE STUDENT WILL APPROPRIATELY EMPLOY SCIENTIFIC MATERIALS, EQUIPMENT AND TECHNIQUES.	1470.	Properly handle and care for living organisms.	3	5	8	12
	1471.	Properly care for scientific materials appropriate to his/her grade level.	3	5	8	12
	1472.	Construct equipment appropriate for investigations.	3	5	8	12
	1473.	Assemble equipment appropriate for investigations.	3	5	8	12
	1474.	Employ safe laboratory procedures.	3	5	8	12
	1475.	Choose science equipment appropriate for tasks.	3	5	8	12
	1476.	Associate the names and functions of science equipment.	3	5	8	12
J. THE STUDENT WILL UTILIZE SCIENTIFIC METHODS, INFORMATION AND TECHNIQUES FOR PERSONAL ENRICHMENT.	1477.	Use scientific knowledge and skills in everyday situations.	3	5	8	12
	1478.	Participate in extracurricular activities that are science related.		5	8	12
	1479.	Select cause-and-effect relationships to explain contemporary problems.			8	12
	1480.	Demonstrate the use of scientific processes in personal decision-making.			8	12
	1481.	Read and analyze advertisements and other commercial messages objectively (search for inferences, half-truths and emotional appeal).			8	12
	1482.	Prefer systematic and exact explanations to nonscientific interpretations.			8	12

STANDARDS	SKILLS - The student will:		GRADE LEVEL(S)			
J. (continued) THE STUDENT WILL UTILIZE SCIENTIFIC METHODS, INFORMATION AND TECHNIQUES FOR PERSONAL ENRICHMENT.	1483.	Use scientific knowledge, conventions and skills in exploring career options.			8	12
	1484.	Use scientific knowledge and processes to distinguish between science and pseudoscience.			8	12
	1485.	Demonstrate an interest in the environment by seeking knowledge about environmental studies or by joining organizations concerned with environmental matters.				12
K. THE STUDENT WILL DESCRIBE THE IMPLICATIONS AND PRACTICALITY OF THE INTERACTIONS BETWEEN SCIENCE, TECHNOLOGY AND SOCIETY.	1486.	Describe the role of individuals both directly and indirectly on the quality of the environment.	3	5	8	12
	1487.	Identify individuals and groups whose efforts, ideas or inventions have significantly affected the lives of other human beings, and describe their influences.	3	5	8	
	1488.	Discuss attitudes which contribute toward living in harmony with the environment.		5	8	12
	1489.	Cite examples of occupations that are primarily concerned with the study or control of specific environments.		5		
	1490.	Identify nongovernmental groups primarily concerned with environmental matters.		5		
	1491.	Describe the impact of various industries on the environment.		5	8	

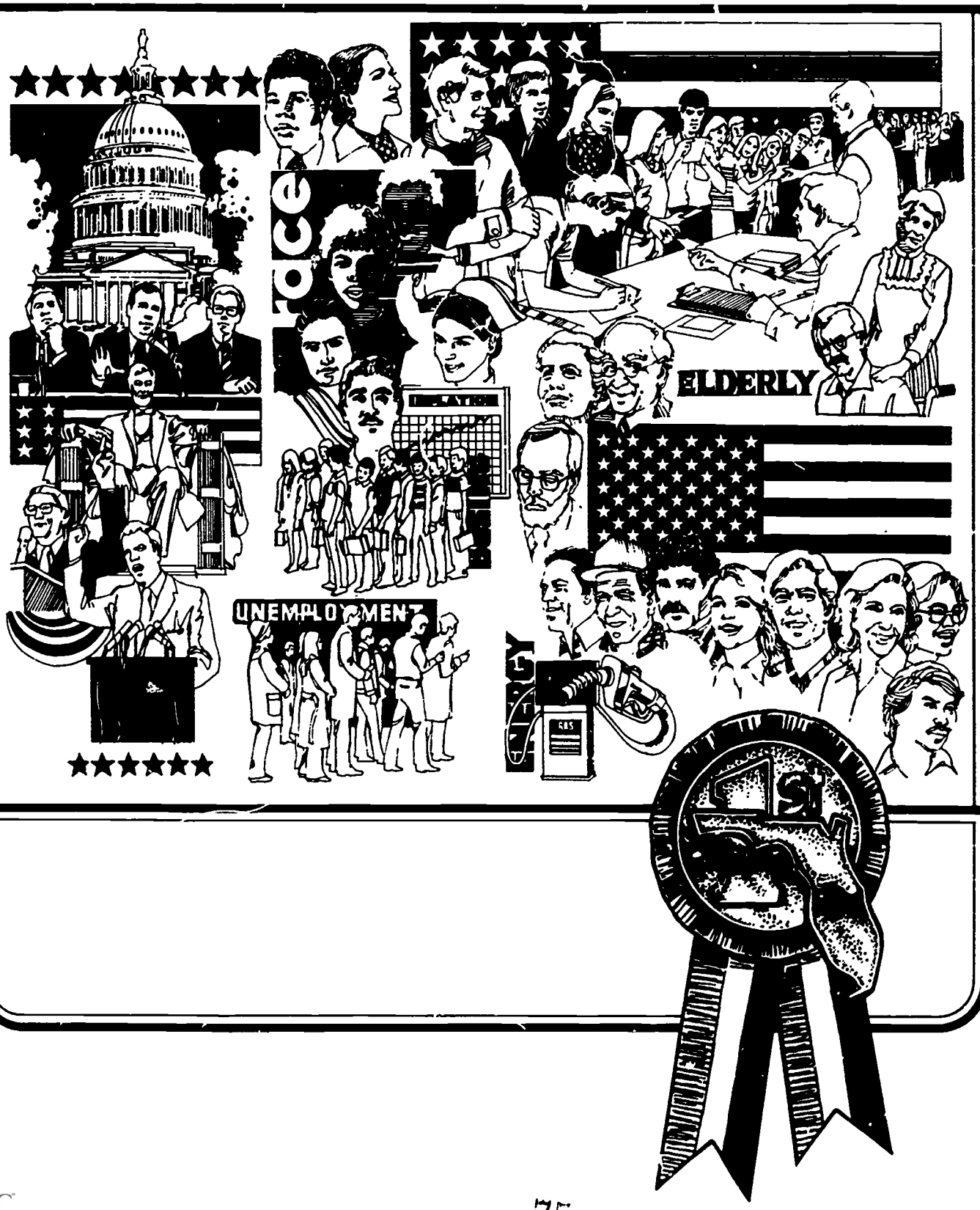
STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)			
K. (continued) THE STUDENT WILL DESCRIBE THE IMPLICATIONS AND PRACTICALITY OF THE INTERACTIONS BETWEEN SCIENCE, TECHNOLOGY AND SOCIETY.	1492. Give examples where technologists have had positive and negative influences on societal decisions.			8	
	1493. Give examples where scientists have had positive and negative influences on societal decisions.			8	
	1494. Describe the interdependence of science, technology and the economy in terms of their processes, growth and development.			8	12
	1495. Describe situations in which the moral and ethical beliefs of the individual determine the way in which science and technology are applied.			8	12
	1496. Recognize that controversy exists concerning controls versus non-controls over what basic research scientists should conduct.			8	12
	1497. Recognize that controversy exists concerning controls versus non-controls over what applications technologists should be allowed to make using scientific advances.			8	12
	1498. Recognize relationships between specific rapid changes in technology and their impact upon society.			8	12
	1499. Describe the effects of social, economic, governmental and societal actions on science and technology.			8	12
	1500. Explain the effect of population growth on the quality of life (society).			8	12

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)	
K. (continued) THE STUDENT WILL DESCRIBE THE IMPLICATIONS AND PRACTICALITY OF THE INTERACTIONS BETWEEN SCIENCE, TECHNOLOGY AND SOCIETY.	1501. Explain and evaluate some effects of technology (e.g., inventions and methods of production on the relationship between human beings and physical environment).	8	12
	1502. Discuss the benefits and/or drawbacks of national technological progress.	8	12
	1503. Explain and evaluate ways in which natural resources have been allocated, utilized and conserved in the community, region, the nation and in other societies.	8	12
	1504. Apply biomedical developments to social and technological problems.	8	12
	1505. Describe the problems of industries which cause changes in natural environments and describe the social reactions to these changes.	8	12
	1506. Describe and analyze advantages and disadvantages of various energy technologies.		12
	1507. Select an environmental problem, investigate alternative solutions to that problem, select one alternative and defend that selection.		12
	1508 Predict the effects of economic changes on the environment.		12
	1509. Analyze the impact of the accumulation of scientific and technological knowledge.		12

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)
K. (continued) THE STUDENT WILL DESCRIBE THE IMPLICATIONS AND PRACTICALITY OF THE INTERACTIONS BETWEEN SCIENCE, TECHNOLOGY AND SOCIETY.	1510. Demonstrate the complexity of energy issues by describing systems which show the connection, mutuality and reciprocity of energy flows within natural systems.	12
	1511. Predict the changes that computer science will have on family life styles, economics, politics and decision making.	12
	1512. Discuss the implications upon human existence from the development of a technocracy.	12
	1513. Contrast how time is perceived in an industrialized "developed" culture as a linear measurement with "natural" cultures perception of time as cyclic in nature.	12
	1514. Recognize that physical and biological resources serve as constraints which shape cultures.	12
	1515. Describe the DELPHI technique for predicting future events.	12
	1516. Recognize the use of such terms as "tradeoffs," "compromise" and "optimization" as they apply to the designing of machines and the characteristics of the user.	12
L. THE STUDENT WILL DESCRIBE THE CHARACTERISTICS OF THE NATURE OF SCIENCE.	1517. Recognize the current limitations of science (social problems, science is not equivalent to history, etc.).	8 12
	1518. Distinguish between observation, hypothesis, theory, model, law and assumption.	8

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)	
L. (continued) THE STUDENT WILL DESCRIBE THE CHARACTERISTICS OF THE NATURE OF SCIENCE.	1519. Recognize the tentativeness of science "truth".	8	12
	1520. Recognize the criteria that scientists use for judging the validity of knowledge in science (replication and public).	8	12
	1521. Recognize the fundamental assumptions that underlie scientific work (causality and regularity).	8	12
	1522. Distinguish between science and technology.	8	
	1523. Recognize the empirical nature of science to test hypotheses by experiment and observation after collecting data exactly, systematically and objectively.	8	12

SOCIAL STUDIES



Total Number of Skills by Standard Per Grade in the Social Studies Standards of Excellence

STANDARDS	GRADE THREE	GRADE FIVE	GRADE EIGHT	GRADE TWELVE	TOTAL
A	4	8	6	2	20
B	1	5	5	3	14
C	3	8	7	2	20
D	2	7	14	7	30
E	2	4	5	7	18
F	3	4	5	2	14
G	4	9	12	12	37
H	3	5	15	9	32
TOTAL	22	50	69	44	185

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)
A. THE STUDENT WILL USE INFORMATION ACQUISITION AND PROCESSING TECHNIQUES AS ASSOCIATED WITH HISTORY AND THE VARIOUS SOCIAL SCIENCES.	1001. Apply information from indexes, glossaries, copyright dates, appendixes, map lists and illustration lists to locate information.	3
	1002. Interpret information from a poll, table, graph or chart.	3
	1003. Differentiate between actual observation and inference made from secondary sources.	3
	1004. Identify alternative solutions to problems and consider the consequences of each solution.	3
	1005. Select appropriate references for objectives using the following sources of information: an encyclopedia, newspaper, magazine, almanac, data table and atlas.	5
	1006. Use footnotes as a source of data.	5
	1007. Construct a detailed outline using correct form.	5
	1008. Identify standard techniques used to persuade or convince others.	5
	1009. Construct a simple data table containing two variables, labeling columns, rows and accurately entering data.	5
	1010. Given a specific topic, evaluate sources of information in terms of reliability.	5
	1011. Draw inferences from historical and contemporary evidence.	5
	1012. Apply a decision-making model to a problem, listing alternative solutions and making a choice.	5

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)
A. (continued) THE STUDENT WILL USE INFORMATION ACQUISITION AND PROCESSING TECHNIQUES AS ASSOCIATED WITH HISTORY AND THE VARIOUS SOCIAL SCIENCES.	1013. Choose a topic for research, using an appropriate thesis statement.	8
	1014. Properly document sources by using footnotes and compiling a bibliography.	8
	1015. Synthesize information and ideas from conflicting sources.	8
	1016. Identify bias and how it affects explanation of data.	8
	1017. Select and defend a position or course of action consistent with established criteria.	8
	1018. Develop a set of criteria for judging proposed courses of action in terms of actual and projected consequences.	8
	1019. Explain orally or in writing the methods and procedures involved in conducting a social science investigation using the scientific method.	12
	1020. Write a properly documented research paper that adequately defends and supports an appropriate thesis statement.	12
B. THE STUDENT WILL DEMONSTRATE THAT THE PAST MAY BE INTERPRETED AS A SERIES OF INTERRELATED EVENTS.	1021. Use a few cluster data-events and specific date-events as points of orientation in time.	3
	1022. Identify major national and world historical figures and their impact on historical events.	5

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)			
B. (continued) THE STUDENT WILL DEMONSTRATE THAT THE PAST MAY BE INTERPRETED AS A SERIES OF INTER-RELATED EVENTS.	1023. Compare different time lines to understand time relationships among separate events and developments.		5		
	1024. Explain the impact of major historical figures and groups on major state, national and world events.		5		
	1025. Explain why changes occur at various rates.		5		
	1026. Identify causes and consequences of specific historical events.		5		
	1027. Explain the short and long range-effects of specific changes as they relate to major state, national and world events.			8	
	1028. Explain causes and consequences of specific historical events.			8	
	1029. Demonstrate the concept of arbitrary periodization of history into appropriate time frames as it relates to western and non-western societies.			8	
	1030. Explain the significance of specific changes from the perspectives of various ethnic groups, social classes and cultures.			8	
	1031. Explain the historical setting of current state, national and international problems.			8	
	1032. Explain ways in which the interpretation of historical events changes from generation to generation.				12

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)			
B. (continued) THE STUDENT WILL DEMONSTRATE THAT THE PAST MAY BE INTERPRETED AS A SERIES OF INTER-RELATED EVENTS.	1033. Interpret changes that have occurred in economic, political and social systems of western and non-western societies.				12
	1034. Use historical reasoning to develop solutions to current human problems.				12
C. THE STUDENT WILL USE MAPS, GLOBES AND OTHER MODELS TO INTERPRET SPATIAL RELATIONSHIPS.	1035. Construct and interpret time lines.	3			
	1036. Use a legend to interpret information on a map.	3			
	1037. Identify and label maps of local geographic regions.	3			
	1038. Demonstrate the ability to use cardinal and inter-cardinal directions.		5		
	1039. Compute distance between points on maps.		5		
	1040. Locate and compare places using latitude and longitude.		5		
	1041. Interpret map insets to note differences in scale and true location.		5		
	1042. Recognize examples of calendars used by different cultures.		5		
	1043. Use a variety of special purpose maps, graphs and charts to compare various regions.		5		
	1044. Plan a trip using a highway map to detail distance, direction, location, time and activities.		5		
	1045. Explain the causes of seasons.		5		

STANDARDS	SKILLS - The student will:		GRADE LEVEL(S)			
C. (continued) THE STUDENT WILL USE MAPS, GLOBES AND OTHER MODELS TO INTERPRET SPATIAL RELATIONSHIPS.	1046.	Use an appropriate atlas to compare two or more maps of the same area in order to combine data and make inferences.			8	
	1047.	Describe the relationship of the sun to the Tropic of Cancer, the Tropic of Capricorn, the Arctic Circle and the Antarctic Circle.			8	
	1048.	Explain the relationship of time zones to longitude as well as to the rotation of the earth.			8	
	1049.	Compute time zone problems for national and international travel.			8	
	1050.	Explain how elevation, ocean currents and location affect climate.			8	
	1051.	Using a physical map, infer adaptation necessitated by the environment of a region.			8	
	1052.	Explain the differences in map projections and recognize physical distortions involved in any representation of the earth other than the globe.			8	
	1053.	Use maps, globes, charts and graphs to explain the relationship of geography to historical and current events.				12
	1054.	Develop alternative solutions to problems created by geographical variables.				12
D. THE STUDENT WILL DESCRIBE THE INTERDEPENDENCE OF PEOPLE AND INSTITUTIONS IN ECONOMIC SYSTEMS.	1055.	Cite examples of capital goods.	3			
	1056.	Give possible reasons for a rise or fall in prices.	3			

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)
D. (continued) THE STUDENT WILL DESCRIBE THE INTERDEPENDENCE OF PEOPLE AND INSTITUTIONS IN ECONOMIC SYSTEMS.	1057. Explain how credit cards are used; cite the advantages and disadvantages of their use.	5
	1058. Explain why unemployment and job vacancies can exist simultaneously.	5
	1059. Demonstrate how differences in the distribution of resources affect production decisions.	5
	1060. Cite examples of how technology and technological change have affected production decisions.	5
	1061. Recognize how production decisions in our country are affected by conditions in other countries.	5
	1062. Identify how individual, family and community demands may conflict with preserving the environment.	5
	1063. Identify when a shortage exists and when a surplus exists.	5
	1064. Describe a potential business and explain how natural resources, labor, capital goods and entrepreneurial skills would be involved in its operation.	8
	1065. Propose alternatives, based on economic principles, for resolving some current issues.	8
	1066. Explain how economic conditions might affect the role of government in labor-management relations.	8

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)
D. (continued) THE STUDENT WILL DESCRIBE THE INTERDEPENDENCE OF PEOPLE AND INSTITUTIONS IN ECONOMIC SYSTEMS.	1067. Contrast production decisions under other economic systems with the United States's mixed market economy.	8
	1068. Identify how changes in the level of capital investment affect productivity and employment.	8
	1069. Explain the difference between elastic and inelastic demand and state an example of each.	8
	1070. Define and cite examples of substitute goods and complementary goods.	8
	1071. Describe the mechanism in a market economy that generates equilibrium prices.	8
	1072. Identify the risks associated in alternative types of consumer personal investment.	8
	1073. Describe the relationship between saving, business investment and employment.	8
	1074. Explain how credit affects a family's financial growth and security.	8
	1075. Use examples to compare and contrast common forms of credit.	8
	1076. List reasons why government might be considered a fifth factor of production.	8
	1077. Identify reasons why a market economy is likely to offer a greater variety of goods and services than a command economy.	8

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)
D. (continued) THE STUDENT WILL DESCRIBE THE INTERDEPENDENCE OF PEOPLE AND INSTITUTIONS IN ECONOMIC SYSTEMS.	1078. Discuss the effects of: a trade balance a trade deficit, a trade surplus, tariffs and embargoes on the domestic economy.	12
	1079. Describe an economic model that might be used to analyze the effects of some government policy on the economic system.	12
	1080. Identify effects of price floors and price ceilings on market equilibrium.	12
	1081. Identify market forces which determine interest rates.	12
	1082. Evaluate the effectiveness of wage and price controls.	12
	1083. Explain the concepts of comparative advantage and absolute advantage.	12
	1084. Explain how comparative advantage promotes international trade and raises the standard of living in the countries involved.	12
E. THE STUDENT WILL EXPLAIN THE INTERDEPENDENCE OF CULTURES REGIONS, NATIONS, PEOPLES AND THE BIOSPHERE.	1085. Identify the impact of the flow of goods, services, information, money and people in one's own community.	3
	1086. Describe how groups of human beings develop their culture through interaction with their environment and other cultures.	3
	1087. Identify similarities in the historical experience of different groups and societies.	5

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)
E. (continued) THE STUDENT WILL EXPLAIN THE INTERDEPENDENCE OF CULTURES, REGIONS, NATIONS, PEOPLES AND THE BIOSPHERE.	1088. Describe the natural environment is a single, integrated global system.	5
	1089. Explain how the lifestyles of different cultures have different impacts upon their environment.	5
	1090. Compare and contrast cultures in relationship to their process of decision-making.	5
	1091. Identify major historical events and trends that have shaped the global development of human culture.	8
	1092. Identify the technologies, institutions, languages and beliefs which link the different peoples of the world.	8
	1093. Identify the interdependent networks (political, economic, social, military, ecological and technological) which link the United States and other nations.	8
	1094. Trace the possible bases for opinions, attitudes and beliefs about social issues which differ from one's own.	8
	1095. Compare and contrast opinions, attitudes and beliefs about social issues held by one's own community or nation and other peoples of the world.	8
	1096. Compare and contrast fundamental values of different cultures in relationship to world issues (e.g., use of resources, human rights, food).	12

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)
E. (continued) THE STUDENT WILL EXPLAIN THE INTERDEPENDENCE OF CULTURES, REGIONS, NATIONS, PEOPLES AND THE BIOSPHERE.	1097. Compare and contrast the empirical and ethical assumptions underlying different beliefs about world problems.	12
	1098. Evaluate personal and collective decisions made by citizens of the United States which have consequences for people in other parts of the world.	12
	1099. Evaluate personal and collective decisions made by people in other parts of the world which have consequences for citizens of the United States.	12
	1100. Identify choices or alternative actions and their possible consequences in respect to problems of cultural diversity, conflict, cultural change, human/biosphere relations, population growth and human rights.	12
	1101. Use cross-cultural sources to analyze world and community problems.	12
	1102. Explain the competencies of an effective participant in a democratic society and select the organization(s) or institution(s) most relevant to the problem, situation or issue with which one is concerned.	12
F. THE STUDENT WILL EXPLAIN THE RELATIONSHIP BETWEEN BELIEFS AND VALUES, AND HOW THESE CONCEPTS AFFECT HUMAN BEHAVIOR AND CONFLICTS.	1103. List responsibilities associated with membership in voluntary or involuntary groups (e.g., family, scho , community).	3
	1104. Propose strategies for coping with situations arising from conflicting beliefs and values.	3

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)			
F. (continued) THE STUDENT WILL EXPLAIN THE RELATIONSHIP BETWEEN BELIEFS AND VALUES, AND HOW THESE CONCEPTS AFFECT HUMAN BEHAVIOR AND CONFLICTS.	1105. Identify advantages and disadvantages of competition in the family, in the school and in the community.	3			
	1106. Analyze the diversity within ethnic groups.		5		
	1107. Infer beliefs and values from patterns of behaviors.		5		
	1108. Identify values and beliefs as potential sources of conflict within and between family, peer, community, national and international groups.		5		
	1109. Propose and justify reasons for believing in the value of the American political tradition.		5		
	1110. Identify advantages and disadvantages of competition and cooperation in state, nation and the world.			8	
	1111. Given a dilemma situation, identify possible consequences and propose reasons for each.			8	
	1112. Predict behavior from knowledge of beliefs and values.			8	
	1113. Predict how conflicts in values or beliefs may affect relationships among individuals and groups.			8	
	1114. Describe means of transmitting beliefs and values among family members, peer groups, and different cultures using accommodation, acculturation, assimilation, direct transmission and socialization.			8	

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)			
F. (continued) THE STUDENT WILL EXPLAIN THE RELATIONSHIP BETWEEN BELIEFS AND VALUES, AND HOW THESE CONCEPTS AFFECT HUMAN BEHAVIOR AND CONFLICTS.	1115. Predict ways social institutions may affect the quality of human life.				12
	1116. Infer through the use of appropriate source materials, values and beliefs of the characters involved which determine their relationships with other persons.				12
G. THE STUDENT WILL ACQUIRE SKILLS TO PARTICIPATE EFFECTIVELY IN A DEMOCRATIC SOCIETY AND APPLY PROBLEM-SOLVING SKILLS TO THE DEMOCRATIC POLITICAL PROCESS.	1117. Define citizenship in a state or nation with the duties, rights privileges and responsibilities that go along with being a member.	3			
	1118. Cite reasons for the existence of governments and laws.	3			
	1119. Define patriotism, list examples of patriotism and discuss why patriotism is important to a nation.	3			
	1120. Explain the meaning of the pledge of allegiance.	3			
	1121. Define and give examples of freedom of speech, freedom of assembly, freedom of press and freedom of religion.		5		
	1122. Describe the relationship between civil liberties and law enforcement.		5		
	1123. Define the concept of federalism.		5		
	1124. List the requirements and procedures necessary to become a United States citizen.		5		
	1125. Describe the order of succession for the Presidency.		5		

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)			
G. (continued) THE STUDENT WILL ACQUIRE SKILLS TO PARTICIPATE EFFECTIVELY IN A DEMOCRATIC SOCIETY AND APPLY PROBLEM-SOLVING SKILLS TO THE DEMOCRATIC POLITICAL PROCESS.	1126. Explain the function of the Cabinet.		5		
	1127. Relate political elections to processes used to choose leaders in the school and community.		5		
	1128. Contrast what it means to be a good citizen in the United States with what it means in an authoritarian society.		5		
	1129. Explain how the concept of federalism represented an effective compromise in the acceptance of the United States Constitution.		5		
	1130. Explain how the political party system, including third parties, functions in the United States and in Florida.			8	
	1131. Evaluate the function of both lobby and interest groups.			8	
	1132. Distinguish between civil liberties and human rights and give examples of each.			8	
	1133. Define the concept of due process and give examples of its use in the United States.			8	
	1134. Give examples, both positive and negative, of due process.			8	
	1135. Compare and contrast the concept of toleration of religion with the concept of freedom of religion.			8	
	1136. Distinguish between and give examples of inequality and inequity.			8	

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)
G. (continued) THE STUDENT WILL ACQUIRE SKILLS TO PARTICIPATE EFFECTIVELY IN A DEMOCRATIC SOCIETY AND APPLY PROBLEM-SOLVING SKILLS TO THE DEMOCRATIC POLITICAL PROCESS.	1137. Propose a concept of justice by giving labeled examples of justice done and justice denied.	8
	1138. Analyze historical documents to infer at least two definitions of patriotism (e.g., loyalty to country, loyalty to country's ideals).	8
	1139. Analyze the role of the bureaucracy in relationship to the Presidency, the Congress and the Courts.	8
	1140. Contrast the role of a political party in the United States with the role of political parties in other areas of the world.	8
	1141. Infer, using the Florida Constitution, the powers granted to states by the Federal Constitution.	8
	1142. Evaluate the extent to which the role of the Cabinet has been changed by White House staff members.	12
	1143. Contrast attitude toward freedom of conscience and freedom of religion in the United States with attitudes of other countries.	12
	1144. Analyze various laws and documents from the American experience to infer the different conceptions of equality (equality before the law, equality of opportunity, equality of access, equality of end result).	12
	1145. Trace the adult criminal justice procedure from arrest to the restoration of civil rights.	12

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)
G. (continued) THE STUDENT WILL ACQUIRE SKILLS TO PARTICIPATE EFFECTIVELY IN A DEMOCRATIC SOCIETY AND APPLY PROBLEM-SOLVING SKILLS TO THE DEMOCRATIC POLITICAL PROCESS.	1146. Compare and contrast the adult and juvenile justice systems in the State of Florida.	12
	1147. Evaluate (to discern the strengths and weaknesses of) unitary, federal and confederation forms of government.	12
	1148. Analyze the role of political parties in authoritarian nations.	12
	1149. Analyze the role of political parties in democratic governments.	12
	1150. Evaluate the extent to which Soviet economic, political and social policies are consistent with the philosophy of socialist writers.	12
	1151. Compare and contrast bureaucracy in three different forms of government (traditional, democratic and authoritarian).	12
	1152. Analyze the concepts and principles of United States Democracy using the theories of Aristotle, Locke, Jefferson, Lincoln and F. D. Roosevelt.	12
	1153. Explain the competencies of an effective participant in a democratic society and select a political party or organization most relevant to the problem, situation or position with which one is concerned.	12
H. THE STUDENT WILL EXPLAIN THE INTERACTION AMONG SCIENCE, TECHNOLOGY AND SOCIETY.	1154. List a number of environmental factors which may affect the physical or emotional health of human beings.	3

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)			
H. (continued) THE STUDENT WILL EXPLAIN THE INTERACTION AMONG SCIENCE, TECHNOLOGY AND SOCIETY.	1155. Describe the impact of various industries on the environment.	3			
	1156. Identify individuals and groups whose inventions or innovations have significantly affected the lives of other human beings and describe their influences.	3			
	1157. Integrate information gained from reference materials with information gained through direct experience to develop understanding of environmental matters.		5		
	1158. Describe ways in which changes in the natural environment have caused problems for industry.		5		
	1159. Use relevant information to examine energy issues.		5		
	1160. Explain and evaluate some effects of technology on the relationship between human beings and the physical environment.		5		
	1161. Describe ways inventions have transmitted and spread from one people to another.		5		
	1162. Identify and discuss the effectiveness of local, state or federal laws designed to protect people and the environment.			8	
	1163. Cite examples of social, political or economic decisions which have resulted in primary and secondary environmental problems.			8	

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)
H. (continued) THE STUDENT WILL EXPLAIN THE INTERACTION AMONG SCIENCE, TECHNOLOGY AND SOCIETY.	1164. Forecast the effects of a social, political and economic change on the environment.	8
	1165. Select an environmental problem, investigate alternate solutions to that problem, select one alternative and defend that selection by the environment and society.	8
	1166. Describe the social reactions which have occurred as a result of industry's impact on the environment.	8
	1167. Demonstrate an understanding of the complexity of the energy issue.	8
	1168. List and describe positive and negative consequences of various energy technologies.	8
	1169. Give examples of the positive and negative influences which technology has had on societal concerns and decisions.	8
	1170. Recognize that controversy exists concerning attempts to limit research conducted by scientists.	8
	1171. Recognize ways in which specific rapid changes in technology impact upon society.	8
	1172. Evaluate the effects of social and economic actions on science and technology.	8
	1173. Evaluate ways in which natural resources have been allocated, utilized and conserved in the community, regions, the nation and in other societies.	8

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)
H. (continued) THE STUDENT WILL EXPLAIN THE INTERACTION AMONG SCIENCE, TECHNOLOGY AND SOCIETY.	1174. Analyze the significance of specialization to science and technology.	8
	1175. Analyze the impact of technology on science and society.	8
	1176. Relate geo-physical changes to social and technological problems.	8
	1177. Describe situations in which advancements in science and technology may require re-evaluation of individual moral and ethical beliefs.	12
	1178. Assess the benefits and costs of technological progress.	12
	1179. Relate biomedical developments to social and technological problems.	12
	1180. Apply forecasting methods to social and technological problems.	12
	1181. Apply social planning techniques and strategies to social and technological problems.	12
	1182. Develop scenarios describing post-industrial society.	12
	1183. Explain various schools of futurists' speculation.	12
	1184. Describe the perspective and influences of individual futurists.	12
	1185. Analyze the impact of fundamental shifts in scientific and technological knowledge.	12

WRITING


Shakespeare
Baldwin
Alcott
Longfellow
Frost
Cooper
Poe


1st

Total Number of Skills by Standard Per Grade in the Writing Standards of Excellence

STANDARDS	GRADE THREE	GRADE FIVE	GRADE EIGHT	GRADE TWELVE	TOTAL
A	4	6	6	8	24
B	4	9	9	8	30
C	5	5	5	4	19
D	3	3	3	3	12
E	9	11	11	11	42
TOTAL	25	34	34	34	127

WRITING

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)			
A. THE STUDENT WILL WRITE PROFICIENTLY FOR PRACTICAL PURPOSES.	1001. Compose a friendly letter.	3			
	1002. Write a set of directions.	3			
	1003. Write a summary of an observation or of an audio-visual presentation.	3	5	8	
	1004. Write a summary of a written passage.	3	5	8	12
	1005. Write a business letter.		5		
	1006. Explain in writing the steps of a specific process.		5		
	1007. Write notes reflecting the content of an oral discussion.		5	8	12
	1008. Design a questionnaire or other written instrument for collecting information.		5	8	12
	1009. Write a report based upon technical/statistical data.			8	12
	1010. Write a report based upon conclusions drawn from information gathered through interview, survey and/or direct observation.			8	12
	1011. Write a personal resume.				12
	1012. Paraphrase a technical report in non-technical language.				12
	1013. Condense an extensive written work to its essential elements.				12
B. THE STUDENT WILL WRITE PROFICIENTLY FOR ACADEMIC PURPOSES.	1014. Write a narrative based upon personal experiences and/or interviews.	3	5		

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)			
B. (continued) THE STUDENT WILL WRITE PROFICIENTLY FOR ACADEMIC PURPOSES.	1015. Write a description of an experiment which uses the scientific method.	3	5		
	1016. Write a plan for a project in any discipline.	3	5		
	1017. Write a story problem which includes the information necessary for solving the problem.	3	5		
	1018. Write a report based upon an independent investigation and list the sources.		5		
	1019. Write conclusions based upon an evaluation of conflicting information.		5	8	
	1020. Write an explanation of a concept in any discipline.		5	8	
	1021. Write an opinion paper which includes supporting evidence.		5	8	
	1022. Write an analysis of a literary character which includes discussion of motivational influences as well as patterns of behavior.		5	8	12
	1023. Write a report which includes a bibliography.			8	
	1024. Write a paper to persuade a specified audience to accept a clearly defined viewpoint.			8	
	1025. Write an outline for an investigation which uses the scientific method.			8	
	1026. Write a paper synthesizing ideas drawn from several sources.			8	12

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)			
B. (continued) THE STUDENT WILL WRITE PROFICIENTLY FOR ACADEMIC PURPOSES.	1027. Write accurate, complete, organized and reflective answers to essay questions.			8	12
	1028. Write a paper which traces the development of a concept or movement.				12
	1029. Write a paper identifying and examining concepts or techniques or purposes in literary, scientific, mathematical or historical works.				12
	1030. Write a paper analyzing and critiquing the style and tone of a writer's work.				12
	1031. Write a paper to support or refute a formal proposition.				12
	1032. Write a fully documented research paper which interprets and/or theorizes.				12
C. THE STUDENT WILL WRITE PROFICIENTLY IN A VARIETY OF LITERARY FORMS.	1033. Write a play, either individually or cooperatively.	3	5	8	
	1034. Write a speech or a report intended for oral presentation.	3	5	8	12
	1035. Write rhymed or unrhymed poetry.	3	5	8	12
	1036. Write original fiction.	3	5	8	12
	1037. Write original non-fiction.	3	5	8	12
D. THE STUDENT WILL WRITE AS A MEANS OF PERSONAL EXPRESSION.	1038. Write to express or explore opinions, emotions, ideas or problems.	3	5	8	12
	1039. Write for personal satisfaction.	3	5	8	12

STANDARDS	SKILLS - The student will:		GRADE LEVEL(S)			
D. (continued) THE STUDENT WILL WRITE AS A MEANS OF PERSONAL EXPRESSION.	1040.	Write to experiment with various forms and styles.	3	5	8	12
E. THE STUDENT WILL CONTROL THE FORMS OF WRITTEN LANGUAGE.	1041.	Demonstrate proficiency in the writing process: pre-writing, composing, revising and proof-reading.	3	5	8	12
	1042.	Collaborate with others in making editorial decisions.	3	5	8	12
	1043.	Use appropriate printed resources in editing written language: dictionaries, thesauruses and handbooks.	3	5	8	12
	1044.	Maintain a consistent and appropriate persona (i.e., voice) throughout a communication.	3	5	8	12
	1045.	Use dialogue effectively.	3	5	8	12
	1046.	Use literary devices appropriately.	3	5	8	12
	1047.	Use specific vocabulary appropriate to the intent of the writing task.	3	5	8	12
	1048.	Use the conventions of standard American English, including capitalization, punctuation, spelling, usage and sentence structure.	3	5	8	12
	1049.	Use appropriate logical thought patterns including comparison-contrast, cause-effect, definition, classification, analysis, order of importance, chronological order and/or spatial relationships.	3	5	8	12

STANDARDS	SKILLS - The student will:	GRADE LEVEL(S)			
			5	8	12
E. (continued) THE STUDENT WILL CONTROL THE FORMS OF WRITTEN LANGUAGE.	1050. Adapt tone, attitude, point of view and style in terms of audience, purpose, situation and subject.		5	8	12
	1051. Write using inductive and/or deductive organization when appropriate.				

State of Florida
Department of Education
Tallahassee, Florida
Ralph D. Turlington, Commissioner
Affirmative action/equal opportunity employer

This reprint of a publication was produced at an annual cost of $31,040.72 or $1.24 per copy to furnish districts and schools copies of the state adopted Standards of Excellence in order that they may be included in their program of studies, in accordance with Section 6A-1.9411.

FLORIDA: A STATE OF EDUCATIONAL DISTINCTION. "On a statewide average, educational achievement in the State of Florida will equal that of the upper quartile of states within five years, as indicated by commonly accepted criteria of attainment."