ATTACHMENT II
Text of Proposed New 19 TAC

Chapter 74. Curriculum Requirements

Subchapter A. Required Curriculum

§74.6. College and Career Readiness and Texas Essential Knowledge and Skills Alignment.

(a) In accordance with the Texas Education Code, §28.008, the State Board of Education shall incorporate College and Career Readiness Standards approved by the commissioner of education and the Texas Higher Education Coordinating Board into the essential knowledge and skills and indicate the alignment of the College and Career Readiness Standards with the essential knowledge and skills.

(b) The figure in this subsection identifies the alignment of the College and Career Readiness Standards for mathematics with the essential knowledge and skills.

Figure: 19 TAC §74.6(b)

(c) The figure in this subsection identifies the alignment of the College and Career Readiness Standards for science with the essential knowledge and skills.

Figure: 19 TAC §74.6(c)

(d) The figure in this subsection identifies the alignment of the College and Career Readiness Standards for social studies with the essential knowledge and skills.

Figure: 19 TAC §74.6(d)

(e) The figure in this subsection identifies the alignment of the College and Career Readiness Standards for cross-disciplinary studies with the essential knowledge and skills.

Figure: 19 TAC §74.6(e)

Figure: 19 TAC §74.6(b)

College and Career Readiness Standards / Texas Essential Knowledge and Skills Alignment

Mathematics

CCRS	Foundation		Enrichment	
	Math	Science	CTE	Technology Applications
I. Numeric Reasoning				
A. Number representation				
I.A.1. Compare real numbers.	Kindergarten: (2)(A), (2)(C), (2)(E)-(H) Grade 1: (2)(D)-(G), (5)(A), (5)(C) Grade 2: (2)(C)-(F), (3)(B), (7)(B), (9)(B)-(C) Grade 3: (2)(B)-(D), (3)(F)-(H) Grade 4: (2)(A), (2)(C), (2)(F)-(H), (3)(D), (3)(G) Grade 5: (2)(B), (4)(A) Grade 6: (2)(D), (5)(C), (5)(F) Grade 8: (2)(D), (12)(D) Advanced Quantitative Reasoning: (2)(A)	Grade 8:(5)(F), (8)(B)-(D) Astronomy: (6)(A)-(D), (9)(A)-(B), (11)(E) Chemistry: (5)(C) Earth and Space Science: (5)(E)-(F) Integrated Physics and Chemistry: (4)(C)-(D), (4)(F)-(G), (5)(F), (5)(H), (6)(A), (6)(C)-(E), (7)(A)-(F) Physics: (4)(A)-(D), (5)(B)-(C), (5)(H), (7)(B)-(D), (8)(B)-(C)	Accounting II: (1)(B), (4)(H), (6)(K)(iii), (6)(K)(v), (6)(R)(v); Applied Mathematics for Technical Professionals: (5)(C); Engineering Mathematics: (6)(B), (7)(C), (8)(E), (9)(D), (9)(G), (11)(A), (11)(D)-(F); Financial Mathematics: (3)(B), (3)(G), (3)(K)-(L), (4)(E), (4)(K), (5)(D)-(F), (6)(A), (6)(C), (7)(A), (7)(C), (7)(I), (7)(K)-(L), (8)(C)-(D), (9)(A), (9)(C)-(D), (10)(A), (10)(E), (11)(A), (14), (15)(C), (17)(F); Manufacturing Engineering Technology II: (3)(B); Mathematical Applications in Agriculture, Food, and Natural Resources: (5)(A); Mathematics for Medical Professionals: (3)(B), (6)(A)-(B); Robotics II: (8)(F)-(G), (8)(I); Statistics and Business Decision Making: (6)(A)-(B), (7)(B)-(C); Principles of Technology: (4)(F), (12)(D), (13)(D); Engineering Science: (12)(E); Biotechnology I: (7)(C); Biotechnology II: (4)(G); Scientific Research and Design: (4)(G); Securities and Investments: (4)(A-E); Banking and Financial Services: (9)(B); Accounting I: (10)(C)(E), (11)(C-E), Financial Analysis: (5)(B)-(C),(6)(B); Welding II: (3)(E)	Robotics Programming and Design: (5)(E), (7)(R)
I.A.2. Define and give examples of complex numbers.	Algebra II: (7)(A)			
B. Number operations				
I.B.1. Perform computations with real and complex numbers.	Kindergarten: (2)(I), (3)(A)-(C) Grade 1: (3)(A)-(F), (4)(C), (5)(B), (5)(F)-(G) Grade 2: (2)(A)-(B), (4)(A)-(D), (7)(A), (7)(C), (5)(A), (10)(C), (11)(A) Grade 3: (2)(A), (3)(D), (4)(A)-(K), (5)(B), (5)(D), (6)(C)-(D), (7)(B)-(C), (8)(B) Grade 4: (3)(A), (3)(E)-(F), (4)(A)-(F), (4)(H), (5)(D), (7)(E), (8)(B)-(C), (10)(B) Grade 5: (2)(A), (3)(B)-(L), (4)(B), (4)(E), (4)(G), (6)(B), (7), (10)(F), Grade 6: (3)(A)-(B), (3)(D)-(E), (3)(H), (5)(B), (7)(A), (8)(D), (9)(B), (13)(C), (14)(C) Grade 7: (3)(A)-(B), (4)(B)-(E), (5)(C), (6)(B)-(I), (9)(A)-(D), (11)(A)-(C), (13)(A)-(B), (13)(D)-(E) Geometry: (2)(A), (13)(A) Mathematical Models with Applications: (8)(A) Algebra II: (7)(A) Advanced Quantitative Reasoning: (2)(E) Precalculus: (5)(C), (5)(E) Statistics: (6)(C)-(D) Algebraic Reasoning: (2)(D), (5)(A)-(E)	Grade 6: (6)(B), (8)(C) Grade 8: (5)(F), (6)(A) Aquatic Science: (2)(I) Chemistry: (2)(G), (6)(C)-(D), (8)(B)-(E), (9)(A)-(B), (10)(C)-(D), (10)(I), (11)(C)-(D) Earth and Space Science: (7)(B), (10)(D) Environmental Systems: (2)(J), (7)(B) Integrated Physics and Chemistry: (4)(A)-(B) Physics: (2)(L), (3)(F), (4)(D)-(E), (5)(B)-(C), (5)(F), (6)(A), (6)(C)-(D)	Accounting II: (1)(B), (1)(E), (3)(C)-(D), (3)(F), (3)(I), (4)(C)-(G), (4)(I), (5)(B), (5)(D)-(F), (5)(I), (5)(K)-(P), (6)(D)(i)-(iii), (6)(E)(iii), (6)(E)(v)-(vi), (6)(G)(iii)-(iv), (6)(H), (6)(K)(i)-(iii), (6)(K)(vi)-(vii); Applied Mathematics for Technical Professionals: (2)(A), (2)(D), (2)(F)-(H), (3)(B)-(H), (4)(A), (4)(E)-(F), (5)(A)-(B), (5)(D), (6)(B); Digital Electronics: (7)(A); Entrepreneurship: (8)(C); Forestry and Woodland Ecosystems: (4)(A); Advanced Marketing: (16)(A), (16)(C), (20)(A); Basic Collision Repair and Refinishing: (3)(C); Collision Repair: (2)(D), (5)(D), (10)(K)-(M); Paint and Refinishing: (3)(C); Engineering Mathematics: (3)(A)-(D), (4)(A)-(L), (5)(A)-(B), (6)(A), (6)(C)-(D), (6)(G), (6)(I)-(L), (6)(N), (7)(A)-(B), (7)(G)-(I), (8)(A), (8)(D), (8)(G)-(H), (8)(L)-(S), (9)(A), (9)(D)-(F), (10)(A)-(D), (10)(F)-(H), (10)(J), (10)(M)-(N), (11)(B), (11)(D), (11)(F); Financial Mathematics: (3)(C), (3)(F), (3)(H)-(I), (4)(A)-(C), (4)(F)-(I), (5)(C)-(D), (6)(B), (7)(A)-(B), (7)(D), (7)(F)-(G), (8)(A)-(D), (8)(F), (9)(A)-(B), (10)(A)-(C), (10)(F), (11)(A)-(D), (12), (14), (15)(A), (17)(C), (17)(G); Manufacturing Engineering Technology II: (8)(B); Mathematical Applications in Agriculture, Food, and Natural Resources: (4)(A)-(F), (5)(F), (6)(A)-(B), (7)(A)-(C), (8)(A)-(B), (9)(A)-(B), (10)(A)-(B), (11)(A)-(C), (12)(A)-(C), (12)(E); Mathematics for Medical Professionals: (3)(A), (3)(C), (4)(D)-(F), (5)(C), (6)(F)-(G), (7)(A)-(D) ; Robotics II: (7)(A), (7)(C)-(D), (7)(G)-(I), (8)(E), (8)(G), (9)(B); Statistics and Business Decision Making: (10)(A), (11)(B), (12)-(14), (15)(A), (16)(D), (16)(F), (18)-(19), (20)(B)-(C), (21); Principles of Technology: (8)(B), (9)(B)-(C), (9)(G), (10)(B)-(C), (12)(C); Robotic II: (7)(H)-(I); Engineering Science: (7)(D), (7)(F), (8)(B)-(D), (9)(G), (10)(A), (10)(D), (10)(G)-(J), (11)(B), (12)(D), (14)(C), (14)(E)-(F), (15)(A)-(H), (16)(A)-(D); Biotechnology I: (3)(F), (11)(C); Biotechnology II: (14)(C); Diversified Manufacturing II: (9)(A); Metal Fabrication and Machining II: (3)(C), (8)(A); Introduction to Welding: (5)(A), (5)(E)-(F); Welding I: (3)(B), (3)(G)-(I); Welding II: (3)(A); Small Engine Technology I: (5)(D), (6)(A)(C)-(E); Small Engine Technology II: (5)(C), (7)(A)(E)-(G); Automotive Basics: (3)(C); Automotive Technology I: Maintenance and Light Repair: (2)(C); Aircraft Airframe Technology: (5)(A), (5)(F); Aircraft Powerplant Technology: (5)(B), (7)(D);	Discrete Mathematics for Computer Science: (2)(D), (4)(L)-(N), (6)(B), (6)(H)-(K), (6)(M) Robotics Programming and Design: (5)(B), (7)(I), (7)(L)-(M), (7)(R)
C. Number sense and number concepts				
I.C.1. Use estimation to check for errors and reasonableness of solutions.	Kindergarten - Grade 12: (1)(B)-(C)Grade 2: (9)(E)Grade 3: (4)(B)Grade 4: (2)(D), (3)(F), (4)(G)Grade 5: (3)(A), (8)(A)Grade 8: (2)(B)Algebra I: (3)(G)Algebra II: (3)(D), (3)(G), (4)(G), (5)(E), (6)(J)Advanced Quantitative Reasoning: (2)(A), (2)(H)Statistics: (6)(H), (6)(J), (7)(C), (7)(E)-(F)Algebraic Reasoning: (7)(C)		Accounting II: (2)(B)-(C); Applied Mathematics for Technical Professionals: (1)(B)-(C), (2)(D), (5)(F); Digital Electronics: (2)(B)-(C); Engineering Mathematics: (2)(B)-(C), (6)(H), (11)(A), (11)(E)-(F); Financial Mathematics: (2)(B)-(C), (10)(B)-(C); Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(B)-(C); Mathematics for Medical Professionals: (2)(B)-(C), (3)(E); Statistics and Business Decision Making: (2)(B)-(C); Practicum in Marketing: (6)(E); Principles of Technology: (3H); Engineering Design and Presentation I: (8)(B); Engineering Design and Presentation II: (8)(B); Engineering Design and Problem Solving: (3)(F), (5)(I), (11)(A)-(F); Engineering Science: (3)(F); Biotechnology I: (3)(F); Biotechnology II: (3)(F); Scientific Research and Design: (3)(F); Metal Fabrication and Machining II: (3)(C); Metal Fabrication and Machining II: (8)(A); Introduction to Welding: (5)(A); Welding I: (3)(B); Welding II: (3)(A), (3)(G); Dollars and Sense: (3)(C), (3)(L)	Robotics Programming and Design: (1)(B)-(C)

II. Algebraic Reasoning				
A. Expressions and equations				
II.A.1. Explain and differentiate between expressions and equations using words such as "solve," "evaluate," and "simplify."	Grade 1: (5)(E) Grade 5: (4)(F) Grade 6: (7)(B), (10)(A)-(B) Grade 8: (5)(E), (7)(A)-(D), (8)(C), (12)(A)-(B), (12)(D) Algebra I: (5)(A)-(C), (8)(A), (10)(A)-(D), (11)(A)-(B), (12)(B), (12)(E) Geometry: (9)(A)-(B), (11)(A)-(D), (12)(B)-(C) Algebra II: (3)(B)-(C), (3)(F), (4)(F), (4)(H), (5)(D), (6)(B), (6)(E)-(F), (6)(I), (6)(L), (7)(A)-(H) Precalculus: (5)(A), (5)(C)-(E), (5)(G)-(N) Advanced Quantitative Reasoning: (2)(C)-(E) Algebraic Reasoning: (4)(A)-(C), (5)(A)-(E), (6)(B)-(C)			
B. Manipulating expressions				
II.B.1. Recognize and use algebraic (field) properties, concepts, procedures, and algorithms to combine, transform, and evaluate expressions (e.g., polynomials, radicals, rational expressions).	Grade 5: (4)(E)-(F) Grade 6: (7)(A), (7)(C)-(D) Algebra I: (3)(B), (3)(E), (5)(A), (6)(B)-(C), (7)(B)-(C), (10)(A)-(F), (11)(A)-(B), (12)(B), (12)(E) Algebra II: (2)(B)-(D), (4)(D), (5)(C), (7)(A)-(G) Precalculus: (5)(A), (5)(C), (5)(E)-(G), (5)(M) Advanced Quantitative Reasoning: (2)(F) Algebraic Reasoning: (3)(D)-(F), (4)(A)-(C), (5)(A)-(E)	Physics: (3)(F)	Digital Electronics: (7)(M) Mathematical Applications in Agriculture, Food, and Natural Resources: (5)(F), (6)(A)-(B), (7)(A)-(C), (8)(A)-(B), (9)(A)-(B), (10)(A)-(B), (11)(A)-(C), (12)(A)-(C), (12)(E) Mathematics for Medical Professionals: (4)(E)	
C. Solving equations, inequalities, and systems of equations				
II.C.1. Recognize and use algebraic (field) properties, concepts, procedures, and algorithms to solve equations, inequalities, and systems of linear equations.	Grade 6: (5)(A), (10)(A) Grade 8: (8)(C) Algebra I: (5)(A)-(C), (8)(A), (12)(E) Algebra II: (3)(B)-(D), (3)(F), (4)(F)-(H), (5)(D)-(E), (6)(B), (6)(E)-(F), (6)(I), (7)(A)-(H) Precalculus: (5)(H)-(N) Advanced Quantitative Reasoning: (2)(C)-(E) Algebraic Reasoning: (5)(D)-(E), (6)(B)-(C)	Chemistry (8)(D) Physics: (2)(L), (3)(F)	Applied Mathematics for Technical Professionals: (2)(C)-(D) Mathematical Applications in Agriculture, Food, and Natural Resources: (4)(A)-(F), (5)(F), (6)(A)-(B), (7)(A)-(C), (8)(A)-(B), (8)(A)-(B), (10)(A)-(B), (11)(A)-(C), (12)(A)-(C), (12)(E) Mathematics for Medical Professionals: (4)(D)-(E) Construction Management II: (18)(B) Principles of Technology: (3)(J), (3)(L), (4)(E), (5)(H), (5)(K), (8)(A) Biotechnology II: (3)(I), (4)(G), (10)(A); Scientific Research and Design: (3)(I), (4)(G), (10)(A)	
II.C.2. Explain the difference between the solution set of an equation and the solution set of an inequality.	Grade 6: (10)(B) Grade 7: (11)(A) Algebra I: (3)(F)-(H), (5)(A)-(C), (8)(A) Algebra II: (3)(B)-(C), (3)(F)-(G), (4)(F), (4)(H), (6)(E)-(F), (6)(I) Precalculus: (5)(J)-(L)			
D. Representations				
II.D.1. Interpret multiple representations of equations and relationships.	Kindergarten - Grade 12: (1)(D) Grade 4: (5)(B) Grade 5: (4)(B)-(D) Grade 6: (4)(A), (8)(B)-(C), (9)(A) Grade 7: (4)(A)-(C), (7) Grade 8: (5)(F), (5)(H), (6)(A)-(C), (8)(B) Algebra I: (2)(B)-(I), (3)(A)-(C), (7)(A)-(B) Algebra II: (2)(A), (2)(C), (4)(B) Precalculus: (2)(H)-(I), (4)(A)-(C), (4)(J) Statistics: (7)(A)-(B) Algebraic Reasoning: (2)(A)-(D), (3)(A)-(F), (6)(B)-(C), (7)(D)-(E)	Grade 6: (8)(D) Grade 7: (7)(A) Grade 8: (6)(A), (6)(C),	Accounting II: (2)(D); Applied Mathematics for Technical Professionals: (1)(D), (6)(A), (6)(D), (7)(D); Digital Electronics: (2)(D); Engineering Mathematics: (2)(D), (3)(B), (4)(C), (4)(G), (11)(C)-(D); Financial Mathematics: (2)(D); Manufacturing Engineering Technology II: (2)(D); Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(D), (4)(F), (5)(F), (6)(B), (7)(B), (8)(A), (9)(A), (10)(A), (11)(B), (12)(B); Mathematics for Medical Professionals: (2)(D), (4)(A)-(C); Robotics II: (2)(D); Statistics and Business Decision Making: (2)(D); Entrepreneurship (8)(D); Principles of Technology: (3)(J), (3)(L), (4)(E), (5)(H), (5)(K), (8)(A); Biotechnology II: (3)(I), (4)(G), (10)(A); Scientific Research and Design: (3)(I), (4)(G), (10)(A)	Robotics Programming and Design: (1)(D)
II.D.2. Translate among multiple representations of equations and relationships.	Kindergarten - Grade 12: (1)(D) Grade 6: (6)(B)-(C) Grade 7: (4)(A), (7) Grade 8: (5)(A)-(B), (5)(I), (8)(A)-(C), (9) Algebra I: (2)(B)-(I), (3)(A)-(C), (6)(B), (12)(C)-(D) Algebra II: (2)(A)-(B), (3)(A), (3)(E), (5)(B), (6)(D), (6)(H), (6)(L), (8)(B), Precalculus: (3)(A)-(B), (3)(E), (3)(H)-(I), (4)(I), (5)(D), (5)(F)-(G) Algebraic Reasoning: (2)(C)-(D)	Physics: (2)(J), (2)(L), (3)(F)	Accounting II: (2)(D); Applied Mathematics for Technical Professionals: (1)(D), (6)(A); Digital Electronics: (2)(D); Engineering Mathematics: (2)(D); Financial Mathematics: (2)(D); Manufacturing Engineering Technology II: (2)(D); Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(D); Mathematics for Medical Professionals: (2)(D); Robotics II: (2)(D); Statistics and Business Decision Making: Principles of Technology: (3)(J), (3)(L), (4)(E), (5)(H), (5)(K), (8)(A), Biotechnology II: (3)(I), (4)(G), (10)(A); Scientific Research and Design: (3)(I), (4)(G), (10)(A)	Robotics Programming and Design: (1)(D)

III. Geometric Reasoning				
A. Figures and their properties				
III.A.1. Identify and represent the features of plane and space figures.	Kindergarten: (6)(A)-(F) Grade 1: (6)(A)-(H) Grade 2: (8)(A)-(E) Grade 3: (6)(A)-(B) Grade 4: (6)(A)-(D) Grade 5: (5) Grade 6: (8)(D) Geometry: (10)(A), (12)(E) Precalculus: (3)(F)-(I)	Chemistry (7)(E) Physics: (3)(F)	Applied Mathematics for Technical Professionals: (3)(A), (3)(I)-(K), (7)(A)-(C) Robotics II: (7)(B), (7)(I)-(K) Precision Metal Manufacturing I: (3)(D) Precision Metal Manufacturing II: (6)(B), (9)(K), (10)(F), (10)(K) Precision Metal Manufacturing II Lab: (5)(K) Welding I: (3)(L), (5)(B) Small Engine Technology I: (6)(C), (7)(B) Small Engine Technology II: (7)(E), (8)(B);	Robotics Programming and Design: (4)(B), (4)(D), (5)(A)-(B), (7)(G)-(I), (7)(L), (7)(N)-(O)
III.A.2. Make, test, and use conjectures about one-, two-, and three-dimensional figures and their properties.	Kindergarten: (7)(A)-(B) Grade 6: (8)(A)-(B) Grade 7: (5)(A)-(B), (8)(A)-(C) Grade 8: (6)(B), (8)(D) Geometry: (7)(A)-(B), (8)(A)-(B), (9)(A)-(B), (10)(B), (12)(A)-(E) Precalculus: (4)(A)-(C), (4)(J) Mathematical Models with Applications: (7)(B), (7)(D)	Astronomy: (8)(A) Earth and Space Science: (14)(A) Integrated Physics and Chemistry: (6)(B) Physics: (4)(B)-(F)	Engineering Mathematics: (3)(C), (4)(D), (4)(G), (6)(A), (6)(K)-(O), (8)(D) Mathematical Applications in Agriculture, Food, and Natural Resources: (7)(C), (8)(A)-(B), (9)(B), (10)(A)-(B), (11)(A)-(C), (12)(C), (12)(E) Robotics II: (7)(B), (7)(I)-(K), (9)(A)-(C) Principles of Technology: (8)(A) Precision Metal Manufacturing II: (12)(A)-(C) Precision Metal Manufacturing II Lab: (7)(A)-(C)	Robotics Programming and Design: (4)(B), (4)(D), (5)(A)-(B), (7)(G)-(I), (7)(J), (7)(L), (7)(N)-(O), (7)(Q), (7)(S)
III.A.3. Recognize and apply right triangle relationships including basic trigonometry.	Grade 8: (6)(C), (7)(C)-(D) Geometry: (7)(A)-(B), (9)(A)-(B) Precalculus: (2)(O)-(P), (4)(E)-(H) Mathematical Models with Applications: (6)(C)-(D), (7)(B), (7)(D) Advanced Quantitative Reasoning: (2)(D)	Physics: (4)(D)	Applied Mathematics for Technical Professionals: (3)(C)-(D), (3)(F)-(G) Engineering Mathematics: (4)(C), (5)(A)-(B) Mathematical Applications in Agriculture, Food, and Natural Resources: (7)(C), (8)(B) ; Masonry Technology II: (2)(D) Precision Metal Manufacturing II: (11)(A)-(C) Precision Metal Manufacturing II Lab: (6)(A)-(C) Welding I: (3)(K) Welding II: (3)(F)	
B. Transformations and symmetry				
III.B.1. Identify and apply transformations to figures.	Grade 8: (3)(A)-(C), (10)(A)-(D) Geometry: (3)(A)-(C), (6)(C), (7)(A)-(B), (8)(A)-(B), (9)(A)-(B), (10)(B) Mathematical Models with Applications: (6)(A)-(B), (7)(B), (7)(D)	Astronomy: (8)(A) Earth and Space Science: (14)(A) Physics: (7)(E)	Robotics II: (7)(H)-(K)	Robotics Programming and Design: (4)(B), (5)(A)-(B), (7)(L), (7)(O)-(P)
III.B.2. Identify the symmetries of a plane figure.	Grade 4: (6)(B)Geometry: (3)(D)Precalculus: (2)(D)			
III.B.3. Use congruence transformations and dilations to investigate congruence, similarity, and symmetries of plane figures.	Grade 8: (3)(A)-(C), (4)(A), (10)(A)-(D) Geometry: (3)(A)-(C), (6)(C), (7)(A)-(B), (8)(A)-(B), (9)(A)-(B), (10)(B) Mathematical Models with Applications: (6)(A)-(B), (7)(B), (7)(D) Advanced Quantitative Reasoning: (2)(D), (2)(F)			
C. Connections between geometry and other mathematical content strands				
III.C.1. Make connections between geometry and algebra.	Grade 4: (5)(C), (7)(E) Grade 5: (4)(A), (4)(G), (6)(A)-(B), (8) (A)-(C) Grade 6: (8)(A), (8)(C), (10)(A) Grade 7: (8)(A)-(C), (11)(C) Grade 8: (3)(B)-(C), (4)(A), (8)(D), (10)(A)-(D) Geometry: (2)(A)-(C), (3)(A)-(D), (7)(A)-(B), (8)(B), (10)(B), (12)(A)-(E) Precalculus: (3)(H)-(I), (4)(A)-(C), (4)(J) Mathematical Models with Applications: (6)(B)-(D), (7)(A)-(D) Advanced Quantitative Reasoning: (2)(C)-(D), (2)(F)	Physics: (3)(F), 4(B)-(F),	Applied Mathematics for Technical Professionals: (3)(A)-(H), (4)(D), (4)(F) Engineering Mathematics: (3)(A)-(D), (4)(A)-(M), (5)(A)-(B), (6)(A), (6)(C)-(H), (6)(J)-(O), (8)(A)-(S), (9)(A)-(H), (10)(B)-(N), (11)(A)-(F) Mathematical Applications in Agriculture, Food, and Natural Resources: (4)(E)-(F), (7)(A), (7)(C), (8)(A)-(B), (9)(B), (10)(A)-(B), (11)(A)-(C), (12)(A), (12)(C), (12)(E); Mathematics for Medical Professionals: (7)(A)-(D) Robotics II: (7)(A)-(E), (7)(G)-(K), (11)(D), (12)(D)-(E) Principles of Technology: (3)(J), (3)(L), (4)(E), (5)(H), (5)(K), (8)(A) Biotechnology II: (3)(I), (4)(G), (10)(A) Scientific Research and Design: (3)(I), (4)(G), (10)(A)	Robotics Programming and Design: (4)(B), (5)(A)-(B), (7)(B), (7)(L), (7)(O)-(P)
III.C.2. Make connections between geometry, statistics, and probability.	Grade 8: (11)(A) Algebra I: (4)(C), (8)(B) Algebra II: (8)(A)-(C) Geometry: (13)(B)		Applied Mathematics for Technical Professionals: (6)(C); Mathematical Applications in Agriculture, Food, and Natural Resources: (8)(C), (10)(C), (11)(D), (12)(D); Mathematics for Medical Professionals: (4)(A); Statistics and Business Decision Making: (10)(C), (12)-(13), (16)(G)-(H); Engineering Design and Problem Solving: (3)(G); Engineering Science: (3)(G); Biotechnology I: (3)(H), (13)(B); Biotechnology II: (3)(G), (8)(G), (10)(B), (13)(B); Scientific Research and Design: (3)(G), (8)(G), (10)(B)	
III.C.3. Make connections between geometry and measurement.	Grade 4: (7)(E), (8)(C) Grade 5: (6)(A)-(B) Grade 6: (8)(B) Grade 7: (8)(A)-(C) Grade 8: (7)(B)-(D), (8)(D), (10)(D) Geometry: (7)(B), (8)(A)-(B), (9)(A)-(B), (10)(B), (12)(B)-(C) Advanced Quantitative Reasoning: (2)(A), (2)(D)		Applied Mathematics for Technical Professionals: (4)(A)-(F); Engineering Mathematics: (3)(A)-(D), (4)(A)-(M), (5)(A)-(B), (6)(A), (6)(C)-(H), (6)(J)-(O), (7)(G)-(H), (8)(A)-(S), (9)(A)-(H), (10)(A)-(N), (11)(A)-(F); Mathematical Applications in Agriculture, Food, and Natural Resources: (4)(B), (4)(E), (7)(A)-(C), (8)(A)-(B), (9)(B), (10)(A)-(B), (11)(A)-(C), (12)(A), (12)(C), (12)(E); Mathematics for Medical Professionals: (7)(A)-(D); Robotics II: (7)(A)-(E), (7)(G)-(K), (9)(B)-(C), (11)(D), (12)(D)-(F); HVAC Technology I: (3)(B); Principles of Technology: (3)(J), (3)(L), (4)(E), (5)(H), (5)(K), (8)(A); Biotechnology II: (3)(I), (4)(G), (10)(A); Scientific Research and Design: (3)(I), (4)(G), (10)(A); Small Engine Technology I: (6)(C); Small Engine Technology II: (7)(E)	Robotics Programming and Design: (4)(B), (5)(A)-(B), (7)(B), (7)(J), (7)(L), (7)(O)-(P), (7)(S)

D. Logic and reasoning in geometry				
III.D.1. Make and validate geometric conjectures.	Kindergarten: (6)(E) Grade 6: (8)(A) Grade 8: (6)(B), (8)(D) Geometry: (4)(B)-(C), (5)(A), (5)(D), (6)(A)-(B), (6)(D)-(E), (7)(A)-(B), (8)(A)-(B), (9)(A)-(B), (12)(A)-(D) Mathematical Models with Applications: (6)(A)	Astronomy: (8)(A) Earth and Space Science: (14)(A)		
III.D.2. Understand that Euclidean geometry is an axiomatic system.	Grade 4: (6)(A) Grade 6: (8)(A) Geometry: (4)(A), (4)(D), (5)(A)-(D), (6)(A)-(B), (6)(D)-(E), (7)(A), (12)(A)			
IV. Measurement Reasoning				
A. Measurement involving physical and natural attributes				
IV.A.1. Select or use the appropriate type of unit for the attribute being measured.	Kindergarten: (7)(A) Grade 1: (7)(A)-(E) Grade 2: (9)(A)-(B), (9)(D), (9)(F)-(G) Grade 3: (7)(E) Grade 4: (7)(B)-(C), (8)(A) Grade 5: (6)(A)-(B) Grade 8: (10)(D) Geometry: (10)(B), (12)(D) Advanced Quantitative Reasoning: (2)(A)	Integrated Physics and Chemistry: (2)(C)	Applied Mathematics for Technical Professionals: (4)(A)-(B) , (4)(D)-(F); Engineering Mathematics: (3)(A)-(D), (4)(A)-(M), (5)(A)-(B), (6)(A), (6)(C)-(H), (6)(J)-(O), (7)(F)-(G), (8)(A)-(S), (9)(A)-(H), (10)(B)-(N), (11)(A)-(F); Mathematical Applications in Agriculture, Food, and Natural Resources: (4)(B), (4)(E)-(F), (5)(F), (7)(A), (7)(C), (8)(A)-(B), (9)(B), (10)(A)-(B), (11)(A)-(C), (12)(A)-(C), (12)(E); Mathematics for Medical Professionals: (5)(A)-(F); Robotics II: (7)(F)-(K), (8)(G); Forestry and Woodland Ecosystems: (4)(A)(D); (6)(D); Principles of Technology: (3)(H), (5)(F); AC/DC Electronics: (6)(F)-(G); Engineering Design and Presentation II: (5)(F); Engineering Design and Problem Solving: (5)(J); Principles of Manufacturing: (3)(E); Diversified Manufacturing I: (10)(E); Diversified Manufacturing II: (11)(E); Precision Metal Manufacturing I: (3)(B), (3)(D)-(E); Small Engine Technology I: (9)(G)-(H); Small Engine Technology II: (10)(H)-(I);	Robotics Programming and Design: (5)(A)-(B), (7)(G)-(I), (7)(L)-(P)
B. Systems of measurement				
IV.B.1. Convert from one measurement system to another.	Grade 7: (4)(E) Geometry: (12)(D)		Applied Mathematics for Technical Professionals: (4)(A), (4)(E) Engineering Mathematics: (3)(A); Mathematical Applications in Agriculture, Food, and Natural Resources: (4)(B), (5)(F), (7)(A), (12)(A); Mathematics for Medical Professionals: (5)(C) ; HVAC Tech I: (3)(A), (3)(C); Precision Metal Manufacturing I: (3)(B); Introduction to Welding: (5)(G); Welding I: (3)(J);	
IV.B.2. Convert within a single measurement system.	Grade 4: (8)(B) Grade 5: (7) Grade 6: (4)(H)	Grade 8: (8)(D) Astronomy: (6)(E) Chemistry: (2)(G) Environmental Systems: (2)(F)	Applied Mathematics for Technical Professionals: (4)(A), (4)(E) Engineering Mathematics: (8)(H); Mathematical Applications in Agriculture, Food, and Natural Resources: (4)(B), (4)(D), (5)(F), (7)(A), (12)(A); Mathematics for Medical Professionals: (5)(C) ; Precision Metal Manufacturing I: (3)(B);	
C. Measurement involving geometry and algebra				
IV.C.1. Find the perimeter and area of two-dimensional figures.	Grade 2: (9)(F) Grade 3: (6)(C)-(E), (7)(B) Grade 4: (5)(C)-(D) Grade 5: (4)(H) Grade 6: (8)(D) Grade 7: (9)(B)-(C) Grade 8: (10)(D) Geometry: (10)(B), (11)(A)-(B), (12)(B)-(C) Precalculus: (4)(A)-(C)		Applied Mathematics for Technical Professionals: (3)(B), (3)(D)-(E), (3)(H) Engineering Mathematics: (6)(A), (10)(D), (10)(G), (10)(J), (10)(M)-(N) Mathematical Applications in Agriculture, Food, and Natural Resources: (4)(B), (4)(E), (5)(F), (7)(C), (9)(B), (10)(A), (11)(A)-(C), (12)(A), (12)(C), (12)(E); Agricultural Mechanics and Metal Technology: (11)(E); Engineering Science: (11)(B); Diversified Manufacturing II: (2)(C); Metal Fabrication and Machining I: (2)(C), (7)(A); Metal Fabrication and Machining II: (3)(E), (8)(B); Precision Metal Manufacturing I: (3)(B), (3)(E); Welding II: (3)(D)	
IV.C.2. Determine the surface area and volume of three-dimensional figures.	Grade 5: (4)(H), (6)(A)-(B) Grade 7: (9)(A), (9)(D) Grade 8: (6)(A)-(B), (7)(A)-(B), (10)(D) Geometry: (10)(B), (11)(C)-(D)Mathematical Models with Applications: (6)(B), (7)(D)		Applied Mathematics for Technical Professionals: (3)(B), (3)(E), (3)(H); Engineering Mathematics: (6)(K)-(O), (8)(C)-(D), (8)(G); Mathematical Applications in Agriculture, Food, and Natural Resources: (4)(B), (4)(E), (5)(F), (7)(C), (8)(A), (9)(B), (10)(B), (11)(A)-(C), (12)(C), (12)(E); Mathematics for Medical Professionals: (7)(A)-(B); Agricultural Mechanics and Metal Technology: (11)(E); Engineering Science: (11)(B); Diversified Manufacturing I: (2)(C); Diversified Manufacturing II: (2)(C); Manufacturing Engineering Technology I: (8)(B); Metal Fabrication and Machining I: (2)(C), (7)(A); Metal Fabrication and Machining II: (3)(E), (8)(B); Precision Metal Manufacturing I: (3)(B), (3)(E); Welding II: (3)(D); Small Engine Technology I: (6)(C); Small Engine Technology II: (7)(D)-(E)	
IV.C.3. Determine indirect measurements of figures using scale drawings, similar figures, the Pythagorean Theorem, and basic trigonometry.	Grade 6: (5)(A), (8)(A) Grade 7: (5)(A), (5)(C) Grade 8: (3)(A), (6)(C), (7)(C)-(D) Geometry: (5)(A), (5)(D), (9)(B), (10)(B) Precalculus: (4)(E)-(I), (4)(K) Mathematical Models with Applications: (6)(C)-(D), (7)(A) Advanced Quantitative Reasoning: (2)(D)		Applied Mathematics for Technical Professionals: (3)(G)-(H), (4)(D), (4)(F) Engineering Mathematics: (4)(C), (5)(A)-(B) Mathematical Applications in Agriculture, Food, and Natural Resources: (7)(C), (8)(B) Agricultural Mechanics and Metal Technology: (11)(E) Masonry Technology II: (2)(D) Diversified Manufacturing I: (2)(C)	
D. Measurement involving statistics and probability				
IV.D.1. Compute and use measures of center and spread to describe data.	Grade 6: (12)(B), (13)(B) Grade 7: (12)(A) Grade 8: (11)(B) Mathematical Models with Applications: (9)(B) Advanced Quantitative Reasoning: (4)(K), (4)(P) Statistics: (4)(B)-(E)	Aquatic Science: (2)(F) Environmental Systems: (2)(F)	Engineering Mathematics: (4)(D), (11)(B), (11)(D) Mathematical Applications in Agriculture, Food, and Natural Resources: (4)(C), (5)(E), (6)(C) Mathematics for Medical Professionals: (6)(C)-(D) Statistics and Business Decision Making: (10)(A)-(C), (14)(A)-(C), (15)(A), (16)(F)-(H), (17)-(19) Engineering Science: (15)(F) Biotechnology I: (3)(F)	

IV.D.2. Apply probabilistic measures to practical situations to make an informed decision.	Grade 7: (6)(B)-(D), (6)(F), (6)(H) Grade 8: (11)(C) Mathematical Models with Applications: (9)(B) Advanced Quantitative Reasoning: (4)(D)-(F), (4)(H)-(K), (4)(Q)-(S) Statistics: (4)(C), (4)(E)-(F), (5)(D), (6)(C)-(F), (6)(I)-(J)		Mathematics for Medical Professionals: (6)(C)-(G); Statistics and Business Decision Making: (12)-(13); Engineering Science: (15)(A), (15)(D)-(E) Business Information Management II: (7)(B)	
V. Probabilistic Reasoning				
A. Counting principles				
V.A.1. Determine the nature and the number of elements in a finite sample space.	Grade 7: (6)(A) Geometry: (13)(A) Mathematical Models with Applications: (8)(A) Advanced Quantitative Reasoning: (2)(E)		Statistics and Business Decision Making: (9), (11)(A)	Discrete Mathematics for Computer Science: (1)(C), (2)(D), (4)(N), (6)(B), (6)(H), (6)(M)
B. Computation and interpretation of probabilities				
V.B.1. Compute and interpret the probability of an event and its complement.	Grade 7: (6)(C)-(E), (6)(I) Geometry: (13)(B)-(E) Advanced Quantitative Reasoning: (4)(C) Statistics: (5)(A)-(B)		Statistics and Business Decision Making: (11)(B) Engineering Science: (15)(D)-(E)	Discrete Mathematics for Computer Science: (1)(C), (4)(N), (6)(J)-(K)
V.B.2. Compute and interpret the probability of conditional and compound events.	Grade 7: (6)(C)-(E), (6)(I) Geometry: (13)(C)-(E) Advanced Quantitative Reasoning: (4)(A)-(F) Statistics: (5)(A)-(B)		Statistics and Business Decision Making: (11)(B) Engineering Science: (15)(D)-(E)	Discrete Mathematics for Computer Science: (1)(C), (4)(K), (4)(N), (6)(J)-(K)
VI. Statistical Reasoning				
A. Data collection				
VI.A.1. Plan a study.	Kindergarten - Grade 12: (1)(B)Mathematical Models with Applications: (9)(C), (10)(A)Advanced Quantitative Reasoning: (4)(K)-(O), (4)(S) Statistics: (2)(A)-(G)	Aquatic Science: (2)(E)Astronomy: (2)(E)Biology: (2)(E)Chemistry: (2)(E)Environmental Systems: (2)(E)Integrated Physics and Chemistry: (2)(B)Physics: (2)(E)	Accounting II: (2)(B), (8)(A); Applied Mathematics for Technical Professionals: (1)(B); Digital Electronics: (2)(B); Engineering Mathematics: (2)(B); Financial Mathematics: (2)(B); Manufacturing Engineering Technology II: (2)(B); Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(B); Mathematics for Medical Professionals: (2)(B), (6)(H); Robotics II: (2)(B); Statistics and Business Decision Making: (2)(B), (8)(A)-(E); AC/DC Electronics: (4)(D); Engineering Science: (3)(E); Biotechnology I: (3)(E); Biotechnology II: (3)(E); Scientific Research and Design: (3)(E)	Robotics Programming and Design: (1)(B)
B. Describe data				
VI.B.1. Determine types of data.	Grade 5: (9)(A)-(B) Grade 6: (13)(B) Advanced Quantitative Reasoning: (4)(L)-(N) Statistics: (2)(D), (4)(A)	Integrated Physics and Chemistry: (4)(B) Physics: (2)(L)	Mathematical Applications in Agriculture, Food, and Natural Resources: (6)(D), (7)(D), (8)(C), (9)(C), (10)(C), (11)(D), (12)(D); Statistics and Business Decision Making: (9); Principles of Technology: (3)(F); Engineering Design and Problem Solving: (3)(F); Engineering Science: (3)(F); Scientific Research and Design: (3)(F); Principles of Information Technology: (9)(D); Business Information Management I: (7)(D)	
VI.B.2. Select and apply appropriate visual representations of data.	Kindergarten: (8)(B) Grade 1: (8)(B) Grade 2: (10)(B) Grade 3: (8)(A) Grade 4: (9)(A) Grade 5: (9)(A)-(B) Grade 6: (12)(A) Grade 8: (11)(A) Mathematical Models with Applications: (10)(B) Advanced Quantitative Reasoning: (3)(A), (4)(P)-(R), (4)(T) Statistics: (2)(F)	Grades 6 - 8: (3)(C) Aquatic Science: (2)(J) Biology: (2)(H) Chemistry: (2)(I) Earth and Space Science: (2)(I) Environmental Systems: (2)(K) Integrated Physics and Chemistry: (2)(E), (3)(B), (4)(B) Physics: (2)(J)-(L), (4)(A)-(F), (6)(D)	Accounting II: (1)(A), (4)(I); Digital Electronics: (1)(C); Engineering Mathematics: (1)(C); Financial Mathematics: (1)(A), (6)(F); Manufacturing Engineering Technology II: (1)(F); Mathematical Applications in Agriculture, Food, and Natural Resources: (5)(D); Mathematics for Medical Professionals: (1)(A); Robotics II: (1)(J); Statistics and Business Decision Making: (1)(A), (7)(D), (9); Principles of Technology: (3)(J)-(K), (5)(H), (5)(J); Engineering Design and Problem Solving: (3)(H); Engineering Science: (3)(H); Scientific Research and Design: (3)(J), (10)(A); Principles of Information Technology: (5)(D); Business Information Management I: (9)(A)-(C), (11)(C)	
VI.B.3. Compute and describe summary statistics of data.	Grade 2, (10)(C) Grade 3: (8)(A)-(B) Grade 4: (9)(B) Grade 5: (9)(C) Grade 6: (12)(C)-(D), (13)(A) Grade 7: (6)(G), (12)(A) Mathematical Models with Applications: (9)(B), (9)(D) Advanced Quantitative Reasoning: (4)(I), (4)(K), (4)(P) Statistics: (4)(E), (5)(C)-(D)	Aquatic Science: (2)(F)Environmental Systems: (2)(F)	Engineering Mathematics: (11)(B), (11)(D) Mathematical Applications in Agriculture, Food, and Natural Resources: (4)(C), (5)(E) Mathematics for Medical Professionals: (6)(C)-(G) Statistics and Business Decision Making: (10)(A)-(B), (14)(A)-(C), (15)(A), (16)(E); Engineering Science: (15)(F) Biotechnology I: (3)(F) Engineering Mathematics: (11)(B), (11)(D) Diversified Manufacturing I: (10)(B) Business Information Management I: (11)(A) Food Science: (3)(E),(H), (6)(F)	
VI.B.4. Describe patterns and departure from patterns in a set of data.	Grade 4: (5)(B) Grade 5: (4)(D), (9)(B)-(C) Grade 8: (5)(C), (11)(A) Algebra I: (4)(A) Algebra II: (8)(A) Mathematical Models with Applications: (2)(C), (8)(C), (9)(A)-(B), (9)(E)-(F) Advanced Quantitative Reasoning: (3)(B), (4)(P)-(S) Statistics: (4)(C), (7)(A), (7)(C), (7)(E)-(F)	Grades 6 - 8: (2)(D) Aquatic Science: (2)(H) Astronomy: (2)(G), (9)(B) Biology: (2)(G) Chemistry: (2)(H) Earth and Space Science (2)(G) Environmental Systems: (2)(I) Integrated Physics and Chemistry: (2)(D), (7)(F) Physics: (2)(J), (2)(L), (3)(A), (3)(F)	Accounting II: (8)(A) Applied Mathematics for Technical Professionals: (6)(C) Engineering Mathematics: (11)(B), (11)(D) Financial Mathematics: (6)(F) Mathematical Applications in Agriculture, Food, and Natural Resources: (4)(B), (4)(G), (5)(B), (6)(D), (7)(D), (8)(C), (9)(C), (10)(C), (11)(D), (12)(D) Mathematics for Medical Professionals: (3)(C), (4)(A) Statistics and Business Decision Making: (7)(A), (16)(F)-(H), (17)-(19), (20)(A)-(C), (21), (22)(A)-(D) Engineering Science: (15)(F) Biotechnology I: (3)(F) Business Information Management I: (11)(A)	

C. Read, analyze, interpret, and draw conclusions from data				
VI.C.1. Make predictions and draw inferences using summary statistics.	Kindergarten: (8)(C) Grade 1: (8)(C) Grade 2: (10)(D) Grade 6: (12)(C)-(D) Grade 7: (6)(F), (12)(B)-(C) Grade 8: (11)(C) Mathematical Models with Applications: (8)(C), (9)(B), (9)(D)-(F), (10)(A) Advanced Quantitative Reasoning: (3)(B), (4)(K), (4)(R) Statistics: (4)(D), (4)(F), (6)(I)-(J)	Grades 6-8: (2)(E), (3)(A), (3)(C) Aquatic Science: (2)(F), (2)(H), (3)(A), (3)(C) Astronomy: (2)(G), (3)(A), (3)(C) Biology: (2)(G), (3)(A), (3)(C) Chemistry: (2)(H), (3)(A), (3)(C) Earth and Space Science: (2)(G), (3)(A), (3)(C) Environmental Systems: (2)(F), (2)(I), (3)(A), (3)(C) Integrated Physics and Chemistry: (2)(D), (3)(C), (7)(F) Physics: (2)(I)-(L), (3)(A)-(C), (3)(F)	Applied Mathematics for Technical Professionals: (6)(C) Engineering Mathematics: (11)(B), (11)(D) Financial Mathematics: (6)(F); Mathematical Applications in Agriculture, Food, and Natural Resources: (4)(B)-(C), (5)(E), (6)(C), (7)(D), (8)(C), (9)(C), (10)(C), (11)(D), (12)(D) Mathematics for Medical Professionals: (6)(C), (6)(F)-(G) Statistics and Business Decision Making: (16)(E)-(H), (17)-(19), (20)(C), (21); Engineering Science: (15)(F) Biotechnology I: (3)(F)	
VI.C.2. Analyze data sets using graphs and summary statistics.	Grade 5: (9)(A)-(C) Grade 6: (12)(A), (12)(C)-(D), (13)(A) Grade 7: (12)(A)-(C) Grade 8: (11)(A) Algebra I: (4)(A) Algebra II: (8)(A) Mathematical Models with Applications: (9)(A)-(B), (9)(E), (10)(B) Advanced Quantitative Reasoning: (3)(C), (4)(P)-(R) Statistics: (4)(B), (4)(D)-(E)	Grades 6-8: (2)(E), (3)(A) Aquatic Science: (2)(F), (3)(A) Astronomy: (2)(G), (3)(A) Biology: (2)(G), (3)(A) Chemistry: (2)(H), (3)(A) Earth and Space Science: (2)(G), (3)(A), (4)(A), (5)(A), (13)(A)-(C), (14)(A), (15)(B), (15)(E) Environmental Systems: (2)(F), (2)(I), (3)(A), (4)(A), (4)(F)-(G), (5)(E), (7)(D), (8)(A), (8)(E) Integrated Physics and Chemistry: (2)(D), (7)(F) Physics: (2)(I)-(L), (3)(A)-(D), (3)(F)	Applied Mathematics for Technical Professionals: (6)(C) ; Engineering Mathematics: (11)(B)-(D); Manufacturing Engineering Technology II: (8)(C); Mathematical Applications in Agriculture, Food, and Natural Resources: (4)(B)-(C), (4)(G), (5)(B), (5)(E), (6)(C), (7)(D), (8)(C), (9)(C), (10)(C), (11)(D), (12)(D); Mathematics for Medical Professionals: (3)(C), (4)(A), (6)(C)-(G); Statistics and Business Decision Making: (7)(B), (9), (10)(B)-(C), (12)-(13), (16)(E)-(H), (17)-(19), (20)(C), (21); Engineering Design and Problem Solving: (3)(H); Engineering Science: (3)(H); Scientific Research and Design: (3)(J), (10)(A); Web Technologies: (8)(G); Business Information Management I: (10)(C-D)	
VI.C.3. Analyze relationships between paired data using spreadsheets, graphing calculators, or statistical software.	Kindergarten - Grade 12: (1)(C) Grade 8: (5)(C), (11)(A) Algebra I: (4)(A), (4)(C), (8)(B), (9)(E) Algebra II: (8)(A)Mathematical Models with Applications: (8)(C), (9)(F) Advanced Quantitative Reasoning: (3)(A), (4)(P), (4)(R) Statistics: (5)(C)-(D) Algebraic Reasoning: (2)(C)-(D)	Aquatic Science: (2)(H), (4)(C), (5)(A)-(B) Astronomy: (2)(I) Biology: (2)(F) Chemistry: (2)(E) Earth and Space Science (2)(E)-(F) Environmental Systems: (2)(G)-(H) Integrated Physics and Chemistry: (2)(D) Physics: (2)(J), (2)(L), (3)(A), (3)(F)	Accounting II: (2)(C), (8)(A)Applied Mathematics for Technical Professionals: (1)(C), (6)(C)Digital Electronics: (2)(C) Engineering Mathematics: (2)(C) Financial Mathematics: (2)(C), (4)(F), (6)(F) Manufacturing Engineering Technology II: (2)(C)Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(C), (4)(G), (5)(B), (6)(C), (7)(D), (8)(C), (9)(C), (10)(C), (11)(D), (12)(D)Mathematics for Medical Professionals: (2)(C), (4)(A)Robotics II: (2)(C) Statistics and Business Decision Making: (2)(C), (7)(C)-(D), (17)-(19), (20)(A)-(C), (21), (22)(A)-(D) Principles of Technology: (3)(J)-(K), (5)(H), (5)(J); Engineering Design and Problem Solving: (3)(H); Engineering Science: (3)(H); Scientific Research and Design: (3)(J), (10)(A); Principles of Information Technology: (8)(E)	Robotics Programming and Design: (1)(C)
VI.C.4. Recognize reliability of statistical results.	Algebra I: (4)(A) Mathematical Models with Applications: (8)(C), (9)(E) Advanced Quantitative Reasoning: (3)(B), (4)(H)-(K), (4)(O), (4)(Q)-(S) Statistics: (7)(C), (7)(E)-(F)	Aquatic Sciences: (3)(A)-(C) Astronomy: (3)(A)-(C) Biology: (3)(A)-(C) Chemistry: (3)(A)-(C) Earth and Space Science: (3)(A)-(C) Environmental Systems: (3)(A)-(C) Integrated Physics and Chemistry: (2)(D), (3)(A), (3)(C) Physics: (2)(I)-(J), (3)(A)-(C)	Mathematical Applications in Agriculture, Food, and Natural Resources: (5)(C) ; Statistics and Business Decision Making: (4)(A)-(E), (5), (7)(B) Principles of Technology: (3)(J)-(K), (5)(H), (5)(J) Engineering Design and Problem Solving: (3)(H) Engineering Science: (3)(H) Scientific Research and Design: (3)(J)	
VII. Functions				
A. Recognition and representation of functions				
VII.A.1. Recognize whether a relation is a function.	Grade 8: (5)(G) Algebra I: (12)(A)			
VII.A.2. Recognize and distinguish between different types of functions.	Grade 6: (4) Grade 8: (5)(F), (5)(H), (11)(A) Algebra II: (2)(A), (8)(A)-(B) Precalculus: (2)(F), (2)(I)-(M) Mathematical Models with Applications: (7)(A) Advanced Quantitative Reasoning: (3)(A)-(H) Statistics: (7)(A) Algebraic Reasoning: (2)(A)-(D), (3)(A)-(C), (3)(F), (4)(B), (6)(A)-(C), (7)(A)-(B), (7)(D)-(E)	Physics: (3)(F)	Applied Mathematics for Technical Professionals: (2)(B) Mathematical Applications in Agriculture, Food, and Natural Resources: (6)(B), (7)(B), (8)(A), (9)(A), (10)(A), (11)(B)	
B. Analysis of functions				
VII.B.1. Understand and analyze features of a function.	Grade 6: (6)(A) Grade 7: (7) Grade 8: (4)(A), (4)(C), (11)(A) Algebra I: (2)(A), (3)(A)-(C), (6)(A), (7)(A), (9)(A)-(B), (9)(D) Algebra II: (2)(A), (2)(C), (5)(C), (6)(K), (7)(I) Precalculus: (2)(F)-(O) Mathematical Models with Applications: (7)(A) Advanced Quantitative Reasoning: (3)(A)-(H) Statistics: (7)(A), (7)(C), (7)(E) Algebraic Reasoning: (2)(A)-(D), (3)(A)-(F), (4)(A)-(D), (7)(A)-(B), (7)(D)-(E)		Applied Mathematics for Technical Professionals: (2)(B), (2)(H), (5)(A), (6)(A), (6)(C); Financial Mathematics: (4)(F), (5)(C)-(D), (7)(A), (11)(B), (11)(D), (17)(F) Mathematical Applications in Agriculture, Food, and Natural Resources: (6)(B), (7)(B), (8)(A), (9)(A), (10)(A), (11)(B) Mathematics for Medical Professionals: (4)(A)-(C), (4)(E) Statistics and Business Decision Making: (20)(A), (22)(A)-(D)	
VII.B.2. Algebraically construct and analyze new functions.	Grade 8: (5)(E) Algebra I: (2)(D), (3)(E), (7)(C) Algebra II: (2)(B), (4)(C), (4)(E), (5)(A)-(B), (6)(A), (6)(C), (6)(G)-(H), (6)(L) Precalculus: (2)(A), (2)(C), (2)(E), (2)(G), (3)(B)-(C) Mathematical Models with Applications: (9)(F) Advanced Quantitative Reasoning: (3)(A)-(H) Statistics: (7)(B) Algebraic Reasoning: (3)(D)-(F), (4)(A)-(C)		Applied Mathematics for Technical Professionals: (5)(E) Financial Mathematics: (6)(C), (7)(A)	

C. Model real world situations with functions				
VII.C.1. Apply known function models.	Grade 8: (5)(D) Algebra I: (2)(D), (4)(C), (8)(B), (9)(B), (9)(E), (12)(D) Algebra II: (3)(A), (3)(E), (4)(E), (5)(B), (6)(D), (6)(H), (6)(L), (8)(A)Precalculus: (2)(N)-(P) Mathematical Models with Applications: (3)(A), (3)(C)-(D), (5)(A)-(C), (7)(A) Advanced Quantitative Reasoning: (3)(A), (3)(C), (3)(E)-(H) Statistics: (7)(A)-(B) Algebraic Reasoning: (2)(A)-(D), (3)(C)-(E), (5)(D)-(E), (6)(B), (7)(D)-(E)	Physics: (4)(B)-(C), (7)(B)-(C)	Applied Mathematics for Technical Professionals: (2)(B), (2)(H), (5)(A), (6)(A), (6)(C) Financial Mathematics: (4)(F), (5)(C), (7)(A), (11)(B), (11)(D) Mathematical Applications in Agriculture, Food, and Natural Resources: (5)(F), (6)(B), (7)(B), (8)(A), (9)(A), (10)(A), (11)(B) Mathematics for Medical Professionals: (4)(A)-(C), (4)(E) Statistics and Business Decision Making: (20)(A)-(C), (21), (22)(A)-(D) Engineering Science: (10)(G)-(H), (16)(C)-(D) Food Science: (8)(C)	
VII.C.2. Develop a function to model a situation.	Grade 6: (6)(C) Grade 7: (7) Grade 8: (4)(B)-(C) Algebra I: (2)(B)-(G), (4)(C), (6)(B)-(C), (9)(C), (9)(E), (12)(D) Algebra II: (4)(A)-(B), (4)(E), (5)(B), (6)(D), (6)(H), (6)(L), (8)(B) Precalculus: (2)(N)-(P), (5)(H)-(I), (5)(N) Mathematical Models with Applications: (5)(B)-(C), (7)(A), (9)(F) Advanced Quantitative Reasoning: (3)(A), (3)(C)-(H) Statistics: (7)(B)-(D) Algebraic Reasoning: (2)(C)-(D), (3)(C)-(F), (6)(B), (7)(D)-(E)	Physics: (3)(F)	Applied Mathematics for Technical Professionals: (2)(B), (2)(H), (5)(A), (6)(A), (6)(C) Financial Mathematics: (4)(F), (5)(C), (7)(A), (11)(B), (17)(F) Mathematical Applications in Agriculture, Food, and Natural Resources: (4)(F), (5)(F), (6)(C) Mathematics for Medical Professionals: (4)(A) Robotics II: (7)(H)-(K), (8)(I)-(J) Statistics and Business Decision Making: (20)(B), (21) Engineering Science: (10)(G)-(H), (13)(A)-(E); (16)(C)-(D) Principles of Information Technology: (8)(C) Precision Metal Manufacturing II: (12)(C) Precision Metal Manufacturing II Lab: (7)(C)	Robotics Programming and Design: (5)(A)-(F)
VIII. Problem Solving and Reasoning				
A. Mathematical problem solving				
VIII.A.1. Analyze given information.	Kindergarten - Grade 12: (1)(B), (1)(F) Grade 8: (5)(C)-(D), (5)(F) Algebra I: (2)(A), (3)(E), (6)(A), (9)(A), (10)(F) Algebra II: (2)(A), (2)(C), (4)(G), (5)(A), (5)(E), (6)(A), (6)(C), (6)(G), (6)(J)-(K), (8)(A) Geometry: (2)(A), (5)(A)-(D), (6)(A)-(B), (6)(D)-(E), (7)(A)-(B), (8)(A)-(B), (9)(A)-(B), (10)(B), (12)(B)-(E), Precalculus: (2)(D), (2)(I)-(L), (2)(N) Mathematical Models with Applications: (2)(C), (3)(B)-(D), (4)(A)-(C), (6)(A), (7)(A)-(D), (8)(A), (8)(C), (9)(A)-(E) Advanced Quantitative Reasoning: (2)(B), (2)(G), (3)(B)-(H), (4)(G)-(Q) Discrete Mathematics for Problem Solving: (2)(A)-(L), (3)(A)-(C), (5)(G), (5)(J), (6)(J), (7)(D)-(F) Statistics: (2)(A)-(D), (2)(G), (3)(A), (3)(C)-(D), (4)(C)-(F), (5)(B), (5)(D), (6)(E), (6)(I), (7)(A), (7)(C)-(E) Algebraic Reasoning: (2)(A), (2)(C)-(D), (3)(A)-(B), (3)(F), (4)(A)-(B), (6)(A), (7)(A)-(E)	Grades 6 - 8: (3)(A) Grade 8: (6)(A)-(C), Aquatic Science: (2)(H), (3)(A)-(B) Astronomy: (2)(G), (3)(A)-(B), (7)(A)-(B), (8)(A)-(B), (9)(A)-(B) Biology: (2)(G), (3)(A)-(B) Chemistry: (2)(H), (3)(A)-(B) Earth and Space Science: (2)(G), (3)(A)-(B), (4)(A), (5)(A), (13)(A)-(C), (14)(A), (15)(B), (15)(E) Environmental Systems: (2)(I), (3)(A), (4)(A), (4)(F)-(G), (5)(E), (7)(D), (8)(A), (8)(E) Integrated Physics and Chemistry: (2)(D), (4)(C), (4)(G), (5)(D)-(I), (6)(A)-(E), (7)(A)-(F) Physics: (2)(I)-(J), (2)(L), (3)(A)-(C), (4)(A)-(C), (4)(E)-(F), (5)(A)-(C), (5)(G)-(H), (6)(E)-(G), (7)(A), (7)(C), (7)(E)-(F), (8)(A), (8)(C)	Accounting II: (2)(B), (2)(F), (3)(A), (4)(H)-(I), (5)(B), (5)(L)-(N), (6)(B), (6)(D)(i)-(iii), (6)(E)(i)-(vi), (6)(G)(i)-(iv), (6)(H), (6)(K)(i)-(iii), (6)(K)(v), (6)(R)(i)-(vi), (8)(A); Applied Mathematics for Technical Professionals: (1)(B), (1)(F), (2)(B), (2)(D), (2)(H), (3)(E)-(F), (3)(H), (3)(J)-(K), (5)(A), (5)(C)-(E), (6)(A), (6)(C), (7)(D); Digital Electronics: (2)(B), (2)(F); Engineering Mathematics: (2)(B), (2)(F), (6)(B)-(C), (7)(C), (9)(B)-(D), (10)(B), (10)(F)-(G), (10)(I), (10)(K), (11)(B)-(E); Financial Mathematics: (2)(B), (2)(F), (3)(B)-(E), (3)(G), (3)(J)-(L), (4)(E), (4)(K), (5)(B), (5)(D)-(F), (6)(A), (6)(C)-(D), (6)(G)-(I), (7)(A), (7)(C), (7)(E), (7)(I)-(L), (8)(C)-(E), (9)(A), (9)(C)-(D), (10)(A), (10)(D)-(E); Manufacturing Engineering Technology II: (2)(B), (2)(F), (3)(B), (4)(B), (7)(B), (8)(C), (9)(C); Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(B), (2)(F), (4)(B), (4)(G), (5)(B), (6)(C), (7)(D), (8)(C), (9)(C), (10)(C), (11)(D), (12)(D); Mathematics for Medical Professionals: (2)(B), (2)(F), (3)(C), (4)(A)-(C), (4)(E), (6)(A)-(C), (7)(D); Robotics II: (2)(B), (2)(F), (6)(B), (10)(A)-(C), (10)(E)-(F), (11)(B), (12)(A), (12)(E)-(F); Statistics and Business Decision Making: (2)(B), (2)(F), (3)(A), (3)(C), (4)(A)-(E), (5), (6)(A)-(C), (7)(B); Engineering Design and Problem Solving: (4)(A); Engineering Science: (4)(A); Biotechnology I: (4)(A); Biotechnology I: (4)(A); Scientific Research and Design: (4)(A); Principles of Information Technology: (8)(E); Diversified Manufacturing I: (10)(B); Diversified Manufacturing II: (6)(B), (11)(B); Manufacturing Engineering Technology I: (8)(B); Precision Metal Manufacturing II: (7)(A), (11)(D)-(H); Small Engine Technology II: (6)(B); Business Information Management I: (10)(C)-(D); Food Science:(1)(E)(4)	Discrete Mathematics for Computer Science: (4)(A)-(C), (4)(F), (4)(J), (4)(L)-(O), (6)(A)-(B), (6)(D)-(G), (6)(M) Robotics Programming and Design: (1)(B), (1)(F), (2)(F), (3)(D), (4)(C), (4)(E), (5)(G), (7)(B)-(E), (7)(I), (7)(P), (7)(T)
VIII.A.2. Formulate a plan or strategy.	Kindergarten - Grade 12: (1)(B) Mathematical Models with Applications: (10)(A) Advanced Quantitative Reasoning: (2)(H) Discrete Mathematics for Problem Solving: (2)(G), (2)(K)-(L), (3)(E), (7)(G) Statistics: (2)(A)-(F) Algebraic Reasoning: (7)(D)-(E)	Aquatic Science: (2)(E)-(F) Astronomy: (2)(E)-(F) Biology: (2)(E)-(F) Chemistry: (2)(E)-(F) Environmental Systems: (2)(E)-(F) Integrated Physics and Chemistry: (2)(B) Physics: (2)(E)	Accounting II: (1)(E), (2)(B), (4)(H)-(I), (5)(L)-(N), (6)(C)-(E), (6)(G)-(H), (6)(J)-(K); Applied Mathematics for Technical Professionals: (1)(B); Digital Electronics: (2)(B), (5)(A)-(B), (5)(D); Engineering Mathematics: (2)(B); Financial Mathematics: (2)(B); Manufacturing Engineering Technology II: (2)(B), (3)(A), (3)(C)-(D), (4)(A), (5)(A), (5)(C), (8)(A), (9)(A); Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(B); Mathematics for Medical Professionals: (2)(B), (6)(H) Robotics II: (2)(B), (4)(A)-(B), (6)(B), (7)(H)-(K), (8)(A)-(J), (10)(A)-(B), (11)(C), (12)(A)-(B); Statistics and Business Decision Making: (2)(B); Principles of Technology: (4)(A), (7)(A); Engineering Design and Problem Solving: (4)(A); Engineering Science: (4)(A); Biotechnology I: (4)(A); Biotechnology I: (4)(A); Scientific Research and Design: (4)(A); Principles of Information Technology: (1)(G); Web Technologies: (9)(C); Diversified Manufacturing II: (6)(B); Manufacturing Engineering Technology I: (2)(B), (8)(C); Precision Metal Manufacturing II: (7)(A)-(B), (11)(D), (12)(D)-(G); Precision Metal Manufacturing II Lab: (6)(D)-(H), (7)(D)-(G); Small Engine Technology II: (6)(B)	Discrete Mathematics for Computer Science: (1)(A)-(B), (4)(D)-(F), (4)(L)-(O), (6)(A)-(D), (6)(G), (6)(I), (6)(M) Robotics Programming and Design: (1)(B), (3)(A)-(B), (3)(D), (4)(B)-(C), (4)(E), (5)(A)-(G), (7)(B), (7)(H)-(I), (7)(K), (7)(M), (7)(P), (7)(T)

VIII.A.3. Determine a solution.	Kindergarten - Grade 12: (1)(B) Grade 4: (7)(E), (8)(C) Grade 6: (8)(D), (10)(A) Grade 7: (6)(G)-(H), (9)(A)-(D), (11)(A) Grade 8: (8)(C), (9) Algebra I: (5)(A)-(C), (8)(A) Algebra II: (3)(B)-(C), (3)(F)-(G), (4)(F), (4)(H), (5)(D), (6)(B), (6)(E)-(F), (6)(I), (6)(L), (7)(H) Geometry: (5)(D), (6)(A), (6)(D)-(E), (7)(B), (8)(A)-(B), (9)(A)-(B), (11)(A)-(D), (12)(A)-(C) Precalculus: (2)(N), (3)(C), (4)(D)-(K), (5)(H)-(K), (5)(N) Mathematical Models with Applications: (2)(A)-(B), (5)(A), (6)(C)-(D) Advanced Quantitative Reasoning: (2)(C)-(E) Discrete Mathematics for Problem Solving: (2)(E)-(F), (2)(J), (3)(F), (4)(J), (5)(D), (6)(K) Statistics: (6)(C)-(D) Algebraic Reasoning: (5)(D)-(E), (6)(B)-(C)	Physics: (3)(F)	Accounting II: (1)(B), (1)(E), (2)(B), (3)(C)-(D), (3)(F), (3)(I), (4)(C)-(G), (4)(I), (5)(B), (5)(D)-(F), (5)(I), (5)(K)-(P), (6)(D)(i)-(iii), (6)(E)(iii), (6)(E)(v)-(vi), (6)(G)(iii)-(iv), (6)(H), (6)(K)(i)-(iii), (6)(K)(vi)-(vii); Applied Mathematics for Technical Professionals: (1)(B), (2)(A), (2)(D), (2)(F)-(H), (3)(B)-(H), (4)(A), (4)(E)-(F), (5)(B), (5)(D), (5)(E)-(F), (6)(B); Digital Electronics: (2)(B); Engineering Mathematics: (2)(B), (3)(B)-(D), (4)(A)-(M), (5)(A)-(B), (6)(B)-(O), (7)(A), (7)(F)-(I), (8)(A), (8)(D), (8)(G)-(H), (8)(L)-(S), (9)(A), (9)(E)-(H), (10)(A)-(D), (10)(F)-(H), (10)(J), (10)(M)-(N), (11)(A)-(B), (11)(F); Financial Mathematics: (2)(B), (3)(F), (3)(H)-(I), (4)(A)-(C), (4)(F)-(I), (5)(C), (6)(B), (6)(E), (7)(B), (7)(D), (7)(F)-(G), (8)(A)-(B), (8)(F), (9)(B), (10)(B)-(C), (11)(B)-(D), (12), (15)(A), (17)(C), (17)(G); Manufacturing Engineering Technology II: (2)(B), (3)(C), (5)(B), (5)(D), (9)(B); Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(B), (4)(A)-(F), (5)(F), (6)(A)-(B), (7)(A)-(C), (8)(A)-(B), (9)(A)-(B), (10)(A)-(B), (11)(A)-(C), (12)(A)-(C), (12)(E); Mathematics for Medical Professionals: (2)(B), (3)(A), (3)(C), (3)(E), (4)(A)-(B), (4)(D)-(F), (5)(C), (6)(F), (7)(A)-(D)Robotics II: (2)(B), (6)(A), (6)(C)-(D), (7)(A), (7)(D), (7)(F)-(K), (8)(A)-(J), (10)(A), (11)(A), (11)(D), (12)(C)-(D); Statistics and Business Decision Making: (2)(B); Collision Repair: (3)(D), (5)(D); Principles of Technology: (4)(A), (7)(A); Engineering Design and Problem Solving: (4)(A); Engineering Science: (4)(A); Biotechnology I: (4)(A); Biotechnology I: (4)(A); Scientific Research and Design: (4)(A); Diversified Manufacturing II: (6)(B), (9)(A), (11)(C); Metal Fabrication and Machining II: (3)(C), (8)(A); Precision Metal Manufacturing II: (7)(A); Small Engine Technology I: (1)(C), (5)(D), (6)(A); Small Engine Technology II: (1)(C), (5)(C), (6)(B), (7)(A)	Discrete Mathematics for Computer Science: (1)(A)-(B), (4)(D)-(F), (4)(L)-(N), (6)(A)-(B), (6)(G)-(M) Robotics Programming and Design: (1)(B), (2)(A), (2)(C), (2)(E), (2)(H), (3)(B), (3)(E), (4)(B)-(C), (7)(I), (7)(P), (7)(T),
VIII.A.4. Justify the solution.	Kindergarten - Grade 12: (1)(B), (1)(G) Grade 6: (10)(B) Grade 8: (9) Algebra II: (3)(D), (4)(G), (5)(E), (6)(J), (8)(C) Mathematical Models with Applications: (3)(B), (9)(E) Advanced Quantitative Reasoning: (3)(F)-(H), (4)(S) Statistics: (6)(E)-(F), (7)(E)-(F)	Integrated Physics and Chemistry: (2)(E)	Accounting II: (2)(B), (2)(G), (4)(I), (5)(L)-(N), (6)(H); Applied Mathematics for Technical Professionals: (1)(B), (1)(G) ; Digital Electronics: (2)(B), (2)(G); Engineering Mathematics: (2)(B), (2)(G); Financial Mathematics: (2)(B), (2)(G); Manufacturing Engineering Technology II: (2)(B), (2)(G); Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(B), (2)(G); Mathematics for Medical Professionals: (2)(B), (2)(G), (3)(E); Robotics II: (2)(B), (2)(G), (4)(A)-(B), (6)(B), (7)(K), (8)(C), (10)(C)-(G), (11)(B)-(D), (12)(E)-(F); Statistics and Business Decision Making: (2)(B), (2)(G), (16)(E); Principles of Technology: (4)(A), (7)(A), Engineering Design and Problem Solving: (4)(A); Engineering Science: (4)(A); Biotechnology I: (4)(A); Scientific Research and Design: (4)(A); Diversified Manufacturing I: (5)(A); Diversified Manufacturing II: (6)(B); Precision Metal Manufacturing II: (7)(A); Small Engine Technology II: (6)(B)	Robotics Programming and Design: (1)(B), (1)(G), (2)(D), (2)(F), (3)(F)-(H), (4)(A), (4)(C)-(E), (7)(T)
VIII.A.5. Evaluate the problem-solving process.	Kindergarten - Grade 12: (1)(B) Algebra II: (2)(D) Mathematical Models with Applications: (8)(C), (9)(E), (10)(A) Advanced Quantitative Reasoning: (3)(B), (4)(S) Statistics: (3)(C)-(D), (6)(G)-(J), (7)(C)-(D)	Grades 6 - 8: (3)(A) Aquatic Science: (3)(A) Astronomy: (3)(A) Biology: (3)(A) Chemistry: (3)(A) Earth and Space Science: (3)(A) Environmental Systems: (3)(A) Integrated Physics and Chemistry: (3)(A) Physics: (3)(A)	Accounting II: (2)(B); Applied Mathematics for Technical Professionals: (1)(B); Digital Electronics: (2)(B); Engineering Mathematics: (2)(B); Financial Mathematics: (2)(B); Manufacturing Engineering Technology II: (2)(B); Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(B); Mathematics for Medical Professionals: (2)(B), (4)(B); Robotics II: (2)(B), (6)(B), (10)(F), (12)(E)-(F) Statistics and Business Decision Making: (2)(B), (4)(A)-(E), (5), (6)(C), (7)(B), (15)(B); Principles of Applied Engineering: (6)(C); Principles of Technology: (4)(A), (7)(A), Robotics II: (2)(B); Engineering Design and Problem Solving: (4)(A); Engineering Science: (4)(A); Biotechnology I: (4)(A); Biotechnology I: (4)(A); Scientific Research and Design: (4)(A); Diversified Manufacturing II: (6)(B); Precision Metal Manufacturing II: (7)(A); Small Engine Technology II: (6)(B)	Robotics Programming and Design: (1)(B), (2)(D), (2)(F), (4)(A), (4)(D), (7)(T)
B. Logical reasoning				
VIII.B.1. Develop and evaluate convincing arguments.	Kindergarten - Grade 12: (1)(G) Geometry: (4)(B)-(D), (5)(A), (5)(C)-(D), (6)(A)-(E), (7)(B), (8)(A), (12)(A) Mathematical Models with Applications: (8)(C), (10)(B) Advanced Quantitative Reasoning: (2)(B), (2)(G), (4)(G), (4)(S)	Grades 6 - 8: (3)(A)Aquatic Science: (3)(A)Astronomy: (3)(A)Biology: (3)(A)Chemistry: (3)(A)Earth and Space Science: (3)(A)Environmental Systems: (3)(A)Integrated Physics and Chemistry: (2)(E), (3)(A), (6)(C)-(E), (7)(C)-(F)Physics: (2)(I)-(J), (3)(A)-(C)	Accounting II: (2)(G), (4)(I), (5)(L)-(N), (6)(H)Applied Mathematics for Technical Professionals: (1)(G) Digital Electronics: (2)(G)Engineering Mathematics: (2)(G)Financial Mathematics: (2)(G)Manufacturing Engineering Technology II: (2)(G)Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(G), (5)(C) Mathematics for Medical Professionals: (2)(G)Robotics II: (2)(G), (10)(D), (10)(F)-(G), (12)(E)-(G)Statistics and Business Decision Making: (2)(G), (7)(B)	Discrete Mathematics for Computer Science: (1)(A)-(B), (3)(A)-(B), (4)(B)-(F), (4)(H), (4)(J), (4)(L)-(O), (6)(A)-(G), (6)(I), (6)(M) Robotics Programming and Design: (1)(G)
VIII.B.2. Use various types of reasoning.	Grade 6: (4)(B) Algebra I: (12)(C)-(D) Geometry: (4)(B)-(D), (5)(A), (5)(D), (6)(A)-(E), (8)(A), (12)(A), (12)(D)-(E) Precalculus: (5)(B), (5)(M) Mathematical Models with Applications: (3)(A)-(D), (4)(A)-(C), (6)(A), (9)(A)-(C), (9)(E) Advanced Quantitative Reasoning: (2)(B), (2)(E), (3)(B)-(H), (4)(G)-(L), (4)(O), (4)(Q), (4)(S) Discrete Mathematics for Problem Solving: (2)(K), (6)(H), (7)(A), (7)(G) Statistics: (6)(A)-(B), (6)(F), (6)(H)-(J) Algebraic Reasoning: (2)(A)	Grades 6 - 8: (3)(A) Grade 8: (6)(A)-(C), (7)(A)-(C), Aquatic Science: (3)(A) Astronomy: (3)(A) Biology: (3)(A) Chemistry: (3)(A) Earth and Space Science: (3)(A) Environmental Systems: (3)(A) Integrated Physics and Chemistry: (3)(A), (3)(C) Physics: (3)(A)	Digital Electronics: (8)(A)-(F), (9)(A)-(F), (10)(A)-(K), (11)(A)-(G), (12)(A)-(B), (12)(E), (12)(H) Engineering Mathematics: (6)(B)-(C), (7)(C), (9)(B)-(D), (10)(B), (10)(F)-(G), (10)(I), (10)(K), (11)(B)-(E) Mathematical Applications in Agriculture, Food, and Natural Resources: (4)(G); Mathematics for Medical Professionals: (1)(C); Robotics II: (6)(B), (7)(A)-(K), (8)(A)-(J), (10)(B)-(G), (11)(C), (12)(E)-(F) Principles of Technology: (12)(D), (13)(B) Engineering Science: (12)(E) Biotechnology I: (7)(C), (8)(E) Biotechnology II:(6)(D) Scientific Research and Design: (6)(D) Small Engine Technology II: (6)(B)	Discrete Mathematics for Computer Science: (1)(A)-(B), (3)(A)-(B), (4)(A)-(F), (4)(H), (4)(J), (4)(L)-(O), (6)(A)-(G), (6)(I), (6)(L)-(M) Robotics Programming and Design: (3)(D), (4)(A)-(E), (5)(A)-(G), (7)(B), (7)(H), (7)(M), (7)(P)

C. Real world problem solving				
VIII.C.1. Formulate a solution to a real world situation based on the solution to a mathematical problem.	Kindergarten - Grade 12: (1)(A) Grade 4: (10)(B) Grade 7: (4)(D), (5)(C), (10)(C), (13)(A), (13)(C) Grade 8: (8)(C) Algebra I: (5)(A)-(C), (8)(B), (9)(C), (9)(E) Algebra II: (5)(B) Precalculus: (5)(C), (5)(H)-(L), (5)(N) Mathematical Models with Applications: (2)(A)-(C), (5)(A)-(C), (6)(B)-(D), (7)(A), (10)(A) Advanced Quantitative Reasoning: (3)(A)-(H), (4)(L)-(O) Discrete Mathematics for Problem Solving: (2)(E)-(F), (2)(J)-(K), (3)(F), (4)(J), (5)(A)-(B), (5)(I), (6)(D), (6)(F), (6)(K) Statistics: (2)(A)-(F), (3)(A)-(B), (5)(C), (6)(C)-(G) Algebraic Reasoning: (2)(D), (3)(C)-(F), (5)(D)-(E), (6)(A)-(C), (7)(D)-(E)	Grade 6: (6)(B), (8)(C) Grade 8: (6)(A) Aquatic Science: (2)(H) Astronomy: (2)(G) Biology: (2)(G) Chemistry: (2)(G)-(H) Earth and Space Science: (2)(G)-(H) Environmental Systems: (2)(I)-(J) Physics: (2)(L), (3)(F), (4)(D), (5)(B)-(C), (5)(F), (6)(A), (6)(C),	Accounting II: (1)(B), (1)(E), (2)(A), (3)(C)-(D), (3)(F), (3)(I), (4)(C)-(G), (4)(I), (5)(B), (5)(D)-(F), (5)(I), (5)(K)-(P), (6)(D)(i)-(iii), (6)(E)(iii), (6)(E)(v)-(vi), (6)(G)(iii)-(iv), (6)(H), (6)(K)(i)-(iii), (6)(K)(vi)-(vii) ; Applied Mathematics for Technical Professionals: (1)(A), (2)(A), (2)(D), (2)(F)-(H), (3)(B)-(H), (4)(A), (4)(E)-(F), (5)(B), (5)(D)-(F), (6)(B) Digital Electronics: (2)(A); Engineering Mathematics: (2)(A), (3)(B)-(D), (4)(A)-(M), (5)(A)-(B), (6)(A)-(O), (7)(A), (7)(F)-(I), (8)(A), (8)(D), (8)(G)-(H), (8)(L)-(S), (9)(A), (9)(E)-(H), (10)(A)-(D), (10)(F)-(H), (10)(J), (10)(M)-(N), (11)(A)-(B), (11)(F); Financial Mathematics: (2)(A), (3)(C), (3)(F), (3)(H)-(L), (4)(A)-(C), (4)(E)-(I), (4)(K), (5)(B), (5)(E)-(F), (6)(A)-(E), (7)(A)-(G), (7)(I), (7)(K)-(L), (8)(A)-(F), (9)(A)-(D), (10)(A)-(F), (11)(A)-(D), (12)-(14), (15)(A), (15)(C), (17)(C), (17)(F)-(G); Manufacturing Engineering Technology II: (2)(A); Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(A), (4)(A)-(F), (5)(F), (6)(A)-(B), (7)(A)-(C), (8)(A)-(B), (9)(A)-(B), (10)(A)-(B), (11)(A)-(C), (12)(A)-(C); Mathematics for Medical Professionals: (2)(A), (3)(A), (3)(C), (3)(E), (4)(A)-(B), (4)(D)-(F), (5)(C), (6)(F), (7)(A)-(D); Robotics II: (2)(A), (4)(A)-(B), (7)(A)-(K), (8)(A)-(J), (11)(D), (12)(A), (12)(D); Statistics and Business Decision Making: (2)(A), (6)(A), (6)(C), (7)(D), (10)(B), (11)(B), (12)-(13), (14)(A)-(C), (15)(A), (16)(B), (16)(D)-(H), (17)-(19), (20)(A)-(C), (21); Forestry and Woodland Ecosystems: (4)(A)(B)(D); Engineering Design and Problem Solving: (5)(K), (8)(A)-(I), (9)(A)-(I); Engineering Science: (6)(A), (15)(A)-(H), (16)(A)-(D); Principles of Manufacturing: (3)(C); Diversified Manufacturing I: (10)(C); Diversified Manufacturing II: (9)(A), (11)(C); Manufacturing Engineering Technology I: (3)(A); Metal Fabrication and Machining II: (3)(C), (8)(A); Precision Metal Manufacturing II: (11)(A)-(H), (12)(A)-(G); Precision Metal Manufacturing II Lab: (6)(A)-(H), (7)(A)-(G); Introduction to Welding: (5)(A); Small Engine Technology I: (5)(D), (6)(A)(C)-(E); Small Engine Technology II: (5)(C), (6)(B), (7)(E)-(G); Automotive Technology II: Business Information Management II: (8)(A-B)	Discrete Mathematics for Computer Science: (1)(A)-(B), (3)(A)-(B), (4)(E)-(F), (4)(L)-(N), (6)(A)-(D), (6)(H)-(L) Robotics Programming and Design: (1)(A), (2)(A), (2)(C), (2)(E), (2)(H), (3)(A)-(B), (3)(D)-(E), (4)(C), (5)(A)-(G), (7)(E), (7)(P)
VIII.C.2. Use a function to model a real world situation.	Kindergarten - Grade 12: (1)(A), (1)(D) Grade 4: (10)(B) Grade 7: (4)(D), (5)(C), (10)(C), (13)(A), (13)(C) Grade 8: (5)(D)-(E) Algebra I: (2)(D), (3)(B), (3)(G), (5)(A)-(C), (8)(B), (9)(B)-(C) Algebra II: (5)(B), (6)(H), (8)(B) Precalculus: (2)(N)-(P), (4)(G)-(H), (4)(J)-(K), (5)(H) Mathematical Models with Applications: (2)(A), (3)(A), (3)(C)-(D), (5)(A)-(C), (6)(A)-(D), (7)(A) Advanced Quantitative Reasoning: (2)(C)-(E), (3)(A)-(H) Statistics: (7)(B)-(D), Algebraic Reasoning: (2)(D), (3)(D)-(F), (5)(D)-(E), (6)(B), (7)(B), (7)(D)-(E)	Aquatic Science: (2)(H)Astronomy: (2)(G)Earth and Space Science: (2)(I)Environmental Systems: (2)(I)Physics: (2)(L), (3)(F)	Accounting II: (2)(A), (2)(D)Applied Mathematics for Technical Professionals: (1)(A), (1)(D), (2)(B), (2)(G)-(H), (5)(A), (5)(D)-(E), (6)(C)Digital Electronics: (2)(A), (2)(D), (7)(H), (7)(L)-(O), (8)(A)-(F), (9)(A)-(F), (10)(A)-(K), (11)(A)-(J), (12)(A)-(H)Engineering Mathematics: (2)(A), (2)(D), (6)(A)-(O), (7)(F), (9)(A), (9)(E)-(H), (11)(F)Financial Mathematics: (2)(A), (2)(D), (4)(F), (6)(C)-(D), (6)(F)Manufacturing Engineering Technology II: (2)(A), (2)(D)Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(A), (2)(D), (6)(B)Mathematics for Medical Professionals: (2)(A), (2)(D), (4)(A)-(C), (4)(E)Robotics II: (2)(A), (2)(D), (7)(H)-(K), (8)(A)-(J), (11)(B)Statistics and Business Decision Making: (2)(A), (2)(D), (20)(B)-(C), (21), (22) Engineering Science: (10)(G)-(H), (13)(A)-(E); (16)(C)-(D); Principles of Information Technology: (8)(C)	Discrete Mathematics for Computer Science: (1)(A)-(B)Robotics Programming and Design: (1)(A), (1)(D), (4)(B)-(C), (5)(A)-(G), (7)(P)
VIII.C.3. Evaluate the problem-solving process.	Kindergarten - Grade 12: (1)(B) Mathematical Models with Applications: (8)(C) Advanced Quantitative Reasoning: (3)(B), (4)(Q), (4)(S) Statistics: (2)(G), (3)(C)-(D), (6)(G)-(H), (7)(C)-(D) Algebraic Reasoning: (7)(C)		Accounting II: (2)(B); Applied Mathematics for Technical Professionals: (1)(B); Digital Electronics: (2)(B), (7)(M), (10)(J), (12)(B); Engineering Mathematics: (2)(B); Financial Mathematics: (2)(B), (6)(E); Manufacturing Engineering Technology II: (2)(B), (4)(B), (9)(C); Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(B); Mathematics for Medical Professionals: (2)(B); Robotics II: (2)(B), (6)(B), (10)(C)-(G), (11)(C)-(D), (12)(E)-(F); Statistics and Business Decision Making: (2)(B), (4)(A)-(E), (5), (6)(C), (7)(B), (15)(B); Robotics I: (4)(C)-(D); Engineering Design and Problem Solving: (5)(K), (8)(A)-(I), (9)(A)-(I); Engineering Science: (6)(A), (15)(A)-(H), (16)(A)-(D); Diversified Manufacturing II: (9)(B), Precision Metal Manufacturing I: (3)(E); Precision Metal Manufacturing II: (13)(A)-(C); Small Engine Technology II: (6)(B); Automotive Technology II: Automotive Service: (2)(B)	Discrete Mathematics for Computer Science: (3)(A)-(B) Robotics Programming and Design: (1)(B), (2)(D), (2)(F), (3)(F)-(H), (4)(A), (7)(T)
IX. Communication and Representation				
A. Language, terms, and symbols of mathematics				
IX.A.1. Use mathematical symbols, terminology, and notation to represent given and unknown information in a problem.	Kindergarten - Grade 12: (1)(D), (1)(F) Grade 1: (5)(D), (5)(F) Grade 2: (7)(C) Grade 4: (5)(A), (7)(E) Grade 5: (4)(B) Grade 6: (8)(C), (9)(A), (10)(A) Grade 7: (8)(A), (10)(A)-(C), (11)(A), (11)(C) Grade 8: (8)(A)-(C) Algebra I: (2)(A)-(I), (5)(A)-(C), (6)(C), (9)(B)-(C) Algebra II: (3)(A), (3)(E), (4)(E), (5)(B), (6)(D), (6)(H), (6)(L) Geometry: (6)(A)-(D) Precalculus: (5)(B), (5)(D), (5)(H)-(I), (5)(N) Mathematical Models with Applications: (2)(A)-(C), (5)(A)-(C), (6)(B)-(D), (7)(A), (7)(C), (10)(A) Advanced Quantitative Reasoning: (2)(C)-(E), (2)(H), (3)(A)-(H) Discrete Mathematics for Problem Solving: (2)(B)-(K), (3)(A)-(G), (5)(A)-(B), (7)(A)-(B), (7)(E)-(G) Statistics: (3)(B), (4)(B), (4)(F), (5)(A), (5)(C), (6)(C)-(D), (6)(G), (7)(B)-(D) Algebraic Reasoning: (2)(C)-(D), (3)(D)-(F), (5)(D)-(E), (6)(B), (7)(B)-(E)	Grade 6: (6)(B), (8)(C) Grade 8: (6)(A) Physics: (3)(F), (4)(B), (4)(E),	Accounting II: (1)(A), (2)(D), (2)(F); Applied Mathematics for Technical Professionals: (1)(D), (1)(F), (2)(B)-(E), (2)(G)-(H), (3)(A), (3)(E), (3)(K), (5)(A), (5)(D)-(E), (6)(A), (6)(C)-(D), (7)(E); Digital Electronics: (1)(C), (2)(D), (2)(F), (7)(L), (7)(N)-(O), (8)(B)-(F), (9)(A)-(E), (10)(A)-(I), (11)(A)-(H), (11)(J), (12)(A)-(B); Engineering Mathematics: (1)(C), (2)(D), (2)(F), (3)(A)-(D), (4)(A)-(M), (5)(A)-(B), (6)(A), (6)(E)-(F), (6)(I), (6)(M), (8)(M), (8)(R), (9)(A), (9)(E), (9)(H); Financial Mathematics: (1)(A), (2)(D), (2)(F) Manufacturing Engineering Technology II: (1)(F), (2)(D), (2)(F); Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(D), (2)(F), (4)(B), (4)(F), (5)(D), (6)(D); Mathematics for Medical Professionals: (1)(A), (2)(D), (2)(F), (3)(C), (4)(A)-(F), (7)(A)-(C); Robotics II: (1)(J), (2)(D), (2)(F), (10)(D)-(E), (12)(G); Statistics and Business Decision Making: (1)(A), (2)(D), (2)(F), (7)(A), (20)(B)-(C), (21), (22)(A)-(D); Engineering Science: (15)(A)-(H), (16)(A)-(D); Precision Metal Manufacturing II Lab: (6)(D)-(H)	Discrete Mathematics for Problem-Solving: (1)(A)-(B), (2)(A), (3)(A)-(B), (4)(A)-(F), (4)(H), (4)(J)-(O), (6)(A)-(C), (6)(H)-(L) Robotics Programming and Design: (1)(D), (1)(F), (3)(D)-(E), (3)(H)

IX.A.2. Use mathematical language to represent and communicate the mathematical concepts in a problem.	Kindergarten - Grade 12: (1)(D), (1)(F) Kindergarten: (3)(C) Grade 1: (3)(E) Grade 2: (3)(B), (6)(A)-(B) Grade 6: (9)(C) Grade 7: (8)(B) Grade 8: (8)(B) Algebra I: (3)(C), (7)(A), (9)(B) Algebra II: (2)(A), (2)(C) Geometry: (4)(A), (12)(D) Mathematical Models with Applications: (2)(A)-(C), (5)(A)-(C), (6)(B)-(D), (7)(A), (7)(C), (9)(D) Advanced Quantitative Reasoning: (2)(H), (4)(R), (4)(T) Discrete Mathematics for Problem Solving: (2)(A), (2)(L), (3)(A)-(G), (4)(B), (4)(D)-(I), (5)(C), (5)(E)-(K), (6)(C), (6)(E), (6)(H)-(J), (7)(D)-(G) Statistics: (2)(F), (3)(C)-(D), (4)(C)-(F), (5)(B), (5)(D), (6)(A)-(B), (6)(F), (6)(H), (6)(J), (7)(E) Algebraic Reasoning: (3)(A)-(B), (3)(F), (4)(A)-(B), (7)(B)	Grade 6: (6)(B), 8(C) Grade 8: (6)(B)Aquatic Science: (2)(J)Earth and Space Science: (2)(H)Environmental Systems: (2)(K)Integrated Physics and Chemistry: (2)(E)Physics: (2)(L), (3)(F)	Accounting II: (1)(C), (2)(D), (2)(F), (3)(B), (3)(E)-(H), (4)(A)-(C), (4)(H)-(I), (5)(B), (5)(G)-(J), (5)(L)-(N), (5)(P), (6)(A)-(C), (6)(E)-(J), (6)(L)-(R)Applied Mathematics for Technical Professionals: (1)(D), (1)(F), (6)(D), (7)(D)-(E) Digital Electronics: (1)(C), (2)(D), (2)(F), (7)(L), (8)(B), (12)(A)-(B)Engineering Mathematics: (1)(C), (2)(D), (2)(F), (3)(A), (7)(B)-(E), (8)(B)-(C), (8)(E)-(F), (8)(K), (10)(L)Financial Mathematics: (1)(A), (2)(D), 2(F), (15)(A)Manufacturing Engineering Technology II: (1)(F), (2)(D), (2)(F)Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(D), (2)(F), (5)(D), (6)(D)Mathematics for Medical Professionals: (1)(A), (2)(D), (2)(F), (3)(C), (4)(A)-(F), (6)(A)-(E), (6)(H)-(K), (7)(D)Robotics II: (1)(J), (2)(D), (2)(F), (10)(D)-(E), (12)(G)Statistics and Business Decision Making: (1)(A), (2)(D), (2)(F), (7)(A)-(B), (8)(A)-(E), (10)(A)-(C), (11)(A)-(B), (12)-(13), (15)(B), (16)(A), (16)(C), (16)(E), (16)(G)-(H), (17), (20)(A)Principles of Technology: (4)(F); Engineering Design and Problem Solving: (5)(A)-(K); Engineering Science: (10)(A)-(J); (12)(A)-(E); Biotechnology II:(4)(G); Scientific Research and Design: (4)(G); Principles of Information Technology: (9)(F); Diversified Manufacturing II: (9)(A)	Discrete Mathematics for Problem-Solving: (1)(A)-(B), (4)(A)-(F), (4)(H), (4)(J)-(O), (6)(H)-(K)Robotics Programming and Design: (1)(D), (1)(F), (3)(D)-(E), (3)(H)
IX.A.3. Use mathematics as a language for reasoning, problem solving, making connections, and generalizing.	Kindergarten - Grade 12: (1)(D), (1)(F)-(G) Grade 6: (4)(C)-(D), (8)(A) Grade 7: (8)(A)-(C) Grade 8: (8)(A)-(C) Algebra I: (2)(A)-(D), (4)(C), (5)(A)-(C), (8)(B), (9)(C), (9)(E) Algebra II: (3)(A), (3)(E), (4)(E), (5)(B), (6)(L) Geometry: (6)(A)-(B), (6)(D)-(E), (7)(A)-(B), (8)(A)-(B), (9)(A)-(B), (10)(B) Precalculus: (2)(D), (3)(C), (4)(D), (5)(D), (5)(H)-(L), (5)(N) Mathematical Models with Applications: (2)(A)-(C), (3)(A), (3)(C)-(D), (5)(B)-(D), (7)(A), (7)(C), (9)(A)-(B), (9)(D)-(E) Advanced Quantitative Reasoning: (2)(B), (2)(G)-(H), (4)(G)-(T) Discrete Mathematics for Problem Solving: (3)(A), (3)(E)-(G), (4)(A)-(I), (5)(A)-(K), (6)(A)-(I), (6)(K), (7)(D)-(G) Statistics: (2)(F), (3)(C)-(D), (4)(C)-(F), (5)(D), (6)(A)-(B), (6)(E)-(F), (6)(H)-(J), (7)(C)-(F) Algebraic Reasoning: (2)(A), (3)(C)-(F), (4)(A)-(B), (5)(D)-(E), (7)(B)-(E)	Grade 6: (6)(B), (8)(C) Grade 8: (6)(B)-(C) Integrated Physics and Chemistry: (2)(E), (4)(F), (5)(A)-(I), (6)(A), (6)(C)-(E), (7)(D)-(F) Physics: (2)(L), (3)(F), (4)(B)-(C), (4)(E)-(F), (5)(A)-(C), (5)(G)-(H), (6)(D)-(G), (7)(A)-(C), (7)(E)-(F), (8)(A)-(C)	Accounting II: (1)(A), (2)(D), (2)(F)-(G), (3)(B), (3)(E)-(F),(4)(C), (4)(H)-(I), (5)(B), (5)(L)-(N), (5)(P), (6)(E)(i)-(vi), (6)(G)(i)-(iv), (6)(R)(iv)-(v); Applied Mathematics for Technical Professionals: (1)(D), (1)(F)-(G), (2)(B)-(E), (2)(G)-(H), (3)(A), (3)(E), (3)(K), (5)(A), (5)(D)-(E), (6)(A), (6)(C)-(D), (7)(E); Digital Electronics: (1)(C), (2)(D), (2)(F)-(G), (7)(L), (8)(B), (12)(A)-(B); Engineering Mathematics: (1)(C), (2)(D), (2)(F)-(G), (3)(A)-(D), (4)(A)-(M), (5)(A)-(B), (6)(A)-(O), (7)(A), (7)(F)-(I), (8)(A), (8)(D), (8)(G)-(H), (8)(M)-(S), (9)(A), (9)(E)-(H), (10)(A)-(D), (10)(F)-(H), (10)(J), (10)(M)-(N), (11)(B), (11)(F); Financial Mathematics: (1)(A), (2)(D), (2)(F)-(G), (3)(C), (3)(F)-(L), (4)(A)-(C), (4)(F)-(I), (4)(K), (5)(C)-(E), (6)(B)-(F), (6)(I), (7)(A)-(G), (8)(A)-(F), (9)(B), (10)(A)-(C), (11)(B)-(D), (12), (15)(A), (17)(C), (17)(F)-(G); Manufacturing Engineering Technology II: (1)(F), (2)(D), (2)(F)-(G); Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(D), (2)(F)-(G), (4)(B), (4)(G), (5)-(12); Mathematics for Medical Professionals: (1)(A), (2)(D), (2)(F)-(G), (3)(A), (3)(C), (4)(A)-(F), (5)(C), (6)(C)-(G), (7)(A)-(D); Robotics II: (1)(J), (2)(D), (2)(F), (6)(A)-(D), (7)(A)-(K), (8)(A)-(J), (9)(A)-(C), (10)(D)-(E), (11)(C)-(D), (12)(E)-(G); Statistics and Business Decision Making: (1)(A), (2)(D), (2)(F)-(G), (6)(A), (6)(C), (7)(A), (7)(D), (9), (10)(A)-(C), (12)-(13), (16)(A), (16)(C), (16)(E), (16)(G)-(H), (17)-(19), (20)(A); Principles of Technology: (4)(F); Engineering Design and Problem Solving: (5)(A)-(K); Engineering Science: (10)(A)-(J); (12)(A)-(E); Biotechnology II:(4)(G); Scientific Research and Design: (4)(G); Precision Metal Manufacturing II: (11)(D)-(H), (12)(D)-(G); Precision Metal Manufacturing II Lab: (6)(D)-(H), (7)(D)-(G); Food Science: (8)(C)	Discrete Mathematics for Problem-Solving: (1)(A)-(B), (2)(A), (3)(A)-(B), (4)(A)-(F), (4)(H), (4)(J)-(O), (6)(A)-(D), (6)(G) Robotics Programming and Design: (1)(D), (1)(F)-(G), (3)(E), (3)(H), (4)(A)-(E), (5)(A)-(G), (7)(C)-(T)
B. Interpretation of mathematical work				
IX.B.1. Model and interpret mathematical ideas and concepts using multiple representations.	Kindergarten - Grade 12: (1)(D)-(G) Kindergarten: (3)(A) Grade 1: (2)(B)-(C), (3)(A), (3)(E), (6)(G)-(H) Grade 2: (2)(A)-(B), (3)(A), (3)(C), (6)(A)-(B), (9)(A), (9)(F) Grade 3: (3)(A)-(B), (3)(E)-(F), (5)(A), (7)(A) Grade 4: (2)(B), (2)(E), (3)(A)-(B), (3)(E), (3)(G), (4)(C), (4)(E), (5)(C) Grade 5: (3)(D), (3)(F), (3)(H)-(J), (4)(B), (4)(G)-(H), (6)(A)-(B) Grade 6: (3)(C), (4)(E)-(F), (7)(C), (8)(B), (9)(B), (10)(A) Grade 7: (7), (8)(A), (8)(C), (11)(A) Grade 8: (5)(A)-(B), (5)(I) Algebra I: (2)(A)-(I), (7)(A), (9)(D), (12)(C)-(D) Algebra II: (2)(A), (8)(A) Precalculus: (2)(F), (2)(I)-(M), (3)(A), (3)(D)-(E), (4)(A)-(C), (4)(J), (5)(B) Mathematical Models with Applications: (3)(A), (3)(C)-(D), (7)(A), (7)(C), (10)(B) Advanced Quantitative Reasoning: (2)(H), (3)(A)-(H), (4)(P)-(R), (4)(T) Discrete Mathematics for Problem Solving: (2)(A)-(L), (3)(A)-(G), (6)(B)-(C), (7)(G) Statistics: (2)(E), (3)(B), (3)(D), (4)(A)-(C), (5)(A), (7)(B) Algebraic Reasoning: (2)(A)-(D), (3)(C)-(F), (4)(A)-(D), (6)(A), (7)(B), (7)(D)-(E)	Grade 6: (8)(D) Grade 8: (6)(A), (6)(C), (7)(A), (8)(D) Environmental Systems: (2)(I) Physics: (2)(J)-(L), (3)(F), (4)(A), (4)(E)-(F)	Accounting II: (1)(A), (2)(D)-(G), (4)(I); Applied Mathematics for Technical Professionals: (1)(D)-(G), (2)(A), (2)(C), (2)(G)-(H), (3)(I)-(J), (4)(D), (5)(A), (5)(D)-(E), (6)(A), (6)(C)-(D), (7)(D); Digital Electronics: (1)(C), (2)(D)-(G), (7)(L), (8)(B), (12)(A)-(B); Engineering Mathematics: (1)(C), (2)(D)-(G), (3)(B), (4)(C), (4)(G), (11)(C)-(D); Financial Mathematics: (1)(A), (2)(D)-(G), (6)(C), (6)(F), (7)(A)-(B), (8)(A), (11)(B), (12), (17)(F); Manufacturing Engineering Technology II: (1)(F), (2)(D)-(G) Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(D)-(G), (4)(G), (5)(D), (5)(F), (6)(B), (6)(D), (7)(B), (7)(D), (8)(A), (8)(C), (9)(A), (9)(C), (10)(A), (10)(C), (11)(B), (12)(B); Mathematics for Medical Professionals: (1)(A), (2)(D)-(G), (4)(A)-(C), (4)(E); Robotics II: (1)(J), (2)(D)-(G), (10)(D)-(E), (11)(D), (12)(G); Statistics and Business Decision Making: (1)(A), (2)(D)-(G), (9), (12)-(13), (20)(B), (21); Principles of Technology: (4)(F); Engineering Design and Problem Solving: (5)(A)-(K); Engineering Science: (10)(A)-(J); (12)(A)-(E); Biotechnology II:(4)(G); Scientific Research and Design: (4)(G); Precision Metal Manufacturing I: (3)(D); Welding I: (5)(B); Small Engine Technology II: (7)(D); Food Science: (8)(C)	Discrete Mathematics for Problem-Solving: (1)(A)-(B), (3)(A)-(B), (4)(A), (6)(L)-(M) Robotics Programming and Design: (1)(D)-(G), (3)(D)-(E), (3)(H), (7)(C)

IX.B.2. Summarize and interpret mathematical information provided orally, visually, or in written form within the given context.	Kindergarten - Grade 12: (1)(D)-(E), (1)(G) Kindergarten: (8)(C) Grade 3: (8)(A) Grade 4: (5)(A), (9)(A)Grade 5: (4)(E), (8)(A)-(B) Grade 6: (12)(B)-(D), (13)(A) Grade 7: (6)(F), (12)(B) Grade 8: (8)(B) Algebra I: (2)(A), (9)(B) Algebra II: (3)(D), (4)(G), (5)(E), (8)(A) Geometry: (6)(A), (6)(D)-(E), (7)(B), (8)(A) Precalculus: (4)(I)-(K), (5)(C), (5)(K)-(L) Mathematical Models with Applications: (2)(A)-(C), (8)(C), (10)(B) Advanced Quantitative Reasoning: (2)(F), (2)(H), (3)(B)-(H), (4)(P)-(R), (4)(T) Discrete Mathematics for Problem Solving: (2)(A)-(L), (3)(A)-(C), (3)(G), (4)(B), (4)(D), (4)(F), (4)(H), (5)(C), (5)(E), (5)(G)-(K), (6)(E), (6)(H)-(K), (7)(A)-(C), (7)(E)-(G) Statistics: (2)(F)-(G), (3)(A), (3)(C)-(D), (4)(C)-(F), (5)(D), (6)(E)-(F), (6)(H)-(I), (7)(F) Algebraic Reasoning: (2)(A)-(D), (3)(A)-(B), (3)(F), (4)(B), (7)(B)	Aquatic Science: (2)(J)Astronomy: (2)(H)Biology: (2)(H)Chemistry: (2)(I)Earth and Space Science: (2)(I)Environmental Systems: (2)(K)Integrated Physics and Chemistry: (2)(E), (7)(D), (7)(F)Physics: (2)(K)-(L), (3)(A)-(B), (3)(F), (4)(A)-(C), (4)(E), (5)(A)-(D), (5)(G)-(H), (6)(D)-(G), (7)(A)-(C), (7)(E)-(F), (8)(A)-(D)	Accounting II: (1)(A), (2)(D)-(E), (2)(G), (3)(E)-(I), (4)(A)-(I), (5)(A)-(B), (5)(F)-(J), (5)(L)-(P), (6)(C)-(H), (6)(J)-(M), (6)(R)(i)-(vi); Applied Mathematics for Technical Professionals: (1)(D)-(E), (1)(G), (2)(B), (2)(H), (3)(F), (3)(K), (5)(A), (5)(C)-(D), (6)(C)-(D), (7)(D)-(E); Digital Electronics (1)(C), (2)(D)-(E), (2)(G); Engineering Mathematics: (1)(C), (2)(D)-(E), (2)(G), (3)(A), (7)(B)-(E), (8)(B)-(C), (8)(E)-(F), (8)(K), (9)(B)-(C), (10)(B), (10)(F)-(G), (10)(K)-(L); Financial Mathematics: (1)(A), (2)(D)-(E), (2)(G), (3)(D), (3)(J), (5)(D)-(E), (6)(C), (6)(F), (7)(A), (8)(A), (11)(B), (12), (17)(F); Manufacturing Engineering Technology II: (1)(F), (2)(D)-(E), (2)(G); Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(D)-(E), (2)(G), (4)(G), (5)(C)-(E), (6)(C)-(D), (7)(D), (8)(C), (9)(C), (10)(C), (11)(C)-(D), (12)(D); Mathematics for Medical Professionals: (1)(A), (2)(D)-(E), (2)(G), (3)(A), (3)(C)-(D), (3)(F), (4)(A)-(F), (5)(A), (5)(D), (6)(A)-(I); Robotics II: (2)(D)-(E), (2)(G), (10)(D)-(E), (11)(D), (12)G); Statistics and Business Decision Making: (1)(A), (2)(D)-(E), (2)(G), (4)(A)-(E), (5), (6)(C), (7)(A)-(B), (9), (10)(A)-(C), (12)-(13), (14)(A)-(C), (15)(A), (16)(B), (16)(E)-(H), (17)-(19), (20)(A)-(C), (21); Basic Collision Repair and Refinishing: (2)(C); Collision Repair: (2)(B); Paint and Refinishing: (2)(C); Diesel Equipment Technology: (3)(C), (5)(E); Principles of Technology: (1)(C), (3)(K)-(L); Engineering Design and Problem Solving: (1)(C), (6)(A)-(F); Engineering Sciences: (1)(C), (3)(F), (3)(H); Biotechnology I: (1)(C), (3)(J); Biotechnology II: (1)(C), (3)(J), (10)(A); Scientific Research & Design: (1)(C), (10)(A); Diversified Manufacturing I: (2)(B); Diversified Manufacturing II: (2)(B), (2)(D); Manufacturing Engineering Technology I: (2)(B); Metal Fabrication and Machining I: (2)(B); Metal Fabrication and Machining II: (3)(D), (8)(C); Precision Metal Manufacturing I: (3)(C); Precision Metal Manufacturing II: (13)(A)-(C); Welding I: (5)(C); Welding II: (5)(B); Small Engine Technology I: (5)(D); Small Engine Technology II: (6)(B)	Discrete Mathematics for Problem-Solving: (3)(A)-(B)Robotics Programming and Design: (1)(D)-(E), (1)(G), (3)(D)-(E), (3)(H), (7)(C)
C. Presentation and representation of mathematical work				
IX.C.1. Communicate mathematical ideas, reasoning, and their implications using symbols, diagrams, graphs, and words.	Kindergarten - Grade 12: (1)(D)-(F) Kindergarten: (8)(C) Grade 1: (3)(A), (3)(E), (6)(G)-(H), (8)(A)-(C) Grade 2: (3)(B), (6)(A)-(B), (7)(C) Grade 3: (3)(A), (3)(C), (3)(H), (4)(D)-(E), (4)(H), (5)(A)-(B), (5)(E) Grade 4: (3)(B)-(C), (5)(A)-(B) Grade 5: (2)(B), (4)(B)-(C) Grade 6: (5)(A), (6)(C), (7)(A), (7)(D), (8)(C), (9)(A)-(C) Grade 7: (4)(A), (7), (8)(B), (10)(A)-(C), (11)(C) Grade 8: (4)(B), (5)(A)-(B), (5)(D)-(E), (5)(I), (6)(B), (8)(A)-(C), (9), (11)(C) Algebra I: (2)(B)-(J), (3)(C)-(D), (3)(F), (3)(H), (4)(C), (7)(A)-(B), (8)(B), (9)(B)-(E), (12)(A) Algebra II: (2)(A)-(C), (3)(A), (3)(E), (4)(A)-(B), (4)(E), (5)(B), (6)(D), (6)(H), (6)(L), (8)(B) Geometry: (4)(A)-(D), (5)(B)-(C), (6)(A)-(B), (6)(D)-(E), (8)(A)-(B), (12)(D) Precalculus: (2)(D), (2)(F)-(K), (2)(M)-(N), (3)(A), (3)(D)-(E), (4)(B), (4)(J), (5)(C), (5)(H)-(I) Mathematical Models with Applications: (2)(A)-(C), (3)(A), (3)(C)-(D), (5)(A)-(C), (7)(A), (7)(C), (10)(B) Advanced Quantitative Reasoning: (2)(F), (2)(H), (3)(A), (3)(F)-(H), (4)(P), (4)(R)-(T) Discrete Mathematics for Problem Solving: (2)(A)-(B), (2)(D)-(I), (2)(J)-(K), (3)(A)-(C), (5)(B), (6)(B), (6)(G)-(H), (7)(D), (7)(G) Statistics: (2)(A)-(D), (2)(F)-(G), (4)(B), (5)(C), (6)(E), (6)(G), (7)(F), Algebraic Reasoning: (2)(A)-(D), (3)(D)-(E), (4)(A)-(D), (7)(A)-(E)	Grade 6: (8)(D) Grade 7: (7)(A) Grade 8: (6)(A), (6)(C), (7)(A), (8)(D) Aquatic Science: (2)(J) Astronomy: (2)(H) Biology: (2)(H) Chemistry: (2)(I) Earth and Space Science: (2)(I) Environmental Systems: (2)(K) Integrated Physics and Chemistry: (2)(E), (3)(B) Physics: (2)(I)-(L), (3)(A)-(D), (3)(F), (4)(A)-(C), (4)(E), (5)(A)-(D), (5)(G)-(H), (6)(D)-(G), (7)(A)-(C), (7)(E)-(F), (8)(A)-(D)	Accounting II: (1)(A), (2)(D)-(F), (3)(B), (3)(E)-(G), (4)(C), (4)(H)-(I), (5)(B), (5)(L)-(P), (6)(E)(i)-(vi), (6)(G)(i)-(iv), (6)(R)(iv)-(v); Applied Mathematics for Technical Professionals: (1)(D)-(F), (2)(B)-(C), (2)(E), (2)(H), (3)(I)-(K), (4)(D), (4)(I), (5)(A), (5)(D)-(E), (6)(A), (6)(C)-(D), (7)(D)-(E); Digital Electronics: (1)(C), (2)(D)-(F), (7)(L), (8)(B), (12)(A)-(B); Engineering Mathematics: (1)(C), (2)(D)-(F), (4)(C), (4)(G), (4)(I), (5)(B), (6)(A), (6)(J)-(O), (7)(B), (7)(G), (7)(K), (9)(D), (11)(C)-(D); Financial Mathematics: (1)(A), (2)(D)-(F), (3)(G), (3)(J)-(L), (4)(D)-(F), (4)(K)-(L), (5)(A)-(F), (6)(A), (6)(C)-(G), (6)(I), (7)(A)-(C), (7)(E), (7)(H)-(I), (7)(K)-(L), (8)(A)-(D), (9)(A)-(D), (10)(A), (10)(E)-(G), (11)(A)-(B), (12)-(14), (15)(C), (17)(D)-(G); Manufacturing Engineering Technology II: (1)(F), (2)(D)-(F), (8)(C); Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(D)-(F), (4)(G), (5)(B)-(D), (6)(C)-(D), (7)(C), (8)(C), (9)(C), (10)(C), (11)(C), (12)(D); Mathematics for Medical Professionals: (1)(A), (2)(D)-(F), (4)(A)-(E); Robotics II: (1)(J), (2)(D)-(F), (8)(A), (8)(D), (10)(D)-(E), (11)(D), (12)(G); Statistics and Business Decision Making: (1)(A), (2)(D)-(F), (7)(A)-(B), (7)(D), (9), (10)(A)-(C), (12)-(13), (16)(A), (16)(C), (16)(E), (16)(G)-(H), (20)(B)-(C), (21); Basic Collision Repair and Refinishing: (2)(B); Collision Repair: (2)(B); Paint and Refinishing: (2)(B); Principles of Technology: (1)(C), (3)(K)-(L); Engineering Design and Problem Solving: (1)(C), (6)(A)-(F); Engineering Science: (1)(C), (3)(F), (3)(H); Biotechnology I: (1)(C), (3)(J); Biotechnology II: (1)(C), (3)(J), (10)(A); Scientific Research & Design: (1)(C), (10)(A), Principles of Information Technology: (9)(E)	Discrete Mathematics for Problem-Solving: (2)(A), (2)(D), (3)(A)-(B), (4)(A)-(D), (4)(F), (4)(H) Robotics Programming and Design: (1)(D)-(F), (2)(B), (3)(D)-(E), (3)(H), (5)(A), (7)(C)

IX.C.2. Create and use representations to organize, record, and communicate mathematical ideas.	Kindergarten - Grade 12: (1)(D)-(F) Kindergarten: (3)(A), (8)(A)-(B) Grade 1: (3)(A), (3)(E), (8)(A)-(B) Grade 3: (3)(A), (3)(E), (3)(H), (4)(D)-(E), (5)(A)-(B), (5)(E) Grade 4: (5)(A)-(B) Grade 5: (5), (8)(C) Grade 6: (2)(A), (4)(F) Grade 7: (6)(A), (7) Grade 8: (11)(A) Algebra I: (4)(A), (4)(C) Algebra II: (8)(A)-(C) Geometry: (5)(C) Mathematical Models with Applications: (2)(C), (3)(C)-(D), (5)(B), (7)(B)-(C), (9)(E), (10)(A)-(B) Advanced Quantitative Reasoning: (2)(F), (3)(A), (4)(P)-(R) Discrete Mathematics for Problem Solving: (2)(A)-(L), (4)(A), (4)(E), (4)(G), (6)(B), (6)(G), (6)(J), (7)(C), (7)(F)-(G) Statistics: (2)(E)-(F), (4)(D), (5)(A), (5)(C) Algebraic Reasoning: (2)(C)-(D), (3)(D)-(F), (4)(A)-(B), (4)(D)	Grades 6-8: (2)(D) Grade 6: (8)(B), (8)(D)-(E) Grade 7: (7)(A) Grade 8: (6)(A), (6)(C), (7)(A), (8)(D) Aquatic Science: (2)(J) Astronomy: (2)(H) Biology: (2)(H) Chemistry: (2)(I) Environmental Systems: (2)(K) Integrated Physics and Chemistry: (2)(E), (3)(B) Physics: (2)(I)-(L), (3)(A)-(D), (3)(F), (4)(A)-(E), (5)(A)-(D), (5)(G)-(H), (6)(E)-(G), (7)(A)-(C), (7)(E)-(F), (8)(A)-(D)	Accounting II: (1)(A), (2)(D)-(F), (3)(B), (3)(E)-(F), (4)(C), (4)(H)-(I), (5)(B), (5)(L)-(N), (5)(P), (6)(E)(i)-(vi), (6)(G)(i)-(iv), (6)(R)(iv)-(v); Applied Mathematics for Technical Professionals: (1)(D)-(F), (3)(I)-(J), (6)(A), (6)(C); Digital Electronics: (1)(C), (2)(D)-(F), (7)(L), (7)(N), (8)(B), (12)(A)-(B); Engineering Mathematics: (1)(C), (2)(D)-(F), (3)(B), (4)(C), (11)(A); Financial Mathematics: (1)(A), (2)(D)-(F), (6)(C), (6)(F), (7)(A)-(B), (8)(A), (11)(B), (12), (17)(F); Manufacturing Engineering Technology II: (1)(F), (2)(D)-(F); Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(D)-(F), (4)(G), (5)(D), (6)(D), (7)(D), (8)(C), (9)(C), (10)(C); Mathematics for Medical Professionals: (1)(A), (2)(D)-(F), (4)(A)-(C); Robotics II: (1)(J), (2)(D)-(F), (10)(D)-(E), (12)(G); Statistics and Business Decision Making: (1)(A), (2)(D)-(F), (7)(A), (7)(C), (8)(A)-(E), (9), (10)(A)-(C), (12)-(13), (20)(A)-(B), (21); Basic Collision Repair and Refinishing: (2)(B); Collision Repair: (2)(B); Paint and Refinishing: (2)(B); Principles of Technology: (1)(C), (3)(K)-(L); Engineering Design and Problem Solving: (1)(C), (6)(A)-(F); Engineering Science: (1)(C), (3)(F), (3)(H); Biotechnology I: (1)(C), (3)(J); Biotechnology II: (1)(C), (3)(J), (10)(A); Scientific Research & Design: (1)(C), (10)(A); Diversified Manufacturing I: (8)(A); Small Engine Technology I: (2)(E)-(F), (6)(A); Small Engine Technology II: (7)(A)(C)	Discrete Mathematics for Problem-Solving: (1)(A), (3)(A)-(B) Robotics Programming and Design: (1)(D)-(F), (2)(B), (3)(E), (3)(H)
IX.C.3. Explain, display, or justify mathematical ideas and arguments using precise mathematical language in written or oral communications.	Kindergarten - Grade 12: (1)(D), (1)(F)-(G) Kindergarten: (3)(C) Grade 1: (3)(E)Grade 2: (10)(A) Grade 3: (3)(H), (7)(A)-(B) Grade 5: (4)(E), (8)(A)-(B), (10)(B) Grade 6: (3)(B), (4)(C)-(D), (7)(B) Grade 8: (8)(D) Algebra I: (4)(B) Algebra II: (4)(G), (5)(E), (6)(J) Geometry: (3)(A), (6)(A)-(E), (8)(A), (12)(D) Precalculus: (2)(J)-(K), (2)(M), (4)(A), (4)(J) Mathematical Models with Applications: (3)(B), (7)(B)-(C), (8)(C), (9)(A)-(B), (10)(B) Advanced Quantitative Reasoning: (2)(B), (2)(G)-(H), (3)(B), (3)(F)-(H), (4)(G)-(T) Discrete Mathematics: (2)(A), (2)(L), (3)(G), (4)(B), (4)(D)-(F), (4)(H), (5)(C), (5)(E)-(K), (6)(E), (6)(H)-(I), (6)(K), (7)(A)-(C), (7)(E)-(G) Statistics: (2)(E)-(F), (3)(A), (3)(C)-(D), (4)(A), (4)(C)-(F), (6)(B), (6)(E)-(F), (6)(H)-(J), (7)(C)-(F) Algebraic Reasoning: (3)(A)-(B), (3)(F), (4)(B), (7)(B)-(C)	Integrated Physics and Chemistry: (2)(E), (3)(B), (4)(A), (4)(D)-(F), (5)(A)-(C), (5)(E), (5)(H)-(I), (6)(A)-(E), (7)(A)-(F)Physics: (2)(I)-(L), (3)(A)-(D), (3)(F), (4)(A)-(E), (5)(A)-(D), (5)(G)-(H), (6)(E)-(G), (7)(A)-(C), (7)(E)-(F), (8)(A)-(D)	Accounting II: (1)(A), (2)(D), (2)(F)-(G), (3)(E)-(H), (4)(A)--(B), (4)(F), (4)(I), (5)(A)-(B), (5)(G)-(J), (5)(L)-(N), (5)(P), (6)(A)-(B), (6)(E)-(J), (6)(L)-(Q), (7)(A)-(B), (8)(B)Applied Mathematics for Technical Professionals: (1)(D), (1)(F)-(G), (2)(B), (2)(H), (3)(K), (5)(D)-(E), (6)(A), (6)(C)-(D), (7)(D)-(E) Digital Electronics: (1)(C), (2)(D), (2)(F)-(G), (7)(A), (7)(C), (7)(L), (7)(N), (8)(B), (8)(E), (9)(C), (9)(F)-(G), (11)(A)-(B), (11)(D), (11)(F), (11)(J), (12)(A)-(B), (12)(F)-(H)Engineering Mathematics: (1)(C), (2)(D), (2)(F)-(G), (3)(A), (6)(B), (6)(D)-(E), (7)(C)-(E), (8)(B)-(C), (8)(E)-(F), (8)(J)-(K),(9)(B), (10)(E), (10)(L)Financial Mathematics: (1)(A), (2)(D), 2(F)-(G), (3)(A)-(D), (3)(G), (3)(J)-(L), (4)(D)-(F), (4)(K)-(L), (5)(A)-(B), (5)(D)-(F), (6)(A), (6)(C)-(I), (7)(A)-(C), (7)(E), (7)(H)-(I), (7)(K), (8)(A), (8)(C)-(D), (9)(A)-(D), (10)(A), (10)(D)-(E), (11)(A)-(B), (12), (14), (15)(C), (17)(F)Manufacturing Engineering Technology II: (1)(F), (2)(D), (2)(F)-(G)Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(D), (2)(F)-(G), (4)(G), (5)(D), (6)(D)Mathematics for Medical Professionals: (1)(A), (2)(D), (2)(F)-(G), (3)(E), (4)(A)-(C), (5)(A)-(B), (6)(H)-(K)Robotics II: (1)(J), (2)(D), (2)(F)-(G), (6)(A), (7)(B)-(C), (7)(E), (8)(B)-(C), (9)(A)-(C), (10)(B), (10)(D)-(E), (10)(G)-(H), (12)(G)Statistics and Business Decision Making: (1)(A), (2)(D), (2)(F)-(G), (3)(A), (4)(A)-(E), (5), (6)(C), (7)(A)-(B), (7)(D), (9), (10)(C), (12)-(13), (15)(B), (16)(A), (16)(C), (16)(E), (16)(G)-(H), (20)(A) Principles of Technology: (1)(C), (3)(K)-(L); Engineering Design and Problem Solving: (1)(C), (6)(A)-(F); Engineering Science: (1)(C), (3)(F), (3)(H); Biotechnology I: (1)(C), (3)(J); Biotechnology II: (1)(C), (3)(J), (10)(A); Scientific Research & Design: (1)(C), (10)(A), Manufacturing Engineering Technology I: (3)(B), (8)(B); Precision Metal Manufacturing I: (3)(D); Precision Metal Manufacturing II: (6)(B)-(D), (13)(A)-(C); Welding I: (3)(B); Small Engine Technology I: (2)(E)-(F), (6)(A)	Discrete Mathematics for Problem-Solving: (1)(B), (2)(A)-(F), (3)(A)-(B), (4)(A)-(D), (4)(F)-(O), (6)(C)-(G), (6)(L)-(M)Robotics Programming and Design: (1)(D), (1)(F)-(G), (2)(D), (2)(F), (3)(D)-(H), (4)(A), (4)(D), (7)(D)-(G), (7)(J), (7)(N), (7)(Q)-(S)
X. Connections				
A. Connections among the strands of mathematics				
X.A.1. Connect and use multiple strands of mathematics in situations and problems.	Kindergarten - Grade 12: (1)(A), (1)(F) Grade 6: (4)(G), (10)(A) Grade 7: (5)(B), (8)(A)-(C) Grade 8: (12)(A)-(D), (12)(G) Algebra I: (7)(A) Algebra II: (4)(B) Geometry: (2)(A)-(C), (4)(B)-(D), (12)(E), (13)(B)-(E) Precalculus: (3)(B)-(I), (4)(C)-(D), (4)(F)-(K) Mathematical Models with Applications: (2)(A)-(C), (5)(A)-(C), (6)(A)-(D) Advanced Quantitative Reasoning: (2)(A), (2)(F), (4)(G), Discrete Mathematics for Problem Solving: (c)(2)-(7) Statistics: (2)(B)-(F)		Accounting II: (2)(A), (2)(F); Applied Mathematics for Technical Professionals: (1)(A), (1)(F); Digital Electronics: (2)(A), (2)(F), (7)(L), (7)(O), (8)(A)-(C), (9)(D), (10)(D), (10)(E), (7)(I)-(K), (12)(A)-(B); Engineering Mathematics: (2)(A), (2)(F), (6)(J)-(O) ; Financial Mathematics: (2)(A), (2)(F); Manufacturing Engineering Technology II: (2)(A), (2)(F), (8)(B)-(C); Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(A), (2)(F), (5)(F), (6)(C), (7)(A), (8)(B)-(C), (11)(A), (11)(C); Mathematics for Medical Professionals: (2)(A), (2)(F), (4)(A); Robotics II: (2)(A), (2)(F), (6)(B), (7)(H)-(K), (8)(A)-(J), (10)(B), (11)(B)-(D), (12)(A)-(B); Statistics and Business Decision Making: (2)(A), (2)(F) ; Principles of Technology: (1)(C), (3)(K)-(L); Engineering Design and Problem Solving: (1)(C), (6)(A)-(F); Engineering Science: (1)(C), (3)(F), (3)(H); Biotechnology I: (1)(C), (3)(J); Biotechnology II: (1)(C), (3)(J), (10)(A); Scientific Research & Design: (1)(C), (10)(A); Diversified Manufacturing II: (2)(C); Metal Fabrication and Machining I: (2)(C); Metal Fabrication and Machining II: (3)(E), (8)(B); Precision Metal Manufacturing I: (3)(B); Precision Metal Manufacturing II: (11)(A)-(H), (12)(A)-(G), (13)(A)-(C); Manufacturing Engineering Technology I: (8)(B); Precision Metal Manufacturing II Lab: (6)(A)-(H), (7)(A)-(G)	Discrete Mathematics for Computer Science: (1)(A)-(C), (2)(A), (2)(D), (2)(F), (3)(A)-(B), (4)(A)-(O), (5)(C), (6)(A)-(M) Robotics Programming and Design: (1)(A), (1)(F), (2)(A), (2)(C), (2)(H), (4)(A)-(E), (5)(A)-(G), (7)(L)-(P)

X.A.2. Connect mathematics to the study of other disciplines.	Kindergarten - Grade 12: (1)(A), (1)(F) Grade 4: (10)(B) Grade 5: (10)(B), (10)(F) Grade 6: (14)(C) Grade 7: (13)(A), (13)(C)-(E), (14)(A) Grade 8: (12)(A)-(D) Algebra I: (9)(C) Precalculus: (4)(A), (4)(D), (4)(F), (4)(I), (4)(K)-(L), (4)(N) Mathematical Models with Applications: (c)(2)-(10) Advanced Quantitative Reasoning: (2)(B)-(H), (3)(A)-(H), (4)(H)-(T) Discrete Mathematics for Problem Solving: (2)(B), (2)(J)-(K), (3)(A)-(G), (4)(A)-(J), (5)(A)-(K), (6)(A)-(K), (7)(A)-(G) Algebraic Reasoning: (2)(D), (3)(C)-(F), (4)(A), (5)(D)-(E), (7)(C)-(E)	Grade 6: (6)(B), (8)(B)-(E) Grade 7: (7)(A) Grade 8: (6)(A), (6)(C), (7)(A), (8)(D) Aquatic Science: (2)(I) Astronomy: (6)(A)-(D), (9)(A)-(B), (11)(E) Chemistry: (2)(G), (5)(C), (6)(C)-(D), (8)(B)-(E), (9)(A)-(B), (10)(C)-(D), (10)(I), (11)(C)-(D) Earth and Space Science: (2)(H), (3)(E)-(F), (7)(B), (10)(D) Environmental Systems: (2)(J), (7)(B) Integrated Physics and Chemistry: (3)(D)-(F), (4)(A)-(G), (5)(A)-(I) Physics: (2)(I)-(L), (3)(A)-(D), (3)(F), (4)(A)-(E), (5)(B)-(C), (5)(F), (6)(A), (6)(C)-(D), (6)(G), (7)(B)-(F)	Accounting II: (c)(2)-(8); Applied Mathematics for Technical Professionals: (c)(1)-(7); Digital Electronics: (2)(A), (2)(F), (5)(A)-(D), (7)(A), (7)(I), (7)(L)-(M), (8)(B), (9)(A), (9)(E), (10)(C), (10)(H), (10)(J)-(K), (11)(A)-(J), (12)(A)-(B); Engineering Mathematics: (c)(2)-(11); Financial Mathematics: (c)(2)-(17); Manufacturing Engineering Technology II: (2)(A), (2)(F); Mathematical Applications in Agriculture, Food, and Natural Resources: (c)(2)-(12); Mathematics for Medical Professionals: (c)(2)-(7); Robotics II: (c)(2)-(12); Statistics and Business Decision Making: (c)(2)-(23) ; Forestry and Woodland Ecosystems: (4)(A)-(D); Basic Collision Repair and Refinishing: (3)(C)-(D); Collision Repair: (2)(D), (10)(K)-(M); Paint and Refinishing: (3)(C); Principles of Technology: (3)-(13); Engineering Design and Problem Solving: (3)-(9); Engineering Sciences: (4)-(16); Biotechnology I: (3)-(13); Biotechnology II: (3)-(14); Scientific Research & Design: (3)-(10); Principles of Manufacturing: (3)(C), Diversified Manufacturing I: (10)(C); Diversified Manufacturing II: (11)(C); Metal Fabrication and Machining II: (3)(C), (8)(A); Precision Metal Manufacturing I: (3)(B)-(F); Precision Metal Manufacturing II: (6)(C)-(D), (11)(A)-(H), (12)(A)-(G), (13)(A)-(C); Precision Metal Manufacturing II Lab: (6)(A)-(H), (7)(A)-(G); Welding I: (3)(B), (5)(C); Welding II: (3)(A)-(B), (5)(B)	Discrete Mathematics for Computer Science: (1)(A)-(C), (2)(A)-(D), (2)(F), (3)(A)-(B), (4)(A)-(O), (5)(C) Robotics Programming and Design: (c)(1)-(7)
B. Connections of mathematics to nature, real world situations, and everyday life				
X.B.1. Use multiple representations to demonstrate links between mathematical and real world situations.	Kindergarten - Grade 12: (1)(A), (1)(D) Kindergarten: (4) Grade 1: (4)(A)-(C) Grade 2: (5)(A)-(B), (11)(A) Grade 3: (4)(C), (5)(E), (7)(C)-(E) Grade 5: (3)(A), (8)(C) Grade 6: (2)(D), (4)(B), (4)(G), (5)(A)-(B), (9)(C) Grade 7: (4)(A)-(E), (5)(C), (6)(F), (10)(C), (12)(B)-(C), (13)(A), (13)(C)-(E) Grade 8: (4)(B)-(C), (5)(D), (8)(A)-(C), (11)(A) Algebra I: (2)(A), (2)(D), (2)(H)-(I), (3)(B), (3)(G), (4)(C), (8)(B), (9)(C)-(E) Algebra II: (4)(E), (5)(B), (6)(H), (8)(A)-(C) Geometry: (6)(A), (6)(D)-(E), (7)(B), (8)(A)-(B), (9)(A)-(B), (12)(B)-(C) Precalculus: (2)(N)-(P), (3)(C), (4)(A), (4)(D)-(I), (4)(K), (5)(H)-(L), (5)(N) Mathematical Models with Applications: (c)(2)-(10) Advanced Quantitative Reasoning: (2)(A)-(H), (3)(A)-(H), (4)(H)-(T) Discrete Mathematics for Problem Solving: (2)(B), (2)(G)-(H), (2)(J)-(K), (3)(A)-(G), (4)(A)-(J), (5)(A)-(K), (6)(A)-(K), (7)(A)-(G) Statistics: (2)(F), (3)(B), (4)(B), (4)(D)-(F), (5)(C)-(D), (7)(A), (7)(C), (7)(E)-(F) Algebraic Reasoning: (2)(B)-(D), (3)(C)-(F), (4)(A), (5)(D)-(E), (6)(B)-(C), (7)(B)-(E)	Grade 6: (6)(B), (8)(B)-(E) Grade 7: (7)(A)Grade 8: (6)(A), (6)(C), (7)(A), (8)(D)Aquatic Science: (2)(I)Astronomy: (6)(A)-(D), (9)(A)-(B), (11)(E)Chemistry: (2)(G), (5)(C), (6)(C)-(D), (8)(B)-(E), (9)(A)-(B), (10)(C)-(D), (10)(I), (11)(C)-(D)Earth and Space Science: (2)(H), (3)(E)-(F), (7)(B), (10)(D)Environmental Systems: (2)(J), (7)(B)Integrated Physics and Chemistry: (3)(D)-(F), (4)(B)Physics: (2)(I)-(L), (3)(A)-(D), (3)(F), (4)(A), (4)(C), (4)(E)	Accounting II: (1)(A), (2)(D)-(F), (3)(B), (3)(E)-(G), (4)(C), (4)(H)-(I), (5)(B), (5)(L)-(P), (6)(E)(i)-(vi), (6)(G)(i)-(iv), (6)(R)(iv)-(v) Applied Mathematics for Technical Professionals: (1)(D)-(F), (2)(B)-(C), (2)(E), (2)(H), (3)(I)-(K), (4)(D), (4)(I), (5)(A), (5)(D)-(E), (6)(A), (6)(C)-(D), (7)(D)-(E) Digital Electronics: (1)(C), (2)(D)-(F), (7)(L), (8)(B), (12)(A)-(B) Engineering Mathematics: (1)(C), (2)(D)-(F), (4)(C), (4)(G), (4)(I), (5)(B), (6)(A), (6)(J)-(O), (7)(B), (7)(G), (7)(K), (9)(D), (11)(C)-(D) Financial Mathematics: (1)(A), (2)(D)-(F), (3)(G), (3)(J)-(L), (4)(D)-(F), (4)(K)-(L), (5)(A)-(F), (6)(A), (6)(C)-(G), (6)(I), (7)(A)-(C), (7)(E), (7)(H)-(I), (7)(K)-(L), (8)(A)-(D), (9)(A)-(D), (10)(A), (10)(E)-(G), (11)(A)-(B), (12)-(14), (15)(C), (17)(D)-(G) Manufacturing; Engineering Technology II: (1)(F), (2)(D)-(F), (8)(C) Mathematical Applications in Agriculture, Food, and Natural Resources: (2)(D)-(F), (4)(G), (5)(B)-(D), (6)(C)-(D), (7)(C), (8)(C), (9)(C), (10)(C), (11)(C), (12)(D); Mathematics for Medical Professionals: (1)(A), (2)(D)-(F), (4)(A)-(E) Robotics II: (1)(J), (2)(D)-(F), (8)(A), (8)(D), (10)(D)-(E), (11)(D), (12)(G) Statistics and Business Decision Making: (1)(A), (2)(D)-(F), (7)(A)-(B), (7)(D), (9), (10)(A)-(C), (12)-(13), (16)(A), (16)(C), (16)(E), (16)(G)-(H), (20)(B)-(C), (21) Basic Collision Repair and Refinishing: (3)(C)-(D) Collision Repair: (2)(D), (3)(D), (10)(K)-(M) Paint and Refinishing: (3)(C) Engineering Design and Problem Solving: (5)(K), (8)(A)-(I), (9)(A)-(I) Engineering Science: (6)(A), (15)(A)-(H), (16)(A)-(D) Manufacturing Engineering Technology I: (8)(B) Precision Metal Manufacturing II Lab: (7)(A)-(C) Automotive Technology II: Automotive Service: (2)(B)	Discrete Mathematics for Problem-Solving: (1)(A)-(C), (2)(A)-(F), (3)(A)-(B), (4)(F), (4)(L)-(O), (5)(C) Robotics Programming and Design: (1)(D)-(F), (2)(B), (3)(D)-(E), (3)(H), (5)(A), (7)(C)

X.B.2. Understand and use appropriate mathematical models in the natural, physical, and social sciences.	Kindergarten - Grade 12: (1)(A) Grade 8: (5)(E), (5)(H), (8)(A)-(C), (11)(A), (12)(A)-(D) Algebra I: (2)(D), (4)(C), (5)(A)-(C), (8)(A)-(C), (9)(C), (9)(E) Algebra II: (5)(B), (6)(H), (6)(L) Precalculus: (2)(N)-(P), (3)(C), (4)(A), (4)(D)-(K), (5)(C), (5)(J)-(L), (5)(N) Mathematical Models with Applications: (5)(A)-(C), (6)(A)-(D), (8)(A)-(C), (9)(A)-(F), (10)(A)-(B) Advanced Quantitative Reasoning: (2)(A)-(H), (3)(A), (3)(C)-(H), (4)(H)-(T) Discrete Mathematics for Problem Solving: (2)(G), (2)(K), (4)(A)-(J), (5)(A)-(K), (6)(A)-(K), (7)(A)-(G) Statistics: (c)(2)-(7) Algebraic Reasoning: (2)(C)-(D), (3)(C)-(D), (5)(D)-(E), (6)(B)-(C), (7)(C)-(E)	Grades 6 - 8: (2)(E) Grade 6: (6)(B), (8)(C) Grade 7: (7)(A) Grade 8: (6)(A), (6)(C), (7)(A), (8)(D) Aquatic Science: (2)(I) Astronomy: (6)(A)-(D), (9)(A)-(B), (11)(E) Chemistry: (2)(G), (5)(C), (6)(C)-(D), (8)(B)-(E), (9)(A)-(B), (10)(C)-(D), (10)(I), (11)(C)-(D) Earth and Space Science: (2)(H), (3)(E)-(F), (7)(B), (10)(D) Environmental Systems: (2)(J), (7)(B) Integrated Physics and Chemistry: (3)(D)-(F), (4)(A)-(G), (5)(A)-(I) Physics: (2)(I)-(L), (3)(A)-(D), (3)(F), (4)(A)-(E), (5)(B)-(C), (5)(F), (6)(A), (6)(C)-(G), (7)(A)-(F), (8)(A)-(C)	Accounting II: (2)(A), (3)(B)-(D), (3)(F), (4)(B)-(I), (5)(B), (5)(D)-(F), (5)(I), (5)(K)-(P), (6)(D)-(H), (6)(J)-(O), (6)(R), (7)(A), (7)(B)(iv)-(v), (8)(A) Applied Mathematics for Technical Professionals: (1)(A), (2)(A)-(H), (3)(A)-(K), (4)(A)-(F), (5)(A)-(E), (6)(A)-(C), (7)(A)-(E); Digital Electronics: (2)(A), (7)(A)-(O), (8)(A)-(F), (9)(A)-(F), (10)(A)-(K)- (11)(A)-(J), (12)(A)-(E); Engineering Mathematics: (c)(2)-(11); Financial Mathematics: (2)(A), (3)(C)-(L), (4)(A)-(C), (4)(E)-(K), (5)(C)-(E), (6)(B)-(G), (6)(I), (7)(A)-(I), (7)(K)-(L), (8)(A)-(F), (9)(A)-(D), (10)(A)-(C), (10)(E)-(F), (11)(A)-(D), (12), (15)(A), (15)(C), (17)(C), (17)(G); Manufacturing Engineering Technology II: (2)(A); Mathematical Applications in Agriculture, Food, and Natural Resources: (c)(2)-(12); Mathematics for Medical Professionals: (2)(A), (4)(A)-(F); Robotics II: (c)(2)-(12); Statistics and Business Decision Making: (2)(A), (6)(A), (6)(C), (7)(C)-(D), (9), (10)(A)-(C), (12)-(13), (15)(A), (16)(A)-(H), (17)-(19), (20)(A)-(C), (21), (22)(A)-(D); Basic Collision Repair and Refinishing: (3)(C); Collision Repair: (3)(D), (5)(D); HVAC Tech I: (6)(C); Engineering Design and Problem Solving: (3)(F), (4)(E), (5)(C), (5)(E), (8)(F); Engineering Science: (3)(F), (4)(E); Biotechnology I: (3)(F), (4)(E); Biotechnology II: (4)(E); Scientific Research and Design: (4)(E); Diversified Manufacturing II: (9)(A), (11)(C); Metal Fabrication and Machining II: (3)(C), (8)(A); Precision Metal Manufacturing I: (3)(C)-(D); Precision Metal Manufacturing II: (6)(C)-(D), (11)(A)-(H), (12)(A)-(G), (13)(A)-(C); Precision Metal Manufacturing II Lab: (6)(A)-(H), (7)(A)-(G); Introduction to Welding: (5)(A); Welding I: (3)(B); Welding II: (3)(A); Small Engine Technology I: (5)(D), (6)(A)(C)-(E); Small Engine Technology II: (5)(E), (7)(A)(E)-(G)	Discrete Mathematics for Computer Science: (1)(A)-(C), (2)(A), (3)(A)-(B), (5)(C) Robotics Programming and Design: (c)(1)-(7)
X.B.3. Know and understand the use of mathematics in a variety of careers and professions.	Kindergarten - Grade 12: (1)(A) Grade 8: (12)(A)-(G) Precalculus: (4)(F) Mathematical Models with Applications: (c)(2)-(10) Advanced Quantitative Reasoning: (2)(A)-(H), (3)(C)-(H), (4)(D)-(F), (4)(H)-(T) Discrete Mathematics for Problem Solving: (2)(B), (2)(D), (2)(G), (2)(J)-(K), (3)(A)-(G), (4)(A)-(J), (5)(A)-(K), (6)(A)-(K), (7)(A)-(G) Statistics: (c)(2)-(7) Algebraic Reasoning: (3)(E), (4)(A), (7)(C)-(E)	Aquatic Science: (3)(E)-(F) Astronomy: (3)(E) Biology: (3)(F) Chemistry: (3)(E)-(F) Earth and Space Science: (3)(E)-(F), (12)(E) Environmental Systems: (3)(E)-(F) Integrated Physics and Chemistry: (3)(E)-(F) Physics: (3)(D)-(E), (5)(A), (7)(F), (8)(D)	Accounting II: (c)(1)-(8); Applied Mathematics for Technical Professionals: (c)(1)-(7); Digital Electronics: (1)(A)-(E), (2)(A), (3)(A)-(I), (4)(A)-(C), (5)(A)-(D), (6)(A)-(H), (7)(A), (7)(H)-(I), (7)(L)-(O), (8)(A)-(F), (9)(A)-(F), (10)(A)-(K), (11)(A)-(G), (12)(A)-(H); Engineering Mathematics: (c)(1)-(11); Financial Mathematics: (c)(1)-(17); Manufacturing Engineering Technology II: (1)(A)-(G), (2)(A); Mathematical Applications in Agriculture, Food, and Natural Resources: (c)(1)-(12); Mathematics for Medical Professionals: (c)(1)-(7); Robotics II:(c)(1)-(12); Statistics and Business Decision Making: (c)(1)-(23); Veterinary Medical Applications: (8)(A)-(H); Forestry and Woodland Ecosystems: (4)(A)-(D); Principles of Technology: (4)(E); Biotechnology I: (4)(F); Biotechnology II: (4)(F); Scientific Research and Design: (4)(F); Engineering Design and Problem Solving: (7)(A), (7)(C); Diversified Manufacturing II: (11)(C); Precision Metal Manufacturing I: (3)(B); Precision Metal Manufacturing II: (11)(C), (12)(C); Precision Metal Manufacturing II Lab: (6)(C), (7)(C); Introduction to Welding: (5)(A); Welding I: (3)(B); Welding II: (3)(A); Automotive Technology II: Automotive Service: (3)(H); Business Information Management II: (7)	Discrete Mathematics for Computer Science: (1)(A)-(C), (2)(A)-(F), (3)(A)-(B), (5)(A)-(C) Robotics Programming and Design: (c)(1)-(7)

Figure: 19 TAC §74.6(c)

College and Career Readiness Standards / Texas Essential Knowledge and Skills Alignment

Science

CCRS	Foundation Subjects		Enrichment
	Science	Social Studies	CTE
I. Nature of Science: Scientific Ways of Learning and Thinking			
A. Cognitive skills in science			
I.A.1. Utilize skepticism, logic, and professional ethics in science.	Grades 3-12: (3)(A) Aquatic Science: (2)(A), (2)(D), (3)(A) Astronomy: (2)(A), (2)(D), (3)(A) Biology: (2)(A), (2)(D), (3)(A) Chemistry: (2)(A), (2)(D), (3)(A) Earth and Space Science: (2)(A), (2)(D), (3)(A) Environmental Systems: (2)(A), (2)(D), (3)(A), (9)(G)-(I) IPC: (2)(A), (3)(A) Physics: (2)(A), (2)(D), (3)(A)		Anatomy and Physiology: (3)(B), (4)(A), (6)(C) Advanced Animal Science: (3)(B), (4)(A), (6)(A)-(B), (13)(A) Advanced Plant and Soil Science: (3)(B), (4)(A), (9)(B), (10)(B), (10)(E), (11)(D), (18)(D) Medical Microbiology: (3)(B), (4)(A), (7)(F) Pathophysiology: (3)(B), (4)(A) Engineering Design and Problem Solving: (3)(B), (4)(A), (5)(A), (5)(D)-(E), (6)(F), (8)(A)-(C), (8)(E)-(H), (9(G)-(H) Engineering Science: (3)(B), (4)(A), (6)(B)-(C), (9)(B), (13)(D)-(E) Scientific Research and Design: (3)(B), (4)(A) Principles of Technology: (3)(B), (3)(I), (4)(A), (5)(G) Biotechnology I: (3)(B), (4)(A) Biotechnology II: (3)(B), (4)(A), (5)(B), (8)(C), (9)(C), (10)(B) Forensic Science: (3)(B), (4)(A), (6)(C), (12)(D) Food Science: (3)(B), (4)(A)
I.A.2. Use creativity and insight to recognize and describe patterns in natural phenomena.	Kindergarten-Grade 2: (3)(B) Grades 3-8: (2)(D) Grade 7: (5)(A)-(C) Grade 8: (7)(A)-(B), (10)(B) Aquatic Science: (2)(B) Astronomy: (2)(B), (4)(C) Biology: (2)(B) Chemistry: (2)(B) Earth and Space Science: (2)(B) Environmental Systems: (2)(B), (4)(D) IPC: (4)(A) Physics: (2)(B)		Anatomy and Physiology: (4)(A)-(D), (6)(C), (10)(A)-(B), (12)(B)-(C) Advanced Animal Science: (4)(A)-(D) Advanced Plant and Soil Science: (4)(A)-(D), (9)(B), (10)(B), (10)(E), (15)(E) Medical Microbiology: (4)(A)-(D), (6)(A), (6)(D), (7)(B), (7)(F) Pathophysiology: (4)(A)-(D) Engineering Design and Problem Solving: (4)(A)-(D), (5)(A), (5)(D), (6)(F), (8)(A)-(C), (8)(E)-(H) Engineering Science: (4)(A)-(D) Scientific Research and Design: (4)(A)-(D) Principles of Technology: (4)(A)-(D) Biotechnology I: (4)(A)-(D) Biotechnology II: (4)(A)-(D), (6)(C), (9)(A), (13)(B) Forensic Science: (4)(A)-(D), (5)(A), (6)(A), (6)(C)-(D), (6)(F), (6)(J), (14)(A), (16)(C), (17)(C) Food Science: (4)(A)-(D)
I.A.3. Formulate appropriate questions to test understanding of natural phenomena.	Kindergarten-Grade 8: (2)(A) Grades 5-8: (2)(B) Aquatic Science: (2)(E) Astronomy: (2)(E) Biology: (2)(E) Chemistry: (2)(E) Environmental Systems: (2)(E) IPC: (2)(B) Physics: (2)(E)		Anatomy and Physiology: (3)(B), (3)(E), (10)(B), (11)(A) Advanced Animal Science: (3)(B), (3)(E) Advanced Plant and Soil Science: (3)(B), (3)(E), (7)(A), (9)(B), (10)(B), (10)(E) Medical Microbiology: (3)(B), (3)(E), (6)(D), (7)(F); Pathophysiology: (3)(B), (3)(E) Engineering Design and Problem Solving: (3)(B), (3)(E), (5)(A), (5)(D), (6)(F), (8)(A)-(C), (8)(E)-(H) Engineering Science: (3)(B), (3)(E) Scientific Research and Design: (3)(B), (3)(E) Principles of Technology: (3)(B), (3)(E) Biotechnology I: (3)(B), (3)(E) Biotechnology II: (3)(B), (3)(E), (7)(C) Forensic Science: (3)(B), (3)(E), (16)(C) Food Science: (3)(B), (3)(E)
I.A.4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.	Kindergarten-Grade 5: (2)(D) Grades 3-4: (2)(B) Grade 5: (2)(C) Grades 6-8: (2)(A)-(B), (2)(D)-(E), (3)(A) Aquatic Science: (2)(C), (3)(A), (5)(A) Astronomy: (2)(C), (2)(G), (3)(A) Biology: (2)(C), (2)(G), (3)(A) Chemistry: (2)(C), (2)(H), (3)(A) Earth and Space Science: (2)(C), (2)(G), (3)(A) Environmental Systems: (2)(C), (2)(I), (3)(A), (9)(F) IPC: (2)(D), (3)(A) Physics: (2)(C), (2)(J), (3)(A)		Anatomy and Physiology: (3)(B)-(C), (3)(E), (3)(G), (4)(A)-(D), (10)(A)-(B), (11)(A), (12)(B)-(C) Advanced Animal Science: (3)(B)-(C), (3)(E), (3)(G), (4)(A)-(D) Advanced Plant and Soil Science: (3)(B)-(C), (3)(E), (3)(G), (4)(A)-(D), (7)(A), (7)(C), (9)(B), (10)(B), (10)(E) Medical Microbiology: (3)(B)-(C), (3)(E), (3)(G), (4)(A)-(D), (6)(C)-(D), (7)(F) Pathophysiology: (3)(B)-(C), (3)(E), (3)(G), (4)(A)-(D) Engineering Design and Problem Solving: (3)(B)-(C), (3(E), (3)(G), (4)(A)-(D), (5)(A), (5)(D), (6)(F), (8)(A)-(C), (8)(E)-(H), (9)(A), (9)(G)-(H) Engineering Science: (3)(B)-(C), (3)(E), (3)(G), (4)(A)-(D), (6)(B)-(C), (13)(D)-(E) Scientific Research and Design: (3)(B)-(C), (3)(E), (3)(G), (4)(A)-(D), (6)(D), (9)(A) Principles of Technology: (2)(J), (3)(B)-(C), (3)(E), (3)(G), (4)(A)-(D), (5)(B) Biotechnology I: (3)B)-(C), (3)(E), (3)(G), (4)(A)-(D) Biotechnology II: (3)(B)-(C), (3)(E), (3)(G), (4)(A)-(D), (6)(D), (9)(B), (12)(C), (13)(B) Forensic Science: (3)(B)-(C), (3)(E), (3)(G), (4)(A)-(D) Food Science: (3)(B)-(C), (3)(E), (3)(G), (4)(A)-(D)

B. Scientific inquiry			
I.B.1. Design and conduct scientific investigations in which hypotheses are formulated and tested.	Kindergarten-Grade 8: (2)(A)-(B) Kindergarten-Grade 3: (2)(C) Aquatic Science: (2)(E) Astronomy: (2)(E) Biology: (2)(E) Chemistry: (2)(E) Environmental Systems: (2)(E) IPC: (2)(B) Physics: (2)(E)		Anatomy and Physiology: (3)(B), (3)(D)-(E) Advanced Animal Science: (3)(B), (3)(D)-(E), (5)(A), (5)(E) Advanced Plant and Soil Science: (3)(B), (3)(D)-(E), (5)(A), (5)(E), (7)(A), (8)(A), (10)(E), (18)(D) Medical Microbiology: (3)(B), (3)(D)-(E), (6)(D) Pathophysiology: (3)(B), (3)(D)-(E) Engineering Design and Problem Solving: (3)(B), (3)(D)-(E), (8)(B)-(C), (8)(F), (9)(A)-(B) Engineering Science: (3)(B), (3)(D)-(E), (7)(F), (10)(A), (11)(A), (12)(A), (12)(C) Scientific Research and Design: (3)(B), (3)(D)-(E), (5)(B), (7)(B)-(D) Principles of Technology: (3)(B), (3)(D)-(E), (5)(A), (5)(C) Biotechnology I: (3)(B), (3)(D)-(E) Biotechnology II: (3)(B), (3)(D)-(E), (7)(D), (14)(D) Forensic Science: (3)(B), (3)(D)-(E), (13)(B) Food Science: (3)(B), (3)(D)-(E)
C. Collaborative and safe working practices			
I.C.1. Collaborate on joint projects.	Aquatic Science: (2)(F) Astronomy: (2)(H)		Anatomy and Physiology: (1)(B) Advanced Animal Science: (5)(E) Advanced Plant and Soil Science: (5)(E) Medical Microbiology: (1)(B) Pathophysiology: (1)(B) Engineering Design and Problem Solving: (1)(B), (9)(C)-(D) Engineering Science: (1)(B), (6)(A), (6)(E) Scientific Research and Design: (1)(B) Principles of Technology: (1)(B) Biotechnology I: (1)(B) Biotechnology II: (1)(B), (7)(A) Forensic Science: (1) Food Science: (1)(B)
I.C.2. Understand and apply safe procedures in the laboratory and field, including chemical, electrical, and fire safety and safe handling of live or preserved organisms.	Kindergarten-Grade 12: (1)(A) Kindergarten-Grade 8 : (1)(B) Kindergarten-Grade 2: (1)(C) Grades 6-8: (4)(B) Aquatic Science: (1)(A) Astronomy: (1)(A) Biology: (1)(A) Chemistry: (1)(A) Earth and Space Science: (1)(A) Environmental Systems: (1)(A) IPC: (1)(A) Physics: (1)(A)		Anatomy and Physiology: (2)(A)-(B), (3)(E) Advanced Animal Science: (1)(C), (2)(A)-(B), (3)(E), (5)(E), (7)(D), (14)(C) Advanced Plant and Soil Science: (1)(C), (2)(A)-(B), (3)(E), (5)(E), (7)(A), (15)(D), (18)(D) Medical Microbiology: (2)(A)-(B), (3)(E), (3)(J) Pathophysiology: (2)(A)-(B), (3)(E) Engineering Design and Problem Solving: (2)(A)-(B), (3)(E), (8)(D), (9)(B), (9)(D)-(E) Engineering Science: (2)(A)-(B), (3)(E), (7)(F), (10)(A), (11)(A), (12)(A), (12)(C) Scientific Research and Design: (2)(A)-(B), (3)(E) Principles of Technology: (2)(A)-(B), (3)(E), (5)(D), (6)(A)-(D) Biotechnology I: (2)(A)-(B), (3)(E), (3)(J), (9)(A), (9)(C)-(E), (11)(A)-(B), (12)(B)-(I), (13)(A)-(B) Biotechnology II: (2)(A)-(B), (3)(E), (3)(J), (14)(A)-(B) Forensic Science: (2)(A)-(B), (3)(E), (3)(J), (6)(C)-(D), (6)(J), (12)(D), (16)(C) Food Science: (2)(A)-(B), (3)(E), (3)(J)
I.C.3. Demonstrate skill in the safe use of a wide variety of apparatuses, equipment, techniques, and procedures.	Kindergarten-Grade 12: (1)(A)-(B) Kindergarten-Grade 2: (2)(B) Kindergarten-Grade 8: (4)(A) Grades 5-8: (2)(B) Grades 6-8: (4)(B) Aquatic Science: (1)(B), (2)(E),(G) Astronomy:(2)(E)-(F), (2)(I), (11)(F) Biology: (1)(A)-(B), (2)(F) Chemistry: (1)(A), (1)(C), (2)(E)-(F) Earth and Space Science: (1)(A)-(C), (2)(E)-(F) Environmental Systems: (1)(B), (2)(F)-(H) IPC: (1)(A)-(B), (2)(B) Physics: (1)(A)-(B), (2)(F)-(G)		Anatomy and Physiology: (2)(A)-(B), (3)(E)-(F) Advanced Animal Science: (1)(C), (2)(A)-(B), (3)(E)-(F), (5)(E), (7)(D), (14)(C) Advanced Plant and Soil Science: (1)(C), (2)(A)-(B), (3)(E)-(F), (5)(E), (7)(A), (15)(D), (18)(D) Medical Microbiology: (2)(A)-(B), (3)(E)-(F), (3)(J) Pathophysiology: (2)(A)-(B), (3)(E)-(F), (6)(A) Engineering Design and Problem Solving: (2)(A)-(B), (3)(E)-(F), (9)(B), (9)(D)-(E) Engineering Science: (2)(A)-(B), (3)(E)-(F), (7)(F), (10)(A), (11)(A), (12)(A), (12)(C) Scientific Research and Design: (2)(A)-(B), (3)(E)-(F) Principles of Technology: (2)(A)-(B), (3)(E)-(F), (5)(D), (6)(A)-(D) Biotechnology I: (2)(A)-(B), (3)(E)-(F), (3)(J), (11)(A)-(B), (12)(B)-(I), (13)(A)-(B) Biotechnology II: (2)(A)-(B), (3)(E)-(F), (3)(J), (14)(A)-(B) Forensic Science: (2)(A)-(B), (3)(E)-(F), (6)(D), (6)(H), (6)(J), (8)(D), (12)(D), (14)(C), (16)(C) Food Science: (2)(A)-(B), (3)(E)-(F), (3)(J)
D. Current scientific technology			
I.D.1. Demonstrate literacy in computer use.	Kindergarten-Grade 8: (4)(A) Biology: (2)(F) Chemistry: (2)(F) Earth and Space Science: (1)(C), (2)(E) Environmental Systems: (2)(G)-(H) Physics: (2)(F)		Anatomy and Physiology: (3)(H) Advanced Animal Science: (3)(H), (13)(D) Advanced Plant and Soil Science: (3)(H) Medical Microbiology: (3)(H) Pathophysiology: (3)(H) Engineering Design and Problem Solving: (3)(H), (6)(C) Engineering Science: (3)(H), (13)(A)-(C) Scientific Research and Design: (3)(H), (8)(C), (10)(A) Principles of Technology: (3)(H) Biotechnology I: (3)(H) Biotechnology II: (3)(H) Forensic Science: (3)(H) Food Science: (3)(H) Introduction to Culinary Arts: (5)(A); Culinary Arts (10)(A-D)

I.D.2. Use computer models, applications, and simulations.	Kindergarten-Grade 8: (4)(A) Biology: (2)(F), (2)(H) Chemistry: (2)(F), (2)(I) Earth and Space Science: (1)(C), (2)(E), (15)(B) Environmental Systems: (2)(H) Physics: (2)(F), (2)(K)		Anatomy and Physiology: (3)(H) Advanced Animal Science: (3)(H), (13)(D) Advanced Plant and Soil Science: (3)(H) Medical Microbiology: (3)(H) Pathophysiology: (3)(H) Engineering Design and Problem Solving: (3)(H), (6)(C)-(D) Engineering Science: (3)(H), (13)(A)-(C) Scientific Research and Design: (3)(H), (8)(C), (10)(A) Principles of Technology: (2)(K), (3)(H) Biotechnology I: (3)(H), (7)(A) Biotechnology II: (3)(H) Forensic Science: (3)(H) Food Science: (3)(H)
I.D.3. Demonstrate appropriate use of a wide variety of apparatuses, equipment, techniques, and procedures for collecting quantitative and qualitative data.	Kindergarten-Grade 2: (2)(B) Kindergarten-Grade 5: (4)(A)-(B) Grades 3-5: (3)(C) Grades 6-8: (2)(B), (4)(A) Aquatic Science: (2)(E), (2)(G) Astronomy: (2)(E), (14)(C)-(D) Biology: (2)(E)-(F) Chemistry: (2)(E)-(F), (2)(I) Earth and Space Science: (2)(E)-(F) Environmental Systems: (2)(E), (2)(G)-(H) IPC: (2)(B), (4)(C)-(D) Physics: (2)(F)-(G), (2)(K)		Anatomy and Physiology: (3)(E)-(F) Advanced Animal Science: (3)(E)-(F) Advanced Plant and Soil Science: (3)(E)-(F), (7)(A), (18)(D) Medical Microbiology: (3)(E)-(F) Pathophysiology: (3)(E)-(F), (6)(A) Engineering Design and Problem Solving: (3)(E)-(F), (5)(J), (6)(A), (8)(I) Engineering Science: (3)(E)-(F), (10)(A), (11)(A) Scientific Research and Design: (3)(E)-(F), (8)(C), (10)(A) Principles of Technology: (2)(K), (3)(E)-(F), (5)(D)-(E) Biotechnology I: (3)(E)-(F) Biotechnology II: (3)(E)-(F) Forensic Science: (3)(E)-(F), (7)(A), (7)(E), (14)(A) Food Science: (3)(E)-(F)
E. Effective communication of scientific information			
I.E.1. Use several modes of expression to describe or characterize natural patterns and phenomena. These modes of expression include narrative, numerical, graphical, pictorial, symbolic, and kinesthetic.	Kindergarten: (8)(A), (8)(C) Kindergarten-Grade 2: (2)(E), (3)(A)-(B) Kindergarten-Grade 4: (2)(D) Grade 1: (6)(B) Grade 2: (2)(F), (8)(D) Grade 3: (8)(C), (9)(A), (9)(C), Grades 3-5: (2)(F), (3)(C) Grade 4: (2)(C), (6)(C), (8)(B), (9)(B), (10)(B) Grade 5: (2)(G), (6)(B)-(C), (8)(B)-(C), (9)(B), (10)(C) Grades 6-8: (2)(D)-(E), (3)(B) Grade 6: (8)(B), (8)(D), (10)(D), (11)(A), (11)(C), (12)(E)-(F) Grade 7: (5)(B)-(C), (11)(B), (12)(A) Grade 8: (10)(B) Aquatic Science: (2)(H), (8)(A), (8)(C), (10)(B) Astronomy: (2)(H), (8)(B), (10)(C), (12)(A), (14)(E) Biology: (2)(H), (4)(B)-(C), (5)(A), (5)(C), (6)(A), (6)(C), (10)(A)-(B), (11)(A), (11)(D), (12)(E) Chemistry: (2)(I), (7)(D), (10)(A) Earth and Space Science: (2)(I), (4)(B), (9)(D), (10)(B)-(C), (11)(B), (12)(B), (14)(C), (15)(A), (15)(D) Environmental Systems: (2)(K), (4)(H), (6)(B)-(D), (8)(A)-(B), (8)(D), (9)(D) IPC: (2)(E), (4)(B), (4)(F), (7)(E)-(F) Physics: (2)(J)-(L), (4)(A), (5)(A)-(C), (5)(G), (6)(E), (6)(G), (7)(A), (8)(A)-(C)		Anatomy and Physiology: (3)(F), (3)(H), (4)(B), (4)(E) Advanced Animal Science: (3)(F), (4)(B), (4)(E), (6)(C), (13)(A), (13)(D), (14)(A)-(D) Advanced Plant and Soil Science: (3)(F), (4)(B), (4)(E), (7)(D), (8)(A), (10)(E), (18)(D) Medical Microbiology: (3)(F), (3)(H), (4)(B), (4)(E), (7)(C) Pathophysiology: (3)(F), (3)(H), (4)(B), (4)(E), (6)(B), (8)(B)-(D) Engineering Design and Problem Solving: (3)(F), (3)(H), (4)(B), (4)(E), (6)(A) Engineering Science: (3)(F), (3)(H), (4)(B), (4)(E), (10)(A) Scientific Research and Design: (3)(F), (3)(H), (4)(B), (4)(E), (7)(A), (10)(B) Principles of Technology: (2)(K), (3)(F), (3)(H), (3)(J)-(L), (4)(B), (4)(E), (5)(H)-(J), (8)(A)-(C), (8)(H), (10)(A), (10)(C), (11)(A) Biotechnology I: (3)(F), (3)(H), (4)(B), (4)(F) Biotechnology II: (3)(F), (3)(H), (4)(B), (4)(E) Forensic Science: (3)(F), (3)(H), (4)(B), (4)(E), (6)(C)-(D), (6)(H), (16)(C) Food Science: (3)(F), (3)(H), (4)(B), (4)(E)
I.E.2. Use essential vocabulary of the discipline being studied.	Kindergarten-Grade 5: (b)(1)-(10) Grade 6: (b)(1)-(12) Grade 7: (b)(1)-(14) Grade 8: (b)(1)-(11) Aquatic Science: (c)(1)-(12) Astronomy: (c)(1)-(14) Biology: (c)(1)-(12) Chemistry: (c)(1)-(12) Earth and Space Science: (c)(1)-(15) Environmental Systems: (c)(1)-(9) IPC: (c)(1)-(7) Physics: (c)(1)-(8)		Anatomy and Physiology: (c)(1)-(13) Advanced Animal Science: (c)(1)-(15) Advanced Plant and Soil Science: (c)(1)-(20) Medical Microbiology: (c)(1)-(7) Pathophysiology: (c)(1)-(8) Engineering Design and Problem Solving: (c)(1)-(9) Engineering Science: (c)(1)-(16) Scientific Research and Design: (c)(1)-(10) Principles of Technology: (c)(1)-(12) Biotechnology I: (c)(1)-(13) Biotechnology II: (c)(1)(-14) Forensic Science: (c)(1)-(17) Food Science: (c)(1)-(21)

II. Foundation Skills: Scientific Applications of Mathematics			
A. Basic mathematics conventions			
II.A.1. Understand the real number system and its properties.	Kindergarten-Grade 2: (2)(D), (4)(B) Grades 3-4: (2)(B) Grade 5: (3)(C) Grade 6: (6)(B), (8)(C) Grade 8: (6)(A) Aquatic Science: (5)(B) Astronomy: (2)(F), (6)(A) Chemistry: (8)(A), (9)(A) Earth and Space Science: (2)(H) Environmental Systems: (7)(B) IPC: (4)(A)-(B), (7)(C) Physics: (2)(H), (6)(D)		Engineering Design and Problem Solving: (5)(B)-(D), (5)(I), (5)(K) Engineering Science: (7)(D)-(E), (7)(G), (8)(B)-(C), (9)(G), (10)(A)-(D), (10)(G)-(J), (11)(B), (14)(E)-(F), (15)(E)-(H), (16)(A)-(C) Principles of Technology: (7)(A)(i)-(ii), (9)(D) Biotechnology II: (8)(E) Forensic Science: (9)(A)
II.A.2. Use exponents and scientific notation.	Grade 8: (8)(D) Aquatics: (2)(F), (6)(A) Astronomy: (6)(B)-(C), (6)(E) Chemistry: (2)(G), (6)(C) Earth and Space Science: (2)(H) Environmental Systems: (2)(J), (7)(B) Physics: (2)(H)		Engineering Design and Problem Solving: (5)(B)-(D), (5)(I), (5)(K) Principles of Technology: (5)(F) Biotechnology I: (11)(C) Forensic Science: (9)(A)
II.A.3. Understand ratios, proportions, percentages, and decimal fractions, and translate from any form to any other.	Astronomy: (2)(F), (6)(D) Chemistry: (8)(B)-(C), (9)(A), (10)(C) Earth and Space Science: (2)(H) Environmental Systems: (4)(E), (9)(C) Physics: (5)(B)-(C), (6)(A), (6)(C)		Engineering Design and Problem Solving: (5)(B)-(D), (5)(I), (5)(K) Principles of Technology: (8)(B)-(C) Biotechnology I: (11)(C) Biotechnology II: (8)(B), (8)(D), (14)(C), (14)(E) Forensic Science: (9)(A) Introduction to Culinary Arts: (2)(C); Culinary Arts: (2)(C)(F)(G)
II.A.4. Use proportional reasoning to solve problems.	Biology: (10)(C) Chemistry: (8)(B), (10)(D) Earth and Space Science: (2)(H) Physics: (3)(F), (6)(C)		Engineering Design and Problem Solving: (5)(B)-(D), (5)(I), (5)(K) Biotechnology I: (11)(C) Biotechnology II: (4)(G) Forensic Science: (9)(A)
II.A.5. Simplify algebraic expressions.	Biology: (10)(C) Chemistry: (8)(C) Earth and Space Science: (2)(H) Physics: (2)(L), (4)(A), (5)(B)-(C), (6)(A), (6)(C)		Engineering Design and Problem Solving: (5)(B)-(D), (5)(I), (5)(K) Principles of Technology: (7)(A)(i)-(ii), (8)(B)-(C)
II.A.6. Estimate results to evaluate whether a calculated result is reasonable.	Kindergarten-Grade 5: (4)(A) Grade 6: (6)(B), (8)(C) Grade 8: (6)(A) Aquatics: (2)(F), (9)(C) Biology: (3)(A) Chemistry: (2)(I), (9)(A)(B) Earth and Space Science: (2)(H)		Anatomy and Physiology: (4)(A) Advanced Animal Science: (4)(A) Advanced Plant and Soil Science: (4)(A) Medical Microbiology: (4)(A) Pathophysiology: (4)(A) Engineering Design and Problem Solving: (4)(A), (5)(B)-(E), (5)(I), (5)(K) Engineering Science: (4)(A), (7)(D)-(E), (7)(G), (8)(B)-(C), (9)(G), (10)(A)-(D), (10)(G)-(J), (11)(B), (12)(D)-(E), (14)(E)-(F), (15)(E)-(H), (16)(A)-(C) Scientific Research and Design: (4)(A) Forensic Science: (4)(A) Culinary Arts: (2)(C)
II.A.7. Use calculators, spreadsheets, computers, etc., in data analysis.	Kindergarten-Grade 5: (4)(A) Grade 6: (6)(B), (8)(C) Grade 8: (6)(A) Chemistry: (2)(E) Physics: (4)(A)		Advanced Plant and Soil Science: (7)(B) Engineering Design and Problem Solving: (5)(B)-(D), (5)(I), (5)(K) Engineering Science: (7)(D)-(E), (7)(G), (8)(B)-(C), (9)(G), (10)(A)-(D), (10)(G)-(J), (11)(B), (12)(A), (14)(E)-(F), (15)(E)-(H), (16)(A)-(C) Principles of Technology: (7)(B), (9)(B)-(C) Culinary Arts: (10)(F);
B. Mathematics as a symbolic language			
II.B.1. Carry out formal operations using standard algebraic symbols and formulae.	Grade 6: (6)(B), (8)(C) Grade 8: (6)(A) Chemistry: (11)(D) Earth and Space Science: (2)(H), (7)(B) Environmental Systems: (7)(B) IPC: (4)(A)-(E)		Anatomy and Physiology: (3)(G) Advanced Animal Science: (3)(G) Advanced Plant and Soil Science: (3)(G), (7)(C), (18)(D) Medical Microbiology: (3)(G) Pathophysiology: (3)(G) Engineering Design and Problem Solving: (3)(G), (5)(B)-(D) Engineering Science: (3)(G), (7)(D)-(E), (7)(G), (8)(B)-(C), (9)(G), (10)(A)-(D), (10)(G)-(J), (11)(B), (12)(A), (14)(E)-(F), (15)(E)-(H), (16)(A)-(C) Scientific Research and Design: (3)(G) Principles of Technology: (3)(G), (7)(A)(i)-(ii), (7)(B), (9)(B)-(C) Forensic Science: (3)(D), (3)(G)

II.B.2. Represent natural events, processes, and relationships with algebraic expressions and algorithms.	Chemistry: (10)(C), (11)(D) Earth and Space Science: (2)(H), (7)(B) Environmental Systems: (7)(B) IPC: (4)(A)-(E), (5)(A)-(B) Physics: (5)(B)-(C)		Anatomy and Physiology: (3)(G) Advanced Animal Science: (3)(G) Advanced Plant and Soil Science: (3)(G) Medical Microbiology: (3)(G) Pathophysiology: (3)(G) Engineering Design and Problem Solving: (3)(G), (5)(B)-(D) Engineering Science: (3)(G), (7)(D)-(E), (7)(G), (8)(B)-(C), (9)(G), (10)(A)-(D), (10)(G)-(J), (11)(B), (12)(A), (14)(E)-(F), (15)(E)-(H), (16)(A)-(C) Scientific Research and Design: (3)(G) Principles of Technology: (3)(G), (7)(A)(i)-(ii), (8)(B)-(C) Forensic Science: (3)(G)
C. Understand relationships among geometry, algebra, and trigonometry			
II.C.1. Understand simple vectors, vector notations, and vector diagrams, and carry out simple calculations involving vectors.	Chemistry: (4)(E) IPC: (4)(A)-(B) Physics: (3)(F), (5)(E)		Engineering Design and Problem Solving: (5)(B)-(D), (6)(A) Engineering Science: (10)(E)-(G) Principles of Technology: (7)(A)(iii), (8)(F)
II.C.2. Understand that a curve drawn on a defined set of axes is fully equivalent to a set of algebraic equations.	Astronomy: (6)(A) Chemistry: (9)(A) Earth and Space Science: (10)(D) IPC: (4)(B) Physics: (4)(A)		Engineering Design and Problem Solving: (5)(B)-(D) Engineering Science: (10)(E)-(G), (12)(D)-(E) Biotechnology II: (4)(G)
II.C.3.Understand basic trigonometric principles, including definitions of terms such as sine, cosine, tangent, cotangent, and their relationship to triangles.			Engineering Design and Problem Solving: (5)(B)-(D) Engineering Mathematics: (5)(A)-(B)
II.C.4. Understand basic geometric principles.	Chemistry: (7)(E)		Engineering Design and Problem Solving: (5)(B)-(D) Engineering Science: (16)(D)
D. Scientific problem solving			
II.D.1. Use dimensional analysis in problem solving.	Aquatics: (2)(I) Chemistry: (2)(G), (8)(E) Environmental Systems: (2)(J)		Advanced Animal Science: (5)(B) Advanced Plant and Soil Science: (5)(B), (7)(B) Engineering Design and Problem Solving: (5)(B)-(D), (5)(I), (5)(K) Forensic Science: (8)(A), (8)(G)
E. Scientific application of probability and statistics			
II.E.1. Understand descriptive statistics.	Grades 3-5: (2)(E) Grades 6-8: (2)(E) Aquatics: (2)(F) Chemistry: (12)(B) Earth and Space Science: (2)(H)		Anatomy and Physiology: (3)(G) Advanced Animal Science: (3)(G) Advanced Plant and Soil Science: (3)(G), (7)(C), (18)(D) Medical Microbiology: (3)(G) Pathophysiology: (3)(G) Engineering Design and Problem Solving: (3)(G), (5)(B)-(D) Engineering Science: (3)(G), (15)(A)-(B), (15)(E)-(H) Scientific Research and Design: (3)(G), (8)(D)-(E), (8)(G) Principles of Technology: (3)(G) Biotechnology II: (8)(G), (13)(B) Forensic Science: (3)(G)
F. Scientific measurement			
II.F.1. Select and use appropriate Standard International (SI) units and prefixes to express measurements for real world problems.	Grades 6-8: (2)(C) Aquatics: (9)(C) Chemistry: (10)(C) Earth and Space Science: (2)(H) Physics: (2)(H)		Anatomy and Physiology: (3)(F) Advanced Animal Science: (3)(F) Advanced Plant and Soil Science: (3)(F) Medical Microbiology: (3)(F) Pathophysiology: (3)(F) Engineering Design and Problem Solving: (3)(F), (5)(B)-(D), (5)(I), (5)(J)-(K) Engineering Science: (3)(F), (11)(B), (12)(B) Scientific Research and Design: (3)(F) Principles of Technology: (3)(F), (5)(F) Biotechnology II: (8)(B), (11)(B) Forensic Science: (3)(F), (8)(C)
II.F.2. Use appropriate significant digits.	Aquatics: (2)(I) Chemistry: (2)(G) Earth and Space Science: (2)(H) Environmental Systems: (2)(J)		Anatomy and Physiology: (3)(F) Advanced Animal Science: (3)(F) Advanced Plant and Soil Science: (3)(F) Medical Microbiology: (3)(F) Pathophysiology: (3)(F) Engineering Design and Problem Solving: (3)(F), (5)(I) Engineering Science: (3)(F) Scientific Research and Design: (3)(F) Principles of Technology: (3)(F) Forensic Science: (3)(F)
II.F.3. Understand and use logarithmic notation (base 10).	Chemistry: (10)(L), (10)(I)		

III. Foundation Skills: Scientific Applications of Communication			
A. Scientific writing			
III.A.1. Use correct applications of writing practices in scientific communication.	Biology: (2)(H) Chemistry: (2)(I) IPC: (2)(E) Physics: (2)(K)		Anatomy and Physiology: (3)(H), (4)(B) Advanced Animal Science: (3)(H), (4)(B), (13)(D) Advanced Plant and Soil Science: (3)(H), (4)(B), (7)(D) Medical Microbiology: (3)(H), (4)(B), (6)(G), (6)(I) Pathophysiology: (3)(H), (4)(B) Engineering Design and Problem Solving: (3)(H), (4)(B), (6)(C)-(D) Engineering Science: (3)(H), (4)(B), (5)(D) Scientific Research and Design: (3)(H), (4)(B), (7)(A) Principles of Technology: (3)(H), (4)(B) Biotechnology I: (10)(F) Biotechnology II: (8)(F) Forensic Science: (3)(H), (4)(B)
B. Scientific reading			
III.B.1. Read technical and scientific articles to gain understanding of interpretations, apparatuses, techniques or procedures, and data.	Grades 3-5: (3)(A) Aquatics: (3)(A), (3)(C) Astronomy: (3)(A), (3)(C) Biology: (3)(A), (3)(C), (3)(F) Chemistry: (3)(A), (3)(C), (3)(F) Earth and Space Science: (3)(A), (3)(C) Environmental Systems: (3)(A), (3)(C) IPC: (3)(A), (3)(C), (3)(F) Physics: (3)(A), (3)(C), (3)(E)		Anatomy and Physiology: (4)(A)-(C) Advanced Animal Science: (4)(A)-(C) Advanced Plant and Soil Science: (4)(A)-(C) Medical Microbiology: (4)(A)-(C) Pathophysiology: (4)(A)-(C) Engineering Design and Problem Solving: (4)(A)-(C), (6)(B) Engineering Science: (4)(A)-(C) Scientific Research and Design: (4)(A)-(C), (5)(A), (6)(A)-(C) Principles of Technology: (4)(A)-(C), (12)(A)-(C) Biotechnology II: (6)(A)-(B) Forensic Science: (4)(A) - (C), (5)(E), (11)(D)
III.B.2. Set up apparatuses, carry out procedures, and collect specified data from a given set of appropriate instructions.	Kindergarten-Grade 2: (2)(D) Aquatics: (2)(A), (2)(C) Astronomy: (2)(E) Biology: (2)(F) Chemistry: (2)(E) Earth and Space Science: (2)(E) Environmental: (2)(G)-(H) Physics: (2)(F)		Anatomy and Physiology: (3)(E)-(F) Advanced Animal Science: (3)(E)-(F) Advanced Plant and Soil Science: (3)(E)-(F), (7)(A) Medical Microbiology: (3)(E)-(F), (6)(G), (6)(I) Pathophysiology: (3)(E)-(F) Engineering Design and Problem Solving: (3)(E)-(F) Engineering Science: (3)(E)-(F) Scientific Research and Design: (3)(E)-(F) Principles of Technology: (3)(E)-(F) Biotechnology I: (6)(E), (8)(D)-(E), (9)(A)-(E), (11)(B), (12)(A)-(I), (13)(A)-(B) Biotechnology II: (11)(C)-(D), (12)(A)-(C), (13)(C) Forensic Science: (3)(E)-(F), (6)(D)-(F) Food Science: (11)(D), (15)(F)
III.B.3. Recognize scientific and technical vocabulary in the field of study and use this vocabulary to enhance clarity of communication.	Kindergarten-Grade 1: (7)(B) Kindergarten-Grade 2: (7)(A) Kindergarten-Grade 5: (3)(A) Grade 2: (8)(D) Grade 3: (5)(B), (9)(A)-(C) Grades 3-5: (8)(B), (9)(B) Grade 5: (10)(B) Grade 6: (8)(B), (10)(D), (11)(A), (11)(C), (12)(E) Grade 7: (5)(B), (8)(A), (10)(A)-(C), (11)(B), (12)(A), (13)(B) Grade 8: (5)(A), (5)(C), (6)(C), (8)(A), (8)(D)-(E), (9)(A), (11)(A), (11)(D) Aquatics: (2)(J), (8)(C), (10)(B) Astronomy: (2)(H), (4)(A)-(D), (8)(B), (10)(C), (12)(A), (13)(A)-(C), (14)(A) Biology: (2)(H), (4)(B)-(C), (5)(A), (5)(C), (6)(A), (6)(C), (6)(H), (10)(A)-(B), (11)(A), (11)(D), (12)(E)-(F) Chemistry: (2)(I), (5)(A)-(C), (7)(D), (9)(A), (9)(C), (10)(A), (12)(A)-(B) Earth and Space Science: (2)(I), (4)(B), (5)(F), (8)(B), (9)(C)-(D), (10)(B)-(C), (11)(B), (12)(B), (14)(C), (15)(A), (15)(D) Environmental Systems: (2)(K) IPC: (2)(H) Physics: (2)(K), (4)(B)-(C), (4)(F), (5)(A)-(C), (5)(G)-(H), (6)(E), (6)(G), (7)(A), (7)(E)-(F), (8)(A)-(C)		Anatomy and Physiology: (1)(A), (3)(H), (4)(A)-(B), (6)(B) Advanced Animal Science: (1)(C), (3)(H), (4)(A)-(B), (6)(A)-(C), (8)(A)-(B), (8)(E)-(F), (9)(A)-(D), (11)(G), (12)(A)-(C), (13)(A), (13)(D), (14)(A)-(D) Advanced Plant and Soil Science: (1)(C), (3)(H), (4)(A)-(B), (5)(C), (7)(D), (8)(A), (14)(A), (17)(A)-(B), (18)(A), (18)(D), (19)(A)-(B), (20)(C) Medical Microbiology: (1)(A), (3)(H), (4)(A)-(B), (6)(B), (6)(G)-(J) Pathophysiology: (1)(A), (3)(H), (4)(A)-(B) Engineering Design and Problem Solving: (3)(H), (4)(A)-(B), (5)(H), (6)(B), (7)(D)-(E), (9)(I) Engineering Science: (3)(H), (4)(A)-(B), (5)(D), (6)(D), (7)(B), (9)(C)-(D) Scientific Research and Design: (3)(H), (4)(A)-(B), (5)(A), (6)(A)-(C), (9)(B) Principles of Technology: (2)(K), (3)(H), (4)(A)-(B), (7)(C), (8)(A)-(C), (8)(H)-(I), (10)(A), (10)(C), (11)(A), (11)(F)-(G) Biotechnology I: (7)(A) Biotechnology II: (7)(B), (8)(A) Forensic Science: (1), (3)(H), (4)(A)-(B), (6)(D)-(G), (11)(D) Culinary Arts:(2)(D)
III.B.4. List, use, and give examples of specific strategies before, during, and after reading to improve comprehension.			Medical Microbiology: (6)(G), (6)(I) Scientific Research and Design: (6)(A)-(C) Forensic Science: (14)(E)

C. Presentation of scientific/technical information			
III.C.1. Prepare and present scientific/technical information in appropriate formats for various audiences.	Kindergarten-Grade 2: (2)(E) Grades 3-5: (2)(F) Grades 6-8: (2)(E) Aquatic Science: (3)(B) Astronomy: (2)(H), (3)(B) Biology: (2)(H), (3)(B) Chemistry: (2)(I)-(J), (3)(B) Earth and Space Science: (2)(I), (3)(B) Environmental Systems: (2)(K), (3)(B) IPC: (2)(H), (3)(B) Physics: (2)(K), (3)(B)		Anatomy and Physiology: (3)(E), (3)(H), (4)(B), (6)(B) Advanced Animal Science: (3)(E), (3)(H), (4)(B), (13)(D) Advanced Plant and Soil Science: (3)(E), (3)(H), (4)(B), (7)(A), (7)(D) Medical Microbiology: (3)(E), (3)(H), (4)(B), (6)(G), (6)(I) Pathophysiology: (3)(E), (3)(H), (4)(B) Engineering Design and Problem Solving: (1)(C), (3)(E), (3)(H), (4)(B), (6)(C)-(D), (8)(I) Engineering Science: (1)(C), (3)(E), (3)(H), (4)(B), (5)(D) Scientific Research and Design: (1)(C), (3)(E), (3)(H), (4)(B), (7)(A), (8)(B)-(C), (8)(F), (9)(B) Principles of Technology: (1)(C), (3)(E), (3)(H), (3)(K)-(L), (4)(B), (5)(I)-(J) Biotechnology I: (10)(F) Biotechnology II: (10)(A) Forensic Science: (3)(E), (3)(H), (4)(B), (5)(D), (11)(D)
D. Research skills/information literacy			
III.D.1. Use search engines, databases, and other digital electronic tools effectively to locate information.	Kindergarten-5: (4)(A) Grade 6: (7)(A) Grade 8: (8)(E) Aquatic Science: (2)(J) Astronomy: (13)(A)-(C) Biology: (2)(F) Chemistry: (2)(E) Earth and Space Science: (2)(F) Environmental Systems: (2)(K) IPC: (2)(B) Physics: (2)(F)		Anatomy and Physiology: (4)(F), (6)(B) Advanced Animal Science: (1)(F) Advanced Plant and Soil Science: (14)(A) Medical Microbiology: (5)(B) Engineering Design and Problem Solving: (7)(A), (7)(C) Engineering Science: (6)(E) Scientific Research and Design: (4)(F), (5)(A) Principles of Technology: (4)(F) Biotechnology I: (5)(A), (5)(C)-(D), (6)(A), (10)(G) Biotechnology II: (5)(A) Forensic Science: (4)(A), (4)(E) Introduction to Culinary Arts: (5)(C)
III.D.2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.	Grades 3-8: (3)(A) Aquatic Science: (3)(A) Astronomy: (3)(A) Biology: (3)(A) Chemistry: (3)(A) Earth and Space Science: (3)(A) Environmental Systems: (3)(A) IPC: (3)(A) Physics: (3)(A)		Anatomy and Physiology: (3)(H), (4)(A-(B), (4)(E) Advanced Animal Science: (3)(H), (4)(A)-(B), (4)(E), (13)(D) Advanced Plant and Soil Science: (3)(H), (4)(A-(B), (4)(E), (7)(D) Medical Microbiology: (3)(H), (4)(A)-(B), (4)(E) Pathophysiology: (3)(H), (4)(A)-(B), (4)(E) Engineering Design and Problem Solving: (3)(H), (4)(A)-(B), (4)(E), (6)(E), (7)(A), (7)(C), (8)(D), (8)(I) Engineering Science: (3)(H), (4)(A)-(B), (4)(E), (6)(E) Scientific Research and Design: (3)(H), (4)(A)-(B), (4)(E), (5)(A), (6)(C), (9)(C) Principles of Technology: (3)(H), (4)(A)-(B), (4)(E) Biotechnology I: (5)(A), (5)(C)-(D), (6)(A) Forensic Science: (3)(H), (4)(B), (11)(D)
IV. Science, Technology, and Society			
A. Interactions between innovations and science			
IV.A.1. Recognize how scientific discoveries are connected to technological innovations.	Grades 3-5: (3)(D) Grade 6: (11)(C) Aquatic Science: (3)(D) Astronomy: (3)(D), (4)(A), (14)(A)-(E) Biology: (3)(D) Chemistry: (3)(D) Earth and Space Science: (3)(D) Environmental Systems: (3)(D) IPC: (3)(D) Physics: (3)(D)	U.S. History Studies: (27)(A)-(B) World History Studies: (8)(A)	Anatomy and Physiology: (4)(D), (4)(F), (8)(C), (11)(C), (13)(A)-(B) Advanced Animal Science: (4)(D), (4)(F), (6)(B)-(C) Advanced Plant and Soil Science: (4)(D), (4)(F), (10)(E), (18)(D) Medical Microbiology: (4)(D), (4)(F), (5)(A), (6)(G), (6)(I), (7)(G) Pathophysiology: (4)(D), (4)(F), (7)(B) Engineering Design and Problem Solving: (4)(D), (4)(F), (7)(D)-(E) Engineering Science: (4)(D), (4)(F) Scientific Research and Design: (4)(D), (4)(F) Principles of Technology: (4)(D), (4)(F) Forensic Science: (4)(D), (4)(F)
B. Social ethics			
IV.B.1. Understand how scientific research and technology have an impact on ethical and legal practices.	Kindergarten-Grade 2: (1)(C) Grades 3-5: (1)(B) Aquatic Science: (3)(D) Astronomy: (3)(D) Biology: (1)(B), (3)(D) Chemistry: (1)(C), (3)(D) Earth and Space Science: (3)(D) Environmental Systems: (3)(D), (9)(I) IPC: (3)(D) Physics: (3)(D)		Anatomy and Physiology: (4)(D), (4)(F) Advanced Animal Science: (4)(D), (4)(F), (6)(B)-(C), (7)(D) Advanced Plant and Soil Science: (4)(D), (4)(F), (10)(E) Medical Microbiology: (4)(D), (4)(F), (5)(A), (7)(E), (7)(G) Pathophysiology: (4)(D), (4)(F), (7)(B) Engineering Design and Problem Solving: (4)(D), (4)(F), (7)(B), (8)(D) Engineering Science: (4)(D), (4)(F) Scientific Research and Design: (4)(D), (4)(F) Principles of Technology: (4)(D), (4)(F) Forensic Science: (4)(D), (4)(F)
IV.B.2. Understand how commonly held ethical beliefs impact scientific research.	Aquatic Science: (1)(B) Environmental Systems: (9)(G)		Anatomy and Physiology: (4)(D), (4)(F) Advanced Animal Science: (4)(D), (4)(F), (6)(B)-(C), (7)(D) Advanced Plant and Soil Science: (4)(D), (4)(F), (10)(E) Medical Microbiology: (4)(D), (4)(F), (7)(E), (7)(G) Pathophysiology: (4)(D), (4)(F) Engineering Design and Problem Solving: (4)(D), (4)(F), (7)(B), (8)(D) Engineering Science: (4)(D), (4)(F) Scientific Research and Design: (4)(D), (4)(F) Principles of Technology: (4)(D), (4)(F) Forensic Science: (4)(D), (4)(F)

C. History of science			
IV.C.1. Understand the historical development of major theories in science.	Grade 8: (8)(E), (9)(A) Aquatic Science: (3)(F) Astronomy: (4)(A), (4)(C) Biology: (3)(F) Chemistry: (3)(F), (6)(A) Earth and Space Science: (3)(F) Environmental Systems: (3)(F) IPC: (3)(F) Physics: (3)(D)	World History Studies: (27)(A)	Anatomy and Physiology: (3)(C)-(D), (4)(D), (4)(F) Advanced Animal Science: (3)(C)-(D), (4)(D), (4)(F) Advanced Plant and Soil Science: (3)(C)-(D), (4)(D), (4)(F), (18)(C) Medical Microbiology: (3)(C)-(D), (4)(D), (4)(F) Pathophysiology: (3)(C)-(D), (4)(D), (4)(F) Engineering Design and Problem Solving: (3)(C)-(D), (4)(D), (4)(F), (7)(D)-(E) Engineering Science: (3)(C)-(D), (4)(D), (4)(F) Scientific Research and Design: (3)(C)-(D), (4)(D), (4)(F) Principles of Technology: (3)(C)-(D), (4)(D), (4)(F) Forensic Science: (3)(C)-(D), (4)(D), (4)(F), (5)(F)
IV.C.2. Recognize the role of people in important contributions to scientific knowledge.	Kindergarten-Grade 2: (3)(C) Grades 3-8: (3)(D) Aquatic Science: (3)(E)-(F) Astronomy: (3)(E)-(F), (4)(A)-(B), (4)(D) Biology: (3)(F) Chemistry: (3)(E)-(F) Earth and Space Science: (3)(E)-(F) Environmental Systems: (3)(E)-(F) IPC: (3)(E)-(F) Physics: (3)(D)-(E)	World History Studies: (27)(E), (28)(E)	Anatomy and Physiology: (4)(D), (4)(F) Advanced Animal Science: (4)(D), (4)(F) Advanced Plant and Soil Science: (4)(D), (4)(F) Medical Microbiology: (4)(D), (4)(F), (5)(A) Pathophysiology: (4)(D), (4)(F) Engineering Design and Problem Solving: (4)(D), (4)(F), (7)(C)-(E), (9)(C) Engineering Science: (4)(D), (4)(F), (5)(B), (6)(A) Scientific Research and Design: (4)(D), (4)(F) Principles of Technology: (4)(D), (4)(F) Forensic Science: (4)(D), (4)(F)
V. Cross-Disciplinary Themes			
A. Matter/states of matter			
V.A.1. Know modern theories of atomic structure.	Grade 8: (5)(A) Aquatic Science: (6)(A)		
V.A.2. Understand the typical states of matter (solid, liquid, gas) and phase changes among these.	Kindergarten-Grade 5: (5)(B) Chemistry: (10)(A)		
B. Energy (thermodynamics, kinetic, potential, energy transfers)			
V.B.1. Understand the Laws of Thermodynamics.	Chemistry: (11)(B)-(D) Environmental Systems: (6)(D) Physics: (6)(E)-(G)		Principles of Technology: (10)(A)-(C)
V.B.2. Know the processes of energy transfer.	Grade 6: (9)(A)-(C) Grade 7: (5)(A), (5)(C), (7)(B) Biology: (12)(C) Chemistry: (11)(B)-(D) Environmental Systems: (6)(C), (6)(E) IPC: (5)(A)-(C), (5)(H), (7)(D) Physics: (6)(A)-(B), (6)(D), (6)(F)-(G)		Principles of Technology: (9)(A), (9)(D), (10)(B), (10)(C)
C. Change over time/equilibrium			
V.C.1. Recognize patterns of change.	Kindergarten-Grade 3: (6)(D) Grade 7: (13)(B) Grade 8: (7)(A)-(C), (10)(A)-(C) Aquatic Science: (6)(B) Astronomy: (5)(A)-(C) Biology: (4)(B), (11)(A) Earth and Space Science: (7)(B), (10)(D)-(E) Environmental Systems: (4)(C)-(D), (8)(D)		Anatomy and Physiology: (11)(D), (12)(A), (12)(C) Advanced Animal Science: (1)(B) Advanced Plant and Soil Science: (1)(B), (15)(E) Pathophysiology: (5)(B), (6)(D)-(E)
D. Classification			
V.D.1. Understand that scientists categorize things according to similarities and differences.	Kindergarten-Grade 6: (5)(A) Grade 6: (5)(C), (6)(A), (6)(C) Grade 7: (11)(A) Grade 8: (5)(C), (8)(A)-(B) Aquatic Science: (10)(A) Astronomy: (11)(G) Biology: (4)(A), (8)(A)-(C), (10)(C) Chemistry: (4)(D), (5)(A)-(C), (11)(C) Environmental Systems: (4)(A)-(B) IPC: (6)(D), (7)(D) Physics: (5)(E), (7)(B)-(C)		Advanced Plant and Soil Science: (6)(A)-(B), (8)(A)-(D), (9)(D)-(E), (10)(D)-(E), (12)(B), (15)(A)-(B), (16)(A) Medical Microbiology: (6)(F), (7)(C) Pathophysiology: (7)(F) Engineering Science: (5)(A), (5)(C), (8)(A) Principles of Technology: (8)(F), (11)(B), (11)(D) Biotechnology I: (5)(B)-(C) Forensic Science: (13)(A), (16)(D)-(E), (17)(A), (17)(C)
E. Measurements and models			
V.E.1. Use models to make predictions.	Grade 8: (7)(B), (9)(C) Aquatic Science: (2)(H) Earth and Space Science: (15)(B) Environmental Systems: (2)(I)		Anatomy and Physiology: (3)(G), (4)(E) Advanced Animal Science: (3)(G), (4)(E) Advanced Plant and Soil Science: (3)(G), (4)(E), (7)(C), (12)(A) Medical Microbiology: (3)(G), (4)(E) Pathophysiology: (3)(G), (4)(E) Engineering Design and Problem Solving: (3)(G), (4)(E), (5)(C), (5)(E) Engineering Science: (3)(G), (4)(E) Scientific Research and Design: (3)(G), (4)(E) Principles of Technology: (3)(G), (4)(E) Forensic Science: (3)(E), (4)(E), (16)(D)

V.E.2. Use scale to relate models and structures.	Grades 3-8: (3)(C) Grade 6: (3)(B), (10)(A) Grades 7-8: (3)(B) Astronomy: (6)(A) Biology: (3)(E)		Anatomy and Physiology: (4)(E) Advanced Animal Science: (4)(E) Advanced Plant and Soil Science: (4)(E) Medical Microbiology: (4)(E) Pathophysiology: (4)(E) Engineering Design and Problem Solving: (4)(E), (5)(C) Engineering Science: (4)(E) Scientific Research and Design: (4)(E) Principles of Technology: (4)(E) Forensic Science: (4)(E)
V.E.3. Demonstrate familiarity with length scales from sub-atomic particles through macroscopic objects.	Grades 1-2: (4)(B) Grade 8: (8)(D) Astronomy: (6)(A)-(C)		Engineering Design and Problem Solving: (5)(C)
VI. Biology			
A. Structure and function of cells			
VI.A.1. Know that although all cells share basic features, cells differentiate to carry out specialized functions.	Grade 7: (12)(D)-(F) Biology: (4)(A)-(B), (5)(B)-(C), (9)(D)		Anatomy and Physiology: (11)(B)-(D), (12)(A)-(C), (13)(A)-(B) Advanced Animal Science: (12)(A)-(B) Advanced Plant and Soil Science: (19)(A), (19)(C) Medical Microbiology: (6)(D), (6)(F) Engineering Design and Problem Solving: (5)(F) Biotechnology I: (6)(A)-(B)
VI.A.2. Explain how cells can be categorized into two major types: prokaryotic and eukaryotic, and describe major features that distinguish one from the other.	Grade 6: (12)(B), (12)(D) Biology: (4)(A)		Anatomy and Physiology: (11)(B), (12)(A), (13)(A)-(B) Advanced Animal Science: (12)(A)-(B) Advanced Plant and Soil Science: (19)(A), (19)(C) Engineering Design and Problem Solving: (5)(F) Biotechnology I: (6)(A)-(B)
VI.A.3. Describe the structure and function of major sub-cellular organelles.	Grade 6: (12)(B) Grade 7: (12)(D) Biology: (4)(A)-(C), (5)(B)		Anatomy and Physiology: (11)(B), (12)(A), (13)(A)-(B) Advanced Animal Science: (12)(A)-(B) Advanced Plant and Soil Science: (19)(A), (19)(C) Medical Microbiology: (6)(C), (6)(F) Engineering Design and Problem Solving: (5)(F) Biotechnology I: (6)(A)-(D)
VI.A.4. Describe the major features of mitosis and relate this process to growth and asexual reproduction.	Grade 7: (14)(B) Biology: (5)(A)		Anatomy and Physiology: (11)(B), (12)(A)-(C), (13)(A)-(B) Advanced Animal Science: (7)(A), (12)(A)-(B) Advanced Plant and Soil Science: (17)(D), (19)(A), (19)(C) Medical Microbiology: (6)(D) Engineering Design and Problem Solving: (5)(F)
VI.A.5. Understand the process of cytokinesis in plant and animal cells and how this process is related to growth.	Biology: (5)(A), (5)(D)		Anatomy and Physiology: (11)(B), (12)(A), (13)(A)-(B) Advanced Animal Science: (12)(A)-(B) Advanced Plant and Soil Science: (19)(A), (19)(C) Engineering Design and Problem Solving: (5)(F)
VI.A.6. Know the structure of membranes and how this relates to permeability.	Grade 7: (12)(D) Biology: (4)(C)		Anatomy and Physiology: (11)(B), (12)(A), (13)(A)-(B) Advanced Animal Science: (12)(A)-(B) Advanced Plant and Soil Science: (19)(A), (19)(C) Medical Microbiology: (6)(B)-(C), (6)(F) Engineering Design and Problem Solving: (5)(F) Forensic Science: (13)(A)
B. Biochemistry			
VI.B.1. Understand the major categories of biological molecules: lipids, carbohydrates, proteins, and nucleic acids.	Grade 7: (6)(C) Biology: (5)(A), (5)(C), (6)(A), (9)(A)		Anatomy and Physiology: (11)(B)-(C), (13)(A)-(B) Advanced Animal Science: (13)(C) Pathophysiology: (5)(A) Engineering Design and Problem Solving: (5)(F) Forensic Science: (5)(C), (13)(A) Food Science: (14)(B)
VI.B.2. Describe the structure and function of enzymes.	Biology: (9)(C)		Anatomy and Physiology: (11)(B), (13)(A)-(B) Advanced Animal Science: (13)(C) Engineering Design and Problem Solving: (5)(F) Biotechnology I: (8)(F), (8)(I) Food Science: (9)(A)-(D)
VI.B.3. Describe the major features and chemical events of photosynthesis.	Grade 4: (9)(A) Grade 5: (9)(B) Grade 7: (5)(A) Biology: (9)(B)		Advanced Animal Science: (13)(C) Engineering Design and Problem Solving: (5)(F) Food Science: (14)(A)
VI.B.4. Describe the major features and chemical events of cellular respiration.	Biology: (9)(B)		Anatomy and Physiology: (9)(A)-(C), (11)(B), (13)(A)-(B) Advanced Animal Science: (13)(C) Engineering Design and Problem Solving: (5)(F)
VI.B.5. Know how organisms respond to presence or absence of oxygen, including mechanisms of fermentation.	Aquatic Science: (11)(B) Biology: (9)(B)		Anatomy and Physiology: (11)(B), (11)(D), (13)(A)-(B) Advanced Animal Science: (13)(C) Medical Microbiology: (6)(C), (6)(F) Engineering Design and Problem Solving: (5)(F) Food Science: (10)(B), (11)(A)

VI.B.6. Understand coupled reaction processes and describe the role of ATP in energy coupling and transfer.	Biology: (4)(B)		Anatomy and Physiology: (5)(A), (11)(D), (13)(A)-(B) Advanced Animal Science: (13)(C) Engineering Design and Problem Solving: (5)(F)
C. Evolution and populations			
VI.C.1. Know multiple categories of evidence for evolutionary change and how this evidence is used to infer evolutionary relationships among organisms.	Grade 4: (10)(A) Grade 5: (7)(D) Grade 7: (11)(C) Biology: (7)(A)-(B), (7)(D)-(E), (7)(G) Earth and Space Science: (7)(A), (8)(A)-(B)		Anatomy and Physiology: (11)(B)-(C), (13)(A)-(B) Pathophysiology: (5)(B) Engineering Design and Problem Solving: (5)(F)
VI.C.2. Recognize variations in population sizes, including extinction, and describe mechanisms and conditions that produce these variations.	Grade 3: (9)(C) Grade 4: (10)(A) Grade 5: (7)(D), (9)(A) Grade 7: (11)(C) Aquatic Science: (11)(B) Biology: (7)(C)-(D), (12)(D) Earth and Space Science: (8)(C) Environmental Systems: (4)(G)-(H)		Anatomy and Physiology: (11)(B), (13)(A)-(B) Advanced Plant and Soil Science: (8)(A) Pathophysiology: (5)(B) Engineering Design and Problem Solving: (5)(F)
D. Molecular genetics and heredity			
VI.D.1. Understand Mendel's laws of inheritance.	Grades 3-5: (10)(B) Grade 7: (14)(A)-(B) Biology: (6)(A)-(B), (6)(D)-(F)		Anatomy and Physiology: (11)(B), (13)(A)-(B) Advanced Animal Science: (7)(C), (8)(A)-(B), (8)(F) Advanced Plant and Soil Science: (18)(B) Engineering Design and Problem Solving: (5)(F) Forensic Science: (11)(C)
VI.D.2. Know modifications to Mendel's laws.	Biology: (6)(F)		Anatomy and Physiology: (11)(B), (13)(A)-(B) Advanced Animal Science: (7)(C), (8)(A)-(B), (8)(F), (9)(B) Advanced Plant and Soil Science: (18)(B) Engineering Design and Problem Solving: (5)(F) Forensic Science: (11)(C)
VI.D.3. Understand the molecular structures and functions of nucleic acids.	Biology: (5)(A), (5)(C), (6)(A), (6)(C), (6)(E)		Anatomy and Physiology: (11)(B), (13)(A)-(B) Advanced Animal Science: (7)(C), (8)(A), (8)(C)-(D) Advanced Plant and Soil Science: (18)(B) Engineering Design and Problem Solving: (5)(F) Biotechnology I: (7)(A)-(I), (8)(A)-(C), (8)(F)-(I)
VI.D.4. Understand simple principles of population genetics and describe characteristics of a Hardy-Weinberg population.	Biology: (12)(F) Environmental Systems: (4)(F), (4)(H)		Anatomy and Physiology: (11)(B), (13)(A)-(B) Advanced Animal Science: (7)(B)-(C), (8)(A)-(B), (8)(F) Advanced Plant and Soil Science: (18)(B) Engineering Design and Problem Solving: (5)(F)
VI.D.5. Describe the major features of meiosis and relate this process to Mendel's laws of inheritance.	Biology: (6)(G)		Anatomy and Physiology: (11)(B), (13)(A)-(B) Advanced Animal Science: (7)(B)-(C), (8)(A)-(B), (8)(F) Advanced Plant and Soil Science: (17)(D), (18)(B) Engineering Design and Problem Solving: (5)(F)
E. Classification and taxonomy			
VI.E.1. Know ways in which living things can be classified based on each organism's internal and external structure, development, and relatedness of DNA sequences.	Kindergarten-Grade 2: (10)(B) Kindergarten-Grade 3: (10)(A) Grade 6: (12)(D) Grade 7: (11)(A) Aquatic Science: (10)(A) Biology: (8)(A),(8)(C), (10)(C) Environmental Systems: (4)(A)		Anatomy and Physiology: (11)(B), (13)(A)-(B) Advanced Animal Science: (8)(E), (9)(A)-(D) Advanced Plant and Soil Science: (6)(A)-(B), (8)(A)-(D), (9)(D)-(E), (10)(D)-(E), (15)(A)-(B), (16)(A) Medical Microbiology: (7)(B) Engineering Design and Problem Solving: (5)(F) Forensic Science: (12)(A)-(C), (17)(A)-(D), (16)(E)-(F)
F. Systems and homeostasis			
VI.F.1. Know that organisms possess various structures and processes (feedback loops) that maintain steady internal conditions.	Grade 7: (13)(B) Aquatic Science: (4)(B) Biology: (4)(B), (11)(A)		Anatomy and Physiology: (7)(A)-(B), (11)(A)-(B), (12)(C), (13)(A)-(B) Advanced Animal Science: (9)(B), (11)(B), (11)(G), (12)(A)-(B) Advanced Plant and Soil Science: (17)(C)-(D), (19)(A), (19)(C) Medical Microbiology: (7)(D) Pathophysiology: (5)(D)-(E) Engineering Design and Problem Solving: (5)(F)
VI.F.2. Describe, compare, and contrast structures and processes that allow gas exchange, nutrient uptake and processing, waste excretion, nervous and hormonal regulation, and reproduction in plants, animals, and fungi; give examples of each.	Grade 7: (12)(A)-(B), (12)(E) Biology: (10)(A)-(B)		Anatomy and Physiology: (5)(B)-(D), (7)(A), (8)(A)-(B), (9)(A)-(C), (11)(A)-(B), (13)(A)-(B) Advanced Animal Science: (7)(A), (9)(B)-(D), (11)(B), (11)(G), (12)(A)-(B) Advanced Plant and Soil Science: (17)(C)-(D), (19)(A), (19)(C) Pathophysiology: (5)(D) Engineering Design and Problem Solving: (5)(F)
G. Ecology			
VI.G.1. Identify Earth's major biomes, giving their locations, typical climate conditions, and characteristic organisms.			Advanced Plant and Soil Science: (9)(A), (10)(B), (10)(E) Engineering Design and Problem Solving: (5)(F)

VI.G.2. Know patterns of energy flow and material cycling in Earth's ecosystems.	Kindergarten-Grade 2: (8)(C) Grade 1: (9)(C) Grades 1-2, 4-5: (8)(B) Grades 3-5: (9)(B) Grade 5: (7)(A), (9)(D) Grade 7: (5)(C) Grade 8: (11)(B) Aquatic Science: (6)(A), (11)(A) Biology: (12)(C), (12)(E) Earth and Space Science: (5)(C), (6)(A)-(B), (13)(F), (15)(D) Environmental Systems: (4)(C)-(D)		Advanced Plant and Soil Science: (9)(A), (10)(B), (10)(E) Engineering Design and Problem Solving: (5)(F)
VI.G.3. Understand typical forms of organismal behavior.	Grades 1-3: (9)(C) Grade 7: (13)(A) Grade 8: (11)(A) Aquatic Science: (5)(A), (5)(D) Biology: (11)(B), (12)(A)		Advanced Animal Science: (13)(C) Advanced Plant and Soil Science: (9)(A), (10)(B), (10)(E) Medical Microbiology: (6)(G), (6)(I) Engineering Design and Problem Solving: (5)(F)
VI.G.4. Know the process of succession.	Grade 7:(10)(C) Biology: (11)(D) Environmental Systems: (8)(C)		Advanced Plant and Soil Science: (9)(A), (10)(B), (10)(E) Engineering Design and Problem Solving: (5)(F)
VII. Chemistry			
A. Matter and its properties			
VII.A.1. Know that physical and chemical properties can be used to describe and classify matter.	Kindergarten-Grade 5: (5)(A) Grade 2: (5)(C) Grade 6: (6)(A), (6)(C) Grade 8: (5)(B) Chemistry: (4)(A)-(D) IPC: (6)(B)		Engineering Design and Problem Solving: (5)(F) Forensic Science: (10)(A), (11)(A) Food Science: (13)(A)
VII.A.2. Recognize and classify pure substances (elements, compounds) and mixtures.	Grades 3-4: (5)(D) Grade 6: (5)(C) Chemistry: (4)(D)		Engineering Design and Problem Solving: (5)(F) Food Science: (7)(A)-(B)
B. Atomic structure			
VII.B.1. Summarize the development of atomic theory. Understand that models of the atom are used to help understand the properties of elements and compounds.	Chemistry: (6)(A)-(C), (6)(E)		Engineering Design and Problem Solving: (5)(F)
C. Periodic table			
VII.C.1. Know the organization of the periodic table.	Grade 8: (5)(C)		Advanced Animal Science: (13)(C) Engineering Design and Problem Solving: (5)(F)
VII.C.2. Recognize the trends in physical and chemical properties as one moves across a period or vertically through a group.	Grade 8: (5)(C) Chemistry: (5)(A)-(C)		Advanced Animal Science: (13)(C) Engineering Design and Problem Solving: (5)(F)
D. Chemical bonding			
VII.D.1. Characterize ionic bonds, metallic bonds, and covalent bonds. Describe the properties of metals and ionic and covalent compounds.	Chemistry: (7)(A), (7)(C)-(D) IPC: (6)(D)		Engineering Design and Problem Solving: (5)(F)
E. Chemical reactions			
VII.E.1. Classify chemical reactions by type. Describe the evidence that a chemical reaction has occurred.	Grade 6: (5)(D) Grade 7: (6)(B) Grade 8: (5)(E) Chemistry: (10)(H)		Anatomy and Physiology: (7)(A) Medical Microbiology: (6)(C) Engineering Design and Problem Solving: (5)(F) Forensic Science: (8)(D), (9)(B) Food Science: (7)(C)-(D), (16)(A)
VII.E.2. Describe the properties of acids and bases, and identify the products of a neutralization reaction.	Chemistry: (10)(G)-(H), (10)(J)		Medical Microbiology: (6)(C) Engineering Design and Problem Solving: (5)(F) Forensic Science: (9)(B) Food Science: (5)(A)-(B), (11)(B)
VII.E.3. Understand oxidation-reduction reactions.	Chemistry: (10)(H)		Medical Microbiology: (6)(C) Engineering Design and Problem Solving: (5)(F) Food Science: (15)(D)
VII.E.4. Understand chemical equilibrium.			Medical Microbiology: (6)(C) Engineering Design and Problem Solving: (5)(F)
VII.E.5. Understand energy changes in chemical reactions.	Chemistry: (11)(A)-(E) IPC: (7)(D)		Medical Microbiology: (6)(C) Engineering Design and Problem Solving: (5)(F)
VII.E.6. Understand chemical kinetics.	Chemistry: (9)(C), (11)(A) Earth and Space Science: (5)(B) IPC: (5)(A)		Medical Microbiology: (6)(C) Engineering Design and Problem Solving: (5)(F)
F. Chemical nomenclature			
VII.F.1. Know formulas for ionic compounds.	Grade 8: (5)(D) Chemistry: (7)(A)-(C)		Engineering Design and Problem Solving: (5)(F) Forensic Science: (10)(A)-(B)

VII.F.2. Know formulas for molecular compounds.	Grade 8: (5)(D) Chemistry: (7)(B)-(C), (8)(C)		Engineering Design and Problem Solving: (5)(F) Forensic Science: (10)(B)
G. The mole and stoichiometry			
VII.G.1. Understand the mole concept.	Chemistry: (8)(A)-(B), (9)(A)		Engineering Design and Problem Solving: (5)(F) Biotechnology I: (11)(B), (14)(E)
VII.G.2. Understand molar relationships in reactions, stoichiometric calculations, and percent yield.	Chemistry: (8)(B)-(E), (9)(B)		Engineering Design and Problem Solving: (5)(F) Biotechnology I: (11)(B), (14)(E)
H. Thermochemistry			
VII.H.1. Understand the Law of Conservation of Energy and processes of heat transfer.	Grade 8: (10)(A) Chemistry: (11)(B) IPC: (5)(E)-(D) Physics: (6)(D), (6)(G)		Engineering Design and Problem Solving: (5)(F) Principles of Technology: (9)(D), (10)(C)
VII.H.2. Understand energy changes and chemical reactions.	Grade 6: (5)(D) Grade 8: (5)(E) Chemistry: (11)(C)-(E) IPC: (7)(A), (7)(D)		Engineering Design and Problem Solving: (5)(F) Food Science: (13)(B)-(D)
I. Properties and behavior of gases, liquids, and solids			
VII.I.1. Understand the behavior of matter in its various states: solid, liquid, and gas.	Grades 3-5: (5)(B) Chemistry: (4)(C) IPC: (5)(E), (6)(A), (6)(E)		Engineering Design and Problem Solving: (5)(F)
VII.I.2. Understand properties of solutions.	Chemistry: (10)(B), (10)(D)-(F) IPC: (6)(E)		Engineering Design and Problem Solving: (5)(F) Food Science: (8)(A)-(D), (8)(F), (17)(B), (18)(A), (18)(C)
VII.I.3. Understand principles of ideal gas behavior and kinetic molecular theory.	Chemistry: (9)(A)-(C)		Engineering Design and Problem Solving: (5)(F)
VII.I.4. Apply the concept of partial pressures in a mixture of gases.	Chemistry: (9)(A)		Engineering Design and Problem Solving: (5)(F)
VII.I.5. Know properties of liquids and solids.	Kindergarten-5: (5)(A) Chemistry: (4)(C) IPC: (6)(E)		Engineering Design and Problem Solving: (5)(F)
VII.I.6. Understand the effect of vapor pressure on changes in state; explain heating curves and phase diagrams.	Chemistry: (9)(A)-(B)		Engineering Design and Problem Solving: (5)(F)
VII.I.7. Describe intermolecular forces.	Chemistry: (7)(D) IPC: (6)(A)		Engineering Design and Problem Solving: (5)(F)
J. Basic structure and function of biological molecules: proteins, carbohydrates, lipids, and nucleic acids			
VII.J.1. Understand the major categories of biological molecules: proteins, carbohydrates, lipids, and nucleic acids.	Grade 7: (6)(C) Biology: (5)(A), (5)(C), (6)(A), (9)(A)		Engineering Design and Problem Solving: (5)(F) Forensic Science: (10)(B)-(C)
K. Nuclear chemistry			
VII.K.1. Understand radioactive decay.	Chemistry: (12)(A)-(C) Earth and Space Science: (7)(B) IPC: (7)(E)		Engineering Design and Problem Solving: (5)(F) Principles of Technology: (8)(I), (12)(D)-(F) Food Science: (19)(A)
VIII. Physics			
A. Matter			
VIII.A.1. Demonstrate familiarity with length scales from sub-atomic particles through macroscopic objects.	Grades 1-2: (4)(B) Grade 8: (8)(D) Astronomy: (6)(A)-(C)		Engineering Design and Problem Solving: (5)(F) Principles of Technology: (8)(H)
VIII.A.2. Understand states of matter and their characteristics.	Grades 2-5: (5)(A) Grades 3-4: (5)(B) Grade 3: (5)(C) Chemistry: (4)(C) IPC: (5)(E), (6)(A), (7)(A)		Engineering Design and Problem Solving: (5)(F) Principles of Technology: (8)(H)
VIII.A.3. Understand the concepts of mass and inertia.	Grade 8: (6)(C) Physics: (4)(D)		Engineering Design and Problem Solving: (5)(F) Engineering Science: (10)(B) Principles of Technology: (7)(B), (8)(H)
VIII.A.4. Understand the concept of density.	Grade 6: (6)(B) Aquatic Science: (8)(A) Earth and Space Science: (5)(E), (10)(B), (13)(B) IPC: (6)(B)		Engineering Design and Problem Solving: (5)(F) Engineering Science: (11)(B) Principles of Technology: (8)(H)
VIII.A.5. Understand the concepts of gravitational force and weight.	Grade 3: (6)(C) Grade 4: (6)(D) Grade 6:(11)(B) Astronomy: (9)(C) Earth and Space Science: (5)(A)-(B), (9)(C) IPC: (4)(F)-(G), (5)(B) Physics: (5)(A)-(B)		Engineering Design and Problem Solving: (5)(F) Principles of Technology: (8)(A)-(B), (8)(H) Forensic Science: (9)(A)

B. Vectors			
VIII.B.1. Understand how vectors are used to represent physical quantities.	Physics: (3)(F), (4)(E)		Engineering Design and Problem Solving: (5)(F) Engineering Science: (10)(E)-(F) Principles of Technology: (7)(A)(iii), (7)(C), (8)(H) Engineering Mathematics: (4)(A)
VIII.B.2. Demonstrate knowledge of vector mathematics using a graphical representation.	Physics: (3)(F), (4)(E)		Engineering Design and Problem Solving: (5)(F) Engineering Science: (10)(G)-(H) Principles of Technology: (7)(A)(ii), (8)(H) Engineering Mathematics: (4)(A)
VIII.B.3. Demonstrate knowledge of vector mathematics using a numerical representation.	Physics: (3)(F)		Engineering Design and Problem Solving: (5)(F) Engineering Science: (10)(G)-(H) Principles of Technology: (7)(A)(ii), (8)(H) Engineering Mathematics: (4)(A)
C. Forces and motion			
VIII.C.1. Understand the fundamental concepts of kinematics.	Kindergarten-Grade 5: (6)(D) Grade 3: (6)(B)-(C) Grade 6: (8)(B) Grade 8: (6)(B) IPC: (4)(A)-(D) Physics: (4)(A)-(B), (4)(F)		Anatomy and Physiology: (6)(E) Engineering Design and Problem Solving: (5)(F) Engineering Science: (7)(A)-(C) Principles of Technology: (7)(C), (8)(H) Forensic Science: (9)(A), (14)(B)
VIII.C.2. Understand forces and Newton's Laws.	Grade 6: (8)(B) Grade 8: (6)(A), (6)(C) Astronomy: (9)(C) IPC: (4)(D) Physics: (4)(D)		Engineering Design and Problem Solving: (5)(F) Engineering Science: (10)(C), (10)(I)-(J) Principles of Technology: (7)(B), (8)(H) Forensic Science: (9)(A)
VIII.C.3. Understand the concept of momentum.	IPC: (4)(E) Physics: (6)(C)-(D)		Anatomy and Physiology: (6)(E) Engineering Design and Problem Solving: (5)(F) Engineering Science: (7)(A)-(C) Principles of Technology: (8)(H), (9)(C)-(D) Forensic Science: (9)(A)
D. Mechanical energy			
VIII.D.1. Understand potential and kinetic energy.	Grade 6: (8)(A) IPC: (5)(A)-(B) Physics: (6)(B)		Engineering Design and Problem Solving: (5)(F) Engineering Science: (9)(A)-(C) Principles of Technology: (8)(H), (9)(A)-(C)
VIII.D.2. Understand conservation of energy.	Chemistry: (11)(B) IPC: (5)(D) Physics: (6)(D), (6)(G)		Engineering Design and Problem Solving: (5)(F) Engineering Science: (9)(A)-(C)
VIII.D.3. Understand the relationship of work and mechanical energy.	Grade 3: (6)(A) Grade 7: (7)(A) Physics: (6)(A)		Engineering Design and Problem Solving: (5)(F) Engineering Science: (9)(A)-(C) Principles of Technology: (8)(H), (9)(A)-(C) Engineering Mathematics: (10)(D)(E)
E. Rotating systems			
VIII.E.1. Understand rotational kinematics.			Engineering Design and Problem Solving: (5)(F) Engineering Science: (7)(A)-(C) Principles of Technology: (8)(H)
VIII.E.2. Understand the concept of torque.			Anatomy and Physiology: (6)(D) Engineering Design and Problem Solving: (5)(F) Engineering Science: (7)(A)-(C) Principles of Technology: (8)(H)
VIII.E.3. Apply the concept of static equilibrium.			Engineering Design and Problem Solving: (5)(F) Engineering Science: (7)(A)-(C), (10)(I)-(J) Principles of Technology: (8)(H)
VIII.E.4. Understand angular momentum.			Engineering Design and Problem Solving: (5)(F) Engineering Science: (7)(A)-(C) Principles of Technology: (8)(H)
F. Fluids			
VIII.F.1. Understand pressure in a fluid and its applications.	Aquatic Science: (8)(A), (8)(C)		Engineering Design and Problem Solving: (5)(F) Engineering Science: (14)(A)-(F)
VIII.F.2. Understand Pascal's Principle.	Aquatic Science: (8)(A)		Engineering Design and Problem Solving: (5)(F) Engineering Mathematics: (3)(C), (8)(A)-(C) Engineering Science: (14)(A)-(F)
VIII.F.3. Understand buoyancy.	Aquatic Science: (8)(A) IPC: (6)(C)		Engineering Design and Problem Solving: (5)(F) Engineering Science: (14)(A)-(F)
VIII.F.4. Understand Bernoulli's principle.	Aquatic Science: (8)(A)		Engineering Design and Problem Solving: (5)(F) Engineering Science: (14)(A)-(F), (15)(C) Aircraft Powerplant Technology: (3)(B)(E)

G. Oscillations and waves			
VIII.G.1. Understand basic oscillatory motion and simple harmonic motion.	Earth and Space Science: (15)(A) Physics: (7)(A)		Engineering Design and Problem Solving: (5)(F) Principles of Technology: (11)(A)
VIII.G.2. Understand the difference between transverse and longitudinal waves.	Physics: (7)(C)		Engineering Design and Problem Solving: (5)(F) Principles of Technology: (11)(D)
VIII.G.3. Understand wave terminology: wavelength, period, frequency, and amplitude.	Grade 8: (8)(C) Chemistry: (6)(B)-(C) IPC: (5)(G) Physics: (7)(B)		Engineering Design and Problem Solving: (5)(F) Principles of Technology: (11)(B)-(C)
VIII.G.4. Understand the properties and behavior of sound waves.	Physics: (7)(C)-(D), (7)(F)		Engineering Design and Problem Solving: (5)(F) Principles of Technology: (11)(C)-(E), (11)(G)
H. Thermodynamics			
VIII.H.1. Understand the gain and loss of heat energy in matter.	Grade 6: (9)(A)-(B) Grade 8: (10)(A) Environmental Systems: (6)(D) IPC: (5)(D)-(E) Physics: (6)(F)		Engineering Design and Problem Solving: (5)(F) Engineering Science: (9)(E)-(F) Principles of Technology: (10)(B) Food Science: (13)(A)-(D), (19)(B)
VIII.H.2. Understand the basic laws of thermodynamics.	Environmental Systems: (6)(D) Physics: (6)(E), (6)(G)		Engineering Design and Problem Solving: (5)(F) Engineering Science: (9)(E)-(F) Principles of Technology: (10)(A), (10)(C)
I. Electromagnetism			
VIII.I.1. Discuss electric charge and electric force.	Grades 4-5: (6)(C) IPC: (4)(G), (5)(C) Physics: (5)(C)-(D)		Engineering Design and Problem Solving: (5)(F) Principles of Technology: (8)(C)-(E), (8)(H)
VIII.I.2. Gain qualitative and quantitative understandings of voltage, current, and resistance.	Physics: (5)(F)		Engineering Design and Problem Solving: (5)(F) Engineering Science: (8)(D) Principles of Technology: (8)(G)-(H)
VIII.I.3. Understand Ohm's Law.	Physics: (5)(F)		Engineering Design and Problem Solving: (5)(F) Engineering Science: (8)(D) Principles of Technology: (8)(G)-(H)
VIII.I.4. Apply the concept of power to electricity.	Grades 4-5: (6)(C) Physics: (5)(F)		Engineering Design and Problem Solving: (5)(F) Engineering Science: (9)(D) Principles of Technology: (8)(G)-(H)
VIII.I.5. Discuss basic DC circuits that include voltage sources and combinations of resistors.	IPC: (5)(F) Physics: (5)(F)		Engineering Design and Problem Solving: (5)(F) Engineering Science: (8)(D) Principles of Technology: (8)(G)-(H)
VIII.I.6. Discuss basic DC circuits that include voltage sources and combinations of capacitors.	IPC: (5)(F) Physics: (5)(F)		Engineering Design and Problem Solving: (5)(F) Engineering Science: (8)(D) Principles of Technology: (8)(G)-(H)
VIII.I.7. Understand magnetic fields and their relationship to electricity.	Physics: (5)(G)		Engineering Design and Problem Solving: (5)(F) Principles of Technology: (8)(H)
VIII.I.8. Relate electricity and magnetism to everyday life.	Grade 5: (6)(B) IPC: (5)(C) Physics: (5)(D), (7)(F)		Engineering Design and Problem Solving: (5)(F) Principles of Technology: (8)(D)-(E), (8)(H)
J. Optics			
VIII.J.1. Know the electromagnetic spectrum.	Grade 8: (8)(C) Astronomy: (14)(D) Chemistry: (6)(B) Physics: (7)(C)		Engineering Design and Problem Solving: (5)(F) Principles of Technology: (11)(D)
VIII.J.2. Understand the wave/particle duality of light.	Physics: (8)(A)		Engineering Design and Problem Solving: (5)(F) Principles of Technology: (12)(A)
VIII.J.3. Understand concepts of geometric optics.	Physics: (8)(A)		Engineering Design and Problem Solving: (5)(F) Principles of Technology: (12)(A) Forensic Science: (7)(D)
IX. Earth and Space Sciences			
A. Earth systems			
IX.A.1. Know the major features and characteristics of atmosphere, geosphere, hydrosphere, and biosphere.	Grades 4-5: (8)(B) Grade 6: (10)(A) Aquatic Science: (6)(A), (9)(A) Biology: (12)(C), (12)(E) Earth and Space Science: (6)(A)-(D) Environmental Systems: (4)(C), (6)(H)		
IX.A.2. Understand relationships and interactions among atmosphere, geosphere, hydrosphere, and biosphere.	Grade 5: (8)(B) Grade 7: (8)(A) Aquatic Science: (6)(B) Earth and Space Science: (6)(B)-(C), (11)(C), (13)(A) Environmental Systems: (8)(D)		Advanced Plant and Soil Science: (10)(G)

IX.A.3. Possess a scientific understanding of the history of Earth's systems.	Astronomy: (4)(A) Biology: (7)(A) Earth and Space Science: (6)(A)-(D), (8)(A)-(C), (9)(A)-(C)		
IX.A.4. Utilize the tools scientists use to study and understand the Earth's systems.	Kindergarten-Grade 8: (4)(A) Grade 8: (9)(C) Aquatic Science: (4)(C), (5)(B) Biology: (2)(F) Earth and Space Science: (2)(E)-(F), (9)(C) Environmental Systems: (2)(G)-(H), (4)(E)		
B. Sun, Earth, and moon system			
IX.B.1. Understand interactions among the sun, Earth, and moon.	Kindergarten: (8)(B) Grade 1: (8)(C) Grade 2: (8)(C) Grade 3: (8)(B)-(C) Grade 4: (8)(B)-(C) Grade 5: (8)(B) Grade 6: (11)(A) Grade 8: (7)(A)-(C) Astronomy: (7)(A)-(D), (8)(A)-(D)		
IX.B.2. Possess a scientific understanding of the formation of the Earth and moon.	Earth and Space Science: (5)(D)		
C. Solar system			
IX.C.1. Describe the structure and motions of the solar system and its components.	Astronomy: (9)(B)-(C), (10)(A) Earth and Space Science: (5)(C), (5)(E)		
IX.C.2. Possess a scientific understanding of the formation of the solar system.	Astronomy: (9)(D) Earth and Space Science: (5)(A)		
D. Origin and structure of the universe			
IX.D.1. Understand scientific theories for the formation of the universe.	Grade 8: (8)(E) Astronomy: (11)(B), (13)(A)-(B) Earth and Space Science: (4)(A), (4)(C)		
IX.D.2. Know the current scientific descriptions of the components of the universe.	Grade 8: (8)(A)-(B) Astronomy: (11)(A)-(G), (12)(A)-(G) Earth and Space Science: (4)(C)		
E. Plate tectonics			
IX.E.1. Describe the evidence that supports the current theory of plate tectonics.	Grade 8: (9)(A) Earth and Space Science: (9)(A), (10)(A), (10)(D), (10)(F), (11)(B)		
IX.E.2. Identify the major tectonic plates.	Grade 6: (10)(C)		
IX.E.3. Describe the motions and interactions of tectonic plates.	Grade 6: (10)(D) Grade 8: (9)(B) Earth and Space Science: (10)(B)-(C), (10)(E) Environmental Systems: (8)(A)		
IX.E.4. Describe the rock cycle and its products.	Grade 5: (7)(A) Grade 6:(10)(B) Environmental Systems: (4)(C)		
F. Energy transfer within and among systems			
IX.F.1. Describe matter and energy transfer in the Earth's systems.	Grade 3: (9)(B) Grade 5: (9)(D) Grade 8: (10)(A) Aquatic Science: (6)(A) Earth and Space Science: (9)(A), (14)(C) Environmental Systems: (4)(C) IPC: (5)(G), (5)(I), (14)(C)		Principles of Technology: (12)(D)
IX.F.2. Give examples of effects of energy transfer within and among systems.	Grade 5: (9)(B), (9)(D) Grade 8: (10)(A)-(C) Aquatic Science: (11)(A) Biology: (9)(B), (12)(C) Earth and Space Science: (9)(A), (14)(C) Environmental Systems: (6)(C)-(E)		Engineering Science: (9)(F)-(G)
X. Environmental Science			
A. Earth systems			
X.A.1. Recognize the Earth's systems.	Aquatic Science: (4)(A) Earth and Space Science: (9)(B) Environmental Systems: (6)(A)		Advanced Plant and Soil Science: (6)(A)-(B), (10)(E)

X.A.2. Know the major features of the geosphere and the factors that modify them.	Grades 3-5: (7)(B) Grade 6: (10)(D) Grade 7: (8)(B) Grade 8: (9)(B)-(C) Aquatic Science: (4)(A) Environmental Systems: (6)(A), (8)(A)		Advanced Plant and Soil Science: (10)(E)-(F), (12)(C)
X.A.3. Know the major features of the atmosphere.	Kindergarten-Grade 5: (8)(A) Grade 8: (10)(A)-(C) Environmental Systems: (6)(A)		Advanced Plant and Soil Science: (10)(E)
X.A.4. Know the major features of the hydrosphere.	Kindergarten-Grade 2: (7)(B) Aquatic Science: (4)(A), (7)(A) Environmental Systems: (6)(A)		Advanced Plant and Soil Science: (10)(E)
X.A.5. Be familiar with Earth's major biomes.	Grade 5: (9)(A) Environmental Systems: (4)(B), (4)(D)		Advanced Plant and Soil Science: (6)(A)-(B), (10)(E)
X.A.6. Describe the Earth's major biogeochemical cycles.	Aquatic Science: (6)(A) Environmental Systems: (6)(A)		Advanced Plant and Soil Science: (10)(E)
B. Energy			
X.B.1. Understand energy transformations.	Grades 1,6: (9)(C) Grade 7: (5)(C) Grade 8: (11)(A) Biology: (12)(A), (12)(C) Environmental Systems: (6)(C), (6)(E)		Advanced Plant and Soil Science: (20)(A)-(D) Engineering Science: (9)(D), (9)(F)-(G)
X.B.2. Know the various sources of energy for humans and other biological systems.	Grades 1,4: (9)(C) Grade 7: (5)(C) Grade 8: (11)(A) Environmental Systems: (6)(C)-(D)		Advanced Plant and Soil Science: (20)(A)-(D) Engineering Science: (9)(D)
C. Populations			
X.C.1. Recognize variations in population sizes, including human population and extinction, and describe mechanisms and conditions that produce these variations.	Grade 3: (9)(C) Grade 7: (11)(B) Grade 8: (11)(C) Aquatic Science: (12)(B) Biology: (7)(D), (11)(B), (11)(D), (12)(D) Earth and Space Science: (11)(E) Environmental Systems: (4)(G), (7)(A)-(B), (7)(D), (8)(A)		Advanced Animal Science: (11)(G) Advanced Plant and Soil Science: (10(E) Pathophysiology: (8)(D)
D. Economics and politics			
X.D.1. Name and describe major environmental policies and legislation.	Aquatic Science: (12)(E) Environmental Systems: (9)(I), (9)(K), (9)(L)		Advanced Animal Science: (13)(B), (14)(C) Medical Microbiology: (5)(B), (7)(H) Engineering Design and Problem Solving: (8)(D)
X.D.2. Understand the types, uses, and regulations of the various natural resources.	Aquatic Science: (1)(B), (12)(E)-(D) Astronomy: (1)(B) Biology: (1)(B), (12)(D) Chemistry: (1)(C) Earth and Space Science: (1)(B), (3)(D), (12)(A)-(E) Environmental Systems: (1)(B), (5)(C)-(F), (7)(C), (7)(K) IPC: (1)(B) Physics: (1)(C)		Advanced Animal Science: (2)(B), (13)(B), (14)(C) Advanced Plant and Soil Science: (2)(B) Medical Microbiology: (2)(B), (7)(H) Pathophysiology: (2)(B) Engineering Design and Problem Solving: (2(B), (8)(D) Engineering Science: (2)(B) Scientific Research and Design: (2)(B) Principles of Technology: (2)(B)
E. Human practices and their impacts			
X.E.1. Describe the different uses for land (land management).	Environmental Systems: (5)(A), (9)(J)		Advanced Animal Science: (13)(B), (13)(E), (14)(B) Advanced Plant and Soil Science: (9)(C), (10)(A)-(C), (10)(E), (13)(B), (15)(B) Engineering Design and Problem Solving: (8)(D)
X.E.2. Understand the use and consequences of pest management.	Biology: (12)(F) Environmental Systems: (4)(F)-(G), (8)(B), (9)(A)-(B), (9)(J)		Advanced Animal Science: (11)(G), (13)(B) Advanced Plant and Soil Science: (8)(C), (9)(C), (10)(B), (10)(E), (13)(B) Engineering Design and Problem Solving: (8)(D)
X.E.3. Know the different methods used to increase food production.	Environmental Systems: (5)(E), (9)(G), (9)(J)		Advanced Animal Science: (6)(B)-(C), (7)(B), (8)(F), (13)(A), (13)(E), (14)(D) Advanced Plant and Soil Science: (9)(C), (10)(B), (10)(E), (13)(B) Engineering Design and Problem Solving: (8)(D)
X.E.4. Understand land and water usage and management practices.	Grade 7: (8)(C) Environmental Systems: (4)(E), (5)(A)-(B), (5)(F), (8)(C), (9)(A)-(C), (9)(J)		Advanced Plant and Soil Science: (9)(C), (10)(A)-(C), (10)(E), (13)(B), (14)(B) Engineering Design and Problem Solving: (8)(D)
X.E.5. Understand how human practices affect air, water, and soil quality.	Grade 5: (9)(C) Grades 6-8: (1)(B) Grade 7: (8)(C) Grade 8: (11)(D) Aquatic Science: (12)(A)-(D) Biology: (12)(F) Earth and Space Science: (11)(E) Environmental Systems: (4)(D)-(F), (5)(F), (8)(B), (9)(A)-(B), (9)(D)-(E), (9)(J) IPC: (5)(I), (7)(F)		Anatomy and Physiology: (2)(B) Advanced Animal Science: (2)(B) Advanced Plant and Soil Science: (2)(B), (8)(C), (9)(C), (10)(B), (10(E)-(G), (13)(B)-(C) Medical Microbiology: (2)(B) Pathophysiology: (2)(B) Engineering Design and Problem Solving: (2(B), (8)(D) Engineering Science: (2)(B) Scientific Research and Design: (2)(B) Principles of Technology: (2)(B)

Figure: 19 TAC §74.6(d)

College and Career Readiness Standards / Texas Essential Knowledge and Skills Alignment

Social Studies

CCRS	Foundation Subjects	Enrichment
	Social Studies	CTE
I. Interrelated Disciplines and Skills		
A. Spatial analysis of physical and cultural processes that shape the human experience		
I.A.1. Use the tools and concepts of geography appropriately and accurately.	Grade 1: (5)(A)-(B), (6)(A) Grade 2: (5)(A)-(B) Grade 3: (5)(A)-(D), (17)(E) Grade 4: (6)(A)-(B), (7)(B), (21)(C) Grade 5: (6)(A)-(B), (7)(C)-(D), (24)(C) Grade 6: (3)(D), (4)(A), (4)(D)-(E), (6)(A), (6)(C), (21)(C) Grade 7: (8)(A)-(B), (9)(C), (10)(A)-(B), (21)(C) Grade 8: (10)(C), (11)(A), (29)(C), (29)(I)-(J) U.S. History Studies: (29)(H), (31)(A) World History Studies: (15)(A)-(B), (16)(C) World Geography: (1)(A)-(B), (6)(A), (7)(A)-(D), (9)(A)-(B), (13)(A)-(B), (21)(A)-(C), (22)(A), (23)(B) U.S. Government: (3)(A) Sociology: (17)(A)-(B) Special Topics in Social Studies: (1)(C)	
I.A.2. Analyze the interaction between human communities and the environment.	Grade 1: (7)(A)-(D) Grade 3: (4)(B), (4)(D) Grade 4: (9)(A)-(C) Grade 6: (6)(C), (7)(A)-(C) Grade 7: (10)(A) Grade 8: (11)(B) U.S. History: (12)(A), (14)(A) World Geography: (1)(A)	
I.A.3. Analyze how physical and cultural processes have shaped human communities over time.	Grade 1: (6)(C) Grade 2: (7)(A)-(B), (8)(A)-(B) Grade 3: (4)(B) Grade 4: (8)(C) Grade 5: (5)(A), (5)(C), (9)(A)-(B), (13)(B) Grade 6: (6)(C) Grade 8: (11)(A)-(B) World Geography: (1)(A), (6)(A)	
I.A.4. Evaluate the causes and effects of human migration patterns over time.	Grade 7: (11)(A)-(B) U.S. History: (13)(A)-(B) World Geography: (1)(A), (7)(B)	
I.A.5. Analyze how various cultural regions have changed over time.	Grade 6: (1)(A), (4)(C) World Geography: (18)(A)	
I.A.6. Analyze the relationship between geography and the development of human communities.	Kindergarten: (5)(B) Grade 2: (7)(D), (8)(B), (9)(A) Grade 3: (4)(B), (4)(D) Grade 4: (8)(C), (9)(A)-(C) Grade 5: (8)(A)-(B) Grade 6: (5)(A)-(C), (6)(C), (7)(A)-(C) Grade 7: (10)(A) U.S. History: (12)(A) World History: (2)(A), (15)(A), (16)(B) World Geography: (1)(A), (2)(A), (6)(B), (8)(C)	
B. Periodization and chronological reasoning		
I.B.1. Examine how and why historians divide the past into eras.	Grade 7: (1)(A) U.S. History: (2)(A)-(B)	
I.B.2. Identify and evaluate sources and patterns of change and continuity across time and place.	Grade 6: (1)(B) U.S. History: (1)(B), (29)(C) World History: (29)(C) Social Studies Research Methods: (3)(B)	World Health Research: (2)(B), (3)(A)-(D)

I.B.3. Analyze causes and effects of major political, economic, and social changes in U.S. and world history.	Grade 4: (4)(A), (5)(A) Grade 5: (2)(A), (2)(C), (4)(D)-(F) Grade 7: (5)(B), (7)(A), (7)(F) Grade 8: (1)(A), (2)(B), (3)(A), (4)(A), (6)(B), (7)(B)-(D), (8)(B), (9)(C) U.S. History: (3)(A)-(C), (4)(C), (5)(A)-(C), (6)(A)-(B), (7)(A), (8)(A)-(F), (9)(A), (9)(H)-(I), (10)(E), (15)(A), (15)(C)-(D), (16)(B)-(C), (17)(A)-(C), (18)(B), (20)(A)-(B), (21)(A), (27)(A) World History: (1)(A)-(F), (4)(A), (4)(C), (4)(G)-(H), (4)(J), (5)(A)-(B), (6)(A), (7)(A)-(E), (8)(A)-(B), (9)(A), (9)(C), (17)(C) U.S. Government: (2)(B) Special Topics: (1)(B)	Principles of LPSCS: (8)(A)-(B) Principles of Transportation Systems: (4)(B)-(C) Principles of Distribution and Logistics: (4)(B)-(C) Management of Transportation Systems: (2)(A) Distribution and Logistics: (3)(C), (4)(A)
C. Change and continuity of political ideologies, constitutions, and political behavior		
I.C.1. Evaluate different governmental systems and functions.	Grade 7: (15)(A) World History: (20)(B) U.S. Government: (12)(B)-(C)	
I.C.2. Evaluate changes in the functions and structures of government across time.	U.S. History: (19)(A), (20)(B), (21)(C) World History: (22)(A) U.S. Government: (1)(A)	Principles of LPSCS: (8)(A)-(B), (9)(E), Court Systems and Practices: (2)(A); Federal Law Enforcement and Protective Services: (3)(A); Accounting I: (12)(B)-(C)
I.C.3. Explain and analyze the importance of civic engagement.	Grade 1: (12)(C) Grade 2: (12)(D), (13)(A), (13)(D) Grade 3: (11)(A), (11)(C), (12)(A) Grade 4: (17)(B)-(C) Grade 5: (18)(A) Grade 6: (14)(A) Grade 7: (16)(B) Grade 8: (19)(D) U.S. History: (23)(C) World History: (21)(A)-(B) U.S. Government: (14)(C), (15)(A)-(B)	Family and Community Services: (3)(E-F), (4)(A)-(C)
D. Change and continuity of economic systems and processes		
I.D.1. Identify and evaluate the strengths and weaknesses of different economic systems.	Grade 6: (9)(D)	
I.D.2. Analyze the basic functions and structures of international economics.	U.S. History: (17)(E) World Geography: (10)(D)	Fashion Marketing: (12)(G); Distribution and Logistics: (4)(A); Global Business: (4)(A)-(C); Banking and Financial Services:(2E)
E. Change and continuity of social groups, civic organizations, institutions, and their interaction		
I.E.1. Identify different social groups (e.g., clubs, religious organizations) and examine how they form and how and why they sustain themselves.	Grade 6: (16)(A), (16)(C) Sociology: (4)(A)-(B)	Professional Standards in Agribusiness: (8)(C); Agribusiness Management and Marketing: (3)(C); World Health Research: (2)(D); Principles of LPSCS: (14)(A)-(B)
I.E.2. Define the concept of socialization and analyze the role socialization plays in human development and behavior.	Sociology: (6)(A)-(C)	Human Growth and Development: (4)(A), (5)(A), (6)(A), (7)(B), (9)(D), (10)(D), (11)(D)
I.E.3. Analyze how social institutions (e.g., marriage, family, churches, schools) function and meet the needs of society.	Sociology: (13)(A), (13)(C), (15)(D)	Interpersonal Studies: (8)(A)-(G)
I.E.4. Identify and evaluate the sources and consequences of social conflict.	Grade 6: (15)(F)	
F. Problem-solving and decision-making skills		
I.F.1. Use a variety of research and analytical tools to explore questions or issues thoroughly and fairly.	Kindergarten: (16)(A)-(B) Grade 1: (19)(A)-(B) Grade 2: (20)(A)-(B) Grade 3: (19)(A)-(B) Grade 4: (23)(A)-(B) Grade 5: (26)(A)-(B) Grade 6: (23)(A)-(B) Grade 7: (23)(A)-(B) Grade 8: (31)(A)-(B) U.S. History: (32)(A)-(B) World History: (31)(A)-(B) World Geography: (23)(A), (23)(C) U.S. Government: (20(D), (22)(A)-(B) Psychology: (16)(A)-(B) Sociology: (21)(A)-(B) Special Topics: (1)(A), (1)(F)-(G) Research Methods: (2)(D)-(E), (3)(C), (5)(D)	

I.F.2. Analyze ethical issues in historical, cultural, and social contexts.	Special Topics: (1)(E)	Biotechnology I: (4)(D), (5)(F)-(G); Principles of Information Technology: (13)(A-F); Digital Media: (1) (F), (4)(A)-(H), (8)(C); Web Technologies: (4)(A)-(D); Computer Maintenance: (1)(F); Computer Maintenance Lab: (1)(H); Networking: (1)(H); Networking Lab: (1)(H); Computer Technician Practicum: (1)(H); Practicum in Information Technology: (1)(H); Computer Programming I: (1)(E), (2)(A)-(D); Computer Programming II: (1)(G); Instructional Practices: (10)(A-D); Practicum in Education and Training: (10)(A-D)
II. Diverse Human Perspectives and Experiences		
A. Multicultural societies		
II.A.1. Define a "multicultural society" and consider both the positive and negative qualities of multiculturalism.	Grade 6: (15)(C)	
II.A.2. Evaluate the experiences and contributions of diverse groups to multicultural societies.	Grade 6: (15)(D) Grade 7: (19)(B) Grade 8: (23)(D)-(E) World Geography: (17)(D)	
B. Factors that influence personal and group identities (e.g., race, ethnicity, gender, nationality, institutional affiliations, socioeconomic status)		
II.B.1. Explain and evaluate the concepts of race, ethnicity, and nationalism.	Sociology: (5)(A), (11)(A)	
II.B.2. Explain and evaluate the concept of gender.	Sociology: (5)(A)	
II.B.3. Analyze diverse religious concepts, structures, and institutions around the world.	Grade 6: (19)(A) World History: (3)(A), (4)(B), (23)(A), (25)(A)-(D) World Geography: (17)(A)-(B) Sociology: (15)(E)	
II.B.4. Evaluate how major philosophical and intellectual concepts influence human behavior or identity.	U.S. Government: (7)(F)	
II.B.5. Explain the concepts of socioeconomic status and stratification.	Sociology: (10)(A)-(D)	
II.B.6. Analyze how individual and group identities are established and change over time.		
III. Interdependence of Global Communities		
A. Spatial understanding of global, regional, national, and local communities		
III.A.1. Distinguish spatial patterns of human communities that exist between or within contemporary political boundaries.	World Geography: (1)(A), (13)(A), (14)(A), (17)(A)	
III.A.2. Connect regional or local developments to global ones.		
III.A.3. Analyze how and why diverse communities interact and become dependent on each other.	Grade 6: (17)(D)-(E) World History: (4)(E)-(F), (4)(K), (6)(B), (7)(A)-(E), (8)(C), (17)(C)	Livestock Production: (3)(A)
B. Global analysis		
III.B.1. Apply social studies methodologies to compare societies and cultures.	Grade 3: (2)(C) Grade 4: (1)(D), (19)(A)-(B) Grade 5: (22)(A) Grade 6: (21)(A) Grade 7: (2)(A) World Geography: (16)(D), (17)(A), (17)(C)	

IV. Analysis, Synthesis, and Evaluation of Information		
A. Critical examination of texts, images, and other sources of information		
IV.A.1. Identify and analyze the main idea(s) and point(s)-of-view in sources.	Grade 2: (18)(E) Grade 3: (17)(C) Grade 4: (21)(B), (21)(D) Grade 5: (24)(B), (24)(D) Grade 6: (21)(D), (22)(B) Grade 7: (21)(D) Grade 8: (29)(D), (29)(F) U.S. History: (29)(B), (29)(G) World History: (29)(C), (29)(F) U.S. Government: (20)(A), (20)(D) Psychology: (14)(D) Sociology: (19)(B) Special Topics: (2)(A), (2)(C)-(D) Economics: (22)(A), (22)(G)	Digital Media: (1)(B); Computer Maintenance: (1)(A); Computer Maintenance Lab: (1)(A); Networking: (1)(A); Networking Lab: (1)(A); Computer Programming I: (1)(A); Computer Programming II: (1)(A); Computer Technology Practicum: (1)(A); Practicum in Information; Securities and Investments: (3)(E); Accounting II: (2)(B),(8)on Technology: (1)(A); Business English (9)(A-C), (10)(A)(B); Practicum in Business Management: (12)(B); Hospitality Services: (1)(A)
IV.A.2. Situate an informational source in its appropriate contexts (contemporary, historical, cultural).	Grade 5: (24(E) Grade 6: (21)(A) U.S. History: (29)(A) World History: (29)(C) Economics: (22)(D)	
IV.A.3. Evaluate sources from multiple perspectives.	Grade 7: (21)(G) U.S. History: (29)(E) World History: (29)(C) World Geography: (21)(A) U.S. Government: (20)(D) Special Topics: (2)(B), (2)(E), (3)(F) Research Methods: (2)(E) Economics: (22)(D)	
IV.A.4. Understand the differences between a primary and secondary source and use each appropriately to conduct research and construct arguments.	Grade 4: (21)(A) Grade 5: (24)(A) Grade 7: (21)(A) Grade 8: (29)(A) U.S. History: (29)(A) World History: (29)(C) World Geography: (21)(A) U.S. Government: (20)(D) Special Topics: (2)(B) Research Methods: (2)(F)	Business English: (3)(A)-(B)
IV.A.5. Read narrative texts critically.	Grade 2: (18)(D)-(E) Grade 3: (17)(A)-(C), (17)(E) Grade 4: (21)(B)-(D) Grade 5: (24)(B)-(C) Grade 6: (21)(B), (21(D), (22)(B) Grade 7: (21)(A)-(C) Grade 8: (29)(B)-(C) U.S. History: (29)(B), (29)(E)-(F), (29)(H) World History: (29)(E)-(F) World Geography: (21)(C), (22)(B) U.S. Government: (20)(A), (20)(D) Psychology: (14)(B), (14)(D) Sociology: (19)(B) Special Topics: (2)(C)-(D) Economics: (22)(A), (22)(D)	

IV.A.6. Read research data critically.	Grade 2: (18)(E) Grade 3: (17)(A), (17)(C) Grade 4: (21)(C)-(D) Grade 5: (24)(C) Grade 6: (21)(A), (21)(C) Grade 7: (21)(A)-(C) Grade 8: (29)(C) U.S. History: (29)(B), (29)(E)-(F), (29)(H) World History: (29)(E) World Geography: (21)(C), (22)(B) U.S. Government: (20)(A), (20)(D)-(F) Psychology: (14)(B)-(D) Sociology: (19)(B)-(C) Special Topics: (2)(D)-(F), (2)(H), (3)(F) Economics: (22)(A), (22)(D)	Business English: (3)(A-F); Business Information Management I: (6)(D); Business Information Management II: (3)(B); Practicum in Business Management: (12)(D); Securities and Investments: (7)(A-E)(8); Insurance Operations: (2)(B-H),(K-L),(P),(3)(B),(4)(A); Banking and Financial Services:(2); Accounting I: (13); Accounting II: (4)(H),(5)(M),(8); Principles of Hospitality and Tourism: (1)(B); Introduction to Culinary Arts: (5)(C); Hotel Management: (8)(F)
B. Research and methods		
IV.B.1. Use established research methodologies.	U.S. History: (29)(D), (32)(A) World History: (31)(A) World Geography: (23)(A), (22)(B) U.S. Government: (20)(B), (22)(A) Psychology: (14)(A), (16)(A) Sociology: (19)(A), (21)(A) Special Topics: (1)(A), (1)(F) Research Methods: (1)(B)-(D), (2)(A)-(L), (4)(A)-(I), (6)(A)-(D) Social Studies Advanced Studies: (1)(B)-(C), (1)(E), (2)(B)-(C) Economics: (24)(A)-(D) Economics Advanced Studies: (1)(B)-(C), (1)(E), (2)(B)-(C)	
IV.B.2. Explain how historians and other social scientists develop new and competing views of past phenomena.	U.S. History: (29)(C) World History: (29)(B) Research Methods: (3)(A)	
IV.B.3. Gather, organize, and display the results of data and research.	Grade 6: (22)(D), (23)(A)-(B) Grade 7: (21)(C), (23)(A)-(B) Grade 8: (29)(C), (29)(I), (30)(C)-(D) U.S. History: (30)(A)-(C) World History: (30)(C), (31)(A)-(B) World Geography: (22)(A)-(B) U.S. Government: (20)(B), (21)(C) Psychology: (15)(D) Sociology: (20)(D) Special Topics: (2)(A) Research Methods: (2)(C)-(E), (3)(C), (5)(E)-(G) Social Studies Advanced Studies: (1)(B), (4)(C) Economics Advanced Studies: (1)(B), (4)(C)	
IV.B.4. Identify and collect sources.	Kindergarten: (14)(A)-(B) Grade 1: (17)(A)-(B) Grade 2: (3)(A), (18(A)-(B) Grade 3: (17)(A) Grade 4: (21)(A) Grade 5: (24)(A) Grade 7: (21)(A) Grade 8: (29)(A)-(C) U.S. History: (29)(D), (29)(G) Special Topics: (2)(A), (2)(E) Research Methods: (2)(C)-(D) Social Studies Advanced Studies: (1)(B) Economics Advanced Studies: (1)(B)	
C. Critical listening		
IV.C.1. Understand and interpret presentations (e.g., speeches, lectures, informal presentations) critically.	Grade 4: (21)(A) Grade 5: (24)(A) U.S. History: (29)(F), (29)(H) World History: (29)(E), (30)(C) Special Topics: (2)(F) Research Methods: (2)(C)	

D. Reaching conclusions		
IV.D.1. Construct a thesis that is supported by evidence.	World History: (29)(G) World Geography: (22)(B) Special Topics: (3)(D) Research Methods: (1)(D), (5)(B)	
IV.D.2. Recognize and evaluate counter-arguments.	U.S. Government: (20(D) Special Topics: (3)(D) Research Methods: (1)(D), (5)(B)	
V. Effective Communication		
A. Clear and coherent oral and written communication		
V.A.1. Use appropriate oral communication techniques depending on the context or nature of the interaction.	Kindergarten: (15)(A) Grade 1: (18)(A) Grade 2: (19)(A) Grade 3: (18)(A) Grade 4: (22)(C) Grade 5: (25)(C) Grade 6: (22)(C) Grade 7: (22)(D) Grade 8: (30)(D) U.S. History: (30)(A) World History: (30)(C) U.S. Government: (21)(D) Psychology: (15)(D) Special Topics: (2)(A) Research Methods: (5)(B), (5)(F) Social Studies Advanced Studies: (1)(D), (3)(A), (4)(B)-(C) Economics Advanced Studies: (1)(D), (3)(A), (4)(B)-(C)	
V.A.2. Use conventions of standard written English.	World History: (30)(B) World Geography: (22)(G) U.S. Government: (21)(B) Psychology: (15)(B) Sociology: (20)(B) Special Topics: (2)(A) Research Methods: (5)(A)	
B. Academic integrity		
V.B.1. Attribute ideas and information to source materials and authors.	World Geography: (22)(E) Special Topics: (3)(G) Research Methods: (2)(L), (5)(H)	

Figure: 19 TAC §74.6(e)

College and Career Readiness Standards / Texas Essential Knowledge and Skills Alignment

Cross Disciplinary

CCRS	Enrichment		
	Fine Arts	**Languages other than English**	**Technology Applications**
I. Key Cognitive Skills			
A. Intellectual curiosity			
I.A.1. Engage in scholarly inquiry and dialogue.		LOTE, Levels V-VII: (1)(B), (1)(D), (3)(A)-(B) Seminar in LOTE: (c)(1), (1)(A)-(F), (c)(2), (2)(A)-(G) Classical Languages, Levels V-VII: (1)(B), (3)(A) Seminar in Classical Languages: (c)(1), (1)(A)-(E), (c)(2), (2)(A)-(G) ASL, Advanced Independent Study: (1)(A), (5)(C)	Grade 6: (2)(C) Grade 7: (1)(D) Fundamentals of Computer Science: (5)(E) Computer Science I: (1)(A)
I.A.2. Accept constructive criticism and revise personal views when valid evidence warrants.	Art I-II: (4)(C) Art III-IV: (4)(D) Musical Theatre I: (5)(C) Musical Theatre II- -IV: (5)(D) Theatre I-II: (5)(C) Technical Theatre I-IV: (5)(D)		Web Design: (4)(G)
B. Reasoning			
I.B.1. Consider arguments and conclusions of self and others.	Art, Grades 2-5: (4)(A) Art I: (4)(A) Art II: (4)(A), (4)(C) Art III: (4)(D) Art IV: (4)(C)-(D) Dance IV: (5)(A) Music, Middle School 2: (5)(D) Music, Middle School 3: (5)(C)-(D) Music I-II: (6)(C) Music III: (6)(C), (6)(E) Music IV: (6)(C) Music Studies: (6)(C) Theatre I: (5)(B), (5)(C) Theatre II: (5)(C) Theatre III: (5)(B) Theatre IV: (5)(B), (5)(G) Musical Theatre I: (5)(B), (5)(C) Musical Theatre II-III: (5)(B), (5)(D) Musical Theatre IV: (5)(D) Technical Theatre I: (5)(C) Technical Theatre II-IV: (5)(C), (5)(D)	LOTE, Level III: (1)(B), (3)(A) LOTE, Level IV: (1)(C), (3)(A) LOTE, Levels V-VII: (3)(A)-(B) Seminar in LOTE: (1)(F), (2)(C) Classical Languages, Level IV: (1)(B), (3)(A) Classical Languages, Levels V-VII: (3)(A) Seminar in Classical Languages: (1)(E), (2)(C)	Grades 3-5: (4)(C) Computer Science I: (2)(H) Digital Forensics: (2)(F) Digital Art and Animation: (2)(I) Web Communications: (4)(G) Independent Study in Technology Applications: (1)(D), (1)(H) Independent Study in Evolving/Emerging Technologies: (1)(D), (1)(H)
I.B.2. Construct well-reasoned arguments to explain phenomena, validate conjectures, or support positions.	Art I: (1)(D), (4)(D) Art II: (4)(E) Art III: (4)(A) Art IV: (4)(A) (4)(F) Music, Middle School 1: (5)(D) Music, Middle School 2-3: (5)(E) Music I-IV: (6)(B), (6)(D) Music Studies: (5)(E), (6)(B), (6)(D) Dance, Middle School 2-3: (5)(D) Theatre I: (5)(D) (5)(E) Theatre II: (5)(D) Theatre III-IV: (5)(C) (5)(E) Musical Theatre I: (5)(D) Musical Theatre II-III: (5)(C) Musical Theatre IV: (4)(B) (4)(D) (5)(B) (5)(E) Technical Theatre I-II: (5)(D) (5)(E) Technical Theatre III: (5)(E) (5)(F) Technical Theatre IV: (4)(A) (5)(E) (5)(F)	LOTE, Level IV: (3)(A) LOTE, Levels V-VII: (3)(A)-(B) Classical Languages, Levels V-VII: (3)(A)	Digital Forensics:(1)(A) Digital Communications in the 21st Century: (2)(D), (3)(E) Digital Video and Audio Design: (6)(A)
I.B.3. Gather evidence to support arguments, findings, or lines of reasoning.	Art II: (4)(D) Art III-IV: (3)(A), (3)(D) Dance III: (4)(D) Dance IV: (4)(B) Theatre II-IV:(4)(D)-(E) Technical Theatre I:(4)(A) Technical Theatre II-III: (2)(B), (4)(A)	LOTE, Levels V-VII: (3)(A)-(B) Seminar in LOTE: (2)(A)-(B) Classical Languages, Levels III-VII: (3)(A) Seminar in Classical Languages: (2)(A)-(B)	Kindergarten-Grade 2: (4)(B) Grade 7: (1)(C) Grade 8: (1)(C), (4)(E) Digital Design and Media Production (DDMP): (4)(A) Digi. Comm. in 21st Cent: (2)(A)
I.B.4. Support or modify claims based on the results of an inquiry.		LOTE, Levels V-VII: (3)(A)-(B) Classical Languages, Levels V-VII: (3)(A)	Grade 6:(4)(E) Grade 7: (1)(C), (4)(E) Grade 8: (1)(C) Web Design: (4)(Q)

C. Problem solving			
I.C.1. Analyze a situation to identify a problem to be solved.			Grades 3-5: (4)(A) Grades 6-8: (4)(A) Fundamentals of Computer Science: (2)(B) Computer Science I: (4)(A)-(B) Digi. Comm. in 21st Cent: (7)(A), (8)(A)-(C)
I.C.2. Develop and apply multiple strategies to solve a problem.	Art I: (2)(A) Art III: (2)(B) Theatre I: (3)(D) Theatre III: (3)(E) Theatre IV: (3)(F) Musical Theatre I-II: (3)(D) Musical Theatre III: (3)(C)		Kindergarten-Grade 2: (1)(D)-(E) Grades 6-8: (4)(B), (4)(D) Fundamentals of Computer Science: (2)(A) Computer Science I: (4)(A)-(G) Computer Science II: (1)(A) Computer Science III: (3)(E), (G)-(I) Game Programming and Design: (2)(A) Mobile Application Development: (2)(B)-(F) DDMP: (4)(B) Digi. Comm. in 21st Cent: (1)(A), (2)(B), (7)(A), (8)(A)-(C) Digital Video and Audio Design: (2) Web Communications: (2)(D) Web Design: (2)(D) Web Game Development: (4)(D), (4)(J) Ind. Study in Tech Apps: (1)(B), (4)(B)-(C) Ind. Study in Evolving/Emerging Technologies: (1)(B)
I.C.3. Collect evidence and data systematically and directly relate to solving a problem.			Kindergarten-Grade 2: (1)(D)-(E) Grade 6: (4)(C)-(D) Grades 7-8: (4)(C) Fundamentals of Computer Science: (2)(A) Computer Science I: (4)(H)-(L) Computer Science II: (1)(C) Digi. Comm. in 21st Cent: (1)(A), (2)(B), (7)(A), (8)(A)-(C) Web Communications: (6)(G) Web Design: (6)(G) Ind. Study in Tech Apps: (1)(B), (4)(D) Ind. Study in Evolving/Emerging Technologies: (1)(B), (4)(D)
D. Academic behaviors			
I.D.1. Self-monitor learning needs and seek assistance when needed.			Fundamentals of Computer Science: (2)(A) Digital Forensics: (2)(F) Game Programming and Design: (2)(A) DDMP: (4)(D)
I.D.2. Use study habits necessary to manage academic pursuits and requirements.			
I.D.3. Strive for accuracy and precision.			
I.D.4. Persevere to complete and master tasks.			
E. Work habits			
I.E.1. Work independently.	Dance Middle School 1: (1)(A), (2)(D) Dance, Middle School 2-3: (1)(A) (2)(D), (3)(B) Dance, II-IV: (1)(A) Music, Kindergarten, Grades 2 and 4: (2)(C) Music, Middle School 1-3: (3)(A)-(E) Theatre, Grades 4-5: (2)(D) Theatre, Grade 5: (2)(D) Theatre, Middle School 2: (2)(D) Theatre, Middle School 3: (2)(C) Theatre IV: (2)(E) Musical Theatre IV: (1)(E)		Grades 3-5: (2)(A) Grade 8: (1)(B) Computer Science I (1)(A), (3)(A)-(B) Digital Art and Animation: (2)(B) DDMP: (4)(E) Digi. Comm. in 21st Cent: (3)(A) Digital Video and Audio Design: (2)
I.E.2. Work collaboratively.	Art I-IV: (2)(E), (3)(C) Dance, Middle School 1-3: (3)(B) Music, Middle School 1-3: (3)(A)-(B) Theatre, Grades 1-3: (3)(D) Theatre, Grades 4-5: (2)(D)-(E), (3)(D) Theatre, Middle School 1: (3)(A), (3)(C) Theatre, Middle School 2: (2)(D), (2)(G) Theatre I: (3)(C) Theatre II-III: (3)(D) Theatre IV: (2)(E) Musical Theatre I: (3)(E) Musical Theatre II: (1)(H), (2)(F) Musical Theatre III: (1)(G), (2)(F), (3)(D) Musical Theatre IV: (1)(H), (2)(G)		Grades 3-5: (2)(A), (2)(C)-(D) Grades 6-7: (2)(A) Grade 8: (1)(B), (2)(A)-(B) Fundamentals of Computer Science: (2)(A) Computer Science I: (3)(A)-(B) Computer Science III:(2)(C) Digital Forensics: (2)(C)-(D) and (2)(F) Game Programming and Design: (2)(A) Mobile Application Development: (2)(A)-(B) DDMP: (4)(E) Digital Art and Animation:(2)(B)-(C), (2)(F), and (2)(I) Digi. Comm. in 21st Cent: (3)(B)-(F), (4)(A), (4)(D) Digital Video and Audio Design: (2), (8)(A)-(B) Web Communications: (1)(A) Web Design: (1)(A) Web Game Development: (2)(F) Ind. Study in Tec Apps: (1)(D), (1)(H), (2)(G), (2)(I) Ind. Study in Evolving/Emerging Technologies: (1)(D), (1)(H), (2)(G), (2)(I)

F. Academic integrity			
I.F.1. Attribute ideas and information to source materials and people.		LOTE, Levels V-VII: (3)(A)-(B) Seminar in LOTE: (2)(F) Classical Languages, Levels III-VII: (3)(A) Seminar in Classical Languages: (2)(F)	Grade 6: (5)(A)-(B) Grade 7: (5)(A)-(C) Grade 8: (5)(A)-(D) Fundamentals of Computer Science:: (5)(A) Computer Science I: (5)(B) Computer Science II: (5)(B) Digital Forensics: (5)(A)-(K) Game Programming and Design: (5) (A)-(B) Mobile Application Development: (2)(A), (r)(F),(5)(C), (5)(G) DDMP: (5)(A) Digital Art and Animation: (5)(A) 3-D Modeling and Animation: (5)(A) Digi. Comm. in 21st Cent: (1)(C), (5)(A)-(C), (9)(A), (10)(B) Digital Video and Audio Design: (8)(A)-(B), Web Communications: (2)(B)-(C), (3)(A)-(B), (3)(D)-(E), (5)(A) Web Design: (2)(B)-(C), (3)(A)-(E), (4)(C)-(D), (5)(F)-(G) Web Game Development: (5)(G) Ind. Study in Tech Apps: (3)(D), (5)(A)-(C) Ind. Study in Evolving/Emerging Technologies: (3)(D), (5)(A)-(C)
I.F.2. Evaluate sources for quality of content, validity, credibility, and relevance.		Classical Languages, Levels III-VII: (2)(C)	Grades 3-5:(3)(C) Grade 8: (6)(A) Fundamentals of Computer Science: (5)(F) Computer Science III: (5)(A)-(B) Digital Forensics: (4)(A), (5)(A)-(K) DDMP: (3)(B) Digital Art and Animation: (5)(D) 3-D Modeling and Animation: (5)(D) Digi. Comm. in 21st Cent: (1)(C), (5)(A)-(C), (10)(B) Digital Video and Audio Design: (8)(A)-(B) Web Communications: (2)(B)-(C), (3)(A)-(B), (3)(D)-(E), (5)(A) Web Design: (2)(B)-(C), (3)(A), (4)(C)-(D) Web Game Development: (2)(A) Ind. Study in Tech Apps: (3)(D) Ind. Study in Evolving/Emerging Technologies: (3)(D)
I.F.3. Include the ideas of others and the complexities of the debate, issue, or problem.			Grade 8: (5)(D) Digital Forensics: (5)(A)-(K) Game Programming and Design:(5)(E)-(F) Mobile Application Development: (5)(F) Digi. Comm. in 21st Cent: (1)(B)-(C), (5)(A), (10)(A)-(B) Digital Video and Audio Design: (8)(C)-(D) Web Game Development: (5)(D) Ind. Study in Tech Apps: (3)(D) Ind. Study in Evolving/Emerging Technologies: (3)(D), (3)(F)-(G)
I.F.4. Understand and adhere to ethical codes of conduct.			Kindergarten-Grade 2: (5)(A)-(C) Grade 3-5: (5)(A)-(F) Grades 6-7: (5)(A)-(D) Grade 8: (5)(A)-(D), (6)(A) Fundamentals of Computer Science: (5)(A)-(C) Computer Science I: (5)(A)-(E) Computer Science II: (5)(A)-(C) Computer Science III: (5)(A)-(C) Digital Forensics: (5)(A)-(K) Game Programming and Design: (5)(A)-(F) Mobile Application Development: (5)(A)-(H) DDMP: (5)(A)-(D), (6)(A)-(H) Digital Art and Animation: (5)(A) 3-D Modeling and Animation: (5)(A)-(D) Digi. Comm. in 21st Cent: (1)(C), (9)(A), (10)(A)-(B) Digital Video and Audio Design: (3)(C), (8)(A)-(G) Web Communications: (3)(D)-(E), (4)(D), (5)(A), (5)(D) Web Design: (2)(B)-(C), (3)(A)-(B), (3)(D)-(E), (3)(I), (4)(C), (4)(P), (5)(A), (5)(J) Web Game Development:(5)(A)-(G) Ind. Study in Tech Apps: (3)(D), (5)(A)-(G) Ind. Study in Evolving/Emerging Technologies: (3)(D), (5)(A)-(G)

II. Foundational Skills			
A. Reading across the curriculum			
II.A.1. Use effective prereading strategies.			
II.A.2. Use a variety of strategies to understand the meanings of new words.	Art, Grades 3-5: (1)(B) Dance I-IV: (1)(C) Music, Grades 1-3: (1)(C) Music, Grades 4-5: (1)(C), (2)(C) Music, Middle School 1-2: (2)(A) Music I: (1)(C)-(D) Music II: (1)(D), (1)(F), (1)(G) Music III: (1)(C), (1)(D), (1)(F), (1)(H) Music IV: (1)(C), (1)(F) Music Studies: (1)(C) (1)(D) Theatre, Grade 4: (1)(G) Theatre, Middle School 1-3: (1)(E) Musical Theatre I-II: (1)(F) Musical Theatre III: (1)(H) Technical Theatre I-IV: (1)(A)	LOTE, Levels I-IV: (2)(C) Classical Languages, Levels I-II: (2)(C) Classical Languages, Levels III-IV: (2)(D) Discovering Languages and Cultures: (2)(A) Special Topics in Language and Culture: (3)(B), (4)(B)	3-D Modeling and Animation: (2)(A) Ind. Study in Tech App: (6)(D) Ind. Study in Evolving/Emerging Technologies: (6)(D)
II.A.3. Identify the intended purpose and audience of the text.	Theatre II: (1)(D), (3)(B), (3)(C) Theatre III: (1)(D), (2)(C), (3)(B) Theatre IV: (1)(D), (2)(C), (2)(D), (3)(B) Musical Theatre I: (1)(E) Musical Theatre II: (1)(E), (2)(E) Musical Theatre III: (1)(E)	Classical Languages, Levels III-VII: (2)(C)	
II.A.4. Identify the key information and supporting details.		LOTE, Levels I-IV: (2)(B) LOTE, Levels V-VII: (c)(2) Classical Languages, Levels I-IV: (2)(B) Classical Languages, Levels V-VII: (c)(2)	
II.A.5. Analyze textual information critically.	Theatre I: (1)(D) Theatre II: (1)(D), (3)(B), (3)(C) Theatre III: (1)(D), (2)(C), (3)(B) Theatre IV: (1)(D), (2)(C)-(D), (3)(B) Musical Theatre I: (1)(E) Musical Theatre II: (1)(E), (2)(E) Musical Theatre III: (1)(E), (2)(E) Musical Theatre IV: (2)(E) Technical Theatre I: (1)(H) Theatre II: (1)(E) Technical Theatre III-IV: (1)(E)	LOTE, Level III: (2)(D) LOTE, Level IV: (2)(A)-(B), (2)(D) LOTE, Levels V-VII: (2)(A)-(B) Seminar in LOTE: (2)(D) Classical Languages, Level III: (2)(C), (2)(D) Classical Languages, Level IV: (2)(A)-(C), (2)(E) Classical Languages, Levels V-VII: (2)(A)-(C) Seminar in Classical Languages: (2)(D) ASL, Levels I-IV: (2)(B) ASL, Advanced Independent Study: (2)(B) Special Topics in Language and Culture: (4)(C)	
II.A.6. Annotate, summarize, paraphrase, and outline texts when appropriate.		LOTE, Levels III-IV: (2)(B) Classical Languages, Levels III-IV: (2)(B)	
II.A.7. Adapt reading strategies according to structure of texts.	Theatre, Middle School 1-3: (1)(F) Theatre II: (1)(D), (3)(B), (3)(C) Theatre III: (1)(D), (2)(C), (3)(B) Theatre IV: (1)(D), (2)(C)-(D), (3)(B) Musical Theatre I: (1)(E), (2)(E) Musical Theatre II-III: (1)(E)	Classical Languages, Levels III-VII: (3)(B)	Ind. Study in Tech Apps: (4)(G) Ind. Study in Evolving/Emerging Technologies: (4)(G)
II.A.8. Connect reading to historical and current events and personal interest.	Art, Middle School 1-2: (3)(A), (3)(C) Art, Middle School 3: (3)(A)-(C) Art I: (3)(A) Art III-IV: (3)(A) Dance, Middle School 1-2: (5)(B) Dance I-II: (5)(C) Music, Grade 3: (5)(C) Music, Grades 4-5: (5)(C)-(D) Music I: (5)(D) Music II-IV: (5)(C) Theatre, Grades 4-5: (4)(A), (4)(C) Theatre, Middle School 2-3: (4)(A)-(C) Theatre I: (4)(C)-(E) Theatre II-IV: (4)(A)-(E) Musical Theatre I: (4)(A)-(C), (4)(E) Musical Theatre II: (4)(A)-(C) Musical Theatre III: (4)(A)-(B), (4)(D)-(E) Musical Theatre IV: (4)(A), (4)(C)-(D) Technical Theatre I: (4)(A)-(C) Technical Theatre II: (4)(B)-(D), (4)(F) Technical Theatre III: (4)(D)-(F) Technical Theatre III: (4)(A)-(D)	LOTE, Levels V-VII: (2)(A)	

B. Writing across the curriculum			
II.B.1. Write clearly and coherently using standard writing conventions.		LOTE, Level IV: (1)(A)-(E),(1)(G), (3)(A)-(C) LOTE, Levels V-VII: (1)(C)-(D), (3)(B) Seminar in LOTE: (1)(D)-(E), (2)(E) Classical Languages, Level V-VII: (1)(B), (3)(A) Seminar in Classical Languages: (1)(D), (2)(E)	Kindergarten-Grade 2: (2)(A), (2)(C) Grades 3-5: (2)(A)-(B), (4)(C) Grade 6: (1)(B), (2)(A)-(B), (3)(B) Grade 8: (2)(C) Digital Video and Audio Design: (1)(A)-(B)
II.B.2. Write in a variety of forms for various audiences and purposes.	Art, Graded 3-5: (4)(B) Art, Middle School 1-3: (4)(A) Art I: (4)(B) Art III-IV: (4)(C) Theatre, Middle School 1: (5)(B) Theatre I: (2)(F), (5)(D)-(E) Theatre III: (2)(E) Musical Theatre I: (2)(G) (5)(D) Musical Theatre II: (2)(F) (3)(D) Technical Theatre I: (5)(D)-(E) Technical Theatre II-IV: (5)(E)-(F)	LOTE, Levels I-II: (1)(A)-(D), (1)(F), (3)(A)-(B) LOTE, Level III: (1)(A)-(D), (1)(F), (3)(A)-(C) LOTE, Level IV: (1)(A)-(E), (1)(G), (3)(A)-(C) LOTE, Levels V-VII: (1)(C)-(D), (3)(B) Seminar in LOTE: (1)(D)-(E), (2)(E) Classical Languages, Level I: (1)(A)-(B), (3)(A)-(B) Classical Languages, Level II: (1)(A)-(C), (3)(A)-(B) Classical Languages, Level III-VII: (1)(A)-(C), (3)(A) Seminar in Classical Languages: (1)(D), (2)(E)	Kindergarten-Grade 2: (2)(A) Digital Video and Audio Design: (1)(A)-(B)
II.B.3. Compose and revise drafts.			Kindergarten-Grade 2: (1)(C) Grades 3-5: (2)(A) Digital Video and Audio Design: (1)(B)
C. Research across the curriculum			
II.C.1. Understand which topics or questions are to be investigated.	Art II: (3)(D)	Seminar in LOTE: (1)(A) Seminar in Classical Languages: (1)(A)	Grade 6:(3)(A)-(B) Grade 7: (3)(A) Grade 8: (3)(A)-(B) Fundamentals of Computer Science: (1)(A)
II.C.2. Explore a research topic.	Art III: (3)(A) Theatre II-IV: (4)(D)-(E) Technical Theatre I-III: (4)(A)	LOTE, Levels V-VII: (3)(A)-(B) Seminar in LOTE: (c)(1), (1)(A)-(F) Classical Languages, Level V-VII: (3)(A) Seminar in Classical Languages: (c)(1), (1)(A)-(E) Special Topics in Language and Culture: (3)(B), (5)(B)	Kindergarten-Grade 2: (3)(A), (3)(B) Grade 6: (3)(A)-(B) Grade 7: (3)(A) Grade 8: (3)(A) Computer Science II: (2)(A) Digital Art and Animation: (2)(B)-(C) 3-D Modeling and Animation: (3)(B)-(C) Web Game Development: (3)(A), (3)(C), (3) (K), (3)(M), (3)(Q)-(R), (4)(M)
II.C.3. Refine research topic based on preliminary research and devise a timeline for completing work.			K-Grade 2: (3)(B) Grade 7: (3)(A) Grade 8: (3)(A)-(C) Ind. Study in Tech Apps: (2)(B) Ind. Study in Evolving/Emerging Technologies: (2)(B))
II.C.4. Evaluate the validity and reliability of sources.		Seminar in LOTE: (2)(D) Seminar in Classical Languages: (2)(D)	K-Grade 2: (3)(C) Grade 7: (3)(B) Grade 8: (3)(B)-(D) Web Game Development: (3)(A), (3)(C), (3)(K), (3)(M), (3)(Q)-(R)
II.C.5. Synthesize and organize information effectively.		LOTE, Levels V-VI: (3)(A)-(B) LOTE, Level VII: (2)(A)-(D), (3)(A)-(B) Seminar in LOTE: (c)(2) Classical Languages, Level V-VII: (3)(A) Seminar in Classical Languages: (c)(2)	Grade 7: (3)(C) Grade 8: (3)(C)-(D)
II.C.6. Design and present an effective product.	Technical Theatre I-III: (2)(B)	LOTE, Level V-VII: (3)(A)-(B) Seminar in LOTE: (c)(2), (2)(A)-(G) Classical Languages, Level V-VII: (3)(A) Seminar in Classical Languages: (c)(2), (2)(A)-(G)	K-Grade 2: (1)(B) Grade 3-5:(1)(A)-(B) Grade 6: (1)(B) Grade 7: (1)(B), (2)(C), (3)(D) Grade 8: (3)(D) Fundamentals of Computer Science: (1)(C), (2)(F)-(G) Game Programming and Design: (4)(A)-(H) Web Game Development: (3)(A) Ind. Study in Tech Apps: (1)(I) Ind. Study in Evolving/Emerging Technologies: (1)(I)
II.C.7. Integrate source material.		LOTE, Levels V-VII: (3)(A)-(B)	Grade 6: (5)(B)
II.C.8. Present final product.		LOTE, Levels V-VII: (3)(A) Seminar in LOTE: (2)(G) Classical Languages, Levels V-VII: (3)(A) Seminar in Classical Languages: (2)(G) Special Topics in Language and Culture: (3)(B)	Grade 7: (1)(B), (3)(D) Game Programming and Design: (4)(A)-(H)
D. Use of data			
II.D.1. Identify patterns or departures from patterns among data.			Grade 8: (1)(D) Fundamentals of Computer Science: (1)(D) Computer Science II: (1)(G)-(H), (4)(A)-(MM) Computer Science III: (1)(A) and (F)-(G) Digital Forensics: (3)(A), (4)(A)-(B)

II.D.2. Use statistical and probabilistic skills necessary for planning an investigation and collecting, analyzing, and interpreting data.			Grade 8: (1)(D) Fundamentals of Computer Science: (1)(D) Computer Science II: (1)(G)-(H), (4)(A)-(MM) Computer Science III: (1)(A), (1)(F)-(G) Digital Forensics: (3)(A), (4)(A)-(B)
II.D.3. Present analyzed data and communicate findings in a variety of formats.			K-Grade 2: (4)(D) Grade 6: (3)(D) Grade 8: (1)(C) Computer Science II: (1)(A) , (1)(C), (4)(A)-(MM) Digital Forensics: (3)(A), (4)(A)-(B)
E. Technology			
II.E.1. Use technology to gather information.	Dance, Middle School 1-3: (3)(C) Dance III: (4)(D) Dance IV: (4)(B)	Seminar in LOTE: (c)(2) Seminar in Classical Languages: (c)(2) ASL, Levels I-IV: (3)(A) ASL, Advanced Independent Study: (3)(A)	K-Grade 2: (1)(C), (4)(A) Grade 3-5: (3)(A)-(B), (3)(D), (4)(B), (4)(D) Grade 6: (3)(B)-(D), (4)(B)-(C), (5)(A)-(B) Grade 7: (4)(A)-(D), (5)(A), (6)(B), (6)(L)-(N) Grade 8: (1)(C), (2)(A) Fundamentals of Computer Science: (1)(B), (1)(C), (3)(A)-(B), (4)(B), (4)(F)-(H), (4)(N), (5)(A)-(D), (5)(F) Computer Science I: (1)(C), (3)(A)-(B), (5)(B), (5)(E), (6)(A) Computer Science II: (1)(A)-(I), (4)(A)-(MM), (5)(A)-(C), (6)(A)-(F) Computer Science III: (1)(A), (3)(A)-(MM), (6)(A)-(D) Digital Forensics: (3)(A)-(L), (4)(A)-(B), (6)(B)-(C) Game Programming and Design: (1)(K)-(L), (2)(A)-(F), (3)(A)-(B), (4)(A)-(H), (6)(A)-(S) Mobile Application Development: (4)(A)-(K), (5)(A)-(H), (6)(A)-(K) DDMP: (3)(A)-(C) Digital Art and Animation: (3)(D)-(F), (5)(A)-(D), (6)(A)-(D) 3-D Modeling and Animation: (1)(K), (3)(D) Digi. Comm. in 21st Cent: (1)(B)-(C), (5)(A)-(C), (6)(A)-(C), (7)(A)-(D), (8)(A)-(D), (9)(A)-(D), (10)(A), (11)(A)-(C), (12)(A)-(C) Digital Video and Audio Design: (3)(A) Web Communications: (1)(B), (3)(A)-(G), (6)(I) Web Design: (3)(A)-(I),(M), (3)(T)-(V), (4)(O), (5)(F)-(G), (6)(I) Web Game Development: (1)(A), (3)(A), (3)(C) Ind. Study in Tech Apps: (3)(B) Ind. Study in Evolving/Emerging Technologies: (3)(B)
II.E.2. Use technology to organize, manage, and analyze information.	Dance I: (5)(D) Dance II: (4)(D), (5)(D) Dance IV: (4)(D) Music, Middle School 1-3: (1)(A) Music I-IV: (1)(A) Music Studies: (1)(A)	Seminar in LOTE: (c)(2) Seminar in Classical Languages: (c)(2)	K-Grade 2: (2)(A), (2)(C), (4)(B)-(D) Grade 3-5: (2)(A)-(B), (3)(C), (4)(B), (4)(D) Grade 6: (1)(A), (3)(B)-(D), (6)(L) Grade 7: (1)(B)-(C), (4)(A)-(D), (6)(L)-(N) Grade 8: (1)(A), (2)(A), (6)(B)-(D), (6)(G), (6)(L) Fundamentals of Computer Science: (1)(A), (2)(A), (4)(E)-(K), (4)(N), (6)(B) Computer Science I: (2)(G)-(H), (3)(A)-(B) Computer Science II: (1)(A)-(I), (2)(A), (2)(C), (4)(A)-(MM), (6)(A)-(F) Computer Science III: (1)(A) and (1)(C)-(H), (6)(A)-(D) Digital Forensics: (1)(D), (3)(A)-(L), (6)(C), (6)(G) Game Programming and Design: (1)(K)-(L), (2)(A)-(F), (3)(A)-(B), (4)(A)-(H), (6)(A)-(S) Mobile Application Development: (3)(A)-(D), (4)(A)-(K), (6)(H), (6)(J)-(K) DDMP: (3)(A)-(C) Digital Art and Animation: (1)(E)-(F), (1)(J), (4)(A)-(H) 3-D Modeling and Animation: (2)(A), (3)(G), (6)(A)-(D) Digi. Comm. in 21st Cent: (1)(C), (2)(A)-(E), (3)(B)-(F) Digital Video and Audio Design: (3)(A), (10)(A) Web Communications: (1)(B)-(C), (4)(B)-(D), (6)(G)-(J) Web Design: (3)(I)-(L), (4)(A)-(Q), (6)(G)-(I) Web Game Development: (1)(A), (1)(D), (2)(F) Ind. Study in Tech Apps: (1)(C)-(D), (1)(H), (2)(G)-(I), (3)(A)-(E), (4)(A)-(H), (5)(A)-(G), (6)(A)-(D) Ind. Study in Evolving/Emerging Technologies: (1)(C)-(D), (1)(H), (2)(G)-(I), (3)(A)-(E), (4)(A)-(H), (5)(A)-(G), (6)(A)-(D)

II.E.3. Use technology to communicate and display findings in a clear and coherent manner.	Dance III: (5)(D) Dance IV: (4)(B) Theatre II-IV: (5)(F) Musical Theatre I: (5)(G) Musical Theatre II-IV: (5)(H) Technical Theatre I: (5)(G) Technical Theatre II-IV: (5)(I)	ASL, Levels II-IV: (5)(B) ASL, Advanced Independent Study: (5)(B)	K-Grade 2: (2)(A), (2)(C) Grade 3-5: (2)(A)-(B), (4)(C) Grade 6: (1)(B), (2)(A)-(B), (3)(B)-(D), (5)(B), (6)(G), (6)(N) Grade 7: (1)(B)-(C), (2)(A)-(B), (6)(L)-(N) Grade 8: (2)(A)-(C), (5)(D), (6)(L)-(N) Fundamentals of Computer Science: (1)(A), (1)(B), (2)(B), (2)(C), (4)(B) and (F)-(N), (5)(A)- (F) Computer Science I: (1)(A)-(C), (2)(A)-(G), (3)(A)-(B), (6)(H)-(J) Computer Science II: (1)(A)-(I), (2)(B)-(G), (4)(A)-(MM), (6)(A)-(F) Computer Science III: (2)(B)-(C), (6)(A)-(D) Digital Forensics: (3)(A)-(L), (4)(A)-(B) Game Programming and Design: (1)(E)-(L), (2)(A)-(I58F), (3)(A)-(B), (4)(A)-(H), (6)(A)-(S) Mobile Application Development: (1)(A)-(F), (2)(F), (4)(A)-(K) DDMP: (1)(A)-(C), (2)(A)-(D), (3)(A)-(C) Digital Art and Animation: (2)(D)-(E), (2)(G)-(H), (4)(A)-(H) 3-D Modeling and Animation: (2)(G)-(H), (3)(E)-(G), (6)(A)-(D) Digi. Comm. in 21st Cent: (1)(C), (2)(A)-(E), (3)(A)-(F), (4)(A)-(E), (5)(A)-(C), (6)(A)-(C), (7)(A)-(D), (8)(A)-(D), (9)(A)-(D), (10)(A), (11)(A)-(C), (12)(A)-(C) Digital Video and Audio Design: (3)(A)-(C), (5)(B)-(C), (10)(B) Web Communications: (1)(B), (1)(D) Web Design: (1)(A)-(G), (2)(E), (3)(H), (3)(N), (4)(A)-(B) Web Game Development: (1)(A), (1)(D), (2)(F), (3)(F), (6)(A)-(C) Ind. Study in Tech Apps: (1)(A)-(J), (2)(A)-(I), (3)(A)-(E), (4)(A)-(H), (5)(A)-(G), (6)(A)-(D) Ind. Study in Evolving/Emerging Technologies: (1)(A)-(J), (2)(A)-(I), (3)(A)-(E), (4)(A)-(H), (5)(A)-(G), (6)(A)-(D)
II.E.4. Use technology appropriately.	Art I: (4)(C) Art II: (4)(D) Art III-IV: (4)(E) Dance, Middle School 1-3: (3)(C) Dance I: (5)(D) Dance II-III: (4)(D), (5)(D) Dance IV: (4)(B), (4)(D) Music, Middle School 1-3: (1)(A) Music I-IV: (1)(A) Music Studies: (1)(A) Theatre, Middle School 1-3: (3)(D) Theatre I: (5)(G) Theatre II-IV: (5)(F) Musical Theatre I: (5)(G) Musical Theatre II-IV: (5)(H) Technical Theatre I: (5)(G) Technical Theatre II-IV: (5)(I)		K-Grade 2: (1)(A)-(B),(D)-(E), (2)(B)-(D), (4)(A)-(D), (5)(A)-(C), (6)(A)-(G) Grade 3-5: (1)(A)-(C), (2)(A)-(E)-(F), (3)(A)-(C), (4)(A)-(D), (5)(A)-(F), (6)(A)-(E) Grade 6: (1)(A)-(C), (2)(A)-(B), (3)(B)-(D), (4)(B)-(C), (4)(F), (5)(A)-(D), (6)(B)-(G) (6)(J)-(N) Grade 7: (1)(A)-(C), (2)(A)-(B), (4)(A)-(D), (4)(F), (5)(A), (6)(B)-(G), (6)(J)-(N) Grade 8: (1)(A)-(C), (2)(A)-(C), (5)(A)-(D), (6)(B)-(G), (6)(J)-(N) Fundamentals of Computer Science: (1)(B)-(G), (2)(A)-(C), (3)(A)-(B), (4)(A)-(C) and (E)-(N), (5)(A)-(D), (5)(F), (6)(A)-(F) Computer Science I: (1)(A)-(C), (2)(A)-(G), (3)(A)-(B), (4)(A)-(W), (5)(A)-(D), (6)(A)-(V) Computer Science II: (1)(A)-(I), (2)(A)-(G), (3)(A)-(H), (4)(A)-(MM), (5)(A)-(C), (6)(A)-(F) Computer Science III: (5)(A)-(C), (6)(A)-(D) Digital Forensics: (3)(A)-(L), (4)(A)-(B), (5)(A)-(K), (6)(A)-(M) Game Programming and Design: (1)(E)-(L), (2)(A)-(F), (3)(A)-(B), (4)(A)-(H), (6)(A)-(S) Mobile Application Development: (1)(A)-(F), (2)(C), (4)(A)-(K), (5)(A)-(H), (6)(A)-(K) DDMP: (1)(A)-(C), (2)(A)-(D), (3)(A)-(C), (4)(A)-(F), (5)(A)-(D), (6)(A)-(H) Digital Art and Animation: (1)(E), (2)(G), (4)(A)-(H), (5)(A)-(D), (6)(A)-(D) 3-D Modeling and Animation: (1)(A)-(L), (2)(A)-(I), (3)(E)-(G), (4)(A)-(H), (5)(A)-(D), (6)(A)-(D) Digi. Comm. in 21st Cent: (1)(A)-(C), (2)(A)-(E), (3)(A)-(F), (4)(A)-(E), (5)(A)-(C), (6)(A)-(C), (7)(A)-(D), (8)(A)-(D), (9)(A)-(D), (10)(A), (11)(A)-(C), (12)(A)-(C) Digital Video and Audio Design: (1)(A)-(L), (2)(A)-(I), (3)(E)-(G), (4)(A)-(H), (5)(A)-(D), (6)(A)-(D) Web Communications: (1)(B), (1)(D), (2)(A), (4)(A)-(B), (4)(E)-(F), (6)(A)-(J) Web Design: (1)(A)-(G), (2)(A)-(E), (3)(A)-(V), (4)(A)-(Q), (5)(A)-(J), (6)(A)-(S) Web Game Development: (1)(A)-(D), (2)(B)-(F), (3)(A)-(R), (4)(A)-(O), (5)(A)-(G), (6)(A)-(C) Ind. Study in Tech Apps: (1)(A)-(J), (2)(A)-(I), (3)(A)-(E), (4)(A)-(H), (5)(A)-(G), (6)(A)-(D) Ind. Study in Evolving/Emerging Technologies: (1)(A)-(J), (2)(A)-(I), (3)(A)-(E), (4)(A)-(H), (5)(A)-(G), (6)(A)-(D)