i-STEAM with CSATS

PennState College of Education

CSATS Bridging Research & Education in STEM Center for Science and the Schools

Primate Perspectives Blue Box
Pennsylvania Academic Standards for Grades K - 5

Grade K	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5

Mathematics Standards - 2.4 Measurement, Data, and Probability					
(A) Measurement and Data					
CC.2.4.K.A.1 Describe and compare attributes of length, area, weight, and capacity of everyday objects.	CC.2.4.1.A.1 Order lengths and measure them both indirectly and by repeating length units.	CC.2.4.2.A.1 Measure and estimate lengths in standard units using appropriate tools.	CC.2.4.3.A.1 Solve problems involving measurement and estimation of temperature, liquid volume, mass, and length.	CC.2.4.4.A.1 Solve problems involving measurement and conversions from a larger unit to a smaller unit.	CC.2.4.5.A.1 Solve problems using conversions within a given measurement system.
CC.2.4.K.A.4 Classify objects and count the number of objects in each category.	CC.2.4.1.A.4 Represent and interpret data using tables/charts.	CC.2.4.2.A.4 Represent and interpret data using line plots, picture graphs, and bar graphs.	CC.2.4.3.A.4 Represent and interpret data using tally charts, tables, pictographs, line plots, and bar graphs.	CC.2.4.4.A.4 Represent and interpret data involving fractions using information provided in a line plot.	CC.2.4.5.A.4 Solve problems involving computation of fractions using information provided in a line plot.

English Language Arts - 1.5 Speaking and Listening					
1.4 Writing: Credibility, Reliability, and Validity of Sources					
CC.1.4.K.W With guidance and support, recall information from experiences or gather information from provided sources to answer a question.	CC.1.4.1.W With guidance and support, recall information from experiences or gather information from provided sources to answer a question.	CC.1.4.2.W Recall information from experiences or gather information from provided sources to answer a question.	CC.1.4.3.W Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories.	CC.1.4.4.W Recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize information, and provide a list of sources.	CC.1.4.5.W Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources.
1.5 Speaking and Listening: Comprehension and Collaboration/Critical Listening					
CC.1.5.K.A Participate in collaborative conversations with peers and adults in small and larger groups.	CC.1.5.1.A Participate in collaborative conversations with peers and adults in small and larger groups.	CC.1.5.2.A Participate in collaborative conversations with peers and adults in small and larger groups.	CC.1.5.3.A Engage effectively in a range of collaborative discussions on grade-level topics and texts, building on others' ideas and expressing their own clearly.	CC.1.5.4.A Engage effectively in a range of collaborative discussions on grade-level topics and texts, building on others' ideas and expressing their own clearly.	CC.1.5.5.A Engage effectively in a range of collaborative discussions on grade-level topics and texts, building on others' ideas and expressing their own clearly.

Grade K	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
Pennsylvania Standards for Science and Technology and Engineering - 3.1 Biological Sciences					
3.1.B. Biological Sciences					
Heredity 3.1.K.B1. Observe and describe how young animals resemble their parents and other animals of the same kind.	Heredity 3.1.1.B1. Grow plants from seed and describe how they grow and change. Compare to adult plants.	Heredity 3.1.2.B1. Intentionally Blank.	Heredity 3.1.3.B1. Understand that plants and animals closely resemble their parents.	Heredity 3.1.4.B1. Describe features that are observable in both parents and their offspring.	Heredity 3.1.5.B1. Differentiate between inherited and acquired characteristics of plants and animals.
Unifying Themes 3.1.K.B5. Intentionally Blank.	Unifying Themes 3.1.1.B5. Intentionally Blank.	Unifying Themes 3.1.2.B5. Intentionally Blank.	Unifying Themes 3.1.3.B5. <u>PATTERNS</u> Identify characteristics that appear in both parents and offspring.	Unifying Themes 3.1.4.B5. <u>PATTERNS</u> Identify observable patterns in the physical characteristics of plants or groups of animals.	Unifying Themes 3.1.5.B5. Intentionally Blank
Pennsylvania Standards for Science and Technology and Engineering - 3.1 Biological Sciences					
3.1.C. Evolution					
Natural Selection 3.1.K.C1. Intentionally Blank.	Natural Selection 3.1.1.C1. Intentionally Blank.	Natural Selection 3.1.2.C1. Intentionally Blank.	Natural Selection 3.1.3.C1. Recognize that plants survive through adaptations, such as stem growth towards light and root growth downward in response to gravity. Recognize that many plants and animals can survive harsh environments because of seasonal behaviors (e.g. hibernation, migration, trees shedding leaves).	Natural Selection 3.1.4.C1. Identify different characteristics of plants and animals that help some populations survive and reproduce in greater numbers. Describe how environmental changes can cause **extinction** in plants and animals.	Natural Selection 3.1.5.C1. Describe how organisms meet some of their needs in an environment by using behavior (patterns of activities) in response to information (stimuli) received from the environment.
Adaptation 3.1.K.C2. Describe changes animals and plants undergo throughout the seasons.	Adaptation 3.1.1.C2. Intentionally Blank	Adaptation 3.1.2.C2. Explain that living things can only survive if their needs are met.	Adaptation 3.1.3.C2. Describe animal characteristics that are necessary for survival.	Adaptation 3.1.4.C2. Describe plant and animal adaptations that are important to survival.	Adaptation 3.1.5.C2. Give examples of how inherited characteristics (e.g., shape of beak, length of neck, location of eyes, shape of teeth) may change over time as adaptations to changes in the environment that enable organisms to survive.

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Pennsylvania Academic Standards for Grades 6 - 8

Grade 6	Grade 7	Grade 8
Mathematics Standards		
2.2 Algebraic Concepts: (B) Expressions and Equations		
CC.2.2.6.B.3 Represent and analyze quantitative relationships between dependent and independent variables.	CC.2.2.7.B.3 Model and solve real-world and mathematical problems by using and connecting numerical, algebraic, and/or graphical representations.	CC.2.2.8.B.3 Analyze and solve linear equations and pairs of simultaneous linear equations.
2.4 Algebraic Concepts: (B) Statistics and Probability		
CC.2.4.6.B.1 Demonstrate an understanding of statistical variability by displaying, analyzing, and summarizing distributions.	CC.2.4.7.B.1 Draw inferences about populations based on random sampling concepts.	CC.2.4.8.B.1 Analyze and/or interpret bivariate data displayed in multiple representations.
CC.2.4.6.B.2 Intentionally Blank	CC.2.4.7.B.2 Draw informal comparative inferences about two populations.	CC.2.4.8.B.2 Understand that patterns of association can be seen in bivariate data utilizing frequencies.
CC.2.4.6.B.3 Intentionally Blank	CC.2.4.7.B.3 Investigate chance processes and develop, use, and evaluate probability models.	CC.2.4.8.B.3 Intentionally Blank
English Language Arts		
1.4 Writing: Credibility, Reliability, and Validity of Sources		
CC.1.4.6.W Gather relevant information from multiple print and digital sources; assess the credibility of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and providing basic bibliographic information for sources.	CC.1.4.7.W Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.	CC.1.4.8.W Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.
1.5 Speaking and Listening: Comprehension and Collaboration/Critical Listening		
CC.1.5.6.A Engage effectively in a range of collaborative discussions, on grade-level topics, texts, and issues, building on others' ideas and expressing their own clearly.	CC.1.5.7.A Engage effectively in a range of collaborative discussions, on grade-level topics, texts, and issues, building on others' ideas and expressing their own clearly.	CC.1.5.8.A Engage effectively in a range of collaborative discussions, on grade-level topics, texts, and issues, building on others' ideas and expressing their own clearly.

Grade 6	Grade 7	Grade 8
Pennsylvania Standards for Science and Technology and Engineering - 3.1 Biological Sciences **3.1.B. Biological Sciences**		
Heredity 3.1.6.B1. Intentionally Blank.	Heredity 3.1.7.B1. Explain how **genetic** instructions influence inherited traits. Identify **Mendelian patterns of inheritance.**	Heredity 3.1.8.B1. Intentionally Blank.
Unifying Themes 3.1.6.B5. Intentionally Blank.	Unifying Themes 3.1.7.B5. PATTERNS Compare and contrast observable patterns in the physical characteristics across **families, strains and species.**	Unifying Themes 3.1.8.B5. Intentionally Blank.
Pennsylvania Standards for Science and Technology and Engineering - 3.1 Biological Sciences **3.1.C. Evolution**		
Natural Selection 3.1.6.C1. Differentiate between instinctive and learned animal behaviors that relate to survival.	Natural Selection 3.1.7.C1. Describe how **natural selection** is an underlying factor in a population's ability to adapt to changes.	Natural Selection 3.1.8.C1. Explain how reproductive success coupled with advantageous traits over many generations contributes to **natural selection.**
Adaptation 3.1.6.C2. Intentionally Blank	Adaptation 3.1.7.C2. Explain why the **extinction** of a **species** may occur when the environment changes. Explain that **mutations** can alter a gene and are the original source of new variations in a population.	Adaptation 3.1.8.C2. Intentionally Blank