Meeting VIRGINIA State Science Standards with eCYBERMISSION

The eCYBERMISSION program gives students the chance to explore how science, technology, engineering, and mathematics work in their world. This emphasis on STEM and a chance for students to engage in inquiry practices makes eCYBERMISSION an excellent addition to your classroom. Below you can find the Virginia state science standards that align with eCYBERMISSION. Also, based on the direction you give your students their specific investigations can meet content standards (not listed here).

From Science Standards of Learning for Virginia Public Schools - 2010

6TH Grade

Scientific Investigation, Reasoning, and Logic

6.1 The student will demonstrate an understanding of scientific reasoning, logic, and the nature of science by planning and conducting investigations in which
   a) observations are made involving fine discrimination between similar objects and organisms;
   b) precise and approximate measurements are recorded;
   c) scale models are used to estimate distance, volume, and quantity;
   d) hypotheses are stated in ways that identify the independent and dependent variables;
   e) a method is devised to test the validity of predictions and inferences;
   f) one variable is manipulated over time, using many repeated trials;
   g) data are collected, recorded, analyzed, and reported using metric measurements and tools;
   h) data are analyzed and communicated through graphical representation;
   i) models and simulations are designed and used to illustrate and explain phenomena and systems; and current applications are used to reinforce science concepts.

Life Science (presumably 7th grade)

LS.1 The student will demonstrate an understanding of scientific reasoning, logic, and the nature of science by planning and conducting investigations in which
   a) data are organized into tables showing repeated trials and means;
   b) a classification system is developed based on multiple attributes;
   c) triple beam and electronic balances, thermometers, metric rulers, graduated cylinders, and probeware are used to gather data;
   d) models and simulations are constructed and used to illustrate and explain phenomena;
   e) sources of experimental error are identified;
   f) dependent variables, independent variables, and constants are identified;
   g) variables are controlled to test hypotheses, and trials are repeated;
   h) data are organized, communicated through graphical representation, interpreted, and used to make predictions;
patterns are identified in data and are interpreted and evaluated; and current applications are used to reinforce life science concepts.

Physical Science (presumably 8th grade)

PS.1 The student will demonstrate an understanding of scientific reasoning, logic, and the nature of science by planning and conducting investigations in which
   a) chemicals and equipment are used safely;
   b) length, mass, volume, density, temperature, weight, and force are accurately measured;
   c) conversions are made among metric units, applying appropriate prefixes;
   d) triple beam and electronic balances, thermometers, metric rulers, graduated cylinders, probeware, and spring scales are used to gather data;
   e) numbers are expressed in scientific notation where appropriate;
   f) independent and dependent variables, constants, controls, and repeated trials are identified;
   g) data tables showing the independent and dependent variables, derived quantities, and the number of trials are constructed and interpreted;
   h) data tables for descriptive statistics showing specific measures of central tendency, the range of the data set, and the number of repeated trials are constructed and interpreted;
   i) frequency distributions, scatterplots, line plots, and histograms are constructed and interpreted;
   j) valid conclusions are made after analyzing data;
   k) research methods are used to investigate practical problems and questions;
   l) experimental results are presented in appropriate written form;
   m) models and simulations are constructed and used to illustrate and explain phenomena; and current applications of physical science concepts are used.

Biology (possible 9th grade)

BIO.1 The student will demonstrate an understanding of scientific reasoning, logic, and the nature of science by planning and conducting investigations in which
   a) observations of living organisms are recorded in the lab and in the field;
   b) hypotheses are formulated based on direct observations and information from scientific literature;
   c) variables are defined and investigations are designed to test hypotheses;
   d) graphing and arithmetic calculations are used as tools in data analysis;
   e) conclusions are formed based on recorded quantitative and qualitative data;
   f) sources of error inherent in experimental design are identified and discussed;
   g) validity of data is determined;
   h) chemicals and equipment are used in a safe manner;
   i) appropriate technology including computers, graphing calculators, and probeware, is used for gathering and analyzing data, communicating results, modeling concepts, and simulating experimental conditions;
   j) research utilizes scientific literature;
   k) differentiation is made between a scientific hypothesis, theory, and law;
   l) alternative scientific explanations and models are recognized and analyzed; and current applications of biological concepts are used.