ALIGNMENT OF ASID TASKS WITH NEW YORK STATE LEARNING STANDARDS FOR MATH, SCIENCE, & TECHNOLOGY

Each ASID task is based on learning objectives and performance indicators that are aligned to specific key ideas of the New York State (NYS) Learning Standards for Math, Science, and Technology (MST). Because of its experiential nature, the task itself provides instruction related to learning objectives aligned to NYS State Learning Standards, in addition to the ones that are formally assessed.

Below are examples of the learning objectives for one of the ASID tasks. This document shows the alignment of the learning objectives with the key ideas of the NYS Learning Standards for MST.

LEARNING OBJECTIVES FOR THE CUBES AND LIQUIDS TASK

KEY
C – "Concept" Learning Objectives
S – "Skill" Learning Objectives
D – "Disposition" Learning Objectives
G – "Basis for Grading Student Work" Learning Objectives
Numbered Items – Key ideas of the New York State Learning Standards for MST

In general: The key idea of uncertainty is built into the task in terms of the instructional component, even though it is not being assessed directly through the learning objectives of the task.

- STANDARD 3 – MATHEMATICS
  UNCERTAINTY
  6. Students use ideas of uncertainty to illustrate that mathematics involves more than exactness when dealing with everyday situations.

C Conceptualizes Density of Liquids

- STANDARD 1 – ANALYSIS, INQUIRY, & DESIGN
  MATHEMATICAL ANALYSIS
  3. Critical thinking skills are used in the solution of mathematical problems.

- STANDARD 3 – MATHEMATICS
  MATHEMATICAL REASONING
  1. Students use mathematical reasoning to analyze mathematical situations, make conjectures, gather evidence, and construct an argument.

- STANDARD 4 – SCIENCE
  PHYSICAL SETTING
  5. Energy and matter interact through forces that result in changes in motion.

C Conceptualizes Density of Solid Objects

- STANDARD 1 - ANALYSIS, INQUIRY, & DESIGN
  MATHEMATICAL ANALYSIS
  3. Critical thinking skills are used in the solution of mathematical problems.

- STANDARD 3 – MATHEMATICS
  MATHEMATICAL REASONING
  1. Students use mathematical reasoning to analyze mathematical situations, make conjectures, gather evidence, and construct an argument.

- STANDARD 4 – SCIENCE
  PHYSICAL SETTING
  5. Energy and matter interact through forces that result in changes in motion.

C Coordinates Densities Floating and Sinking

- STANDARD 1 - ANALYSIS, INQUIRY, & DESIGN
  MATHEMATICAL ANALYSIS
  2. Deductive and inductive reasoning are used to reach mathematical conclusions.
  3. Critical thinking skills are used in the solution of mathematical problems.

  SCIENTIFIC INQUIRY
  1. The central purpose of scientific inquiry is to develop explanations of natural phenomena in a continuing, creative process.

- STANDARD 3 – MATHEMATICS
  MATHEMATICAL REASONING
  1. Students use mathematical reasoning to analyze mathematical situations, make conjectures, gather evidence, and construct an argument.

- STANDARD 4 – SCIENCE
  PHYSICAL SETTING
  5. Energy and matter interact through forces that result in changes in motion.

C Uses the term density (spontaneously)

S Distinguishes between observation and inference

- STANDARD 1 - ANALYSIS, INQUIRY, & DESIGN
  SCIENTIFIC INQUIRY
  3. The observations made while testing proposed explanations, when analyzed using conventional and invented methods, provide new insights into phenomena.

- STANDARD 7 – INTERDISCIPLINARY PROBLEM SOLVING
  CONNECTIONS
  1. The knowledge and skills of mathematics, science, and technology are used together to make informed decisions and solve problems, especially those relating to issues of science/technology/society, consumer decision-making, design, and inquiry into phenomena.

S Distinguishes between observed objects (i.e. Identifies objects unambiguously in presentations)

- STANDARD 7 – INTERDISCIPLINARY PROBLEM SOLVING
  CONNECTIONS
  1. The knowledge and skills of mathematics, science, and technology are used together to make informed decisions and solve problems, especially those relating to issues of science/technology/society, consumer decision-making, design, and inquiry into phenomena.

S Organizes a System of Possible Logical Combinations (2 *X* 3)

- STANDARD 1 - ANALYSIS, INQUIRY, & DESIGN
  MATHEMATICAL ANALYSIS
  2. Deductive and inductive reasoning are used to reach mathematical conclusions.

  SCIENTIFIC INQUIRY
  1. The central purpose of scientific inquiry is to develop explanations of natural phenomena in a continuing, creative process.

- STANDARD 3 – MATHEMATICS
  MATHEMATICAL REASONING
  1. Students use mathematical reasoning to analyze mathematical situations, make conjectures, gather evidence, and construct an argument.

- STANDARD 7 – INTERDISCIPLINARY PROBLEM SOLVING
  STRATEGIES
  2. Solving interdisciplinary problems involves a variety of skills and strategies, including effective work habits; gathering and processing information; generating and analyzing ideas; realizing ideas; making connections among the common themes of mathematics, science, and technology; and presenting results.

S Identifies properties of observed objects *

- STANDARD 1 - ANALYSIS, INQUIRY, & DESIGN
  SCIENTIFIC INQUIRY
  3. The observations made while testing proposed explanations, when analyzed using conventional and invented methods, provide new insights into phenomena.

- STANDARD 4 – SCIENCE
  PHYSICAL SETTING
  3. Matter is made up of particles whose properties determine the observable characteristics of matter and its reactivity.

- STANDARD 7 – INTERDISCIPLINARY PROBLEM SOLVING
  CONNECTIONS
  1. The knowledge and skills of mathematics, science, and technology are used together to make informed decisions and solve problems, especially those relating to issues of science/technology/society, consumer decision-making, design, and inquiry into phenomena.

S Identifies actions on objects*

- STANDARD 1 - ANALYSIS, INQUIRY, & DESIGN
  SCIENTIFIC INQUIRY
  3. The observations made while testing proposed explanations, when analyzed using conventional and invented methods, provide new insights into phenomena.

- STANDARD 7 – INTERDISCIPLINARY PROBLEM SOLVING
  CONNECTIONS
  1. The knowledge and skills of mathematics, science, and technology are used together to make informed decisions and solve problems, especially those relating to issues of science/technology/society, consumer decision-making, design, and inquiry into phenomena.

S Identifies results of actions*

- STANDARD 1 - ANALYSIS, INQUIRY, & DESIGN
  SCIENTIFIC INQUIRY
  3. The observations made while testing proposed explanations, when analyzed using conventional and invented methods, provide new insights into phenomena.

- STANDARD 7 – INTERDISCIPLINARY PROBLEM SOLVING
  CONNECTIONS
  1. The knowledge and skills of mathematics, science, and technology are used together to make informed decisions and solve problems, especially those relating to issues of science/technology/society, consumer decision-making, design, and inquiry into phenomena.

D Incorporates mathematical expressions

- STANDARD 1 - ANALYSIS, INQUIRY, & DESIGN
  MATHEMATICAL ANALYSIS
  1. Abstraction and symbolic representation are used to communicate mathematically.

D Uses graphic illustrations

- STANDARD 3 – MATHEMATICS
  REPRESENTATION
  4. Students use mathematical modeling/multiple representation to provide a means of presenting, interpreting, communicating, and connecting mathematical information and relationships.

G Uses complete sentences

G Completes assignments

G Writes legibly

* Poor performance on these objectives suggests fundamental deficits and warrants special attention.