

Science Outcomes

This is a sample of some of the outcomes that can be reached:

Kindergarten – Skills (Cluster 0)

K-0-4B: Construct an object to solve a problem or meet a need.

GLO: C3

K-0-4C: Identify, with guidance, improvements to an object with respect to pre-determined criteria.

GLO: C3

Grade 1 – Skills (Cluster 0)

1-0-4A: Follow simple directions while undertaking explorations.

GLO: C2

Grade 2 – Skills (Cluster 0)

2-0-3D: Identify tools and materials to be used, and explain their choices.

GLO: C2, C3, C4

2-0-5B: Use, with guidance, tools to observe, measure, and construct.

Examples: ruler, meter stick, pan balance, magnifying glass, bathroom scale, thermometer.

GLO: C2, C3, C5

Grade 3 – Materials and Structures (Cluster 2)

3-2-01: Use appropriate vocabulary related to their investigations of materials and structures.

Include: strength, balance, stability, structure, frame structure, natural structure, human-built structure, force.

GLO: C6, D3

3-2-02: Conduct experiments to compare the strength of common materials.

Examples: wooden toothpicks, plastic straws, paper, cardboard, polystyrene foam.

GLO: A1, A2, C2, D3

3-2-03: Explore to determine ways to strengthen a material used for building.

Include: changing shape, bulk, and number of layers.

GLO: B1, C2, D3

3-0-1B: Make predictions based on observed patterns, collected data, or data provided from other sources.

GLO: A1, C2

3-0-3A: Brainstorm, with the class, one or more methods of finding the answer to a given question and reach consensus on which method to implement.

GLO: C2, C7

3-0-3B: Identify, with the class, variables that have an impact on an investigation.

GLO: A1, A2, C2, C7

3-0-3C: Create, with the class, a plan to answer a given question.

GLO: C2, C7

3-0-4A: Carry out a plan, and describe the steps followed.

GLO: C2

3-0-5A: Make observations that are relevant to a specific question.

GLO: A1, A2, C2

3-0-6C: Place materials and objects in a sequence or in groups using two or more attributes, and describe the system used.

GLO: C2, C3, C5

3-0-7A: Draw a simple conclusion based on their observations.

GLO: A1, A2, C2

Grade 4 – Skills (Cluster 0)

4-0-3D: Brainstorm possible solutions to a practical problem, and identify and justify which solution to implement.

GLO: C3

4-0-3E: Create a written plan to solve a problem or meet a need.

Include: identify steps to follow, prepare a labeled diagram.

GLO: C3

4-0-3F: Develop criteria to evaluate an object, device, or system based on its function, aesthetics, and other considerations such as materials, and cost.

GLO: C3

4-0-5B: Estimate and measure mass/weight, length, volume, area, and temperature using standard units.

GLO: C2, C3, C5

Grade 5 – Skills (Cluster 0)

5-0-4C: Work cooperatively with group members to carry out a plan, and troubleshoot problems as they arise.

GLO: C7

5-0-5A: Make observations that are relevant to a specific question.

GLO: A1, A2, C2

5-0-5B: Test a prototype or consumer product with respect to pre-determined criteria.

GLO: C3, C5

5-0-5C: Select and use tools and instruments to observe, measure, and construct.

Include: balance, thermometer, spring scale, weather instruments.

GLO: C2, C3, C5

5-0-5D: Estimate and measure length using standard units.

GLO: C2, C3, C5 (*Math SS-I.1.2*)

5-0-5E: Estimate and measure mass/weight, length, volume, and temperature using SI and other standard units.

GLO: C2, C5 (*Math: SS-I.1.5, SS-III.1.5, SS-IV.1.5, SS-VIII.4.3*)

5-0-5F: Record and organize observations in a variety of ways.

Examples: point-form notes, sentences, labeled diagrams, charts, ordered lists of data, frequency diagrams, spreadsheets.

GLO: C2, C6 (*ELA Grade 5, 3.3.1; Math: SP-III.2.5*)

5-0-7G: Communicate methods, results, conclusions, and new knowledge in a variety of ways.

Examples: oral, written, multi-media presentations.

GLO: C6 (*ELA Grade 5, 4.4.1; TFS: 3.2.2, 3.2.3*)

5-0-7H: Identify, with guidance, connections between the investigation results and everyday life.

GLO: C4

5-0-9B: Show interest in the activities of individuals working in scientific and technological fields.

GLO: B4

Grade 6 – Skills (Cluster 0)

6-0-1B: Identify various methods for finding the answer to a specific question and select one to implement.

Examples: generating experimental data, accessing information from a variety of sources.

GLO: C2 (ELA Grade 6, 3.2.2; Math: SP-I.2.6, SP-II.1.6)

6-0-1D: Identify various methods to solve a practical problem and select and justify one to implement.

Examples: constructing and testing a prototype, evaluating consumer products, accessing information from a variety of sources.

GLO: C3 (Math: SP-I.2.6, SP-II.1.6)

6-0-2A: Access information using a variety of sources.

Examples: libraries, magazines, community resource people, outdoor experiences, videos, CD-ROMS, Internet.

GLO: C6 (ELA Grade 6, 3.2.2; Math: SP-II.1.6; TFS 2.2.1)

6-0-2C: Make notes on a topic, combining information from more than one source and reference sources appropriately.

GLO: C6 (ELA Grade 6, 3.3.2)

6-0-3D: Develop criteria to evaluate a prototype or consumer product.

Include: function, aesthetics, efficient use of materials, cost, reliability.

GLO: C3

6-0-3E: Create a written plan to solve a problem.

Include: materials, safety considerations, labeled diagrams of top and side views, steps to follow.

GLO: C1, C3, C6

6-0-7D: Propose and justify a solution to the initial problem.

GLO: C3

6-0-7H: Identify connections between the investigation results and everyday life.

GLO: C4

Grade 7 – Forces and Structures (Cluster 3)

7-3-01: Use appropriate vocabulary related to their investigations of forces and structures.

Include: frame, shell, solid, centre of gravity, stability, compression, tension, shear, torsion, internal and external forces, stress, structural fatigue, structural failure, load, magnitude, point and plane of application, efficiency.

GLO: C6, D4

7-3-04: Identify internal forces acting on a structure, and describe them using diagrams

Examples: compression, tension, shear, torsion.

GLO: D4, E4

7-3-08: Describe, using diagrams, how common structural shapes and components can increase the strength and stability of a structure.

Examples: a triangle distributes the downward force of a load evenly between its two vertices.

GLO: C6, D3, D4

7-3-09: Describe and demonstrate methods to increase the strength of materials

Examples: corrugation of surfaces, lamination of adjacent members, alteration of the shape of components.

GLO: C2, C3, D3, E3

7-3-10: Determine the efficiency of a structure by comparing its mass with the mass of the load it supports.

GLO: C1, C5

7-3-11: Evaluate a structure to determine the appropriateness of its design, using the design process.

Examples: jacket, foot stool, local building.

GLO: C3, C4, C8, D4

7-3-12: Use the design process to construct a structure that will withstand the application of an external force.

Examples: a tower that will remain standing during a simulated earthquake.

GLO: C3, D3, D4

Grade 8 – Skills (Cluster 0)

8-0-3E: Create a written plan to solve a problem. Include: materials, safety considerations, three-dimensional sketches, steps to follow.

GLO: C3, C6

8-0-4A: Carry out procedures that comprise a fair test. Include: controlling variables, repeating experiments to increase accuracy and reliability of results.

GLO: C2

8-0-5F: Record, compile and display observations and data using an appropriate format.

GLO: C2, C6 (ELA Grade 8, 3.3.1; Math: SP-III.2.8)

8-0-6A: Construct graphs to display data, and interpret and evaluate these and other graphs.

Examples: circle graphs.

GLO: C2, C6 (ELA Grade 8, 3.3.1; Math: SP-III.2.7; TFS: 4.2.2-4.2.6)

8-0-6B: Interpret patterns and trends in data, and infer and explain relationships.

GLO: A1, A2, C2, C5

Senior 1 – Skills (Cluster 0)

S1-0-1C: Identify STSE issues which could be addressed.

GLO: C4

S1-0-1D: Identify stakeholders and initiate research related to an STSE issue.

GLO: C4 (ELA S1: 3.1.4, S1: 4.4.1)

S1-0-5C: Record, organize, and display data using an appropriate format.

Include: labeled diagrams, graphs, multimedia.

GLO: C2, C5

S1-0-5D: Evaluate, using pre-determined criteria, different STSE options leading to a possible decision.

Include: scientific merit; technological feasibility; social, cultural, economic, and political factors; safety; cost; sustainability.

GLO: B5, C1, C3, C4

S1-0-8F: Relate personal activities and possible career choices to specific science disciplines.

GLO: B4