Illinois Alternate Assessment Mathematics Frameworks Priorities Grade 6

In the spring of 2006, a team of Illinois educators created the new Illinois Alternate Assessment (IAA) Frameworks. The purpose of the frameworks is to prioritize the skills and knowledge from the Illinois Learning Standards for students with the most significant cognitive disabilities, in order to develop a new Illinois Alternate Assessment. The Illinois State Board of Education (ISBE) contracted Pearson Educational Measurement (PEM), and their subcontractor partners, Beck Evaluation and Testing Associates, Inc. (BETA), and the Inclusive Large Scale Standards and Assessment (ILSSA) group, to develop the new IAA in grades three through eight and 11 for Reading and Mathematics; in grades four, seven, and 11 for Science; and in grades three, five, six, eight, and 11 for Writing. BETA's responsibilities include providing event-based assessment activities linked to the IAA Frameworks, developing the assessment rubric, and incorporating principles of Universal Design for Learning. ILSSA's responsibilities include facilitating the development of the IAA Frameworks and providing statewide staff development on how to access grade-level curriculum. Pearson Learning Group (PLG) is a division of PEM and their responsibilities include providing a customized online scoring tool along with training to use this feature.

During the framework development meetings, educators were divided into development teams based on both content area and grade level focus. Addressing reading, writing, mathematics, mathematics, and science, each content area had one development team for elementary school, one for middle school, and one for high school. Each team consisted of at least one general education teacher, one special education teacher, and one content expert. The process used by the development teams to create the Illinois Alternate Assessment Frameworks was as follows:

The development teams reviewed each of the assessment objectives (statements coded with numbers such as 6.6.01) in grades three through eight. For each assessment objective, the teams:

- Identified the critical function, or the main idea of the objective;
- Wrote an instructional activity that could be used to teach the skills needed to meet the assessment objective in the general education classroom;
- Wrote a modified instructional activity that could be used to teach students with the most significant cognitive disabilities the same skills; and
- Identified three assessment activities that could be used to assess students with the most significant cognitive disabilities on the skills described in the modified activity.

After the development teams examined the assessment objectives and wrote both instructional and assessment activities for each grade level, the teams prioritized the assessment objectives and selected the assessment objectives which are most suitable for students with the most significant cognitive disabilities. The leadership team at ISBE reviewed these priorities for further refinement. These pilot priorities will form the basis for the new IAA performance test items. Following the completion of the fall 2006 writing pilot, a review may be necessary in order to determine if the new IAA priorities are appropriate and provide a comparable assessment to the general statewide assessment.

Using grade-level curriculum as the focus, the development teams described the instructional and assessment supports, accommodations, and assistive technology required to ensure access to quality instruction. The descriptions produced by the development teams were summarized into a set of statements designed to provide consistency across the content frameworks. These statements are as follows:

- Appropriate instruction must occur prior to the assessment activity.
- All activities must provide appropriate support, accommodations, and/or assistive technology during both the instructional activities and the assessment process. This may include the following:
    - The use of prompting strategies, ranging from minimum prompts to full physical assistance in order to create a learning continuum for correct responses.
    - The use of assistive technology, ranging from low tech to high tech.
    - The reduction of breadth, depth, and/or complexity.
- Specific instructional strategies and the instructional environment for the individual student vary and should be determined by the student's IEP team.
- During assessment activities, the students should use the mode of communication that they used to learn and practice the skills during instructional activities.

- Instruction should be presented to the student in a way that is authentic, accessible, and meaningful (e.g., tactile objects, picture symbols, or use of a text reader), to ensure the student has multiple opportunities to learn and demonstrate knowledge.
- Instruction should take place within the context of grade-level content, using age-appropriate activities and materials, regardless of the placement of the student.
- Instruction must incorporate age-appropriate activities and materials which represent the same grade level content as their peers without disabilities. However, the activities and materials may be adapted to meet the individual needs of the student (e.g., reduce the language requirements or difficulty of the task) as long as the context of the materials used by same age peers remains intact.

All instructional practices should occur using available resources and materials familiar to the learners.

Communication skills are essential to the assessment of students with significant cognitive disabilities. Symbolic communication skills form the foundation for reading, mathematics, and writing. Students with significant cognitive disabilities are very diverse in their communication ability. Some students communicate symbolically, while others communicate in highly individualized ways. There are some important considerations in the development of symbolic communication skills which include the following:

- All students communicate regardless of their level of symbolic language use.
- Students with the most significant cognitive disabilities can acquire generalized use of objects (or object selection) to communicate preferences (Hetzroni, Rubin, Konkol, 2002).
- Language learners must use symbols repeatedly, interactively, and generatively during meaningful and ongoing activities in language-rich environments (Goossens, Crain, & Elder, 1992; Cafiero, 1998; Goossens, et al., 1992; Romiski & Sevcik, 1996; Miller & Eller-Miller, 2002; Mirenda, 2003).
- Competent use of language for multiple purposes, audiences, and contexts facilitate the metalinguistic skills required for reading comprehension (Rankin, Harwood, & Mirenda, 1994).

The assessment activities in this document reflect three types of students who represent the continuum of communication skills within this student population.

- The first activity is designed for students who inconsistently respond to communication and inconsistently use words, objects, or gestures to communicate expressively.
- The second activity is for learners who are beginning to use understandable communication through gestures, pictures, objects/textures, points, etc., to clearly express a variety of intentions.
- The third activity is for students who are using verbal or written words, sign language, Braille, or any language-based augmentative system to request, initiate, and respond to questions, describe things or events, and express refusal.

Throughout the frameworks document, the suggested general education instructional and modified instructional activities are written in plural form, as instruction is typically provided to a whole class. However, the instruction for these activities may be provided in the context of whole class instruction, small group instruction, or individually based on student needs. Conversely, the assessment activities are written in the singular form, as the IAA is a standard assessment measuring individual performance.

The process of reviewing the frameworks and aligning the new IAA to the Illinois Learning Standards and regular assessment is an ongoing process. The activities in this document were created by Illinois teachers and are only suggested activities that may be used to teach the assessment objectives listed. The activities, materials, and techniques listed in the frameworks are just one possible way to teach these assessment objectives and should not to be considered the state-mandated strategy for teaching any given assessment objective. Teachers should feel comfortable in using other strategies, materials, or activities that may already be in place or familiar to the teacher. The IAA Frameworks and the IAA itself will continue to be reviewed and adjusted as changes occur with the Illinois Standards and/or the general assessment.

State Goal 6: Number Sense

Representations and Ordering (Standard A)

6.6.01 Read, write, recognize, and model equivalent representations of whole numbers and their place values.

6.6.04 Recognize, translate between, and apply multiple representations of decimals, fractions, percents (less than 100%), and mixed numbers (halves, quarters, fifths, and tenths).

Computation, Operations, Estimation, and Properties (Standards B and C)

6.6.12 Solve problems and number sentences involving addition, subtraction, multiplication, and division using whole numbers.

State Goal 7: Measurement

Units, Tools, Estimation, and Application (Standards A, B, and C)

7.6.01 Select and use appropriate standard units and tools to measure length, mass/weight, capacity, and angles.

7.6.03 Compare and estimate length (including perimeter), area, volume, weight/mass, and angles (0° to 180°) using referents.

State Goal 8: Algebra

Representations, Patterns, and Expression (Standard A)

8.6.01 Determine a missing term in a sequence, extend a sequence, and construct and identify a rule that can generate the terms of a given sequence (e.g., 3, 6, 9 . . . is explained by the rule3n, for $n \geq 1$)

Connections Using Tables, Graphs, and Symbols (Standard B):

8.6.06 Translate between different representations (table, written, or pictorial) of whole number relationships.

Solve Equations and Inequalities (Standards C and D)

8.6.09 Solve for the unknown in an equation with one operation (e.g., $8x = 24$, $m \div 2 = 25$).

State Goal 9: Geometry

Properties of Single Figures and Coordinate Geometry (Standard A)

9.6.02 Identify and describe three-dimensional shapes (cubes, spheres, cones, cylinders, prisms, and pyramids) according to their characteristics (faces, edges, vertices).

Relationships Between and Among Multiple Figures (Standard B)

9.6.09 Identify a three-dimensional object from its net.

9.6.12 Determine if figures are similar, and identify relationships between corresponding parts of similar figures.

State Goal 10: Data Analysis, Statistics, and Probability

Data Analysis and Statistics (Standards A and B)

10.6.01 Read, interpret, and make predictions from data represented in a bar graph, line (dot) plot, Venn diagram (with two circles), chart/ table, line graph, or circle graph.

Probability (Standard 10C)

10.6.06 Apply the fundamental counting principle in a simple problem (e.g., How many different 3–digit numbers can be made with the digits 1, 2, and 2?).

State Goal 6

Representations and Ordering (Standard A)
Read, write, and represent numbers

6.6.01 Read, write, recognize, and model equivalent representations of whole numbers and their place values.

Critical Function	Suggested General Education Activity	Suggested Modified Instructional Activity	Possible Assessment Activity 1	Possible Assessment Activity 2	Possible Assessment Activity 3
Read and write a whole number. Tell the value of each digit in the number.	The teacher will review numbers and place values by reading and writing numbers by including the appropriate place value words. Given a number like 12,345 the students will be able to say twelve "thousand" three "hundred" forty-five; also know that the one and two go together and the four and five go together.	The teacher will review numbers and place values by reading and writing numbers by including the appropriate place value words. Given a choice, the students will be able to identify/choose the number that the teacher requests.	Given two numbers, the student will identify the number requested by teacher.	Given four numbers, the student will identify the number requested by teacher.	Given a number, the student will identify the number.

State Goal 6

Representations and Ordering (Standard A)
Read, write, and represent numbers

6.6.04 Recognize, translate between, and apply multiple representations of decimals, fractions, percents (less than 100%), and mixed numbers (halves, quarters, fifths, and tenths).

Critical Function	Suggested General Education Activity	Suggested Modified Instructional Activity	Possible Assessment Activity 1	Possible Assessment Activity 2	Possible Assessment Activity 3
Read, write, recognize, and model equivalent representations of decimals, fractions, percents, and mixed numbers.	The teacher will demonstrate and explain the relationship between decimals, percents, and mixed numbers. The students will represent basic percents using a visual aid.	Same as suggested General Education Activity with necessary supports.	Given two fractions or visual models of fractions, the student will identify the fractions asked for by teacher.	Given four fractions, the student will identify the fraction requested.	Given a representation of a fraction, the student will identify the fraction.

State Goal 6

Computation, Operations, Estimation, and Properties (Standards B and C)
Number Operations

6.6.12 Solve problems and number sentences involving addition, subtraction, multiplication, and division using whole numbers.

Critical Function	Suggested General Education Activity	Suggested Modified Instructional Activity	Possible Assessment Activity 1	Possible Assessment Activity 2	Possible Assessment Activity 3
Solve problems using addition, subtraction, multiplication, and division using whole numbers.	The teacher will model how to solve problems involving addition, subtraction, multiplication, and division using whole numbers. The students will solve problems involving addition, subtraction, multiplication, and division in many math problems (i.e., algebra problems, geometry, probability, data analysis).	Same as suggested General Education Activity with necessary supports.	Given a word problem or number sentence and two possible answers, the student will select the correct response.	Given a word problem or number sentence and three possible answers, the student will select the correct response.	Given a word problem or number sentence, the student will solve the problem.

State Goal 7

Units, Tools, Estimation, and Application (Standards A, B, and C)
Measurement Tools

7.6.01 Select and use appropriate standard units and tools to measure length, mass/weight, capacity, and angles.

Critical Function	Suggested General Education Activity	Suggested Modified Instructional Activity	Possible Assessment Activity 1	Possible Assessment Activity 2	Possible Assessment Activity 3
Choose and use the correct measuring tool to measure length, weight, capacity, and angles.	The teacher will use a variety of measuring tools to show the students how to use each tool (which also demonstrates the measuring process) in correct units. The students will measure several objects around classroom.	Same as suggested General Education Activity with necessary supports.	Given a situation (e.g., I want to know the temperature) and a choice of two measurement tools (e.g., a thermometer and a clock), the student will select the appropriate measurement tool to use.	Given specific measurement tools, the student will correctly match the tools to the items that can be measured using the tools.	Given a specific measurement tool, the student will correctly measure an item (e.g., with a measuring cup, the student will measure the amount of water).

State Goal 7

Units, Tools, Estimation, and Application (Standards A, B, and C)
Estimation

7.6.03 Compare and estimate length (including perimeter), area, volume, weight/mass, and angles (0° to 180°) using referents.

Critical Function	Suggested General Education Activity	Suggested Modified Instructional Activity	Possible Assessment Activity 1	Possible Assessment Activity 2	Possible Assessment Activity 3
Estimate length, area, volume, weight, and angles by referring to an object with a known measurement.	The teacher will demonstrate examples using known objects with known measurements, and will compare these to related objects (with unknown measures), and illustrate how to make an educated guess what the unknown measure is. The students will estimate values of various items.	Same as suggested General Education Activity with necessary supports.	Given two objects, the student will estimate which object is longer.	Given a two-dimensional shape and an object that could be used to determine its perimeter (e.g., a picture frame and craft sticks), the student will estimate the perimeter in terms of the object used.	Given a two-dimensional shape and an object that represents a portion of its area (e.g., one scrapbook page and a picture), the student will estimate the total area in terms of the object used.

State Goal 8

Representations, Patterns, and Expressions (Standard A)
Patterns

8.6.01 Determine a missing term in a sequence, extend a sequence, and construct and identify a rule that can generate the terms of a given sequence (e.g., 3, 6, 9 . . . is explained by the rule $3n$, for $n \geq 1$).

Critical Function	Suggested General Education Activity	Suggested Modified Instructional Activity	Possible Assessment Activity 1	Possible Assessment Activity 2	Possible Assessment Activity 3
Continue patterns and tell how the pattern was created.	The teacher will provide a numerical or pictorial pattern for review (have students predict the next term). Then the teacher will start a more complicated pattern (add three, subtract one) and the students will determine the next three to five terms of the sequence.	The teacher will provide a numeric or pictorial pattern for review. Start with a simple numerical or pictorial pattern and as a group, walk through the example. The students will predict the next term.	Given a pictorial pattern, the student will select the next picture in the pattern from a choice of two.	Given a numerical pattern, the student will select the next three terms in the pattern.	Given a numerical pattern, the student will select the next five terms in the pattern.

State Goal 8

Connections Using Tables, Graphs, and Symbols (Standard B)
Representations

8.6.06 Translate between different representations (table, written, or pictorial) of whole number relationships.

Critical Function	Suggested General Education Activity	Suggested Modified Instructional Activity	Possible Assessment Activity 1	Possible Assessment Activity 2	Possible Assessment Activity 3
Compare two different representations of relationships (such as picture graph, table, etc.) to see if they match. Example: Compare a word problem with a graph.	The teacher will provide a table of values and corresponding graphs. The students will determine which graph matches the table and vice versa.	Same as suggested General Education Activity with necessary supports.	Given a bar graph, the student will choose the number that is represented on the bar graph from two choices.	Given a written representation of whole numbers, the student will find the numerical representation that matches.	Given a written representation of whole numbers, the student will draw a pictorial representation that matches each written number.

State Goal 8

Connections Using Tables, Graphs, and Symbols (Standard B)
Inequities

8.6.09 Solve for the unknown in an equation with one operation (e.g., 8*x* = 24, *m* ÷ 2 = 25).

Critical Function	Suggested General Education Activity	Suggested Modified Instructional Activity	Possible Assessment Activity 1	Possible Assessment Activity 2	Possible Assessment Activity 3
Compute to determine the value of the variable in a one-step equation. (One step to solve the problem.)	The teacher will introduce simple one-step addition, subtraction, multiplication, and division problems and instruct students how to solve for the variable. The students will solve equations for variables.	Same as suggested General Education Activity with necessary supports.	Given a word problem (e.g., There are six plates at the table. There are five forks. How many more forks are needed to have one fork next to each plate?), the student will select the correct answer from two choices.	Given a word problem (e.g., There are six plates at the table. There are five forks. How many more forks are needed to have one fork next to each plate?), the student will solve the problem.	Given 1 + *a* = 5, the student will solve for *a*. Place one block in front of student. Ask student to indicate how many more blocks are needed to make 5 blocks.

State Goal 9

Properties of Single Figures and Coordinate Geometry (Standard A)
Properties of Single Figures

9.6.02 Identify and describe three-dimensional shapes (cubes, spheres, cones, cylinders, prisms, and pyramids) according to their characteristics (faces, edges, vertices).

Critical Function	Suggested General Education Activity	Suggested Modified Instructional Activity	Possible Assessment Activity 1	Possible Assessment Activity 2	Possible Assessment Activity 3
Name three-dimensional shapes according to their faces, edges, and vertices.	The teacher will review the characteristics of three-dimensional shapes using models. The students will name three dimensional shapes using two of the three characteristics (faces, edges, vertices).	Same as suggested General Education Activity with necessary supports.	Given two shapes, the student will name the shape based on at least one characteristic.	Given three shapes, the student will name the shape based on at least two characteristics.	Given a three-dimensional shape, the student will identify the shape.

State Goal 9

Relationships Between and Among Multiple Figures (Standard B)
Relationships Between Two- and Three-dimensional Objects

9.6.09 Identify a three-dimensional object from its net.

Critical Function	Suggested General Education Activity	Suggested Modified Instructional Activity	Possible Assessment Activity 1	Possible Assessment Activity 2	Possible Assessment Activity 3
Identify a three-dimensional object from its net. (A net is the two-dimensional or flat view of an object). Example: Open a cereal box and lay it on a flat surface.	The teacher will define net and explain. The students will be able to identify a shape by its net.	The teacher will define net and explain. The students will be able to identify a commonly used shape (such as a cube) by its net.	Given a flattened pattern, the student will identify the three-dimensional shape that can be made from it.	Given two flattened patterns, the student will identify the three-dimensional shape that can be made using each pattern.	Given a three-dimensional object, the student will identify the flattened pattern that can be used to create it.

State Goal 9

Relationships Between and Among Multiple Figures (Standard B)
Congruency and Similarity

9.6.12 Determine if figures are similar, and identify relationships between corresponding parts of similar figures.

Critical Function	Suggested General Education Activity	Suggested Modified Instructional Activity	Possible Assessment Activity 1	Possible Assessment Activity 2	Possible Assessment Activity 3
Determine if figures are similar by using ratios of corresponding parts or by visual inspection and identify relationships between corresponding parts. Example: Use two square pieces of paper that are similar to show how one is proportional to the other (the side of the larger square is 2 times longer than the side of the smaller square).	The teacher will define congruence and similarity. Using tangrams or different shapes (three or four), the students will identify which are similar. Then the teacher will explain how side lengths and angles of similar figures relate.	Same as suggested General Education Activity with necessary supports.	Given two objects (e.g., a small and large paper clip), the student will answer "yes" or "no" as to whether they are similar.	Given two objects that are similar (e.g., a poster and a sheet of paper), the student will describe how the angles of these objects relate.	Given a shape (e.g., a square), the student will create an object that is similar to that shape.

State Goal 10

Data Analysis and Statistics (Standards A and B)
Read and Interpret Displays

10.6.01 Read, interpret, and make predictions from data represented in a bar graph, line (dot) plot, Venn diagram (with two circles), chart/ table, line graph, or circle graph.

Critical Function	Suggested General Education Activity	Suggested Modified Instructional Activity	Possible Assessment Activity 1	Possible Assessment Activity 2	Possible Assessment Activity 3
Read, interpret, and make predictions from data on a variety of diagrams and graphs.	The teacher will model how to read and interpret different types of graphs. Given a graph or data, the students will read, interpret, and make predictions about the data found in either.	The teacher will model how to read and interpret different types of graphs. Given a bar graph, the students will answer questions from the data.	Given a choice, the student will answer a question pertaining to data on the graph.	Given a bar graph, the student will answer questions pertaining to data on the graph.	Given a bar graph or chart/table, the student will answer questions pertaining to data on the graph.

State Goal 10

Probability (Standard C)
Outcomes and Counting Principles

10.6.06 Apply the fundamental counting principle in a simple problem (e.g., How many different 3–digit numbers can be made with the digits 1, 2, and 3?).

Critical Function	Suggested General Education Activity	Suggested Modified Instructional Activity	Possible Assessment Activity 1	Possible Assessment Activity 2	Possible Assessment Activity 3
Determine how many combinations can be created from a set of numbers. Example: Using the numbers one, two, three, determine how many different three-digit combinations can be created.	The teacher will model how to make multiple numbers from a few digits. Using a small set of digits such as four, seven, and nine, the students will determine how many two- and/or three-digit combinations can be created using each digit only once or allowing students to use the same digit twice.	Same as suggested General Education Activity with necessary supports.	Given the numbers 12 and 21, the student will determine if each number uses the same digits or not.	Given the numbers 123, 321, and 213, the student will determine if the three numbers use the same digits or not.	Given the digits one, two, and three, the student will create at least three different 3-digit whole numbers using all three digits.