Illinois Alternate Assessment Mathematics Frameworks Priorities Grade 5

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 6.5.01) 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)

6.5.01 Read, write, recognize, and model equivalent representations of whole numbers and their place values up to 100,000,000.

6.5.07 Order and compare whole numbers up to 1,000,000.

6.5.10 Identify and locate whole numbers, halves, fourths, and thirds on a number line.

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

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

6.5.13 Solve problems and number sentences involving addition and subtraction of decimals through hundredths (with or without monetary labels).

State Goal 7: Measurement

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

7.5.02 Select and use appropriate standard units and tools to measure length (to the nearest ¼ inch or mm), mass/weight, capacity, and angles.

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

State Goal 8: Algebra

Representations, Patterns, and Expressions (Standard A)

8.5.01 Determine a missing term in a sequence, extend a sequence, and identify errors in a sequence when given a description or sequence.

Writing, Interpreting, and Solving Equations (Standards C and D)

8.5.08 Solve for the unknown in an equation with one operation (e.g., $2 + n = 20$, $n \div 2 = 6$).

State Goal 9: Geometry

Properties of Single Figures and Coordinate Geometry (Standard A)

9.5.01 Classify, describe, and sketch two–dimensional shapes (triangles, quadrilaterals, pentagons, hexagons, and octagons) according to the number of sides, length of sides, number of vertices, and interior angles (right, acute, obtuse).

Relationships Between and Among Multiple Figures (Standard B)

9.5.14 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)

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

Probability (Standard C)

10.5.05 Apply the fundamental counting principle in a simple problem (e.g., How many different combinations of one–scoop ice cream cones can be made with 3 flavors and 2 types of cones?).

State Goal 6

Representations and Ordering (Standard A)
Read, Write, and Represent Numbers

6.5.01 Read, write, recognize, and model equivalent representations of whole numbers and their place values up to 100,000,000.

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 whole numbers.	The teacher will model whole numbers. Using pictures of base ten blocks, the teacher will model whole numbers. The students will identify the represented numbers.	The teacher will model whole numbers. Given numbers and manipulatives, the students will identify two-digit numbers.	Given a place value template, a two-digit whole number, and expanded numbers that contain the correct requested place value and two distracters, the student will identify the requested place value card.	Given a place value template, a three-digit whole number, and expanded number cards that contain the correct requested place value and two distracters, the student will identify the requested place value card.	Given a place value template, a four-digit whole number and expanded number cards that contain the correct requested place value and two distracters, the student will identify the requested place value card.

State Goal 6

Representations and Ordering (Standard A)
Order and Compare Numbers

6.5.07 Order and compare whole numbers up to 1,000,000.

Critical Function	Suggested General Education Activity	Suggested Modified Instructional Activity	Possible Assessment Activity 1	Possible Assessment Activity 2	Possible Assessment Activity 3
Order and compare whole numbers.	The teacher will use a number line and demonstrate how numbers are greater than, less than or equal to another number. Using number cards, the students will draw six random cards, and create six-digit numbers. The students will then compare their number with that of a partner (more, less or equal). The person with the higher number wins the cards.	Same as suggested General Education Activity with necessary supports.	Given two three-digit numbers in a number statement without the symbol (150_____ 310) and picture representing the numbers, the student will indicate with words (greater than, less than, equal to) or symbols (>, <, or =) what makes the statement true.	Given two three-digit numbers in a number statement without the symbol (150_____ 131) and a number line, the student will indicate with words (greater than, less than, equal to) or symbols (>, <, or =) what makes the statement true.	Given two three-digit numbers in a number statement without the symbol (150_____ 131), the student will indicate with words (greater than, less than, equal to) or symbols (>, <, or =) what makes the statement true.

State Goal 6

Representations and Ordering (Standard A)
Number Line

6.5.10 Identify and locate whole numbers, halves, fourths, and thirds on a number line.

Critical Function	Suggested General Education Activity	Suggested Modified Instructional Activity	Possible Assessment Activity 1	Possible Assessment Activity 2	Possible Assessment Activity 3
Identify and locate whole numbers, halves, fourths and thirds on a number line.	The teacher will model whole numbers, halves, fourths, and thirds on a number line. Given a number line with 1/3" increments, the students will be able to identify the whole, half, one-fourth, and one-third numbers on the line.	Same as suggested General Education Activity with necessary supports.	Given a one-fourth number, the student will place it on the number line.	Given a one-third number, the student will place it on the number line.	Given a whole, half, one-fourth, and one-third number, the student will place it on the number line.

State Goal 6

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

6.5.12 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 and number sentences involving addition, subtraction, multiplication, and division.	The teacher will model how to solve division problems. The class will solve a few problems together and the students will solve more problems independently.	The teacher will demonstrate how to multiply and divide with regrouping. The teacher will demonstrate how to use the correct function on the calculator for multiplication and division with regrouping. The students will solve addition, subtraction, multiplication, and division problems with regrouping and, if needed, use a calculator.	Given a situational problem with regrouping, the student will indicate whether the problem requires addition, subtraction, multiplication, or division.	Given a situational multiplication problem with regrouping, the student will solve the problem.	Given division problems, the student will solve the problems.

State Goal 6

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

6.5.13 Solve problems and number sentences involving addition and subtraction of decimals through hundredths (with or without monetary labels).

Critical Function	Suggested General Education Activity	Suggested Modified Instructional Activity	Possible Assessment Activity 1	Possible Assessment Activity 2	Possible Assessment Activity 3
Solve problems involving decimals, including money.	The teacher will model a monetary transaction. The students will solve for the purchase of an item and determine how much change, if any, will result.	Same as suggested General Education Activity with necessary supports.	Given the price of an item and an amount of money, the student will determine if he or she has enough money to purchase the item.	Given an amount of money and prices for two items, the student will determine which item costs the same amount as the amount of money they were given.	Given a greater amount of money, the student will provide the teacher with a lesser amount of money requested.

State Goal 7

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

7.5.02 Select and use appropriate standard units and tools to measure length (to the nearest ¼ inch or mm), 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
Select and use the correct measuring tool for length, weight, capacity, and angles.	The teacher will demonstrate how to use a variety of measuring tools, and illustrate the correct unit of measure for each. The students will use the different measurement tools to measure several objects around the classroom.	Same as suggested General Education Activity with necessary supports.	Given two objects, the student will choose which object is longer.	Given a specific measurement tool, the student will use this tool to measure (e.g., with a scale, the student will record their weight).	Given a specific measurement tool, the student will use this tool to measure (e.g., with a ruler, the student will measure the length and width of a sheet of paper).

State Goal 7

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

7.5.04 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/compare length, area, and mass/weight by referring to an object with known measurement.	The teacher will demonstrate how to estimate volume when it is known for a similar object. Using non-standard units (i.e., popcorn, jelly beans), the students will compare the volume of one object to the volume of another object.	Same as suggested General Education Activity with necessary supports.	Given two containers that are the same size and shape, each filled with a different amount of manipulatives, the student will identify which container has a greater volume of manipulatives.	Given two containers that are the same size and shape, each filled with a different amount of manipulatives, the student will order the containers from the least volume of manipulatives to the greatest volume of manipulatives.	Given two empty containers that are the same size and shape, the student will distribute a volume of manipulatives so that one container has more volume than the other.

State Goal 8

Representations, Patterns, and Expressions (Standard A)
Patterns

8.5.01 Determine a missing term in a sequence, extend a sequence, and identify errors in a sequence when given a description or sequence.

Critical Function	Suggested General Education Activity	Suggested Modified Instructional Activity	Possible Assessment Activity 1	Possible Assessment Activity 2	Possible Assessment Activity 3
Understand basic sequences.	The teacher will demonstrate growing, repeating, and shrinking patterns. The students will solve problems related to growing and shrinking patterns.	Same as suggested General Education Activity with necessary supports.	Given a pattern and two choices, the student will determine the next term in the pattern.	Given an illustrated number pattern, the student will determine the next number in the pattern (e.g., 22, 24, 26, 28, __).	Given an illustrated number pattern, the student will continue the pattern for three more places (e.g., 22, 24, 26, 28, __, __, __).

State Goal 8

Writing, Interpreting, and Solving Equations (Standard C/D)
Solve Equations and Inequalities

8.5.08 Solve for the unknown in an equation with one operation (e.g., 2 + *n* = 20, *n* ÷ 2 = 6).

Critical Function	Suggested General Education Activity	Suggested Modified Instructional Activity	Possible Assessment Activity 1	Possible Assessment Activity 2	Possible Assessment Activity 3
Solve one-step equations with one operation and a missing part. Example: One unifix cube and a bag with unknown equals three 1+?=3, ?=2).	The teacher will demonstrate, model, and discuss how to solve for the unknown with or without manipulatives. The students will solve equations for the unknown.	Same as suggested General Education Activity with necessary supports.	Given a number sentence, (e.g., 1 □ 1 = 2) and a choice of two operation signs (e.g., +, -), the student will select the operation sign to make the number sentence true.	Given a number sentence, (e.g., 1 □ 1 = 2), the student will provide the operation sign to make the number sentence true.	Given an equation (e.g., 5 - □ = 2) with a missing value, the student will identify what number makes the number sentence true.

State Goal 9

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

9.5.01 Classify, describe, and sketch two–dimensional shapes (triangles, quadrilaterals, pentagons, hexagons, and octagons) according to the number of sides, length of sides, number of vertices, and interior angles (right, acute, obtuse).

Critical Function	Suggested General Education Activity	Suggested Modified Instructional Activity	Possible Assessment Activity 1	Possible Assessment Activity 2	Possible Assessment Activity 3
Classify two-dimensional shapes.	The teacher, using visuals, will discuss and model identifying characteristics of two-dimensional shapes. The students will identify two-dimensional shapes based on their characteristics.	Same as suggested General Education Activity with necessary supports.	Given two pre-sorted groups of two-dimensional shapes, the student will identify the group that has all the same shapes.	Given a set of two-dimensional shapes, the student will sort them according to shape.	Given multiple two-dimensional shapes, the student will sort the shapes based on characteristics of the shapes.

State Goal 9

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

9.5.14 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
Identify similar figures and the relationship between corresponding parts.	The teacher will model, show, and discuss similar figures and the relationship between their parts. The students will identify similar figures.	Same as suggested General Education Activity with necessary supports.	Given two sets of figures, one set with two congruent figures and one set with two non-congruent figures, the student will indicate which set of figures is congruent.	Given two figures, the student will indicate whether or not the figures are similar.	Given a prompt, the student will create a set of similar figures.

State Goal 10

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

10.5.01 Read, interpret, and make predictions from data represented in a pictograph, 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 and interpret various graphs.	The teacher will model how to read and interpret different types of graphs. Given various graphs with keys, the teacher will explain how to read different types of graphs. While showing and explaining the graphs the teacher will ask questions related to data in the graph. The students will answer questions related to information contained on the graph.	Same as suggested General Education Activity with necessary supports.	Given a graph with a key, the student will answer "yes" or "no" questions about data on the graph.	Given a graph with a key, the student will answer multiple-choice questions about data on the graph.	Given a graph with a key, the student will answer questions about data on the graph.

State Goal 10

Data Analysis and Statistics (Standard C)
Outcomes and Counting Principles

10.5.05 Apply the fundamental counting principle in a simple problem (e.g., How many different combinations of one–scoop ice cream cones can be made with 3 flavors and 2 types of cones?).

Critical Function	Suggested General Education Activity	Suggested Modified Instructional Activity	Possible Assessment Activity 1	Possible Assessment Activity 2	Possible Assessment Activity 3
Find combinations to answer a simple problem. Example: A boy has a red shirt, a blue shirt, and a pair of shorts. How many different outfits can he make?	The teacher will use a story board or manipulatives to illustrate various combinations of given materials. The students will find the number of possible combinations.	Same as suggested General Education Activity with necessary supports.	Given teacher-questions to a word problem, the student will answer "yes" or "no" questions about possible combinations.	Given teacher-questions to a word problem, the student will answer questions about possible combinations.	Given a word problem, the student will answer questions about combinations.