

Illinois Alternate Assessment Mathematics Frameworks Priorities Grade 7

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 6.7.01) 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.

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- 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.

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State Goal 6: Number Sense

Representations and Ordering (Standard 6A)

6.7.03 Recognize, translate between, and apply multiple representations of rational numbers (decimals, fractions, mixed numbers, and percents less than 100%).

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

6.7.08 Solve problems and number sentences involving addition, subtraction, multiplication, and division using integers, fractions, and decimals.

Ratios, Proportions, and Percents (Standard D)

6.7.16 Read, write, recognize, model, and interpret percents from 0% to 100%.

State Goal 7: Measurement

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

7.7.01 Select and use appropriate standard units and tools to measure length, mass/weight, capacity, and angles. Sketch, with given specifications, line segments, angles, triangles, and quadrilaterals.

7.7.03 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)

8.7.01 Determine a missing term in a sequence, extend a sequence, and construct and identify a rule that can generate the terms of an arithmetic or geometric sequence.

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

8.7.08 Translate between different representations (table, written, graphical, or pictorial) of whole number relationships and linear expressions.

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

8.7.12 Solve word problems involving unknown quantities.

State Goal 9: Geometry

Properties of Single Figures and Coordinate Geometry (Standard A)

9.7.05 Graph points and identify coordinates of points on the Cartesian coordinate plane (all four quadrants).

Relationships Between and Among Multiple Figures (Standard B)

9.7.11 Identify a three-dimensional object from its net.

9.7.14 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)

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

Probability (Standard C)

10.7.07 Represent all possible outcomes for simple events.

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State Goal 6					
Representations and Ordering (Standard A)					
Read, Write, and Represent Numbers					
6.7.03 Recognize, translate between, and apply multiple representations of rational numbers (decimals, fractions, mixed numbers, and percents less than 100%).					
Critical Function	Suggested General Education Activity	Suggested Modified Instructional Activity	Assessment Activity 1	Assessment Activity 2	Assessment Activity 3
Read and write numbers that are decimals, fractions, mixed numbers, improper fractions, and percents less than 100%.	The teacher will demonstrate and explain the relationship between decimals, percents, and mixed numbers. The students will represent basic percents using a visual aid.	The teacher will demonstrate and explain the relationship between decimals, percents, and mixed numbers. Given a choice, the students will be able to identify a model that a percent represents.	Given two fractions or visual models of percents, the student will identify the percents asked for by the teacher.	Given four percents, the student will identify the percent that the teacher asks for.	Given a percent, the student will identify the percent.

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State Goal 6					
Computation, Operations, Estimation, and Properties (Standards B and C)					
Number Operations (Calculators allowed)					
6.7.08 Solve problems and number sentences involving addition, subtraction, multiplication, and division using integers, fractions, and decimals.					
Critical Function	Suggested General Education Activity	Suggested Modified Instructional Activity	Assessment Activity 1	Assessment Activity 2	Assessment Activity 3
Solve problems using addition, subtraction, multiplication, and division using integers, fractions, and decimal numbers.	The teacher will model how to solve problems involving addition, subtraction, multiplication, and division using integers, fractions, and decimals. This objective is addressed in many math activities. The students will use this process in many math problems (i.e., algebra problems, geometry, probability, data analysis).	The teacher will use math manipulatives to help students understand these operations. The students will solve problems using manipulatives.	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.

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State Goal 6					
Ratios, Proportions, and Percents (Standard D)					
Percents					
6.7.16 Read, write, recognize, model, and interpret percents from 0% to 100%.					
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 percents from 0% to 100%.	The teacher will create manipulatives to model different percents (100 grid, circle representation, bars). The students will indicate if the two representations are equal.	Same as suggested General Education Activity with necessary supports.	Given two models of percentages, the student will indicate whether or not the models represent equal amounts.	Given several models of percentages, the student will match the models to the percents they represent.	Given a blank model and a previously taught percent, the student will represent the given percent on the model.

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State Goal 7					
Units, Tools, Estimation, and Application (Standards A, B, and C)					
Measurement Tools					
7.7.01 Select and use appropriate standard units and tools to measure length, mass/weight, capacity, and angles. Sketch, with given specifications, line segments, angles, triangles, and quadrilaterals.					
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. Example: Draw a line, shape, polygon, figure, angle, or circle given the measurements or dimensions.	The teacher will use a variety of measuring tools and 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. The students will construct shapes, lines, and angles, given specific dimensions.	The teacher will use a variety of measuring tools and 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. The students will trace/reconstruct a specified line, shape, or angle.	Given two measuring tools and a specified item to be measured, the student will select the appropriate tool to measure the item (e.g., Would a scale or a ruler be appropriate to measure a student's height?).	Given three measuring tools and specified items to be measured, the student will match the appropriate tools to the specified items.	Given a measuring tool, the student will measure simple items in the classroom.

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State Goal 7					
Units, Tools, Estimation, and Application (Standards A, B, and C)					
Estimation					
7.7.03 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 items, the student will estimate which item has more mass (weight).	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.

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State Goal 8					
Representations, Patterns, and Expressions (Standard A)					
Patterns					
8.7.01 Determine a missing term in a sequence, extend a sequence, and construct and identify a rule that can generate the terms of an arithmetic or geometric sequence.					
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). The students will determine the next three to five terms of the sequence.	The teacher will provide a numerical 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 numerical pattern, the student will select the next term 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.

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State Goal 8					
Connections Using Tables, Graphs, and Symbols (Standard B)					
Representations					
8.7.08 Translate between different representations (table, written, graphical, or pictorial) of whole number relationships and linear expressions.					
Critical Function	Suggested General Education Activity	Suggested Modified Instructional Activity	Possible Assessment Activity 1	Possible Assessment Activity 2	Possible Assessment Activity 3
<p>Compare linear expressions and an input output table to see if they match.</p> <p>Example: Compare a word problem with a graph.</p>	<p>The teacher will provide a table of values and corresponding graphs. The students will determine which graph matches the table and vice versa.</p>	<p>Same as suggested General Education Activity with necessary supports.</p>	<p>Given a choice of graphs, the student will choose the requested representation of whole numbers.</p>	<p>Given a written representation of whole numbers, the student will find the graph representation that matches the numbers.</p>	<p>Given a written representation of whole numbers, the student will draw a graph representation that matches the numbers.</p>

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State Goal 8					
Writing, Interpreting, and Solving Equations (Standards C and D)					
Solve Equations and Inequalities					
8.7.12 Solve word problems involving unknown quantities.					
Critical Function	Suggested General Education Activity	Suggested Modified Instructional Activity	Possible Assessment Activity 1	Possible Assessment Activity 2	Possible Assessment Activity 3
Solve word problems using unknown quantities.	The teacher will model how to write and solve word problems using one- and two-step equations. The students will solve word problems using one- and two-step equations.	The teacher will model how to write and solve word problems using simple one-step equations. The students will solve word problems using one-step equations.	Given a word problem containing a simple one-step equation, the student will select the correct answer from two possible choices.	Given a word problem containing a simple one-step equation, the student will select the correct answer from three possible choices.	Given a word problem, containing a simple situation, the student will solve the problem (e.g., There are bicycles and tricycles in a store. There are 20 wheels total. How many bicycles and tricycles could there be at this store?).

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State Goal 9					
Properties of Single Figures and Coordinate Geometry (Standard A)					
Coordinate Geometry					
9.7.05 Graph points and identify coordinates of points on the Cartesian coordinate plane (all four quadrants).					
Critical Function	Suggested General Education Activity	Suggested Modified Instructional Activity	Possible Assessment Activity 1	Possible Assessment Activity 2	Possible Assessment Activity 3
Plot points and/or identify coordinates on a Cartesian plane. (A Cartesian plane is a grid with four quadrants.)	The teacher will review graphing. The students will graph points using all four quadrants. The students will find the coordinates of points on the plane.	Same as suggested General Education Activity with necessary supports.	Given an ordered pair, the student will plot one point in the first quadrant on a plane.	Given three ordered pairs, the student will plot the points in the first quadrant on a plane.	Given graph paper, the student will plot points in the first quadrant dictated by the teacher.

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State Goal 9					
Relationships Between and Among Multiple Figures (Standard B)					
Relationships Between Two- and Three-Dimensional Objects					
9.7.11 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
<p>Identify a three-dimensional object from its net. (A net is the two-dimensional or flat view of an object).</p> <p>Example: Open a cereal box and lay it on a flat surface.</p>	<p>The teacher will define net and explain. The students will be able to identify a shape by its net.</p>	<p>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.</p>	<p>Given a flattened pattern, the student will identify the three-dimensional shape that can be made from it.</p>	<p>Given two flattened patterns, the student will identify the three-dimensional shape that can be made using each pattern.</p>	<p>Given a three-dimensional object, the student will identify the flattened pattern that can be used to create it.</p>

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State Goal 9					
Relationships Between and Among Multiple Figures (Standard B)					
Congruency and Similarity					
9.7.14 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
<p>Determine if figures are similar by using ratios of corresponding parts or by visual inspection and identify relationships between corresponding parts.</p> <p>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).</p>	<p>The teacher will define congruence and similarity using tangrams or different shapes (three or four). Next, the teacher will explain how side lengths and angles of similar figures relate. The students will identify which shapes are similar.</p>	<p>Same as suggested General Education Activity with necessary supports.</p>	<p>Given two objects (e.g., a small and large paper clip), the student will answer “yes” or “no” as to whether they are similar.</p>	<p>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.</p>	<p>Given a shape (e.g., a square), the student will create an object that is similar to that shape.</p>

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State Goal 10					
Data Analysis and Statistics (Standards A and B)					
Read and Interpret Displays					
10.7.01 Read, interpret, and make predictions from data represented in a bar graph, line (dot) plot, Venn diagram (with two circles), chart/ table, line graph, scatterplot, circle graph, or histogram.					
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. Using data from a Venn diagram, the students will read, interpret, and make predictions.	The teacher will model how to read and interpret different types of graphs. Given a bar graph, the students will read, interpret, and make predictions from data represented on a graph.	Given choices, the student will answer questions pertaining to data on a bar graph.	Given a bar graph, the student will answer interpretation questions pertaining to data on a bar graph.	Given a line graph or table/chart, the student will read, interpret, and make predictions from data presented (e.g., look at a bus schedule or a movie schedule).

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State Goal 10					
Probability (Standard C)					
Outcomes and Counting Principles					
10.7.07 Represent all possible outcomes for simple events.					
Critical Function	Suggested General Education Activity	Suggested Modified Instructional Activity	Possible Assessment Activity 1	Possible Assessment Activity 2	Possible Assessment Activity 3
Represent all possible outcomes for simple events.	The teacher will demonstrate how to determine all possible outcomes of a given situation. Given four different types of ice cream, what are the possible outcomes for creating cones with two scoops? The students will determine all possible combinations.	The teacher will demonstrate how to determine all possible outcomes of a given situation. Given three different types of ice cream, what are the possible outcomes for creating cones with two scoops? The students will determine possible combinations.	Given three different types of ice cream flavors, the student will choose the number of possibilities of two-scoop ice cream cones.	Given three different types of ice cream flavors and two different types of cones, the student will determine the number of possibilities of one-scoop ice cream and cone combinations.	Given three ice cream flavors and three kinds of cones, the student will color or write the one-scoop ice cream and cone combinations.