

The Development of Indiana's ILEARN Assessments

Introduction

The Indiana Department of Education (IDOE) in collaboration with Indiana educators, and facilitated by American Institutes for Research (AIR) embarked on a journey to develop an entirely new state-wide summative assessment called ILEARN (Indiana Learning Evaluation Assessment Readiness Network). This assessment leverages innovations in the assessment industry and builds on lessons learned for successful implementation and administration. From the beginning of development, the Department built upon recommendations from the ISTEP+ Panel (convened in 2016) and followed the following six guiding principles.

1. **Student Centered.** First and foremost, IDOE focuses on students by considering how ILEARN can support growth and encourage success.
2. **Accessible.** The new ILEARN assessments are built from the ground up with accessibility as a key component. The goal of IDOE is to ensure an equitable approach for ALL students.
3. **Transparent.** From development to administration, ILEARN both involves Indiana educators and publishes resources that make clear exactly what the assessment is measuring.
4. **Indiana Aligned.** The new ILEARN assessments focus on measuring Indiana Academic Standards, encouraging growth, and promoting college-and-career readiness on an achievable and practical level.
5. **Evidence Based.** Indiana's ILEARN assessments will yield actionable data to support teachers, administrators, parents, and other stakeholders in making informed instructional decisions.
6. **Technically Sound.** Indiana's Technical Advisory Committee (TAC) oversees the development of ILEARN to ensure that state meets industry standards for validity and reliability requirements.

The development of ILEARN has several phases, three of which completed this Spring. Each phase of development is explained within this report along with a brief description of the stakeholders involved in each process.

Phase 1: Test Blueprints

Test blueprints define essential content from academic standards and delineate the proportion of the assessment which will measure each standard. Blueprints dictate the content that is measured on the assessment, the length of the assessment, and reporting structures that are available.

The ILEARN assessments are designed to measure student achievement of Indiana Academic Standards; therefore the test blueprints were created to measure both the breadth (the full extent) and the depth (the richness and cognitive complexity) of Indiana Academic Standards. Indiana educators and content experts organically derived ILEARN blueprints through educator committees. IDOE conducted a formal recruitment window in Fall 2017 to identify potential educator and stakeholder participants. From this pool, a sample of participants was invited to represent the following populations: north, central, and south Indiana; urban, rural, and suburban populations; and varying levels of socio-economic status. Each subject and grade-level panel consisted of participants with distinct roles and experience, as delineated in Table 1.

Table 1: Blueprint Panelist Role and Experience Criteria

A total of 88 Indiana educators from over 60 school corporations participated in ILEARN Blueprints Committees.	
Committee	Blueprint Panelist Role and Experience Criteria (8 Total Panelists for Each Grade Band/Content Area)
Mathematics 3-4	<ul style="list-style-type: none"> • General Education Teachers: 3 • Special Education/ELL Teachers: 2 • Instructional Coach: 1 • School/Corporation Administrator: 1 • Higher Education Developmental Psychology Expert: 1
English/Language Arts 3-4	
Mathematics 5-6	<ul style="list-style-type: none"> • General Education Teachers: 3 • Special Education/ELL Teachers: 2 • Instructional Coach: 1 • School/Corporation Administrator: 1 • Higher Education Content Expert: 1
Mathematics 7-8	
English/Language Arts 5-6	
English/Language Arts 7-8	
Science 4/6	
Social Studies 5	
High School Biology	
High School U.S. Government	<ul style="list-style-type: none"> • General Education Teachers: 3 • Special Education/ELL Teachers: 2 • Instructional Coach: 1 • School/Corporation Administrator: 1 • Workforce Professional: 1*

*Biology only

The outcome of ILEARN Blueprint Committees was a set of Draft¹ ILEARN Test Blueprints designed to yield valid indicators of student achievement of Indiana Academic Standards (IAS). The committee participated in four activities (or segments) to arrive at this outcome.

1. Segment 1: Identifying Evidence Statements.

Educators first defined essential evidence which would show mastery of Indiana Academic Standards. Panelists carefully reviewed and discussed IAS for their grade level and content area and identified key knowledge and skills that students should obtain to be successful.

2. Segment 2: Identifying Reporting Categories.

Educators utilized the key evidence in segment one to aggregate content into reporting categories. While ILEARN assessments measure student achievement in a subject area as a whole, stakeholders benefit from more fine-grained feedback about student achievement. Along with whole-subject scale scores, ILEARN offers sub-scores in the form of reporting categories. Panelists identified areas where sub-scores would be beneficial and grouped IAS into reporting categories to accommodate those scores.

¹ Note: Blueprints for computer adaptive tests are not final until simulations are run to test possible outcomes. Minimums and maximums on draft blueprints may be slightly modified during simulations. Final blueprints will be posted October 1, 2018.

3. Segment 3: Prioritizing Standards within Reporting Categories.

Educators evaluated the priority of the standards within the reporting categories to determine appropriate distributions on the assessment. Although test blueprints are constructed to assess a representative sample of all subject area standards, standards may not all be of equal importance. Mastery of some standards may be more essential for college and career readiness than others. Committee panelists classified standards according to their centrality to the main construct for each reporting category and identified which standards are most crucial for future success. The priority of each standard is reflected by the number of items assigned to that standard on the test blueprint.

4. Segment 4: ILEARN Test Blueprints.

Once the panel provided all of the information from Segments 1-3, the Department and the American Institutes for Research (AIR) created draft test blueprints that incorporated committee decisions. These blueprints were then presented to the committee for review. The following important constraints were identified and discussed:

- a. The assessment must measure the breadth and depth of Indiana Academic Standards.
- b. The overall test length must be reduced from previous years.
- c. Reporting categories must be characterized by at least 10 items for accurate sub-scores.
- d. Blueprints must measure the essential content defined by educators.
- e. Blueprints must vertically articulate across grade levels in a way that makes sense for student growth.

Indiana educators approved the final draft ILEARN blueprints, confirming that they 1) measure the breadth and depth of standards, 2) provide meaningful data, 3) ensure a shorter testing experience, and 4) provide transparency to the field regarding the new assessment.

Phase 2: Item Specifications

Item specifications define how each academic standard will be measured. Professional item writers use specifications to create questions for an item bank. These documents include criteria such as evidence statements, item types, cognitive complexity demands, accessibility considerations, and sample items. For the first time in Indiana, item specifications for ILEARN will be posted publically as a resource to increase transparency regarding the assessment.

Indiana is utilizing licensed third-party item banks, therefore item specifications from those banks will be used for Indiana standards where alignment is appropriate. The acceptance of items and ultimately item specifications is noted in Phase 3 below. For standards where the third-party banks do not provide item specifications which strongly align to Indiana Academic Standards, Indiana-specific specifications were created. Some content areas (notably Social Studies) required a larger number of custom item specifications.

Indiana educators committees created the Indiana Item Specifications. Item Specification Committee participants were invited to represent the following student populations: north, central, and south Indiana; urban, rural, and suburban populations; and varying levels of socio-economic status. Each subject and grade-level panel consisted of participants with distinct roles and experience, as delineated in Table 2.

Table 2: Item Specification Panelist Role and Experience Criteria

A total of 62 Indiana educators from over 50 school corporations participated in ILEARN Item Specification Committees.	
Committee	Item Specification Panelist Role and Experience Criteria
Mathematics 3-4	<ul style="list-style-type: none"> • General Education Teachers: 3 • Special Education/ELL Teachers: 1 • Instructional Coach/Curriculum Director: 1 • School Administrator/Higher Education Expert: 1
Mathematics 5-6	
Mathematics 7-8	
Science 4/6	
Biology	
Social Studies 5 Group 1	<ul style="list-style-type: none"> • General Education Teachers: 4 • Special Education/ELL Teachers: 1 • Instructional Coach/Curriculum Director: 2 • School Administrator/Higher Education Expert: 1
Social Studies 5 Group 2	
U.S. Government	
English/Language Arts 3-5	<ul style="list-style-type: none"> • General Education Teachers: 4 • Special Education/ELL Teachers: 1 • Instructional Coach/Curriculum Director: 2 • School Administrator/Higher Education Expert: 2
English/Language Arts 6-8	

The committees created item specifications for all Indiana Academic Standards that did not have item specifications provided by third-party item banks. Committee activities were defined into the following six parts to arrive at this outcome.

1. Part 1: Overview of the Item Specification Template.
Panelists received targeted training regarding the item specification template which would be completed by the committee. Discussion and examples ensured that educators understood what each section of the template entailed.
2. Part 2: Available Item Types and Best Practices.
IDOE and AIR Content Specialists engaged participants in a discussion of item types available for the assessment as well as best practices for use of those item types. The conversations supported discussion about the most appropriate item types to assess content. After completing training, educators defined acceptable item types for each given standard.
3. Part 3: Depth of Knowledge.
Content Specialists provided targeted training on Webb’s Depth of Knowledge (DOK) framework and how it relates specifically to assessment. It is critical that Indiana custom development aligns to the cognitive complexity portrayed in Indiana Academic Standards. Panelists also received examples of tasks at different DOK levels and looked at the differences between DOK and difficulty within item parameters. After completing training, educators defined appropriate DOK levels for each academic standard.
4. Part 4: Content Limits.
Content specialists worked with educators to identify content limits for each given standard.

Content limits delineate what terms, concepts, or procedures are acceptable at a particular grade level for a particular standard. For example, in English/Language Arts, if a standard references media literacy, the various type of media with which students should be expected to interact would be noted here. In Mathematics, a standard regarding computation with whole numbers would delineate the number of digits that are acceptable for students to be able to compute. In Social Studies, a standard about the contribution of other nations to the outcome of the American Revolution would list some of those nations.

5. Part 5: Task Demands.

Panelists defined the task demands that would best measure student achievement of each given standard. Task demands give clear, specific statements about what a student will do in order to demonstrate various levels of mastery for a standard. For example, a Mathematics standard about comparing and ordering fractions might have multiple task demands such as 1) Compare a given fraction to a benchmark fraction and 2) Order three or more fractions from least to greatest.

6. Part 6: Peer Review.

Once committees completed item specifications, the specification documents were shared with other educators across committees to ensure proper progression from one grade level to the next.

The final outcome of these meetings were custom Indiana item specifications written and approved by Indiana educators that clearly define task and content expectations for each given standard.

Phase 3: Item Acceptance Review

For the ILEARN assessments, Indiana will leverage quality content from a variety of licensed item banks. As these item banks were not created with the sole focus of measuring Indiana Academic Standards, the Department convened educator committees to review items from the licensed banks to determine their alignment to Indiana Academic Standards. Items which align will be included in Indiana's pool of operational items. Items which do not align will not be included in Indiana's item pool.

Indiana educators held a defining role in the Item Acceptance Review. Groups of 3 educators reviewed each batch of items from the third-party banks and responded to this statement for each item: This item measures the focal aspects of the intended content standard. Educators used a four-point Likert scale ranging from Strongly Disagree, Disagree, Agree, to Strongly Agree. If educators within the group did not agree on the rating of the item, discussions were held to determine whether the item was aligned to Indiana Academic Standards. Items were confirmed for inclusion or removal based on these educator determinations.

Table 3 shows the number of groups and participants per group for the Mathematics, English/Language Arts, and Science committees. Three educators comprised each group. Social Studies is not included in this as 100% of the Social Studies items require custom Indiana development.

Table 3: Item Acceptance Review Number of Groups and Participants per Group

A total of 99 Indiana educators from over 70 school corporations participated in Item Acceptance Committees.					
Subject	Grade	# of Groups	# of Participants per Group	Total # of Participants	# of Meeting Days
English/Language Arts	3	2	3	6	3.5
English/Language Arts	4	2	3	6	3.5
English/Language Arts	5	2	3	6	3.5
English/Language Arts	6	2	3	6	3.5
English/Language Arts	7	1	3	3	3.5
English/Language Arts	8	2	3	6	3.5
Total English/Language Arts		11		33	
Mathematics	3	3	3	9	3.5
Mathematics	4	3	3	9	3.5
Mathematics	5	3	3	9	3.5
Mathematics	6	2	3	6	3.5
Mathematics	7	2	3	6	3.5
Mathematics	8	2	3	6	3.5
Total Mathematics		15		45	
Science	4	2	3	6	1.5
Science	6	3	3	9	1.5
Science	Biology	2	3	6	1.5
Total Science		7		21	

Performance Tasks are a new item type introduced for Mathematics, English/Language Arts, and Science that require extended thinking from the student and assess various aspects of process skills, investigative practices, and writing. Performance tasks will take the place of previous “Extended Response” and “Constructed Response” items. Committee participants reviewed several Performance Tasks to determine alignment with Indiana Academic Standards. As with other item types, Performance Tasks which aligned were accepted into the Indiana item pool. Tasks which did not align were not accepted into the pool.

Next Steps

Based on the blueprints and item specifications developed as well as the results of the Item Acceptance Review, the Indiana Department of Education (IDOE) and the American Institute for Research (AIR) will combine efforts to build ILEARN assessments for Spring 2019. Five additional test development steps must still occur to complete the development of these assessments.

1. Performance Level Descriptors.

Performance Level Descriptors define the knowledge and skills that students must demonstrate for each performance level. These documents are used as the basis for additional item

development and standard setting. The Indiana Department of Education plans to convene educator panels to define performance levels in June, 2018.

2. Item Development.

Based on the results from the Item Acceptance Review committee, AIR identified gaps in Indiana's current item pool. New items will be developed to target these gaps. The Department plans to convene educator committees to review these newly developed items in Summer and Fall 2018.

3. Scoring.

New for ILEARN assessments, the Department will recruit Indiana educators to take part in scoring open-ended items on the ILEARN assessments. Scoring will take place in Spring 2019.

4. Standard Setting.

Educator panels determine the cut scores for each proficiency category on the assessment. These cut score decisions are based on Performance Level Descriptors as well as student data from the assessment. Standard Setting will occur Summer 2019.

5. Data Review.

After items are field tested, educators review statistical data regarding each item's performance to determine if those items should be used operationally. Data review occurs every year after field testing is complete. The Department plans to convene educator committees to review field test data in Summer and Fall 2018 and each year thereafter.

Conclusion

Indiana educators are involved in the formulation of ILEARN assessments in all phases of the process, from its inception and guiding principles through scoring and Standard Setting. Because educator feedback is elicited and followed in each step, the new ILEARN assessments reflect the values and beliefs of Indiana educators and tightly align to the academic expectations of the State. Data from ILEARN will be used to make informed educational decisions that support student growth and encourage success for every child.