

**Attachment K - Data Forensics Scope of Work**

**1.0 Purpose/Background**

The Indiana Department of Education (IDOE) maintains several assessment programs for state and federal accountability, including the Indiana Learning Evaluation Assessment Readiness Network (ILEARN) assessment and the Indiana Reading Evaluation and Determination (IREAD) assessment.

The ILEARN assessment measures English/Language Arts (ELA) (grades 3-8), mathematics (grades 3-8), science (grades 4, 6, and high school Biology), and social studies (grade 5). The ILEARN Summative is the only component of the ILEARN through year assessment program to be monitored. The ILEARN Summative is a spring administration.

The IREAD assessment measures foundational reading skills in grades 2 and 3. There are two IREAD windows: spring and summer.

These assessments are administered through a Test Administration Vendor (currently Cambium Assessment Inc. (CAI)). Reporting follows each test administration and is dependent on the contractual reporting requirements for each independent program.

IDOE seeks a contractor to develop data forensic reports outlined in Table 1 below for the 2025-2026, 2026-2027, and 2027-2028 school years ILEARN and IREAD test administrations. Aggregate units include test session, test administrator, and school.

ILEARN is a computer-adaptive assessment at the item level. IREAD is adaptive through auto-generated unique forms with the same rigor. Any data forensics methods should take the adaptive nature of the assessments into consideration and be appropriate for the specific assessment. This SOW describes processes currently in place. The respondent may recommend alternate research-based methods and appropriate flags as part of their response. IDOE values innovative practices and continual improvement.

Table 1. Data Forensics and Analysis

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| **Analysis/Report Name** | **Description** |
| Response Change | Response change analysis computes the number of wrong-to-right changes compared to total changes for each student. Individual students or aggregate units with large deviations (mutually agreed upon based on current research and standard industry practice) in the number of changes are flagged and analyzed.  Response change should analyze total number of wrong-to-right as well as the number of wrong-to-right changes after all items are initially answered.  For flagged students, work with IDOE to provide written analysis of issues and recommend next steps for continued investigation (e.g., review keystrokes) |
| Data Forensics | (Test Administration Time) Test administration time analysis compares individual student total test administration time to the state average. Students or aggregate units with significant deviations in testing time are flagged and analyzed. This analysis must include (but is not limited to) identifying test attempts with very short test times and very high scores. |
| (Performance Change) Score changes are examined between summative test administrations using a regression model or other research-based method. The scores between past and current years are evaluated for spring and summer test administrations for IREAD, with the current-year score regressed on the test score from the previous year. Between year comparisons of results, primarily focused at units of aggregation (e.g., schools, corporations) are performed starting with the second year of the test administration. A significant score gain or loss between grades is detected by examining the residuals for outliers as compared to distribution of changes. |
| (Person Fit) The person fit analysis compares student response patterns to the overall theoretical model used to analyze students and items. ILEARN and IREAD assessments have multiple data from individual students across years and/or content areas. The respondent should recommend a method to compare available data as well as suggested flagging criteria. |

Additional Data Forensics Analysis:

In addition to what’s listed in Table 1, IDOE is interested in partnering with a vendor who can not only meet the requirements of this scope of work, but also proactively offer thoughtful, innovative suggestions for improving IDOE's data forensics measures.

IDOE is interested in vendor solutions for score change analysis associated with wrong-to-right changes.

IDOE is interested in expanding data forensics analyses to include student response time and item revisit. These analyses can support understanding of effortful performance and/or detect item harvesting.

IDOE is interested in vendor solutions to detect AI-generated student responses for hand-scored items.

If the vendor offers those analyses, or any additional data forensics analysis, those descriptions should be added as part of the proposal.

**2.0 Contractor Responsibilities/Deliverables**

Following each test administration, IDOE receives a state data file from the Test Administration Vendor. The selected contractor will use this file to develop Response Change and Data Forensic reports that will flag records that fall outside the established thresholds. Historically, IDOE has used the data forensic threshold for flagging (i.e., indicating a concern) as being four or more standard deviations from the state mean. Moving forward, IDOE is interested in reviewing the appropriateness of this threshold with the selected contractor and the nationally recognized assessment experts that serve on IDOE’s Technical Advisory Committee (TAC). IDOE will consider the flagging rules the Contractor includes as part of the solution for updates to the current process. The respondent should identify their process for detecting false positives. The Contractor will attend meetings with IDOE and CAI as needed to review or gather additional data.

After each assessment window ends, IDOE will send the Contractor a state data file via an agreed-on secure method. The State has robust and comprehensive data transmission standards that operate enterprise wide. The IOT established and maintains these standards, which support IOT’s data exchange, file transfer, and API-led strategies for the State. The Contractor’s solution must support the State’s standard API and file transfer methods to facilitate secure data transmission. The State’s standardized data transmission technologies are the MuleSoft API Management and GoAnywhere Managed File Transfer (MFT) services. See <https://www.in.gov/iot/policies-procedures-and-standards/applications-standards/>.

The contractor will upon receipt of the state data file create both a student level and aggregate level Response Change Report and Data Forensic Report.

If there are sessions that are flagged at the aggregate level for either report (i.e., Response Change or Data Forensic), the contractor will also develop individual reports for IDOE to provide to identified school corporations which include data charts and associated graphs along with a description of their meaning that can be easily understood by school leaders. One set of individual reports will include the flagged sessions at the aggregate level for schools within a corporation. Another set of individual reports will include the students (from the student level file) from each flagged session for schools within a corporation. If a corporation does not have any sessions that were flagged at the aggregate level for either report (i.e., Response Change or Data Forensic), the contractor would not create individual reports for that corporation.

After each review, the Contractor will share the results with IDOE and discuss the findings during a Contractor/IDOE meeting within 5 business days of IDOE receiving the report.

The contractor must provide details in their proposal regarding the rigorous quality control processes and measures that will be implemented to verify the reports developed by the contractor are accurate and error-free. Sample reports of the analyses and school corporation reports or proposed structures must be submitted as examples alongside the proposal text documenting the contractor’s expertise in this type of analysis.

In addition to producing the reports mentioned above, IDOE may also request the contractor to conduct further investigation into testing irregularities or security breaches beyond the initial data forensics analyses described for those reports, should these arise during the administration of either assessment program.

Requests for additional investigation would be on a limited basis and only in the event IDOE has significant concerns regarding test sessions for a particular school or corporation. The contractor should provide an hourly cost for such ad hoc work, and describe the process by which IDOE could request this additional support on an as-needed basis through this contract.

The contractor must also indicate how it will securely maintain all data files for the duration of the contract, and either securely destroy files or return them to the state at the state’s discretion upon termination of the contract. In addition, the contractor must provide information on their procedures for ensuring confidentiality of all data reports, at the individual and aggregate levels.

Lastly, the contractor is required to assign Project Management staff to oversee coordination and define key milestones for project planning. Project Management staff must be identified in the proposal along with relevant qualifications.

Table 2. List of Deliverables

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| **Deliverable** | **Description** | **Timeframe** |
| IREAD Spring Data Forensics Analysis Documents (PDF format) | Documents that provide the results of the analyses described in section 1.0 for the Spring IREAD assessment. These analyses provide information to IDOE on any flags and the data supporting those flags. | Annually each April, within 3 weeks of receipt of the state data file for Spring IREAD. |
| Individual School Reports for Flagged Assessments/Test Sessions for IREAD Spring Administrations (PDF format) | Reports that can be provided to school corporations that explain the flags for individual assessments or classrooms/test sessions. These reports are individualized for each flagged school corporation and include data charts, graphs, and descriptions of the data flags. | Annually each April, within 4 weeks of receipt of the state data file for Spring IREAD. |
| Corporation-Level Reports for Flagged Schools for IREAD Spring Administrations (PDF format) | Reports that can be provided to corporations (districts) that explain the flags for each school under their purview. These reports are individualized for each flagged corporation and include data charts, graphs, and descriptions of the data flags. | Annually each April, within 4 weeks of receipt of the state data file for Spring IREAD. |
| IREAD Summer Data Forensics Analysis Documents (PDF format) | Documents that provide the results of the analyses described in section 1.0 for the Summer IREAD assessment. These analyses provide information to IDOE on any flags and the data supporting those flags. | Annually each July-August, within 3 weeks of receipt of the state data file for Summer IREAD. |
| Individual School Reports for Flagged Assessments/Test Sessions for IREAD Summer Administrations (PDF format) | Reports that can be provided to school corporations that explain the flags for individual assessments or classrooms/test sessions. These reports are individualized for each flagged school corporation and include data charts, graphs, and descriptions of the data flags. | Annually each July-August, within 4 weeks of receipt of the state data file for Summer IREAD. |
| Corporation-Level Reports for Flagged Schools for IREAD Summer Administrations (PDF format) | Reports that can be provided to corporations (districts) that explain the flags for each school under their purview. These reports are individualized for each flagged corporation and include data charts, graphs, and descriptions of the data flags. | Annually each July-August, within 4 weeks of receipt of the state data file for Summer IREAD. |
| ILEARN Spring Data Forensics Analysis Documents (PDF format) | Documents that provide the results of the analyses described in section 1.0 for the Spring ILEARN assessment. These analyses provide information to IDOE on any flags and the data supporting those flags. | Annually each June, within 3 weeks of receipt of the state data file for Spring ILEARN . |
| Individual School Reports for Flagged Assessments/Test Sessions for ILEARN Spring Administrations (PDF format) | Reports that can be provided to school corporations that explain the flags for individual assessments or classrooms/test sessions. These reports are individualized for each flagged school corporation and include data charts, graphs, and descriptions of the data flags. | Annually each June-July, within 4 weeks of receipt of the state data file for Spring ILEARN. |
| Corporation-Level Reports for Flagged Schools for ILEARN Spring Administrations (PDF format) | Reports that can be provided to corporations (districts) that explain the flags for each school under their purview. These reports are individualized for each flagged corporation and include data charts, graphs, and descriptions of the data flags. | Annually each June-July, within 4 weeks of receipt of the state data file for Spring ILEARN. |

**3.0 Project Meetings**

Project Kickoff Meeting: a kickoff meeting is required for project initiation. The purpose of the kickoff meeting is to introduce key stakeholders, points of contact for the project, address vendor or IDOE questions/concerns, provide an update on the contract status, and discuss next steps for project implementation.

* The contractor shall schedule and facilitate one project kickoff meeting.
* The kickoff meeting will be hosted by IDOE using Microsoft Teams.
* The contractor will draft a meeting agenda and provide it to the IDOE at least 72 hours in advance of the meeting. The contractor must provide meeting minutes for IDOE’s review and approval within 24 hours of the meeting completion.

Project Status Meetings: Project status meetings are critical for monitoring progress on project deliverables and ensuring the project remains on time and track to completion.

* The contractor will schedule and facilitate three project status meetings for each administration window annually (ILEARN, IREAD Spring, and IREAD Summer): prior to the start of each window of work, check-in/status during the analysis window and at the conclusion of the analysis for each assessment window.
* Meetings will be hosted by IDOE using Microsoft Teams.
* For status and review meetings, the contractor will draft a meeting agenda and provide it to the IDOE at least 24 hours in advance of each meeting. The contractor will provide meeting minutes for IDOE’s review and approval within 24 hours of the meeting completion.

Forensic Analysis Presentation Meetings

* After each assessment window and corresponding analysis, the contractor will schedule a meeting to review the data analyses reports with IDOE staff. At this meeting, the contractor will explain the layout and format of the report files, walk through flags that were identified, and describe the data which led to the flags. The contractor will also answer questions that IDOE may have regarding their observations and findings for flagged assessments/test sessions.
* The contractor will present final results of analyses to the Technical Advisory Committee (TAC), a group of national assessment experts maintained by IDOE, following discussion with IDOE. The contractor should be prepared to describe their method of analysis and findings, and answer any questions that the TAC may have. An overview of analyses and findings must be provide to the TAC at least 2 weeks in advance of the meeting. The TAC meeting will be scheduled at a time agreed upon by the data forensics contractor and IDOE.

**4.0 Assessment Details & Timeline for Project (January 2026-August 2028)**

Information regarding Indiana assessments can be accessed on the [Office of Student Assessment](https://www.in.gov/doe/students/assessment/) (https://www.in.gov/doe/students/assessment/) website.

ILEARN Summative (Checkpoint assessments are not included in this contract)

ILEARN is a computer-adaptive assessment at the item level.

Applicable Grades and Content Areas:

* Grades 3-8 ELA (CAT and Performance Task) and Mathematics (CAT)
* Grades 4 and 6 Science
* High School Biology End-of-Course Assessment
* Grade 5 Social Studies

Administration/Reporting Windows:

* Spring ILEARN 3-8 and High School Biology End-of-Course Assessment
* Anticipated number of assessments is approximately 83,000 per grade level and content area

The table describes the tasks and their annual timeframes for completion. Specific beginning and ending dates within these timeframes will be agreed on by the contractor and IDOE each year of the contract.

|  |  |  |
| --- | --- | --- |
| **Task** | **Begin** | **End** |
| Kickoff Call | January | January |
| Handoff of state data file to contractor | June | June |
| Conduct Data Forensic Analysis; consult Assessment Vendor and IDOE as needed during the process | June | July |
| Provide reports (outlined in deliverables section) to IDOE and meet with IDOE to discuss the report | July | July |
| Complete Additional Analysis (ad hoc if requested by IDOE) | Within 90 business days of IDOE’s receipt of reports | |

Spring and Summer IREAD

IREAD is adaptive through auto-generated unique forms.

Applicable Grades:

* Grades 2 and 3 (3 segments, multiple choice)

Administration/Reporting Windows:

* Spring 2026
* Anticipated number of assessments is approximately 140,000
* Summer 2026
* Anticipated number of assessments is approximately 60,000
* Students in grades 3-6 have two summer opportunities

The table describes the tasks and their annual timeframes for completion. Specific beginning and ending dates within these timeframes will be agreed on by the contractor and IDOE each year of the contract.

Anticipated Schedule for Spring IREAD

|  |  |  |
| --- | --- | --- |
| **Task** | **Begin** | **End** |
| Handoff of state data file from IDOE to contractor | March | March |
| Conduct Data Forensic Analysis; consult Cambium and IDOE as needed during the process | April | April |
| Provide reports (outlined in deliverables section) to IDOE and meet with IDOE to discuss the reports | April | April |
| Complete Additional Analysis (ad hoc, if requested by IDOE) | Within 90 business days of IDOE’s receipt of reports | |

Anticipated Schedule for Summer 2026 IREAD

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| --- | --- | --- |
| **Task** | **Begin** | **End** |
| Handoff of state data file from IDOE to contractor | July | July |
| Conduct Data Forensic Analysis; consult Cambium and IDOE as needed during the process | July | August |
| Provide reports (outlined in deliverables section) to IDOE and meet with IDOE to discuss the reports | August | August |
| Complete Additional Analysis (ad hoc, if requested by IDOE) | Within 90 business days of IDOE’s receipt of reports | |

**5.0 Staff Qualifications**

The staff lead for this work must have an advanced degree in psychometrics, educational measurement, or a closely related field, and significant experience in test security and/or data forensics. The contractor must provide staff member names and resumes highlighting experience relevant to this work. It is expected that the contractor would include psychometric staff and project/program management staff who are well-versed in standardized assessments and the nuances associated with such work. Prior work conducting these types of analyses for state-level clients should be emphasized. While the vendor must assign a staff member to serve as the project/program manager for this work, and serve as the IDOE’s primary point of contact, a dedicated/full-time PM is not required, and the PM role may be filled by a staff member acting in a dual capacity (such as a psychometrician), provided the staff member has relevant project management experience.