Request for Qualifications (RFQ) for Kindergarten Through Grade 3 Mathematics Diagnostics

December 2025

Department of Education & Workforce

Table of Contents

Ohio Department of Education & Workforce

Ohio Revised Code (ORC) 3301.079 (D)

(D)(1) Not later than June 30, 2026, the department shall do both of the following:

> **(a)** Adopt a diagnostic assessment aligned with the academic standards for each of grades kindergarten to three in reading;
>
> **(b)** Approve a list of up to five diagnostic assessments aligned with the academic standards for each of grades kindergarten to three for both reading and mathematics. The department's list of approved diagnostic assessments for reading shall include the three reading diagnostic assessments that were approved by the department for use as comparable tools for purposes of division (B)(1) of section 3313.608 of the Revised Code, as it existed prior to the effective date of this amendment, and are most widely used by public schools in the state.

(2) Each diagnostic assessment adopted or approved under division (D)(1) of this section shall be designed to measure student comprehension of academic content and mastery of related skills for the relevant subject area and grade level. The diagnostic assessment for reading shall be designed to measure student comprehension of foundational reading skills aligned to the science of reading. Any diagnostic assessment adopted by the department shall not include components to identify gifted students. Blank copies of diagnostic assessments shall be public records.

(3) School districts shall administer a diagnostic assessment in reading and mathematics adopted or approved by the department pursuant to section 3301.0715 of the Revised Code beginning in the 2026-2027 school year.

Background and Purpose

The Ohio Department of Education and Workforce (Department) is requesting qualifications for mathematics diagnostic assessments that include each grade, kindergarten through grade three. The purpose of this Request for Qualifications (RFQ) is to identify a list of up to five diagnostic assessments aligned with the Ohio Learning Standards for Mathematics (2017) in kindergarten through grade 3. The Department is committed to ensuring that diagnostic assessments are responsive and address the needs of all learners, including students with mathematics disabilities, dyscalculia, and low-incidence disabilities. Selected diagnostic assessments must make blank copies of the assessment publicly available. Selected diagnostic assessments cannot include components to identify gifted students.

Beginning with the 2026-2027 school year, school districts must administer a diagnostic assessment in mathematics to all students in kindergarten through grade 3. The purpose of this *Request for Qualifications for Kindergarten through Grade 3 Mathematics Diagnostics* document is to outline the Department's process for selecting up to five approved mathematics diagnostics. This document is intended to assist entities interested in submitting diagnostic assessments in mathematics for consideration in the "list of up to five diagnostic assessments aligned with the academic standards of each grade, kindergarten to three, for mathematics," referenced in ORC 3301.079(D)(1)(b).

Important Dates:

The Department will make every effort to meet these dates but note that they may vary. Applicants are encouraged to check the Department's webpage frequently for updated information.

- **RFQ Document Posted and Submission Period Open**: December 5, 2025
- **Time Period to Submit Applications via OneDrive** December 5, 2025 – January 23, 2026
- **Vendor Question Period:** December 5-19, 2025
- **Final Submission Date**: January 23, 2026, at 5:00 PM EST
- **Vendors Notified of Review Outcomes**: Late February 2026

DEADLINE FOR SUBMISSION

All required application materials must be received by the Department on or before January 23, 2026, before 5:00 PM EST. This deadline applies to the submission of complete applications with required materials and evidence. Submissions received after the due date and time will not be accepted.

Eligible Applicants

To the extent authorized by law, vendors eligible to apply include, but are not limited to, the following:

- Private for-profit companies, including but not limited to test publishers and research organizations
- Nonprofit organizations
- Institutions of higher education

Each approved vendor will be responsible for all kindergarten through grade 3 contracts with individual districts. The contracts between an approved provider and districts must not contradict the terms and requirements outlined in this RFQ. Selection denotes eligibility only. No contract with the Department, or any other entity, is implied by eligibility selection.

Applicants acknowledge that their submission is not guaranteed to be included on the approved diagnostic assessment list provided by the Department. Changes made to federal law or state law impacting the need and/or requirements for the above-listed assessments may affect the approved provider's future eligibility.

INELIGIBILITY FOR REVIEW

- Diagnostic assessments that include components to identify gifted students.
- Individual grade level assessment submissions (e.g., kindergarten *only* or kindergarten through grade 2 *only*). Diagnostic assessment in mathematics must be for each grade level, kindergarten through grade 3.

INFORMATIONAL MEETING FOR VENDORS

The Department will convene an online session for prospective applicants to assist in the submission process, including the Vendor Submission Tool and attachments. This meeting is scheduled for December 19, 2025, at a time to be determined. Participation is optional, but registration is required. More information on the online session, including the session time and registration information, will be posted on the Department's List of Approved Assessments.

Submission of written questions in advance of the online session is preferred so that they may be addressed during the session. Email questions to ApprovedAssessments@education.ohio.gov. Following the online session, questions and responses will be posted to the Department's website.

DEADLINE FOR SUBMISSION

All required application materials must be received by the Department on or before January 23, 2026, at 5:00 PM EST. This deadline applies to the submission of complete applications with required materials and evidence. Submissions received after the due date and time will not be accepted unless requested by the Department.

Communication With Applicants

Throughout the review process, official Department communication with applicants will be via notices on the website or through email communication initiated by the Department.

Applicants may not reach out to individual Department staff. The Department will provide technical assistance with submitting the application documents but will not answer questions about how to respond to items within the application. The Department will not meet with individual applicants to discuss the results of the review.

Applicants seeking to remove an application from the review process at any time may email ApprovedAssessments@education.ohio.gov.

Approval Notification

Vendors with approved assessments will receive a link to complete the Assessment Information Form to provide updated contact and assessment information. This summary of services will be posted as a link on the List of Approved Assessments webpage for the convenience of districts and schools. After vendors are notified of their selection to the Department's approved list of K-3 mathematics diagnostic assessments, assessment information will be posted on the list of approved assessments webpage.

Multiyear Approval

Selection for approval as a K-3 math diagnostic assessment extends to 2027-2028, 2028-2029, 2029-2030, and 2030-2031 school years contingent on the following:

- No substantive changes to the assessment have occurred since the most recent approval.
- No changes in legislation, law, or Department policy preclude continued approval.
- No changes in content standards or performance standards, if applicable, have occurred since the assessment was most recently approved by the Department.
- The vendor submits a yearly Assessment Information Form (supplied by the Department) to ensure updated contact and cost information for districts.
- Vendor participates in all requests for demonstrations, meetings, and onboarding from the Department.
- Vendor meets all Department requests for information, data, and reports.

Overview of Review Process

REQUIRED SUBMISSION DOCUMENTS

For a vendor application to be considered complete, the following documents must be submitted to the Department by 5:00 PM EST on December 19, 2025:

- Transmittal Letter
- Service Provider Assurances and Signature
- Vendor Submission Tool
- Vendor Supporting Documentation

TRANSMITTAL LETTER

An authorized individual must provide a brief transmittal letter to the Department to formally submit/transmit the application, proposal, and other materials on behalf of the applying entity. The transmittal letter must be signed and dated by the authorized individual.

VENDOR SUBMISSION TOOL

All elements listed on the Vendor Submission Tool require the submission of relevant documentation with supporting evidence. The Vendor Submission Tool Instructions provide detailed information on completing the tool. Applicants must provide the completed Vendor Submission Tool as an active Excel document and submit a PDF of this same tool.

VENDOR SUPPORTING DOCUMENTATION

For each required element on the Vendor Submission Tool, applicants must specify both the name of the relevant document and the location where the supporting evidence can be found. “Not Applicable” is not an acceptable vendor response.

Applicants must provide specific location guidance using page number references and document names. Page number references should be specific and lead reviewers directly to the required information. The use of broad page ranges can create confusion and increase the likelihood that the required information will not be found.

Individual documents must be combined for submission into a single document with sequential numbering throughout. The vendor response must include a table of contents with document titles and page numbers. Bookmarks are helpful but not required. Use of a single document with sequential numbering enables the Department's reviewers to search for information within the document.

Applicants may include links to certain online materials, such as research published in peer-reviewed journals, as a portion of the application, and are responsible for ensuring that all links are current and live. Links to vendor websites, Google Docs, or SharePoint sites are not acceptable.

TRANSMISSION METHOD

Application materials must be submitted digitally via Document Upload, the application the Department uses for secure transfer of large files. Vendors will be provided with access and instructions following submission via OneDrive. Vendors having questions or needing assistance with submission may contact ApprovedAssessments@education.ohio.gov.

Submission Information and Requirements

Applications must be submitted electronically via instructions provided by the Department. Submitted application documents **must** use the following naming convention:

- Submission ID – *Program Name_Year_Application*

If names are too long based on the character limit, abbreviate the title of the type of worksheet as necessary. **All application and program materials must be submitted in digital or online format as PDF files. No hard copies of application or program materials will be accepted.**

Applications must be submitted electronically in PDF format via the submission upload provided by the Department. All application files must be submitted in PDF format, with individual files not to exceed 100 MB. The following formats are **not** acceptable for submission:

- Online access to Google Drive or SharePoint files
- Online access to Dropbox or document retrieval sites
- Uploaded documents in any format other than PDF

The following items must be submitted as part of the diagnostic assessment application:

- Kindergarten- 3 Grade Beginning of Year (BOY) Assessment Crosswalk (Appendix A)

Required program materials, including scopes and sequence, assessments, teacher materials, and student materials.

All applications must be submitted as PDFs. No alterations may be made to the formatting of the forms. No additional documents or materials are permitted outside the above-referenced application documents. No images or graphics are permitted on application documents provided by the Department. No hyperlinks to Google Drive, SharePoint, or file storage and/or retrieval sites are permitted on application documents outside of fields where expressly requested by the Department.

Evaluation Process

SCORING

All complete and timely submissions will be evaluated by a team of technical and content expert reviewers selected by the Department, using the criteria listed in the Vendor Submission Tool and any specific documentation pertinent to the assessment and uses being considered. The Vendor Submission Tool uses one scoring category for each element. The scoring category is on a scale of 0 to 4. The scoring is based on the level or quality of the evidence provided in the application. The scoring levels for the criteria are as follows:

- 4 - Excellent
- 3 - Good
- 2 - Satisfactory
- 1 - Needs Improvement
- 0 - Unacceptable

Elements will be scored using the scoring categories listed above. Select elements may be granted greater weight than others. The evaluation team will rate the proposals submitted in response to this RFQ based on the criteria and weight assigned to each criterion. The evaluation team will evaluate and numerically score each proposal. The evaluation will result in a point total being calculated for each proposal submitted. Up to five of the highest-scoring applications will be added to the Department's list of approved K-3 Mathematics Diagnostic Assessments beginning in the 2026-2027 school year. On completion of the review, scoring summaries, including reviewer notes, will be returned to any vendors.

GENERAL INFORMATION

Any applicant seeking approval for program components that are available for separate purchase must apply for each of those components, unless approval is sought for the components as a combined set of materials as described below. Applicants should not submit separate applications for combined sets of materials (also known as program suites, box sets, packages, or kits of materials) that are intended to be purchased and used together. If the program components within a box set are also available for separate purchase, applicants seeking approval for the box set as well as the individual program components should apply for each of the standalone program components, as well as the box set. Applicants should ensure that their applications clearly specify the set of materials that should be considered for approval. Materials that are packaged jointly but published separately by more than one eligible entity should submit a joint application if approval is sought for the package of materials.

Applicants are required to indicate in their application the individual grade levels, the materials address, and for which grade bands approval is sought. Materials are intended to be reviewed and approved for all grade levels within a grade band (kindergarten-grade 3).

Applicants of each approved assessment will be responsible for all contracts with individual districts, community schools, and STEM schools. The contracts between approved applicants and districts and schools must not conflict with the terms and requirements of Ohio law. Selection denotes approval only. No contract with the Department or any other entity is implied by approval selection.

Submission Requirements

OPTIONAL APPLICANT CHECKLIST

The Optional Applicant Checklist provides a checklist that may be used to ensure a complete application and that all required materials are submitted.

Technical Submission Requirements

TECHNICAL REPORT OR MANUAL

Every applicant must submit a technical report or manual for each assessment. Technical reports must include a discussion of the following as they apply to their instrument:

- Test development
- Test blueprint or equivalent
- Description of scoring method and standard setting
- Evidence of reliability
- Item difficulty
- Item discrimination
- Scoring reliability
- Item calibration
- Item fit
- Bias (e.g., differential item functioning, description of method for detection and elimination of bias)
- Evidence of validity for each of the intended purposes
- Appropriate interpretation of scores
- A description of the IRT model used
- Evidence that resulting scores are equivalent across forms or test versions

CONTENT ALIGNMENT STUDY

A content alignment study must be provided for kindergarten through grade 3 diagnostic assessments. The study and its methodology must meet industry-standard practices for the demonstration of content alignment. See the Vendor Submission Tool for applicable requirements. A third-party independent alignment study is required. The alignment study must include the following:

- A description of the range of knowledge within Ohio's Learning Standards to which alignment is referenced
- A description of the methodology used to determine content alignment

TEST BLUEPRINT

Test blueprints or the equivalent (such as an item selection method) are required for each grade level from kindergarten through grade 3. Requirements for test blueprints or the equivalent are detailed in the Vendor Submission Tool and are expected to address the following:

- Provides a blueprint describing the item distribution by content and item type; complexity; number of items (i.e., overall and by reporting criteria); scoring and reporting of results, and any tools required/allowed for use by students for up to three test administrations in a single school year

- Provides a description of the range of knowledge (e.g., state standards, curricular framework) to which alignment is referenced
- Provides recommendations on who should score the assessment as appropriate and relevant (e.g., vendor scored, locally scored, qualifications of scorers)
- Beginning of Year (BOY) assessment aligns to end-of-prior-year expectations based on Ohio PreK-2 Learning Standards for Mathematics (see Appendix A of the RFQ)
- Demonstrates how the content aligns with BOY foundational skills in the Ohio Learning Standards for Mathematics in the areas of:
    - Counting and Cardinality (applicable to kindergarten only)
    - Number and Operations in Base Ten
    - Numbers and Operations – Fractions (applicable to grade 3 only)
    - Operations and Algebraic Thinking
    - Geometry
    - Measurement and Data
- Based on the diagnostic blueprint, the assessments show a similar range of cognitive measures as shown on the Ohio State Tests in Mathematics in Grades 3 and above.
- Contains a detailed description of grade level standards assessed across the domains of:
    - Counting and Cardinality (applicable to kindergarten only)
    - Number and Operations in Base Ten
    - Numbers and Operations – Fractions (applicable to grade 3 only)
    - Operations and Algebraic Thinking
    - Geometry
    - Measurement and Data
- The vendor provides evidence that the instrument assesses each of the Key Assessment Areas (also listed in Appendix A)

Test Administration Manual

Applicants must provide a test administration manual. This manual should include information regarding the testing window (if pertinent), specific details regarding how the test is to be administered (e.g., online, paper and pencil, time required for administration), and by whom (e.g., trained or otherwise specially qualified test administrators). The following represent some best practices in test administration:

- Students have enough time to complete the assessment
- The assessment includes clear directions for students
- Describes how the assessment accommodates students with disabilities, including dyscalculia and low-incidence needs
- Systematic administration procedures are provided, along with training and/or resources for those who administer the assessment
- Training is provided to ensure consistent use when rubric or other scoring guidelines exist
- There is a suggested protocol to ensure that teachers would not be grading assessments of their own students
- Identify any tools required/allowed for use by students during test administration
- A suggested protocol ensures that multiple scorers are recommended for items that are not selected response items

DESCRIPTION OF TEST SECURITY MEASURES

Security measures have two aims. First, they must be adequate to protect the integrity of the assessment instrument and all forms and administrations. Second, per ORC 3301.0714 and the Family Educational Rights and Privacy Act (FERPA, 34 CFR Part 99), standards must be met for strict safeguards to protect the confidentiality of personally identifiable student data.

A description of test security measures may be included within the Test Administration Manual. If it is not, a separate document must be submitted providing evidence of measures to address assessment security, threat assessment, and/or test/item exposure. Documentation must include the following:

- Descriptions of the safeguard measures to ensure confidentiality of any personally identifiable student data that the vendor has access to during test administration, scoring, and reporting (as applicable).
- Measures to prevent inappropriate access to forms in advance of administration for tests using forms.
- Methods to prevent advanced or excessive item exposure for tests that are computer-adaptive or generated (particularly those allowing multiple or on-demand administration). For example, provide evidence that forms/items are not reused in a six-month period.
- Provide evidence that resulting scores are equivalent across forms or computer-produced test versions, per the Testing Standards.
- Demonstrated security measures to prevent access to test forms in advance of administration (for tests having fixed forms) or methods to prevent advance or excessive item exposure for tests that are computer-adaptive or generated, particularly those allowing multiple or on-demand administrations.
- Agreement to make blank copies of diagnostic assessments publicly available.

SAMPLE TEST FORMS WITH SAMPLE TEST ITEMS AND SCORE REPORT(S)

Sample score reports must contain only nonidentifiable student information. Sample reports must include associated guidance on assessment score interpretation. Reports should include summaries at the district, classroom, grade, and school levels, along with other reports and comparisons as appropriate. Sample items should reflect content areas and grade levels as appropriate and demonstrate content alignment and either depth of knowledge or cognitive demand.

Review Process

TECHNICAL REVIEW

The internal technical review is unscored, but it confirms that all application materials have been submitted to allow for the appropriate quality review to occur. The technical review includes a review for compliance with the submission guidelines.

All eligible entities must submit a completed application that includes the following information:

- Program information and applicant contact information
- Attestation of understanding of submission requirements for the Department's approved diagnostic assessment

CAPABILITY

- Services needed to reasonably support the needs of LEAs (training and professional development as needed to administer assessment and interpret results, ongoing communication and support available during test administration).
- Organizational structure for service delivery (location, supervision, staff) to allow LEAs to make informed decisions.
- History of producing assessment instruments supported by three references for whom it has provided similar services in the past.
- Evidence of strict safeguards to protect the confidentiality of personally identifiable student data, as required by FERPA and ORC 3301.0714.

EFFECTIVENESS

- Addresses the ability to develop and modify the assessment based on the unique needs of partnering schools, including, but not limited to, accommodations for student disabilities, including dyscalculia, low-incident disabilities, and complex communication needs, or other student impediments to testing (such as language) ***Note*:** Assessments that screen for risk of dyscalculia must include accommodations for students with the most significant cognitive disabilities.
- Detailed description of the ability to support districts in administering assessments as modified above.

ADMINISTRATION, SCORING, AND REPORTING

- Description of the assessment administration protocol, including what constitutes a testing irregularity.
    - The administration protocol must allow a test administrator unfamiliar with the assessment to understand and administer the assessment in an appropriate and standardized manner.
- Description of administrator training needs and adequately describes how any necessary administrator training will be provided.
- Suggested timeline, including recommended testing windows, for how the diagnostic can be administered up to three times per school year, and the alignment with needs/expectations for the specific approval being sought.
- Identify the time allowed for a student to complete the assessment.
    - If not timed, the expected time needed to be completed by subgroups of students is provided.

- Documentation for use of assessment with student subgroups to allow LEAs to make informed decisions regarding suitability for their populations (e.g., suitability of the assessment for English learners; availability of assessment in non- English languages and comparability of results from non-English forms to the English version; suitability of the assessment for students with disabilities including dyscalculia and low-incident disabilities and complex communication needs; suitability of the assessment for gifted students; and associated administration protocols).
- Commitment to timely scoring and reporting, including a timeline for when student scores will be available following each administration (up to 3 administrations per school year).
    - Identify whether there are specific deadlines and windows associated with any assessment uses.
- Provides resources for parents and guardians to understand their student's score and recommendations for how to support students in mathematics at home based on their results.
- Describe any technology requirements, including assistive technologies for students with specific testing needs, associated with each proposed assessment.
- Provide recommendations for who should score the assessment as appropriate and relevant (e.g., vendor scored, locally scored, qualifications of scorers).
- Provides evidence that students are likely able to successfully perform mathematics computations and applications of concepts aligned to the Ohio Learning Standards for Mathematics.
- Assessments must provide scores equivalent to either "on track" or "not on track" in kindergarten through grade 3. First diagnostic assessment administration should occur no later than Sept. 30 of each school year.
- Provide sufficient detail on sub scores to help teachers interpret data and adjust instruction based on students' strengths and weaknesses in relation to grade-level mathematics standards to inform instruction following each administration of the diagnostic.
- At a minimum, details must include alignment to:
    - Counting and Cardinality (applicable to kindergarten only)
    - Number and Operations in Base Ten
    - Numbers and Operations – Fractions (applicable to grade 3 only)
    - Operations and Algebraic Thinking
    - Geometry
    - Measurement and Data
- Provide scores to indicate a student may be at risk for difficulty in mathematics in each of the assessed areas.
- If the diagnostic is administered multiple times in a school year, this will need to be provided after each administration to guide instruction and intervention.
- Provides professional learning or training to prepare educators to be able to use the data collected from the diagnostics to drive instruction.

Interested applicants are encouraged to apply well in advance of the requested date to allow for sufficient time to access the submission link before the application deadline and to allow the Department to adequately plan for the review process.

PROGRAM MATERIALS ACCESS

Applicants may provide access to diagnostic assessment materials as an additional submitted PDF document, as noted on the application document. Alternatively, applicants are permitted to indicate on their application where reviewers can access materials through the program's digital platform (if applicable). Log-in information, including a username and password, must be provided on the application if providing digital materials access and will be verified for review. Applicants should ensure that this login permits anonymous access for reviewers for up to six months.

Note: Online program access may **only** be provided through the program's digital platform hosted by the applicant. Document storage or retrieval platforms such as Google or Dropbox are not acceptable submissions for program materials. If a program does not have a digital platform, all program materials must be provided in PDF format through the submission portal.

Note: Incomplete submissions or applications may not be considered. Submission of the application or passing of the technical review does not guarantee programs will be approved for inclusion on the approved diagnostic assessment list. Programs must meet the criteria outlined in the RFQ under the program application and review for inclusion on the approved list. Applicants will be notified of materials' approval to move on to the quality review phase.

QUALITY REVIEW

All complete and timely submissions will be evaluated by at least two qualified readers for content and two technical reviewers identified by the Department, using the Kindergarten-Grade 3 Mathematics Diagnostic Scoring Criteria. Reviewers will review submitted materials and documentation in the scoring and review process.

Applications that proceed to the quality review will be evaluated using Ohio's Kindergarten-Grade 3 Mathematics Diagnostic Scoring Criteria, which includes the criteria identified in the Vendor Submission Tool. Materials will be evaluated on the Kindergarten-Grade 3 Mathematics Diagnostic Scoring Criteria, based on the grade band category requested for review on the application.

Reservation of Rights

The Department reserves the right to:

- Reject any or all proposals received in response to or application to this RFQ
- Withdraw the RFQ at any time
- Disqualify any vendor for failing to conform to the requirements of the RFQ
- During the application period, amend the RFQ specifications to correct errors or oversights, or to supply additional information, as it becomes available
- During the application period, direct vendors submit application modifications addressing subsequent RFQ amendments
- Change any of the scheduled dates

- Waive any requirements in this RFQ
- Require clarification at any time during the application process and/or require correction of errors to assure a full and complete understanding of a vendor's application and/or to determine a vendor's compliance with the requirements of the RFQ
- Prioritize evaluation and/or approval of certain submissions
- Request accurate and current estimates of vendor costs
- Post cost estimates for approved vendors on the Department's website
- Remove a vendor from the approved list of diagnostic assessments in mathematics for inability to meet the Department's expectations
- Re-evaluate approval or request other documentation during or after the approval process
- Suspend or revoke approval after the approval process, with or without cause, by giving written notice to the vendor
- Evaluate and modify future processes for determining Department-approved assessment lists

Confidential, Proprietary, and Trade Secret Information

The Department solicits information through this RFQ in a transparent manner and in accordance with the laws of the State of Ohio. All responses provided to the Department become records of the Department and, as such, will be open to inspection by the public after receiving an award unless exempt from disclosure under law. If an applicant believes information in its proposal is a trade secret, as defined in ORC 1333.61, the information must be marked as such by underlining the information and notating it with asterisks. Because the applicant is in a better position to know which information may be a trade secret, the applicant's marking of such information will aid the Department in its review of the documents when responding to a request for public records under Ohio law. The Department has the sole discretion in redacting information in response to public records requests pursuant to ORC 149.43.

Vendor Responsibilities Upon Approval

OVERVIEW OF SERVICES TO BE POSTED

If approved, each vendor must provide a public information summary of services for posting on the Department's website by completing the Assessment Information Form. The link to the form will be provided to vendors of approved assessments to submit this information online.

COST INFORMATION

If approved, vendors will be asked to provide a link or other up-to-date contact information for use by districts in evaluating any costs associated with assessments under consideration for purchase. This information should be provided in the Assessment Information Form and will be published as part of the summary of services on the Department's website to inform districts as they evaluate their assessment options.

APPLICATION AND REVIEW CYCLES

The Department anticipates conducting review cycles every five years for new product(s) or material(s), with the next full review cycle occurring during the 2030-2031 school year. Future application and review cycles will be noted on the Department's List of Approved Assessments webpage.

SERVICE PROVIDER ASSURANCES AND SIGNATURE

The Service Provider Assurances must be completed and signed.

ADDITIONAL VENDOR RESPONSIBILITIES

Continued approval on the Department's approved list of math diagnostic assessments is contingent upon satisfactory fulfillment of the following responsibilities:

- Submission of an annual report to the Department that includes, but is not limited to, the following: Names and IRN# of districts and community schools who use the assessment, percentage of students considered "on-track" and "not on-track" by district and community schools using the assessment during the school year (beginning of year, middle of year, and end of year), total number of K-3 students who were administered the assessment, total number of students within each district and school who used each assessment, and the predictive validity of the beginning of year scores and proficiency on Ohio's State Test for grade 3 Mathematics.
- Provide written notification to the Department of any substantive changes to the assessment by December 31 of each calendar year. Substantive changes include but are not limited to the following: Re-norming of the assessment; changes to composite scores, percentiles, or performance levels; changes to skills being assessed; changes of which subtests or skills are used in the composite score/percentile/performance level; changes to test administration mode.
- Immediately disclose to the Department in writing technical difficulties, security breaches, or issues encountered while administering the assessment to Ohio districts and schools.
- Immediately disclose to the Department in writing any changes to vendor representative contact information for the Department and Ohio districts and schools.
- Participation in all meetings requested by the Department.
- Quality and timely communication, technical assistance, and customer service for client districts, community schools, and the Department.
- Confirm assessment cut scores, percentiles, or performance levels before December 31 of each school year.
- Maintain a satisfactory level of customer service and technical support to Ohio districts and schools as determined by department-administered surveys, focus groups, feedback from districts and schools, and other criteria determined by the Department.
- The vendor submits a yearly Application for Continued Approval.
- The vendor submits a yearly assessment information form (supplied by the Department); to ensure updated contact and cost information for districts.
- Vendor meets all Department requests for information and reports in a timely manner.

Failure to meet any of the aforementioned responsibilities may lead to revocation of the assessment's approval by the Department.

Definitions

To provide applicants with an understanding of the common language used in Ohio, the Department provides the following list of definitions.

Accommodations: Strategies or tools that facilitate equal access to instruction and instructional content for students with disabilities and may be used for both screening and instruction/intervention. These strategies or tools change how students access instruction or an assessment, but do not change the content of instruction or what the assessment measures.

Administration training: As defined by the *Standards for Educational and Psychological Testing*.

> *Note:* Assessments should be administered by individuals who have received the training appropriate to the particular assessment.

Assessment: Assessments measure how students are learning and progressing through standards, using both formative and summative assessments that are specific to the material taught to the students.

Cognitive demand: A scale used to measure content complexity or rigor required by a set of standards and aligned assessments.

Comprehension: The understanding and interpretation of what is read in written material or heard from speaking or read aloud.

Computer-based or online instruction: Instruction consists of lessons via software or a web-based platform where students receive instruction via interactive lessons and digital feedback.

Content alignment study: A study meeting industry-standard practices for the demonstration of content alignment, considering the range of knowledge and cognitive demand or depth of knowledge.

Core comprehensive program: High-quality instructional materials that are comprehensive in scope and aligned to Ohio's Learning Standards for Mathematics. The skills taught within and across grades are articulated in a clear scope and sequence.

Core curriculum and instructional materials: High-quality instructional materials used within the general education setting to provide instruction to all students, through either a core comprehensive program or a coherent set of core and foundational skills programs.

Criterion-referenced: A type of assessment that measures a student's knowledge and performance in relation to a predefined set of criteria or standard body of knowledge.

Diagnostic: For the purposes of this RFQ, and as referenced throughout Ohio Revised Code, a "diagnostic" is synonymous with the concept of Universal Screening. Universal Screening is a process that involves administering measures to all students to identify students who are at risk for future difficulties and thus should be considered for prevention or early intervention services. Universal screening data can also be used to assess the overall effectiveness of the academic instruction in meeting the needs of students.

Delivery method: The primary method or means by which the instruction is delivered to students. These methods may include teacher-directed instruction, computer-based instruction, online instruction, or a combination of these approaches.

Depth of knowledge (DOK): A scale used to measure content complexity or rigor required by a set of standards and aligned assessments. See the levels detailed here.

Dyscalculia: A neurologically based specific learning disability (SLD) that affects a person's ability to understand, learn, and perform math and number-based operations.

Evidence-based: Programs, strategies, and activities for mathematics instruction that are rooted in practices that have been evaluated and proven to improve student outcomes.

Explicit instruction: A teacher-directed and systematic approach to instruction that includes specific components of delivery and design, including but not limited to modeling of previous step-by-step demonstrations, clear language, adequate range of examples, frequent student responses, monitoring of student progress, feedback to students, and multiple practice opportunities, both guided and independent. This includes in-lesson or within-unit, and cumulative practice. It does not make assumptions that learners will acquire skills and knowledge on their own without any instructional support(s).

Fluency: The ability to use efficient, accurate, and flexible methods for computing. Fluency does not imply timed tests.

Foundational Skills: Instruction aligned to Ohio's Learning Standards for Mathematics for grade-level-appropriate foundational mathematics skills, including:

- Counting and Cardinality (applicable to kindergarten only)
- Number and Operations in Base Ten
- Numbers and Operations – Fractions (applicable to grade 3 only)
- Operations and Algebraic Thinking
- Geometry
- Measurement and Data

Grade-level appropriate: Relating to the connection of taught skills, concepts, and learning activities to the grade-level specific standards within Ohio's Learning Standards for Mathematics.

IEP: Individualized Education Program for students with disabilities, as required under the Individuals with Disabilities Education Act (IDEA) and defined in ORC 3323.011 and Ohio Administrative Code (OAC) 3301-51-01(A)(32), that specifies individually determined accommodations, goals, and student supports required for assessments.

Instructional routines: A predictable, consistent, repetitive set of practices that provide structure to maximize learning time and aid in classroom management.

Local Educational Agency (LEA): A public board of education or other public authority of a city, exempted village, local school district, joint vocational school district (JVSD), community (charter) school; science, technology, engineering, and mathematics (STEM) school, state-supported school, or chartered nonpublic school in the State of Ohio.

Low Incidence Disabilities: Visual or hearing impairments (including deaf-blindness), significant cognitive impairments, or any disability requiring highly specialized personnel to provide appropriate educational services.

Norm-referenced: A type of assessment that measures a student's knowledge and performance in relation to that of other students, typically students of the same age or grade.

Ohio's Learning Standards for Mathematics: Revised and adopted in 2017, these are the state content standards that determine what should be taught and what progress should be made by the end of the grade level the standard is assigned to.

Operator (ORC 3314.02(A)(8)): An operator or management company means either of the following:

a) An individual or organization that manages the daily operations of a community school pursuant to a contract between the operator or management company and the school's governing authority; or
b) A nonprofit organization that provides programmatic oversight and support to a community school under a contract with the school's governing authority and that retains the right to terminate its affiliation with the school if the school fails to meet the organization's quality standards

Range of knowledge: The span of knowledge required by a set of content standards to which an assessment instrument aligns.

Reliability: The overall consistency of a measure under consistent conditions.

Research-based: Instructional practices, strategies, or approaches that are based on research but have not yet been tested for evidence of student outcomes.

Scope and sequence: A scope and sequence provides a list of instructional skills and concepts, in the sequence in which they should be taught.

Substantive Changes: Changes to an approved assessment that require notification and approval by the Department. These changes include, but are not limited to, the following: Re-norming of the assessment; changes to composite scores, percentiles, or performance levels, changes to skills being assessed, changes to which subtests or skills used to in the composite score/percentile/performance level; changes to test administration mode~~l~~; changes to whether a composite score is alpha or numeric.

Teacher: A person leading instruction using the core curriculum and instructional materials.

Vendor: An individual, corporation, tax-exempt or nonprofit organization, limited liability company, partnership, association, or institution of higher education that is engaged in the business of producing and selling, offering for sale, or negotiating the sale of assessments for purchase and/or use by a consumer, such as a school district or community school.

Links to External Resources and Materials

- Document Upload (Available in MyApps via MyOhio)
- Service Provider Assurances
- Vendor Submission Tool Instructions
- Optional Applicant Checklist

Appendices

Appendix A: K-3 Mathematics Diagnostic Beginning of the Year (BOY) Assessment Crosswalk

Diagnostic assessments can be administered up to three times per school year. Regardless of the number of administrations, the first administration or a beginning-of-the-year (BOY) assessment should occur no later than September 30 of each school year. This crosswalk document identifies the foundational concepts and mathematical topics appropriate for a BOY diagnostic assessment in kindergarten through grade 3. These mathematical topics align with end-of-prior-year expectations for learning based on Ohio's Pre-Kindergarten through Grade 2 Learning Standards and connect directly to foundation concepts that students will further explore during grade-level instruction over the school year.

Mathematical Topic	Foundational Concept	Ohio Learning Standard for Mathematics (2017)
Kindergarten		
Recites or signs the numbers one to 20 accurately.	**Know number names and the count sequence.**	**K.CC.1:** Count to 100 by ones and by tens.
Name some written numerals one to 10.	**Know number names and the count sequence.**	K.CC.3: Write numerals from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).
Understands that the last number spoken tells the number of objects counted.	**Count to tell the number of objects.**	**K.CC.4:** Understand the relationship between numbers and quantities; connect counting to cardinality using a variety of objects, including pennies. **a.** When counting objects, establish a one-to-one relationship by saying the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object. **b.** Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted. **c.** Understand that each successive number name refers to a quantity that is one larger.

Mathematical Topic	Foundational Concept	Ohio Learning Standard for Mathematics (2017)
Kindergarten		
Identifies without counting small quantities of up to five items.	**Count to tell the number of objects.**	K.CC.5: Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle; or as many as 10 things in a scattered configuration; given a number from 1-20, count out that many objects.
Adds and subtracts within a total set of up to six concrete objects.	**Understand addition as putting together and adding to and understand subtraction as taking apart and taking from.**	**K.OA.2:** Solve addition and subtraction problems (written or oral), and add and subtract within 10 by using objects or drawings to represent the problem.
Order objects according to observable differences in their attributes (e.g., biggest to smallest).	**Identify, describe, and compare measurable attributes.**	K.MD.1: Identify and describe measurable attributes (length, weight, and height) of a single object using vocabulary terms such as long/short, heavy/light, or tall/short.
Recognizes, duplicates, and extends simple patterns (i.e., ABAB) using attributes such as color, shape, or size.	**Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).**	**K.G.1:** Identify and describe measurable attributes (length, weight, and height) of a single object using vocabulary terms such as long/short, heavy/light, or tall/short.
Shows understanding of positions in space by using position words (prepositions) and by following directions from an adult.	**Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).**	K.G.1: Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as above, below, beside, in front of, behind, and next to.
Recognize shapes of different sizes and orientations.	**Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).**	**K.G.2:** Correctly name shapes regardless of their orientations or overall size.
Sorts and classifies objects by one or more attributes (e.g., color, size, shape).	**Describe, compare, create, and compose shapes.**	**K.G.4:** Describe and compare two- or three-dimensional shapes, in different sizes and orientations, using informal language to describe their commonalities, differences, parts, and other attributes.

Mathematical Topic	Foundational Concept	Ohio Learning Standard for Mathematics (2017)
Kindergarten		
Compares shapes of different sizes and orientations.	**Describe, compare, create, and compose shapes.**	**K.G.4:** Describe and compare two- or three-dimensional shapes, in different sizes and orientations, using informal language to describe their commonalities, differences, parts, and other attributes.
Use shapes to create objects or pictures.	**Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).**	**K.G.6:** Combine simple shapes to form larger shapes

Mathematical Topic	Foundational Concept	Ohio Learning Standard for Mathematics (2017)
Grade 1		
Compose and decompose numbers from 11 to 19 into a group of ten ones and some further ones by using objects and, when appropriate, drawings or equations; understand that these numbers are composed of a group of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.	**Extend the counting sequence.**	**1.NBT.1:** Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral. **1.OA.5:** Relate counting to addition and subtraction, e.g., by counting on 2 to add 2.
Compose and decompose numbers from 11 to 19 into a group of ten ones and some further ones by using objects and, when appropriate, drawings or equations; understand that these numbers are composed of a group of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.	**Understand place value.**	**1.NBT.2:** Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases: 10 can be thought of as a bundle of ten ones - called a “ten;” the numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones; and the numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).
Solve addition and subtraction problems (written or oral) and add and subtract within 10 by using objects or drawings to represent the problem.	**Represent and solve problems involving addition and subtraction.**	**1.NBT.4:** Add within 100, including adding a two-digit number and a one-digit number and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; record the strategy with a written numerical method (drawings and, when appropriate, equations) and explain the reasoning used. Understand that when adding two-digit numbers, tens are added to tens; ones are added to ones; and sometimes it is necessary to compose a ten.

Mathematical Topic	Foundational Concept	Ohio Learning Standard for Mathematics (2017)
Grade 1		
		1.OA.1: Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem. **1.OA.6:** Add and subtract within 20, demonstrating fluency with various strategies for addition and subtraction within 10. Strategies may include counting on; making ten, e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14; decomposing a number leading to a ten, e.g., 13 − 4 = 13 − 3 − 1 = 10 − 1 = 9; using the relationship between addition and subtraction, e.g., knowing that 8 + 4 = 12, one knows 12 − 8 = 4; and creating equivalent but easier or known sums, e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13.
Describe and compare two- or three- dimensional shapes, in different sizes and orientations, using informal language to describe their commonalities, differences, parts, and other attributes.	**Reason with shapes and their attributes.**	**1.G.2:** Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape. Students do not need to learn formal names such as "right rectangular prism."

Mathematical Topic	Foundational Concept	Ohio Learning Standard for Mathematics (2017)
Grade 1		
Identify and describe measurable attributes (length, weight, and height) of a single object using vocabulary terms such as long/short, heavy/light, or tall/short. Directly compare two objects with a measurable attribute in common to see which object has "more of" or "less of" the attribute and describe the difference. For example, directly compare the heights of two children and describe one child as taller/shorter.	**Measure lengths indirectly and by iterating length units.**	**1.MD.1:** Order three objects by length; compare the lengths of two objects indirectly by using a third object. **1.MD2:** Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.
Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases: 10 can be thought of as a bundle of ten ones - called a "ten;" the numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones; and the numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).	**Understand place value.**	**2.NBT.1:** Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones, e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases: **a.** 100 can be thought of as a bundle of ten tens — called a "hundred." The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).
Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.	**Understand place value.**	**2.NBT.2:** Count forward and backward within 1,000 by ones, tens, and hundreds starting at any number; skip-count by 5s starting at any multiple of 5.
Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <.	**Understand place value.**	**2.NBT.4:** Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons.

Mathematical Topic	Foundational Concept	Ohio Learning Standard for Mathematics (2017)
Grade 1		
Add within 100, including adding a two-digit number and a one-digit number and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; record the strategy with a written numerical method (drawings and, when appropriate, equations) and explain the reasoning used. Understand that when adding two-digit numbers, tens are added to tens; ones are added to ones; and sometimes it is necessary to compose a ten.	**Use place value understanding and properties of operations to add and subtract.**	**2.NBT.5:** Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction. **2.NBT.6:** Add up to four two-digit numbers using strategies based on place value and properties of operations. **2.NBT.7:** Add and subtract within 1,000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; record the strategy with a written numerical method (drawings and, when appropriate, equations) and explain the reasoning used. Understand that in adding or subtracting three-digit numbers, hundreds are added or subtracted from hundreds, tens are added or subtracted from tens, ones are added or subtracted from ones; and sometimes it is necessary to compose or decompose tens or hundreds.
Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem. See Glossary, Table 1.	**Add and subtract within 20.**	**2.OA.1:** Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. See Glossary, Table 1.

Mathematical Topic	Foundational Concept	Ohio Learning Standard for Mathematics (2017)
Grade 1		
Solve word problems that call for the addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem. Drawings need not show details, but should show the mathematics in the problem. (This applies wherever drawings are mentioned in the Standards.)		**2.OA.2:** Fluently add and subtract within 20 using mental strategies. By end of grade 2, know from memory all sums of two one-digit numbers. See standard 1.OA.6 for a list of mental strategies.
Partition circles and rectangles into two and four equal shares, describe the shares using the words *halves, fourths,* and *quarters,* and use the phrases *half of, fourth of,* and *quarter of.* Describe the whole as two of or four of the shares in real-world contexts. Understand for these examples that decomposing into more equal shares creates smaller shares.	**Reason with shapes and their attributes.**	**2.G.2:** Partition a rectangle into rows and columns of same-size squares and count to find the total number of them. **2.G.3:** Partition circles and rectangles into two, three, or four equal shares; describe the shares using the words *halves, thirds,* or *fourths* and *quarters,* and use the phrases *half of, third of,* or *fourth of* and *quarter of.* Describe the whole as two halves, three thirds, or four fourths in real-world contexts. Recognize that equal shares of identical wholes need not have the same shape.
Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.	**Measure and estimate lengths in standard units.**	**2.MD.1:** Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes. **2.MD.2:** Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.

Mathematical Topic	Foundational Concept	Ohio Learning Standard for Mathematics (2017)
Grade 1		
Tell and write time in hours and half-hours using analog and digital clocks.	**Work with time and money.**	**2.MD.7:** Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.
Grade 2		
Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction. Add and subtract within 1,000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; record the strategy with a written numerical method (drawings and, when appropriate, equations) and explain the reasoning used. Understand that in adding or subtracting three-digit numbers, hundreds are added or subtracted from hundreds, tens are added or subtracted from tens, ones are added or subtracted from ones; and sometimes it is necessary to compose or decompose tens or hundreds.	**Use place value understanding and properties of operations to perform multi-digit arithmetic. A range of strategies and algorithms may be used.** **Use place value Understanding and properties of operations to perform multi-digit arithmetic. A range of strategies and algorithms may be used.**	**3.NBT.2:** Fluently add and subtract within 1,000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

Mathematical Topic	Foundational Concept	Ohio Learning Standard for Mathematics (2017)
Grade 2		
Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes. Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen. Estimate lengths using units of inches, feet, centimeters, and meters. Solve problems involving money and measurement and estimation of intervals of time, liquid volumes, and masses of objects.	**Solve problems involving money and measurement and estimation of intervals of time, liquid volumes, and masses of objects.** **Solve problems involving money and measurement and estimation of intervals of time, liquid volumes, and masses of objects.** **Solve problems involving money and measurement and estimation of intervals of time, liquid volumes, and masses of objects.**	**3.MD.2:** Measure and estimate liquid volumes and masses of objects using standard units of grams, kilograms, and liters. Add, subtract, multiply, or divide whole numbers to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem. Excludes multiplicative comparison problems involving notions of "times as much"; see Glossary, Table 2.
Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.	**Solve problems involving money and measurement and estimation of intervals of time, liquid volumes, and masses of objects.**	**3.MD.1:** Work with time and money. **a.** Tell and write time to the nearest minute. Measure time intervals in minutes (within 90 minutes). Solve real-world problems involving addition and subtraction of time intervals (elapsed time) in minutes, e.g., by representing the problem on a number line diagram or clock.
Solve word problems by adding and subtracting within 100, dollars with dollars and cents with cents (not using dollars and cents simultaneously) using the $ and ¢ symbols appropriately (not including decimal notation).	**Solve problems involving money and measurement and estimation of intervals of time, liquid volumes, and masses of objects.**	**3.MD.1:** Work with time and money. **b.** Solve word problems by adding and subtracting within 1,000, dollars with dollars and cents with cents (not using dollars and cents simultaneously) using the $ and ¢ symbol appropriately (not including decimal notation).

Mathematical Topic	Foundational Concept	Ohio Learning Standard for Mathematics (2017)
Grade 2		
Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends. Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.	**Geometric measurement: understand concepts of area and relate area to multiplication and to addition.** **Geometric measurement: understand concepts of area and relate area to multiplication and to addition.**	**3.MD.6:** Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).
Recognize and identify triangles, quadrilaterals, pentagons, and hexagons based on the number of sides or vertices. Recognize and identify cubes, rectangular prisms, cones, and cylinders.	**Reason with shapes and their attributes.**	**3.G.1:** Draw and describe triangles, quadrilaterals (rhombuses, rectangles, and squares), and polygons (up to 8 sides) based on the number of sides and the presence or absence of square corners (right angles).
Partition circles and rectangles into two, three, or four equal shares; describe the shares using the words *halves, thirds,* or *fourths* and *quarters,* and use the phrases *half of, third of,* or *fourth of* and *quarter of.* Describe the whole as two halves, three thirds, or four fourths in real-world contexts. Recognize that equal shares of identical wholes need not have the same shape.	**Reason with shapes and their attributes.**	**3.G.2:** Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. *For example, partition a shape into 4 parts with equal area, and describe the area of each part as $^1/4$ of the area of the shape.*