Assessment Instrument Table: ISIP Math

Element	Description	Assessment Instrument Information
Instrument Name	Name of specific instrument (more than vendor name).	ISIP Early Math ISIP Math
Vendor	Name of the company or organization that produces the instrument.	Istation (also known as Imagination Station, Inc.)
Purpose (Intended Use)	The described purpose and appropriate uses of the instrument. Identify any information about inappropriate uses.	ISIP Early Math and ISIP Math are designed to help inform teachers' instructional decision making and identify: • Students struggling to learn critical mathematics content • If students have deficits in mathematics that could place them at risk for failure • If instruction is having the desired effect of raising students' math knowledge • If students are making progress in comprehending increasingly challenging material
Population	Who (which students) could be assessed	ISIP Early Math is available for all students in grades Pre-Kindergarten through 1st grade. ISIP Math is available for students in grades 2 to 8. These assessments are available in English.

	using the instrument.	
Administration	How frequently the instrument can be administered in a school year, and recommended or required administration windows.	ISIP Early Math and ISIP Math are built to automatically assess students with a short adaptive test **once a month**. These scores can give the total picture with BOY, MOY, and EOY screener scores, and progress monitoring helps give more formative information. However, a teacher can set additional tests for students who are receiving additional instruction to monitor them. The teacher can set the additional progress monitoring at intervals of their choosing, such as **every two weeks or every week**.
Content Area (s)	Content area or areas being assessed.	While many of today's available assessments focus on limited aspects of mathematical procedural fluency, ISIP Math assesses four of the five critical math strands, including conceptual understanding and adaptive reasoning. Also measured is proficiency in the six primary domains of mathematical reasoning and processes defined by the ***National Council of Teachers of Mathematics (NCTM).***

Critical Strands of Proficiency of Cognitive Engagement			
Strategic Competence	Adaptive Reasoning	Procedural Fluency	Conceptual Understanding
Primary Domains of Mathematical Reasoning and Processes			
Number Sense	Measurement	Algebra	Probability and Statistics
Operations	Geometry	Data Analysis	Ratios and Proportional Relationships

Learning Objectives	Specific learning objectives being assessed, at as detailed a level as is provided. This may be "topics" or categories or may be actual learning objective statements.	**Number Sense-** The fundamental basis of all mathematics is understanding numbers and having awareness of the relationships among numbers. Students must be taught to recognize how numbers are represented as well as number systems and counting sequences. Developing a strong foundation in this domain is the most fundamental content standard. **Operations.** Comprehension of mathematical operations, concepts, and relations is critical to developing an understanding of number value and sequence. In early childhood, for example, what does it mean to add or subtract? In subsequent grades, what does it mean to multiply and divide? How do these functions impact value? The ability to estimate and perform mental calculations as well as calculate answers on paper are both crucial components to achieving success in math. **Measurement.** Measurement skills are unique in that students often inherently recognize their practical significance. Comprehension of measurement also provides many opportunities to practice and apply many other math skills, especially geometry and operations. Students must learn about different systems of measurements (metric vs. customary), formulae for calculating measurements (length/height, area/perimeter, weight/capacity/volume), application of appropriate tools (ruler vs. protractor), and dimensions of time and money. **Geometry.** The ultimate goal of geometry is to arm students with foundational skills to accomplish everyday tasks such as describing shapes and angles, recognizing patterns and measurements, and even reading a map. The geometry concepts that must be taught to encourage student achievement in geometry include but are not limited to: • Calculating area and perimeter of two-dimensional geometric shapes; • Analyzing volume, surface area, and other properties of three-dimensional geometric shapes; • Constructing equations and statements to describe geometric relationships; • Characterizing spatial relationships and using coordinates to identify location; and • Applying spatial reasoning, geometric modeling, and concepts of symmetry to mathematical contexts.

Data Analysis. Beyond number recognition and operational aptitude, students must be able to form and evaluate numerical inferences and then formulate accurate mathematical conclusions. The analytical math concepts that all students in early childhood and elementary grades should learn include, but are not limited to:

- Reading, creating, and interpreting graphs and charts;
- Devising and answering formulaic expressions using collected and organized data;
- Analyzing data by recognizing appropriate statistical models; and
- Comprehending and executing basic probability concepts.

Algebra - Students must be able to comprehend statements of relations, mathematical symbols, and rules for ordering and executing computations using them. The skills related to algebra that all students must learn include, but are not limited to:

- Recognizing and comprehending numerical patterns, relationships, and functions;
- Applying mathematical constructs to explain quantitative relationships;
- Illustrating computational examples using algebraic symbols; and,
- Evaluating variance in mathematical situations.

Levels of Cognitive Engagement (Depth of Knowledge)

ISIP Math is unique in its inclusion of the critical strands and its ability to measure student capabilities. Plus, each assessment is populated with grade-level and age-appropriate contexts, ensuring that students see the problems as relevant and interesting.

Strategic Competence. Ability to formulate, represent, and solve mathematical problems. For example, in which instance of a problem should I use multiplication? In which instance division or subtraction? What are the efficient strategies for executing multiplication?

Adaptive Reasoning. Capacity for logical thought, reflection, explanation, and justification. For example, how do I verify my answers? How do I justify my choice of strategy?

		Procedural Fluency. Skill in carrying out procedures flexibly, accurately, efficiently, and appropriately. For example, how do I add or subtract numbers? What's the process for multiplying two-digit numbers **Conceptual Understanding.** Comprehension of mathematical concepts, operations, and relations. For example, what does it mean to multiply or divide? How does that impact value?
Individual Metrics	The scores provided at the individual (student) level.	• **Ability Index-** score that provides an estimate of a student's **breadth of understanding** across mathematical content within grade level and their **depth of knowledge** in the four strands of cognitive engagement in mathematics. • Response to Intervention **Tier Level**- normative grouping based on indices associated with the 20th and 40th percentiles. These tiers are used to guide educators in determining the level of instruction for each student. That is, students classified as: **Tier 1** (40th percentile and above) are on track and performing at grade level. **Tier 2** (between 21st and 39th percentile) are at some risk, are performing moderately below grade level, and are in need of intervention. **Tier 3** (20th percentile and below) are at risk, are performing seriously below grade level, and are in need of intensive intervention.

Growth – defined as an increased change in the student's ISIP score and improvement in ability over time. District, school, and student growth can be viewed on various ISIP Math reports.

ISIP Math also provides **Quantile Measures** –Istation has partnered with MetaMetrics, developer of the widely adopted Quantile Framework for Mathematics to link student math ability scores from ISIP to the Quantile scale. Students are given a Quantile measure each time they take an ISIP math assessment.

Domain level scores will be available in the 2019-2020 school year, and they are currently under construction.

Individual Comparison Points (cut scores)	**Information provided regarding how good is good enough performance on the instrument at the individual student level. Comparison information should be available for every individual metric. This may be performance level ratings with specific cut scores.**	**Instructional Tier Goals -- The objective of ISIP™ is to identify students potentially at risk of math failure. The student's overall math ability index is used as the dividing line to determine students potentially at risk. Goals and criteria become progressively more difficult with each assessment period.** **Description of Instructional Tiers** • **Tier 1: Students performing at grade level** • **Tier 2: Students performing moderately below grade level and in need of intervention** • **Tier 3: Students performing seriously below grade level and in need of intensive intervention** **Early** Math and Math (Overall) Pre-Kindergarten

Assessment Month	Overall Math		
	Tier 3	Tier 2	Tier 1
August	< 1830	1830-1900	> 1900
September	< 1830	1830-1900	> 1900
October	< 1830	1830-1900	> 1900
November	< 1836	1836-1918	> 1918
December	< 1859	1859-1952	> 1952
January	< 1887	1887-1991	> 1991
February	< 1893	1893-2012	> 2012
March	< 1929	1929-2060	> 2060
April	< 1954	1954-2079	> 2079
May	< 1984	1984-2109	> 2109
June	< 1984	1984-2109	> 2109
July	< 1984	1984-2109	> 2109

Kindergarten

Assessment Month	Overall Math		
	Tier 3	Tier 2	Tier 1
August	< 1799	1799-1898	> 1898
September	< 1799	1799-1898	> 1898
October	< 1816	1816-1932	> 1932
November	< 1845	1845-1973	> 1973
December	< 1873	1873-2005	> 2005
January	< 1891	1891-2027	> 2027
February	< 1911	1911-2047	> 2047
March	< 1948	1948-2083	> 2083
April	< 1959	1959-2095	> 2095
May	< 1993	1993-2137	> 2137
June	< 1993	1993-2137	> 2137
July	< 1993	1993-2137	> 2137

First Grade

Assessment Month	Overall Math		
	Tier 3	Tier 2	Tier 1
August	< 1767	1767-1861	> 1861
September	< 1767	1767-1861	> 1861
October	< 1786	1786-1889	> 1889
November	< 1833	1833-1941	> 1941
December	< 1859	1859-1980	> 1980
January	< 1879	1879-2007	> 2007
February	< 1900	1900-2045	> 2045
March	< 1926	1926-2078	> 2078
April	< 1937	1937-2086	> 2086
May	< 1974	1974-2121	> 2121
June	< 1974	1974-2121	> 2121
July	< 1974	1974-2121	> 2121

Second Grade

Assessment Month	Overall Math		
	Tier 3	Tier 2	Tier 1
August	< 1769	1769-1848	> 1848
September	< 1769	1769-1848	> 1848
October	< 1769	1769-1848	> 1848
November	< 1769	1769-1848	> 1848
December	< 1814	1814-1898	> 1898
January	< 1814	1814-1898	> 1898
February	< 1814	1814-1898	> 1898
March	< 1866	1866-1966	> 1966
April	< 1866	1866-1966	> 1966
May	< 1866	1866-1966	> 1966
June	< 1866	1866-1966	> 1966
July	< 1866	1866-1966	> 1966

Third Grade

Assessment Month	Overall Math		
	Tier 3	Tier 2	Tier 1
August	< 1710	1710-1800	> 1800
September	< 1710	1710-1800	> 1800
October	< 1710	1710-1800	> 1800
November	< 1710	1710-1800	> 1800
December	< 1764	1764-1855	> 1855
January	< 1764	1764-1855	> 1855
February	< 1764	1764-1855	> 1855
March	< 1828	1828-1926	> 1926
April	< 1828	1828-1926	> 1926
May	< 1828	1828-1926	> 1926
June	< 1828	1828-1926	> 1926
July	< 1828	1828-1926	> 1926

Fourth Grade

Assessment Month	Overall Math		
	Tier 3	Tier 2	Tier 1
August	< 1784	1784-1888	> 1888
September	< 1784	1784-1888	> 1888
October	< 1784	1784-1888	> 1888
November	< 1784	1784-1888	> 1888
December	< 1809	1809-1917	> 1917
January	< 1809	1809-1917	> 1917
February	< 1809	1809-1917	> 1917
March	< 1861	1861-1990	> 1990
April	< 1861	1861-1990	> 1990
May	< 1861	1861-1990	> 1990
June	< 1861	1861-1990	> 1990
July	< 1861	1861-1990	> 1990

Fifth Grade

Assessment Month	Overall Math		
	Tier 3	Tier 2	Tier 1
August	< 1769	1769-1858	> 1858
September	< 1769	1769-1858	> 1858
October	< 1769	1769-1858	> 1858
November	< 1769	1769-1858	> 1858
December	< 1783	1783-1874	> 1874
January	< 1783	1783-1874	> 1874
February	< 1783	1783-1874	> 1874
March	< 1823	1823-1943	> 1943
April	< 1823	1823-1943	> 1943
May	< 1823	1823-1943	> 1943
June	< 1823	1823-1943	> 1943
July	< 1823	1823-1943	> 1943

Sixth Grade

Assessment Month	Overall Math		
	Tier 3	Tier 2	Tier 1
August	< 1771	1771-1863	> 1863
September	< 1771	1771-1863	> 1863
October	< 1771	1771-1863	> 1863
November	< 1771	1771-1863	> 1863
December	< 1783	1783-1881	> 1881
January	< 1783	1783-1881	> 1881
February	< 1783	1783-1881	> 1881
March	< 1816	1816-1963	> 1963
April	< 1816	1816-1963	> 1963
May	< 1816	1816-1963	> 1963
June	< 1816	1816-1963	> 1963
July	< 1816	1816-1963	> 1963

Seventh Grade

Assessment Month	Overall Math		
	Tier 3	Tier 2	Tier 1
August	< 1827	1827-1889	> 1889
September	< 1827	1827-1889	> 1889
October	< 1827	1827-1889	> 1889
November	< 1827	1827-1889	> 1889
December	< 1827	1827-1897	> 1897
January	< 1827	1827-1897	> 1897
February	< 1827	1827-1897	> 1897
March	< 1852	1852-1932	> 1932
April	< 1852	1852-1932	> 1932
May	< 1852	1852-1932	> 1932
June	< 1852	1852-1932	> 1932
July	< 1852	1852-1932	> 1932

Eighth Grade

Assessment Month	Overall Math		
	Tier 3	Tier 2	Tier 1
August	< 1827	1827-1889	> 1889
September	< 1827	1827-1889	> 1889
October	< 1827	1827-1889	> 1889
November	< 1827	1827-1889	> 1889
December	< 1827	1827-1897	> 1897
January	< 1827	1827-1897	> 1897
February	< 1827	1827-1897	> 1897
March	< 1852	1852-1932	> 1932
April	< 1852	1852-1932	> 1932
May	< 1852	1852-1932	> 1932
June	< 1852	1852-1932	> 1932
July	< 1852	1852-1932	> 1932

Aggregate Metrics

Scores provided at the group level. The group could be a grade level, school, district, or disaggregated groups (e.g. race/ethnicity,

ISIP Math reports available include:

Report	Purpose
Ability Growth	The Ability Growth reports ability assessed and the progress made by the students through the current month as measured against performance goals.

	gender, IEP status, FRL status). Specify the group(s) and the score(s) provided.	Ability Growth by Tier	The Ability Growth by Tier Level reports ability assessed and the progress made by the students through the current month as measured against performance goals within tier groups.	
		Assessment Completion	The Assessment Completion Report shows which students have completed the assessment for the reporting period.	
		Classroom Summary	This report provides student performance data from the most recently completed ISIP assessment and informal curriculum assessments.	
		Distribution	The Distribution Report shows the number of students performing in ranges of ability.	
		Priority	The Priority Report alerts teachers of students needing additional support & provides lessons based on demonstrated weaknesses.	
		Priority Summary	The Priority Summary Report, available to manager level users only, summarizes the use of the Priority Report by averaging how many days it has taken to acknowledge student alerts on the Priority Report.	
		Progress	The report shows student progress through the Istation Math Program's cycles of instruction.	
		Status	This report shows student distribution throughout the Istation Math Program's cycles of instruction. The number of active students is listed by cycle.	
		Student Summary Handout	The Student Summary Handouts provides student performance data from the most recently completed ISIP assessment.	
		Summary	The ISIP Summary Report shows the number and percentage of students at each instructional tier for the current month.	

		Tier Movement	The Tier Movement Report shows a comparison of the number and percentage of students who were categorized at each instructional tier of Tier I, Tier II, Tier III through the current month.
		Usage Trend	This report tracks student usage by months across the year.
Aggregate Comparison Points (cut scores)	Information provided regarding how good is good enough performance at the group level.	NA	
Alignment	Information provided about alignment of this instrument to other instruments, standards, etc.	ISIP Early Math and ISIP Math are aligned to Common Core State Standards as well as Colorado standards in Mathematics. In addition, studies comparing it to STAR Math, Test of Early Mathematics Ability – Third Edition (TEMA-3), the Stanford Achievement Test-Tenth Edition (SAT 10), and the State of Texas Asssessments for Academic Readiness (STAAR). The ISIP Math also has predictability with the OHIO AIR test in grades 3 through 8. Full details are available at: https://www.istation.com/studies	
Data Reports	Description of data reports that are provided/ available at the individual and aggregate level(s).	The following table describes ISIP Math Reports and their intended audience:	

Report Title	Description	Target Users
Executive Summary	The Executive Summary Report provides a brief overview of the current ISIP assessment. This report is available only to manager accounts and provides information only for the school or district level.	• Managers (at campus, district, or area)
Distribution	The Distribution Report shows the number of students performing in ranges of ability.	• Managers (at campus, district, or area)
Summary	The ISIP Summary Report shows the number and percentage of students at each instructional tier for the current month.	• Teachers • Managers (at campus, district, or area)
Tier Movement	The Tier Movement Report shows a comparison of the number and percentage of students who were categorized at each instructional tier of Tier I, Tier II, Tier III through the current month.	• Teachers • Managers (at campus, district, or area)
Ability Growth	The Ability Growth Report shows the progress made by the students through the current month as measured against performance goals.	• Teachers • Managers (at campus, district, or area)

Ability Growth by Tier	The Ability Growth by Tier Reports show the progress made by the students through the current month as measured against performance goals within tier groups.	• Teachers • Managers (at campus, district, or area)
Priority	The Priority Report alerts teachers of students needing additional support, and provides lessons based on demonstrated weaknesses.	• Teachers
Priority Summary	The Priority Summary Report, available to manager level users only, summarizes the use of the Priority Report by averaging how many days it has taken to acknowledge student alerts on the Priority Report.	• Managers (at campus, district, or area)
Priority Report – Student Intervention History	The Priority Report-Student Intervention History is a history of Priority Report alerts for a student, including those from current and prior school years.	• Teachers • Managers (at campus, district, or area)
Student Summary Handout	The Student Summary Handout provides student performance data from the most recently completed ISIP assessment.	• Teachers • Parents
Quantile Trend Report	The Quantile Trend Reports show students' quantile score across time.	• Teachers • Managers (at campus, district, or area)
Rate of Improvement	The Rate of Improvement Report gauges students' improvement across the school year	• Teachers • Managers (at campus, district, or area)

Technical Quality	Information about the technical quality of the instrument. Reference to technical analysis if available electronically.	The latest Technical report for ISIP Early Math and ISIP Math is available on the Istation website. Go to **www.istation.com**, click on About Us and choose Studies. Technical reports are downloadable from the Technical Reports tab. You can access the report directly at the following link: https://www.istation.com/Content/downloads/studies/ISIPMathTechReport.pdf