



**Independence School District  
Comprehensive Math Plan:  
Birth to Grade 12**

## Table of Contents

<b>Introduction.....</b>	<b>3</b>
Pillars of ISD.....	3
<b>Plan Organization.....</b>	<b>4</b>
<b>Independence School District Math Philosophy.....</b>	<b>5</b>
Learning Beliefs.....	5
Guiding Principles.....	5
Accessibility for All.....	5
Curriculum.....	5
Teaching and Learning.....	5
Assessment and Feedback.....	5
Professional Development.....	5
<b>Leadership.....</b>	<b>6</b>
District and Building Leaders.....	6
Teachers.....	6
Family Partnership.....	7
<b>Standards-Based Curriculum, Instruction, and Assessment.....</b>	<b>8</b>
Curriculum.....	8
Instruction.....	8
ISD Math Instructional Model.....	9
Setting a Purpose.....	10
Launch.....	11
Facilitate.....	11
Close.....	12
Number Sense Routines.....	13
Early Math: Birth to Five Years of Age.....	13
Spatial Relationships.....	13
Classification.....	14
Patterning.....	14
Shapes.....	15
Quantities.....	15
Operations.....	16
Measurement.....	16
Elementary Math: Kindergarten to Fifth Grade Students.....	17

Secondary Math: 6th to 12th Grade Students.....	17
Assessment.....	18
MTSS.....	19
Family Partnership.....	20
<b>Professional Development.....</b>	<b>21</b>
Timeline and Goals.....	21
Goals: 2018-2019.....	21
Goals 2019-2020.....	21
Goals 2020-2021.....	21
Goals 2021-2022.....	21
Goals:2022-2023.....	21
Goals:2023-2024.....	22
Goals:2024-2025.....	22
<b>References.....</b>	<b>23</b>

## Introduction

The Independence School District (ISD) uses the Comprehensive Math Plan (CMP) as a resource for parents, caregivers, teachers, and administrators along the infant to college and career continuum. The CMP supports teachers and administrators with information and resources to guide instruction, coordination of staff support, and alignment of goals. The CMP guides the components of the ISD Math Instructional Model.

## Pillars of ISD

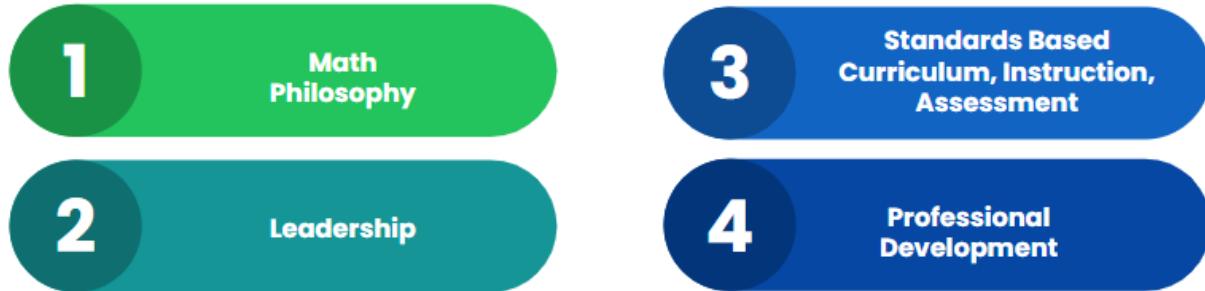
---



The Independence School District has four pillars which are the district's focus. These include Literacy, Math Computation and Problem Solving, College and Career Readiness, and Increasing Student Attendance. The four pillars are built on the foundation of the Student and Family Experience.

## Plan Organization

The ISD Comprehensive Math Plan is organized into four main components.



Each area works in concert to provide math development and academic achievement for all ISD students. The components are critical to providing each student with a comprehensive math education.

Overview of ISD Math Plan Components:

- 1 **Math Philosophy:** The ISD has outlined beliefs and practices that ensure all students have equitable access to high-quality math instruction.
- 2 **Leadership:** Leaders at the district, building, and classroom levels collaborate to build shared ownership and direction toward math success.
- 3 **Standards-based Curriculum, Instruction, and Assessment:** The ISD has clear expectations for what all students will know and be able to do. The curriculum is aligned with the Missouri Learning Standards. Educators bring the ISD curriculum to life by designing high-quality instruction for the students served. The Backward Design model by Wiggins and McTighe (2005) helps ensure that the curriculum, instruction, and assessments are aligned.
- 4 **Professional Development:** The ISD provides ongoing, job-embedded professional development, including research-based practices. Instructional coaches provide ongoing support to meet the needs of each educator.

## **Independence School District Math Philosophy**

### **Learning Beliefs**

The ISD has the following learning beliefs to guide our work.

- Learning is our core purpose.
- Trusting relationships and commitment to our core values will foster learning at all levels.
- Effective teaching is the most essential factor in student learning.
- ISD is committed to ensuring that every student learns and succeeds, regardless of race, ethnicity, gender, socioeconomic status, language proficiency, or disability.

### **Guiding Principles**

#### ***Accessibility for All***

In the ISD, excellence in math education requires accessibility for all. All children have access to high-quality, grade-level appropriate math curriculum and instruction, with high expectations for all learners. Accommodations are made for learning differences, and all classrooms and students are given the resources and support they need to be successful. Academic safety is at the core of classroom culture with opportunities for all students to see themselves as mathematicians.

#### ***Curriculum***

In the ISD, teachers develop a focused curriculum that aligns with the Missouri Learning Standards with an emphasis on the ISD Priority Standards. The curriculum is well articulated and includes a coherent progression from birth to grade 12.

#### ***Teaching and Learning***

In the ISD, teaching, and learning promote reasoning with numbers and other mathematical relationships to engage students in critical thinking through problem-solving, innovating, communicating, and collaborating. Through the use of the ISD Math Instructional Model, teachers will utilize multiple representations, including the Concrete-Pictorial-Abstract (CPA) approach to anchor student understanding and mastery of essential concepts.

#### ***Assessment and Feedback***

In the ISD, assessment supports the learning of essential math and provides timely feedback for student and teacher improvement.

#### ***Professional Development***

In the ISD, teachers participate in ongoing, purposeful, and job-embedded professional development.

## **Leadership**

The Independence School District Comprehensive Math Plan aims to foster a community-wide approach to supporting and enhancing math outcomes. Leadership within the ISD community includes district leaders, building leaders, teachers, and families. The following outlines how each leader contributes to helping students become skilled mathematicians.

### **District and Building Leaders**

District and building leaders are instrumental in developing a successful math environment. The approach requires a common vision and coordination at all levels of the Independence School District. Areas of focus for district and building leaders include:

- **Goals and Vision:** A common understanding and shared commitment to the desired future vision and the milestones towards the goals.
- **Policies & Procedures:** Ensure compliance with federal and state mandates and policies about math.
- **Funding & Resources:** Commit guidance, support, and resources to ensure a cohesive curriculum is delivered to all students from infant through college and career readiness.
- **Assessment and Data:** Foster a culture of continuous improvement by providing constructive feedback on teacher effectiveness and identifying students' strengths and weaknesses.
- **Professional Development & Instructional Practices:** Provide continuous math professional development for all staff and ample time and resources for ongoing professional learning in research-based strategies.
- **Tier One Core Curriculum & Supplemental Materials:** Understand the importance of math instruction and the processes, plans, and support necessary for student success. The Tier One core curriculum is accessible to all students. Students needing intervention or enrichment will be provided supplemental materials, instruction, and opportunities within and outside the school day.

### **Teachers**

Improving math for all is heavily reliant on the pivotal role of teachers. The Independence School District Comprehensive Math Plan is crafted to provide support to educators across all tiers, enabling them to enhance student learning systematically. Emphasizing math across content areas underscores its significance as a collective vision. Areas of focus for teachers include:

- **Goals and Vision:** A common understanding and shared commitment to the desired future vision and the milestones towards building and student goals.
- **Policies & Procedures:** Comply with federal and state mandates and policies about math.
- **Assessment and Data:** Foster a culture of continuous improvement by providing specific and effective feedback on identifying students' strengths and areas for growth through assessment and data analysis.

- **Professional Development & Instructional Practices:** Engage in continuous math professional development and utilize research-based practices to support ongoing learning.
- **Tier One Core Curriculum & Supplemental Materials:** Understand the importance of math instruction and the processes, plans, and supports necessary for student success. The Tier One core curriculum is accessible to all students. Students needing intervention or enrichment will be provided supplemental materials, instruction, and opportunities within and outside the school day.

## **Family Partnership**

The family plays a paramount role as the primary partnership in their students' education. As stated in the Comprehensive School Improvement Plan (CSIP), posted on the ISD website, the ISD takes steps to ensure families are involved and have access to schools in the following ways:

- **Strategy 4.1.1:** Improve and streamline communication with parents and the community through teachers, buildings, and the district.
  - Increase social media presence.
  - Survey families' preferred communication methods and streamline based on the results
  - District and Building Leaders review professional development in proactive communication.
  - Provide education on where to access school district communication/information.
- **Strategy 4.1.2:** Increase parental and patron involvement in the schools and district.
  - Track and grow parent involvement at the building level.
  - Actively recruit and retain parent and community partnerships.
  - Offer information/resources to families to improve their knowledge of district initiatives.
- **Strategy 4.2.1:** Deepen customer service at all levels.
  - Provide resources annually to frontline staff.
  - Provide building leaders training on communication methods for customer service.
- **Strategy 4.2.2:** Improve the transition of new students and families and those transitioning between ISD schools.
  - Welcome and engage new and transitioning students and families and follow up.
  - New students and families are welcomed and acclimated to the ISD through the admissions office and a follow-up.
- **Strategy 4.3.1:** Deepen community engagement through ISD Academies, AVID, and Leader in Me.
  - Increase partnerships with the ISD academies.
  - Increase service learning opportunities and contact available with community partners to support Leader in Me.
  - Increase college and community partnerships to support AVID.
  - Communicate volunteer opportunities and celebrate volunteer participation through the ISD Foundation.
  - Highlight social media, media, e-newsletter, and other communication channels.

## **Standards-Based Curriculum, Instruction, and Assessment**

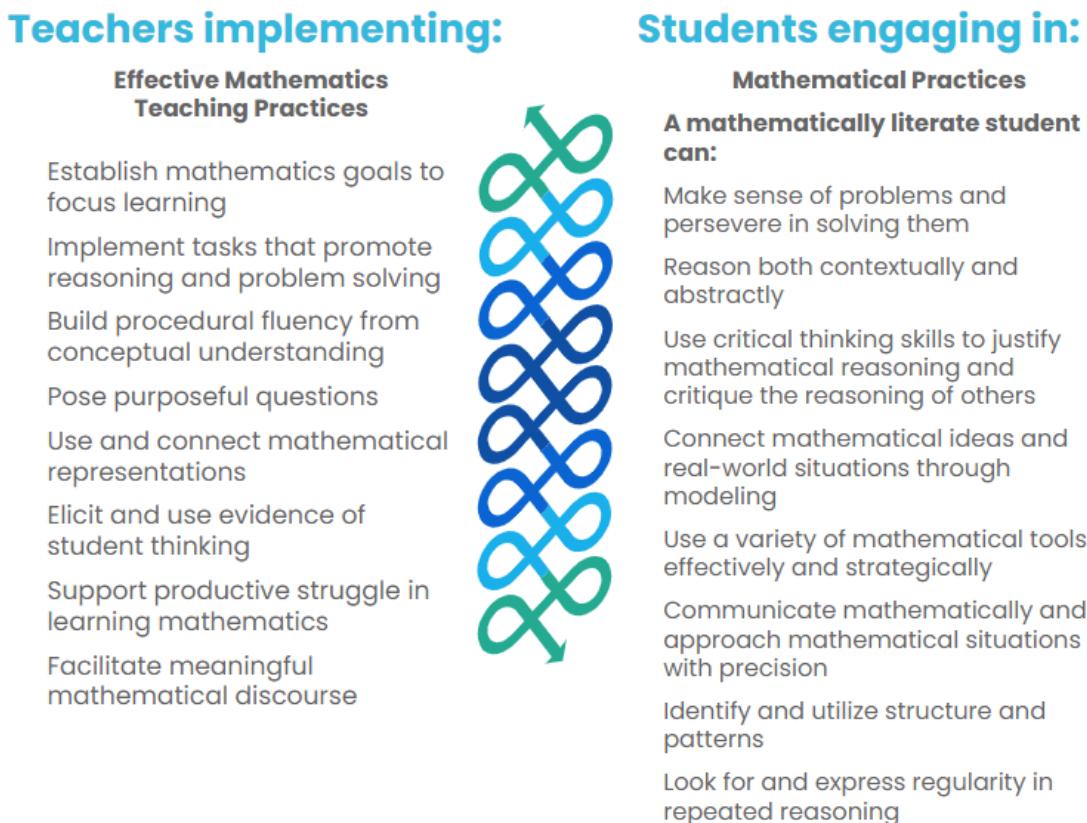
### **Curriculum**

The ISD math curriculum is aligned with the Missouri Learning Standards. Clear standards help improve teaching, inform planning, and maintain accountability. Curriculum development is ongoing, organized by the instructional leadership team, and designed by teachers. The curriculum is research-driven and continually evaluated through the lens of data analysis as well as a continuous cycle of feedback from all stakeholders. Using district and state priority standards, item specifications, performance level descriptors, and feedback from stakeholders, teacher leaders work together with the instructional leadership team to revise and edit the curriculum annually.

The curriculum is available to all staff through the employee portal. In addition, curriculum overviews are available to parents through the district website.

**Figure 1**

*The Eight Effective Teaching Practices and Mathematical Practice Standards*



### **Instruction**

The ISD math instruction is based upon the Effective Teaching Practices outlined by the National Council of Teachers of Mathematics (NCTM, 2014). Additionally, teachers integrate the Mathematical Practice Standards introduced in June of 2010 when the National Governors

Association and the Council of Chief State Schools Offices published the Common Core State Standards for Mathematics (NCTM, 2016). The Effective Teaching Practices encompass various components of effective mathematics instruction, including conceptual understanding, procedural fluency, and application (NCTM, 2014).

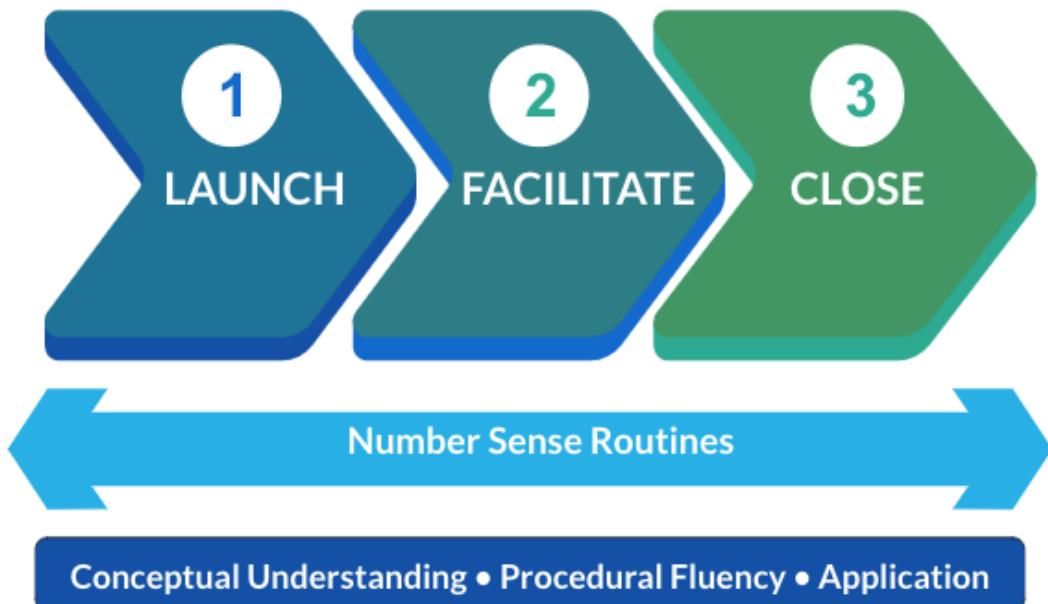
When planning for instruction, the ISD believes it is not only important to emphasize the content contained in the standards but also to use the Mathematical Practice Standards for all students (Missouri Department of Education, 2021). These standards are essential for fostering mathematical literacy among students. Without teaching through this lens, students' ability to become mathematically literate may diminish.

### ***ISD Math Instructional Model***

During the school year of 2018-2019, the district instructional team developed their current math instructional model. This model was based on a Michigan State program called the Connected Mathematics Project (CMP). This model is based on a philosophy with an overarching goal of helping students and teachers develop mathematical knowledge, understanding, and skill along with an awareness of and appreciation for the rich connections among mathematical strands and between mathematics (Michigan State University, College of Natural Science, Connected Mathematics Project, n.d.).

**Figure 2**

*The ISD Math Instructional Model*



**Setting a Purpose.** Before planning a unit or lesson, it is important to consider the five strands of proficiency necessary for the teaching and learning of mathematics, recommended by the National Research Council (2001): conceptual understanding, procedural fluency, strategic competence, adaptive reasoning, and productive disposition. According to Kobett et al. (2018), these provide the basis for the three types of mathematics lessons, which are conceptual understanding, procedural fluency, and transfer.

Conceptual understanding lessons provide opportunities for students to make sense of math and form connections between mathematical ideas (Williams, 2019). These lessons include opportunities for exploration, mathematical discourse, representing learning in multiple ways, and abstraction. Procedural fluency lessons also play a critical role in mathematics curriculum and instruction. Procedural fluency involves more than memorizing facts, formulas, and algorithms. DESE defines fluency as the ability to use an appropriate strategy in a reasonable amount of time, know multiple processes, and the ability to apply or adapt strategies to find a correct solution. While conceptual understanding and procedural fluency should play a balanced role in math teaching and learning, transfer is the ultimate goal. Transfer involves students' ability to apply the math they have learned to open-ended problems with real-world connections. Students must have opportunities to engage in transfer lessons to ensure they can apply the math they are learning to problems they will encounter when they are no longer in school.

**Launch.** According to Kobett et al. (2018), the Launch is a problem or situation posed to stimulate student thinking. It allows opportunities for students to notice, wonder, ask questions, and /or build interest in a task or lesson goal. The Launch ensures that all students have access to the content to explore that lesson's big idea, concept, or skill.

During the Launch portion of the lesson, the teacher designs an opportunity to build students' readiness and interest for the lesson based on the lesson's purpose. The launch may include an introduction to the specific problem-solving task or a number sense routine to help students think and talk about numbers, equations, or computations. The launch may be tied directly to the big idea and learning intentions for the day, or it may be used to circle back to the big idea or a concept previously learned so that students continue to build understanding.

During the planning of the Launch, the following questions should be considered:

- What is the main purpose of the lesson? (conceptual understanding, procedural fluency, application)
- How does this launch connect to previous mathematics my students have studied in this investigation or unit?
- What do students need to know to understand the story and the challenge of the problem?
- What advantages or difficulties can I foresee?
- How can I keep from giving away too much of the problem?

Teachers may consider items from the list shown.

- Focus Question
- Compare/Contrast two approaches to a problem
- Entry Ticket
- Act 1 of a 3-Act Task
- Error Analysis
- Visual Thinking Strategies

**Facilitate.** According to Miles et al. (2019), the purpose of the Facilitate phase of the lesson is for students to explore a rich problem or strategic series of problems which will enable them to analyze and generalize a concept or skill. In facilitate, the teacher continually encourages students and strategically uses questions to position students as the mathematical leaders in the classroom. Students may tackle the mathematical task individually, with a partner, with a small group or sometimes as a whole class, depending on the challenge and format of the problem or problems.

When a teacher is planning the Facilitate portion, these questions should be considered.

- How will students be organized to be best engaged in the exploration (individuals, pairs, groups, whole class, or a combination)?
- What materials should be made available?
- What mathematical practices do I anticipate students using?
- How will students organize their thinking?
- What questions will encourage conversation, prompt their thinking when frustration is high, or probe further?
- What kinds of strategies will facilitate the summary and how will I sequence them?

Teachers may consider items from the list shown.

- Act 2 of a 3 Act Task
- Vocabulary
- Cooperative learning structures
- Use of manipulatives and visual models
- Student discussion
- Student Self-Assessment

**Close.** Close provides the opportunity to reorganize the information from a lesson in a meaningful way by asking them to summarize, review, and demonstrate an understanding of the big ideas from the lesson (Williams, 2019). Close is the final phase of the lesson when teachers orchestrate whole group student discourse about discoveries or connections students made during the Facilitate phase of the lesson. It is during the Close that the teacher guides the students to reach the mathematical goals of the lesson and to connect their new understanding to prior knowledge within and beyond the unit.

When teachers are planning the close, these questions should be considered.

- How can I help students make sense of different mathematical strategies?
- How can I facilitate student-led summary discussions so students share their thinking?
- What explicit mathematical processes should be emphasized?
- How will these ideas be recorded for future reference?
- How can we go beyond? What new questions might arise?
- What will I do to follow up, practice, or apply the ideas after summarizing?

Teachers may consider items from the list shown.

- Revisit focus question
- Act 3 of a 3-Act Task
- Connect vocabulary
- Classroom discourse
- Student reflection/self-assessment
- Exit ticket or other formative assessment

**Number Sense Routines.** In Number Sense Routines students participate in a brief activity for promoting engagement, reasoning, and discourse. During Number Sense Routines, a prompt is provided with multiple solution paths. Students notice, wonder, and share their thinking. The purpose is to help develop number sense and reasoning over time.

When teachers are planning number sense routines, these questions should be considered:

- What is the goal of the routine?
- What routine makes sense with my lesson? Will it be connected to the lesson or separate?
- When will the number sense routine occur?
- What questions are appropriate?

Teachers may consider items from the list shown.

- Number Sense Routines (5-7 minutes)
- Number Talks (15 minutes)
- Daily Word Problems (10 minutes)

## ***Early Math: Birth to Five Years of Age***

The Independence School District stresses the importance of early education in developing foundational skills in supporting students as they move from birth to age five. Emergent math instruction in the ISD utilizes the Missouri Early Learning Standards and data from the Desired Results Developmental Profile (DRDP). The progression of foundational skills in early education consists of spatial relationships, classification, patterning, shapes, quantities, operations, and measurement.

**Spatial Relationships.** Spatial awareness develops as children begin to explore the relationship between their bodies and their environment. As they learn to navigate their environment, they learn about direction, perspective, distance, symbolization, and location. *Positional words describe spatial relationships and help children deepen their understanding of those relationships.*

During the planning of instruction on spatial relationships, the following questions and considerations are made.

- Before instruction
  - Identify the DRDP measure
  - What materials can be provided based on students' interests?
  - Provide a safe environment for exploration.
- During instruction
  - Ask questions that will encourage conversation, prompt thinking, and probe further
- After instruction
  - Reflect by reviewing the students' experience as related to the determined objective to inform planning

Teachers often consider items from the following list of instructional practices to support learning about spatial relationships.

- Model and encourage the use of positional words
- Use maps or other representations to help them think spatially
- Encourage students to create shapes from different shapes
- Present shapes that differ in size and orientation
- Describe spatial relationships as children play ("You're putting the horse *inside* the fenced area you made.")

**Classification.** To match, compare, and sort according to one or more attribute.

Classification in early years first begins with sensory perceptions, develops into identifying particular criteria, then categories, and lastly subcategories. Classification provides order and control for young children. It is foundational for higher mathematical processes.

During the planning of instruction on classification, the following questions and considerations are made.

- Before instruction
  - Identify the DRDP measure.
  - What materials can be provided based on students' interests?

- How can I encourage students to match, sort, classify, and resort materials?
- During instruction
  - Ask questions that pertain to classification capturing both process and product.
- After instruction
  - Reflect by reviewing the students' experience as related to the determined objective to inform planning

Teachers often consider items from the following list of instructional practices to support learning about classification.

- Intentionally describe objects using characteristics to build vocabulary
- Provide materials in pairs so students can match by attribute
- Provide materials that have a relationship (socks/shoes, fork/spoon)
- Model sorting and classification of materials with unique characteristics

**Patterning.** A repeating sequence or arrangement of objects, numbers, actions and events that systematically follow a given rule. Children must demonstrate the ability to identify attributes and characteristics in order to pattern successfully.

During the planning of instruction on patterning, the following questions and considerations are made.

- Before instruction
  - Identify the DRDP measure.
  - What modeling is provided so students can recognize and complete patterns?
  - Are students able to recognize patterns in their environment?
- During instruction
  - Ask questions that will encourage conversation, prompt thinking, and probe further.
- After instruction
  - Consider what students demonstrated to guide future experiences.

Teachers often consider items from the following list of instructional practices to support learning about patterning.

- Identify patterns in daily routines and the environment
- Sing songs, do finger plays, and read stories that involve patterns
- Model and encourage children to describe patterns by attributes
- Support children as they copy and extend patterns, beginning with simple repeating patterns and then growing patterns
- Encourage children to compare patterns and to find similarities and differences among them.

**Shapes.** Shapes are the forms of objects which have boundary lines, angles, and surfaces. Mastery of attributes and characteristics is necessary for children to discriminate between shapes. A child shows an increasing knowledge of shapes and their characteristics when given the opportunity to manipulate, draw, compare, describe, sort, and represent shapes in a variety of ways.

During the planning of instruction on shapes, the following questions and considerations are made.

- Before instruction
    - Identify the DRDP measure.
    - Provide exposure to shapes with real-world items.
  - During instruction
    - Ask questions that will encourage conversation, prompt thinking, and probe further.
    - Utilize math vocabulary when working with shapes.
  - After instruction
    - Consider what students demonstrated to guide future experiences.
- Teachers often consider items from the following list of instructional practices to support learning about shapes.
- Guide explorations of shapes, discuss the attributes as children explore (surface)
  - Label shapes with the correct name as students use them (surface)
  - Present shapes that differ in size and orientation (deep)
  - Encourage children to create new shapes from other shapes (transfer of learning)
  - Model and describe how to make two- and three- dimensional shapes (transfer of learning)

**Quantities.** A student can show an increasing knowledge of quantities as they learn the verbal number sequence, one-to-one correspondence, and cardinality.

During the planning of instruction on quantities, the following questions and considerations are made.

- Before instruction
    - Identify the DRDP measure.
    - Plan chants, songs, or rhymes to encourage counting and 1:1 correspondence.
  - During instruction
    - Ask questions that will encourage conversation, prompt thinking, and probe further.
  - After instruction
    - Consider what students demonstrated to guide future experiences.
- Teachers often consider items from the following list of instructional practices to support learning about quantities.
- Read stories that include numbers to count
  - Use everyday routines and activities as opportunities to count (i.e. one student left the blocks center, now there are two students in blocks. Would anyone like to join?)
  - Problem solve with counting
  - Touch or point to each object as you count
  - Model counting strategies, show how to track the number of objects counted (i.e. moving objects to one side as you count)
  - Use multiple learning styles to count (i.e. touch, sight and sound)

**Operations.** To quantify is to count or express something in numbers. Children identify the number of groups of objects in whole, when objects are added or are removed. Children learn concepts of more and less than, the position of sequence of something

During the planning of instruction on operations, the following questions and considerations are made.

- Before instruction
  - Identify the DRDP measure.
  - Provide materials for math exploration.
- During instruction
  - Ask questions that will encourage conversation, prompt thinking, and probe further.
  - Communicate the addition and/or subtraction when working with materials,
- After instruction
  - Consider what students demonstrated to guide future experiences.

Teachers often consider items from the following list of instructional practices to support learning about operations.

- Create a numerically rich environment
- Use fingerplays, rhymes or songs about numbers
- Practice counting using a variety of learning styles & representations
- Model counting strategies
- Make obvious mistakes so that children can identify the errors
- Model comparing the number of objects in two sets
- Use everyday situations to illustrate combining and separating

**Measurement.** A student can show an increasing knowledge of measurement as they learn the concepts of measurable properties such as size, length, weight and capacity and how to quantify those properties.

During the planning of instruction on operations, the following questions and considerations are made.

- Before instruction
  - Identify the DRDP measure.
  - Provide standard and non-standard materials for exploration.
- During instruction
  - Ask questions that will encourage conversation, prompt thinking, and probe further.
- After instruction
  - Consider what students demonstrated to guide future experiences.

Teachers often consider items from the following list of instructional practices to support learning about measurement.

- Model measuring behaviors and language, including estimation vocabulary
- Use daily experiences to discuss measurement concepts (surface)
- Use self-talk as you measure

- Offer a variety of measuring tools for investigation and encourage their use during activities and dramatic play
- Offer opportunities that allow children to compare measuring with non-standard and with standard measures
- Encourage measurement problem-solving activities

### ***Elementary Math: Kindergarten to Fifth Grade Students***

The ISD is proactive in meeting student needs and utilizing data-driven insights, establishing routines, and integrating research-based resources to support learning. By remaining responsive to student needs and implementing evidence-based strategies, ISD ensures the creation of an educational environment that is both effective and adaptive.

- The ISD introduced Spiral Math to provide interleaved spaced practice for first through fifth graders, ensuring continual reinforcement of fundamental math concepts. This approach aims to cultivate strong mathematical skills and confidence among students, setting a solid groundwork for academic success.
- The ISD curriculum teams developed a math fact fluency plan that addresses the crucial need for comprehensive math fluency instruction for first through fifth grade. Through this systematic approach, students are empowered to build upon their skills progressively, fostering a solid foundation for mathematical proficiency.
- The adoption of Happy Numbers by the Independence School District enables students to engage with math content tailored to their individual levels, fostering personalized learning experiences. With its researched-adaptive approach, Happy Numbers promises significant academic growth.

### ***Secondary Math: 6th to 12th Grade Students***

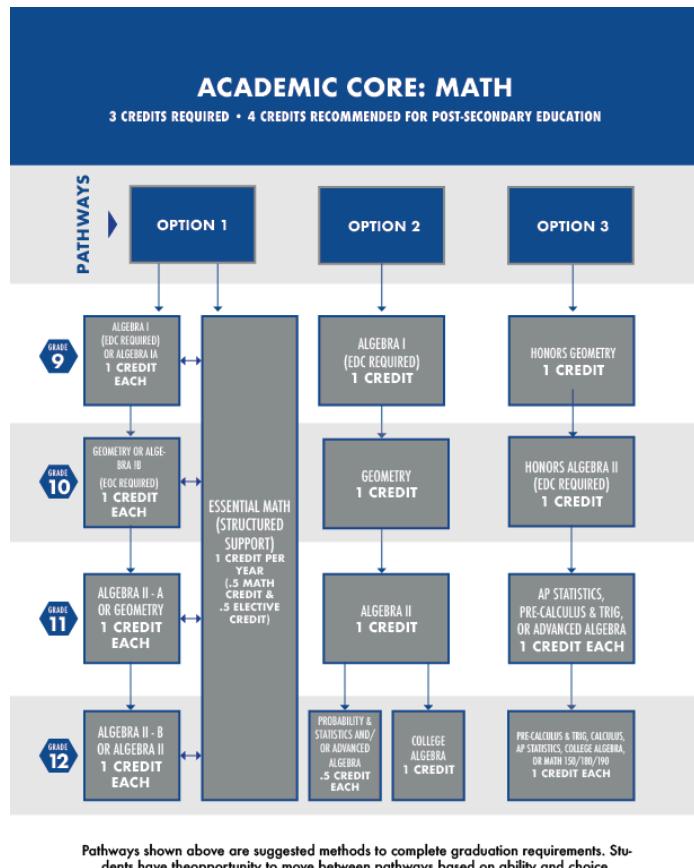
As students move into secondary mathematics, a variety of supports and course options are available to ensure that students receive the support and acceleration they need to be successful.

ISD offers an intervention course called Essential Math for students exhibiting a need for additional support in math. This course supplements the grade-level math course and provides opportunities for students to build an understanding of concepts from previous grade levels with a focus on algebra readiness. Additionally, 7th grade Pre-Algebra and 8th grade Algebra 1 are offered for students exhibiting advanced understanding. Students' assessment data, grades, and teacher recommendations are considered when placing students both in intervention and advanced math coursework.

ISD offers three math high school math pathways based on students' proficiency, interests, and future plans. Beyond Algebra 1, Geometry, and Algebra 2, students have the opportunity to take probability and statistics courses, as well as earn dual and/or AP credit in College Algebra, Precalculus with Trigonometry, and Calculus.

**Figure 3**

*The ISD High School Math Pathways*



## Assessment

In the ISD, teachers use a variety of formative and summative assessments that factor into a child's grade. Students who are not meeting proficiency on the intended standard or learning goal will have the opportunity to relearn and reassess until they gain a solid understanding of the grade level standard.

Families receive quarterly progress reports to monitor student growth. Proficiency scores are not and cannot be related to a traditional grade. When reviewing a child's proficiency scores on a report, the primary goal is to provide insight into how well a child meets specific content standards. At the elementary level, students' proficiency is shared based on the following grading scale:

- M = Meets
  - Consistently meets the requirement of proficient work
  - Independently demonstrates an acceptable level of knowledge and understanding
- A= Approaching
  - Meets some requirements for proficient work
  - Demonstrates some knowledge and understanding
- E= Emerging
  - With support, beginning to meet some of the requirements for proficient work

- Demonstrates little knowledge of understanding
- B= Below Expectation
  - Unable to meet requirements for proficient work, even with support
  - Demonstrates little or no knowledge and understanding

District-wide, common unit assessments are built and administered to align with the Missouri Learning Standards, State Item Specifications, and the Performance Level Descriptors.

[The ISD Comprehensive Assessment Plan](#) outlines all assessments and the purpose for each.

### **MTSS**

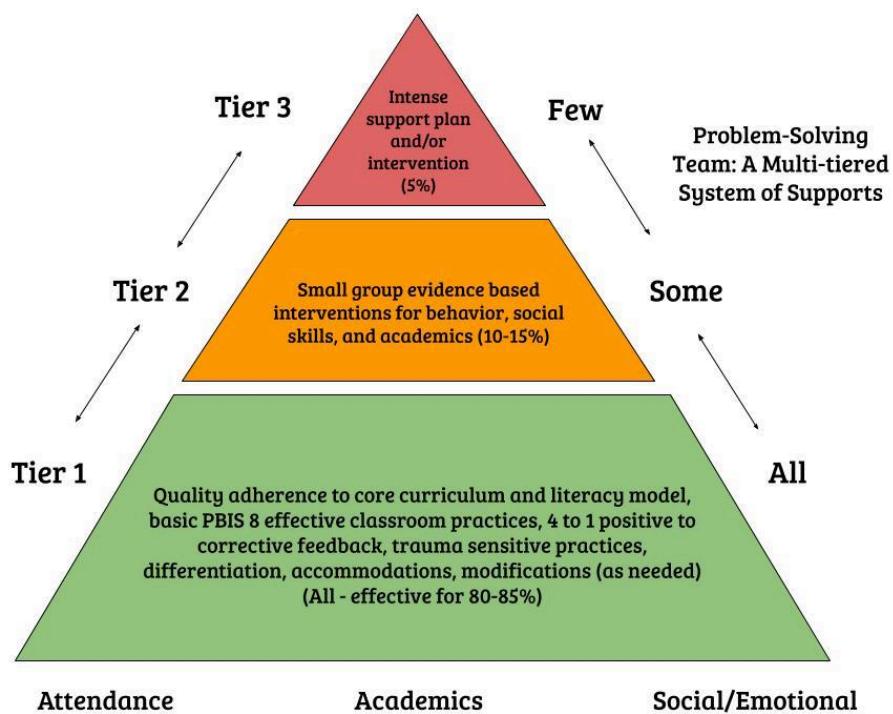
The ISD utilizes a Multi-Tiered System of Support (MTSS) similar to Wexler's (2017) work to support student success. The following components provide a systematic plan to guide decision-making across all buildings.

- Students are screened with a math assessment to identify students who are at risk for math difficulties.
- Students who meet grade-level screening expectations are placed into Tier One instruction.
- Students performing below the grade-level screening expectations are placed into Tier Two or Tier Three levels of intervention that provide additional appropriate math strategies and intensity of instruction.
- Data collection is a continual process to monitor student math growth.
- Educators collaborate in a Problem-Solving Team (PST) meeting to address individual student needs and progress.
- Buildings engage parents in the MTSS process to gain valuable insight into student strengths and areas of need from the home setting.

Figure 5 illustrates the ISD MTSS model of support. All students receive Tier One instruction, and depending on their support needs, they may need Tier Two or Tier Three support.

**Figure 5**

*Independence School District Multi-Tier Systems of Support Model*



### Family Partnership

Families are welcome to engage and partner with curriculum, assessment, and instruction. The ISD posts a curriculum website for families on each school webpage. This website includes curriculum resources, sample progress reports, and pacing guides. Elementary offers monthly Family Choice Boards that align home support with district grade-level curriculum. Secondary offers unit and concept specific information and videos aligned to Missouri Learning Standards to promote mathematical practice at home.

Families are invited to student conferences in the fall and spring to discuss math progress. Title I family nights provide educators and families a setting to build excitement, encouragement, and tools to increase the math partnership.

Schools and families are also encouraged to communicate through Seesaw in the elementary schools and Canvas in secondary schools. School social media accounts are utilized to share the day-to-day learning and events for parents who are not able to physically frequent the school building.

## **Professional Development**

In the ISD, each educator has access to high-quality professional learning in order to cultivate their strengths and address the needs of each student they serve. Additionally, every new teacher entering the district receives training on current effective teaching practices.

Professional development (PD) in math instruction, spanning from birth through grade twelve, includes the following components:

- Annual math-focused professional development is offered throughout the school year during cross-district professional development days led by district instructional coaches.
- Weekly collaboration with grade-level colleagues allows teachers to review math data and adjust instruction accordingly. The building principal and coaches provide ongoing support, including regular assistance through planning, co-teaching, modeling lessons, and small group instruction as needed.
- Summer math-focused professional development is required of all new teachers joining the Independence School District.
- Feedback is collected each year to support curriculum updates and additional professional development needed.
  - **Classroom Self-Assessment:** Teachers provide feedback on Tier One curriculum and resources. The feedback provided is used to guide curriculum adjustments needed for the upcoming school year.
  - **Building Self-Assessment:** Buildings collect and use feedback to help guide professional development needs for the upcoming school year.
  - **District Self-Assessment:** District leaders collect and use classroom and building feedback to guide professional development needs for the upcoming school year. The annual Professional Development Survey given to all staff is also used to make professional development decisions.

## **Timeline and Goals**

### ***Goals: 2018-2019***

- Initial math philosophy and instructional model development
- Priority standards identification and vertical alignment

### ***Goals 2019-2020***

- Math instructional model training and implementation
- MS/HS math resource pilot

### ***Goals 2020-2021***

- Review of potential K-5 math resources

### ***Goals 2021-2022***

- K-12 math resource adoption (Reveal K-5, Into Math 6-8, Into AGA HS)
- Professional development on utilization of math resources
- Professional development on fluency, problem-solving, productive struggle, and effective questioning in math

### ***Goals: 2022-2023***

- Continue training and focus on Tier 1 Instruction

- Review the ISD Math Model
- Review the implementation of Tier 1
- Pilot Happy Numbers for math differentiation at the K-5 level.
- Development of walk-throughs at all levels focusing on the implementation of the ISD Math Model
- Development of ISD Math Fact Fluency Plan to support grades 1-5.
- Professional development on connecting mathematical practices and effective teaching practices
- Encourage staff to participate in the DESE-sponsored Missouri Mathematic Mastery ( $M^3$ ) Program for the Elementary Mathematics Specialist (EMS) Certificate Completion. ISD Cohort I and Cohort II consist of 51 teachers.

***Goals:2023-2024***

- Implementation of walk-throughs from Kindergarten through Eighth Grade focusing on the components of the ISD Math Model and the Mathematical Practices
- Secondary professional development with KC RPDC around fluency and rich tasks
- Training and implementation of K-5 district-wide Happy Numbers
- Utilization of Math Spiral in grades 1-5 to support additional spaced practice opportunities for specific priority standards.
- Implementation of ISD Math Fact Fluency Plan in grades 1-5.

***Goals:2024-2025***

- Training and implementation of Performance Level Descriptors K-5
- Utilization of Math Spiral in grades 6-8 to support additional spaced practice opportunities for specific priority standards.
- Implementation of Math 180 intervention curriculum in middle school essential math classes.

## References

- Bay-Williams, J., & Kling, G. (2019). *Math fact fluency: 60+ games and assessment tools to support learning and retention*. ASCD.
- Cain, J. S. (2002). An evaluation of the Connected Mathematics Project. *The Journal of Educational Research*, 95(4), 224–233.  
<https://doi.org/10.1080/00220670209596595>
- Hattie, J., Fisher, D., Frey, N., Gojak, L. M., Delano Moore, S., & Mellman, W. (2017). *Visible learning for mathematics: What works best to optimize student learning grades K-12*. Corwin.
- Hui, C. S., Hoe, L. N., & Lee, K. P. (2017). Teaching and learning with concrete-pictorial-abstract sequence: A proposed model. *The Mathematics Educator*, 17(1), 1-28.
- Kang, S. H. K. (2016). Spaced repetition promotes efficient and effective learning: Policy implications for instruction. *Policy insights from the behavioral and Brain Sciences*, 3(1), 12-19. <https://doi.org/10.1177/2372732215624708>
- Kobett, B. M., Miles, R. H., & Williams, L. A. (2018). *The mathematics lesson-planning handbook, grades K-2: Your blueprint for building cohesive lessons*. Corwin.
- Miles, R. H., Kobett, B. M., & Williams, L. A. (2019). *The mathematics lesson-planning handbook, grades 3-5: Your blueprint for building cohesive lessons*. Corwin.
- Michigan State University, College of Natural Science, Connected Mathematics Project. (n.d.) *Philosophy*. <https://connectedmath.msu.edu/curriculum-design/philosophy.aspx>
- Missouri Department of Elementary & Secondary Education. (2021). *Mathematical practices*. Retrieved April, 9, 2024. From  
<https://drive.google.com/file/d/1HUEZaqBLHLN854aATIFA45QKj78nsv5/view>
- National Council of Teachers of Mathematics. (2014). *Principles to actions: Ensuring mathematical success for all*.
- National Council of Teachers of Mathematics. (2016). *Introduction*. Retrieved April, 9, 2024 From  
<https://www.nctm.org/Handlers/AttachmentHandler.ashx?attachmentID=h5y%2Bo%2F4Y4JY%3D>
- National Research Council. (2001). *Adding it up: Helping children learn mathematics*. J.Kilpatrick, J. Swafford, and B.Findell (Eds.). Mathematics Learning Study Committee,

Center for Education, Division of Behavioral and Social Sciences and Education.  
National Academy Press. <https://doi.org/10.17226/9822>

Wiggins, G. P., & McTighe, J. (2005). *Understanding by design* (2nd ed.). Pearson.

Williams, L. A., Miles, R. H., & Kobett, B. M (2019). *The mathematics lesson-planning handbook, grades 6-8: Your blueprint for building cohesive lessons*. Corwin.