CORE CURRICULUM

imagine IM®

imagine learning

Instructional Routines

Grades K–12



Imagine IM is IM® v.360 optimized for engagement, accessibility, and usability.



imagine IM®

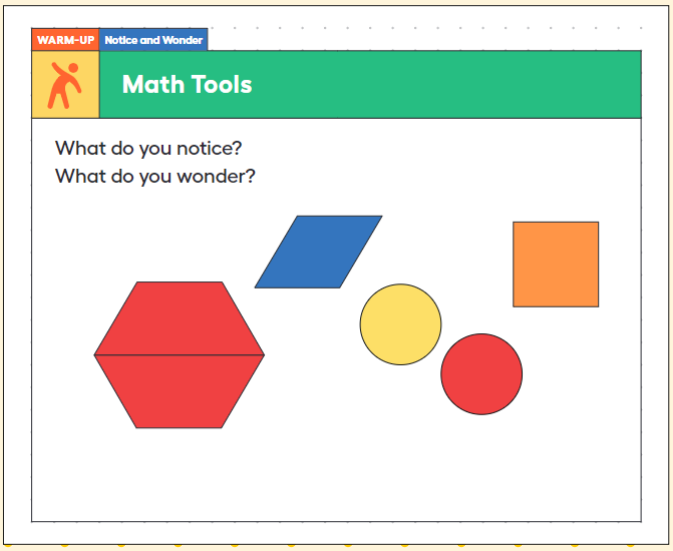
An IM K–12 Math™ Curriculum

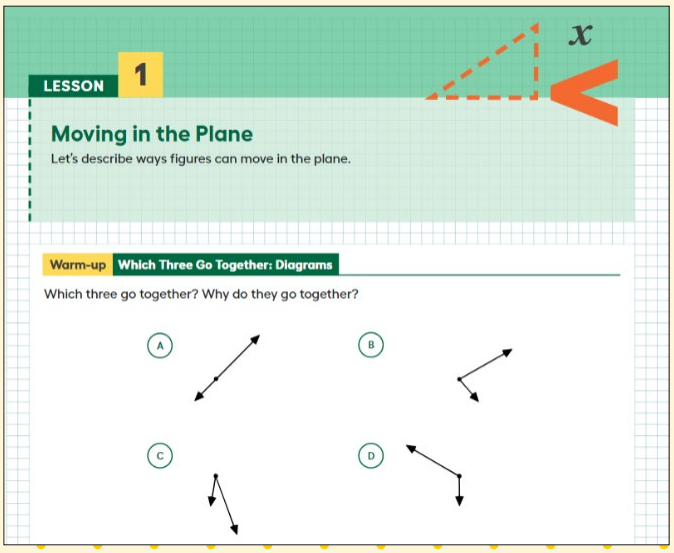
iM® v.360

Instructional Routines

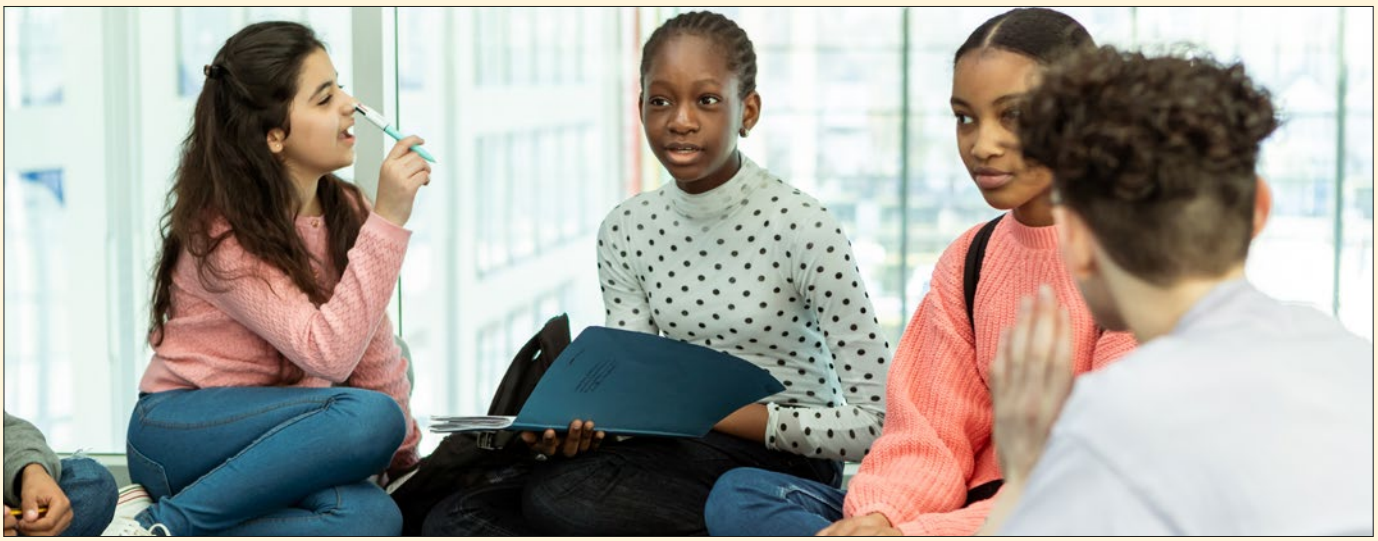
The instructional routines embedded within **Imagine IM** create structures so that all students can engage and contribute to mathematical conversations. These routines:

- Create structures so that all students can engage in and contribute to mathematical conversations
- Provide a multidimensional approach to learning that ensures every student develops positive habits of mind through multiple forms of engagement, representation, and expression
- Have been intentionally chosen, ensuring they are used frequently enough to become truly routine
- Empower all students to own their learning
- Are introduced in a purposeful way throughout the curriculum to build a collective understanding of their structure, requiring students to think and communicate mathematically through a true problem-based approach
- Are invitational, predictable in nature, and create space for inquiry-driven instruction





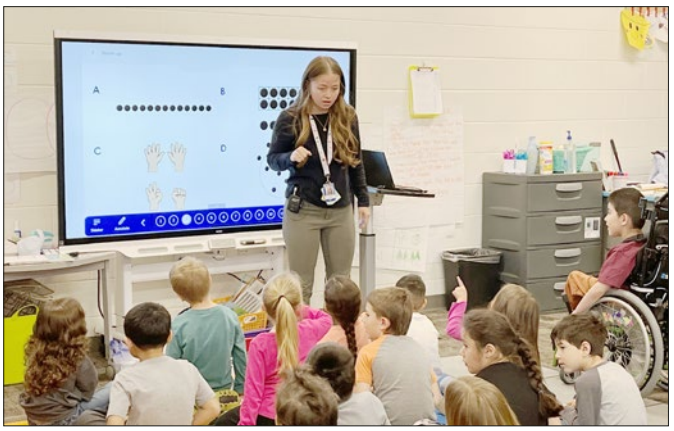
Instructional routines are intentionally selected for activities based on their alignment with the unit, lesson, or activity learning goals.



Grades K–5

Instructional Routines

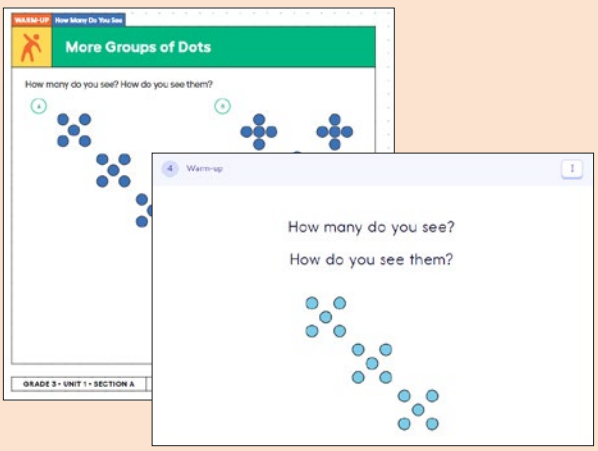
Instructional routines offer opportunities for all students to engage in and contribute to mathematical conversations. They are invitational, promote discourse, and are predictable in nature. In the materials, a small set of intentionally chosen instructional routines ensures that they are used frequently enough to become truly routine, and they are introduced in a purposeful way to build a collective understanding of their structure.



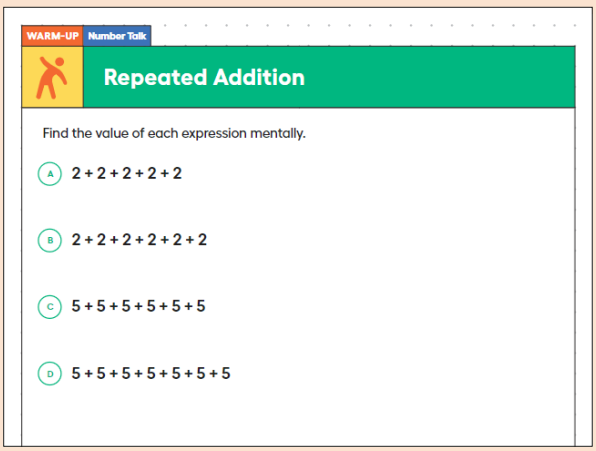
Act It Out	Notice and Wonder	What Do You Know About?
How Many Do You See?	True or False?	Card Sort
Questions About Us	Estimation Exploration	5 Practices
Choral Count	Number Talk	Mathematical Language Routines 1–8*

** Based on the UL/SCALE project from Stanford University, the eight mathematical language routines (MLRs) are embedded throughout all grade levels of Imagine IM to develop students' language skills. See page 7 for more on K–12 MLRs.*

How Many Do You See? helps early math learners develop an understanding of counting and quantity through subitizing and combining parts to find the total in a whole collection.



The sequence of problems in a **Number Talk** encourages students to look for structure and use repeated reasoning to evaluate expressions and develop computational fluency.



Grades 6–8

Lesson activities within the 6–8 curriculum often suggest high-impact instructional routines to facilitate discussions, instruction, or work time. The kind of instructional routine appropriate in any particular lesson depends on the learning goals of that lesson. Some may be devoted to developing a concept, to mastering a procedural skill, or to applying mathematics to a real-world problem.

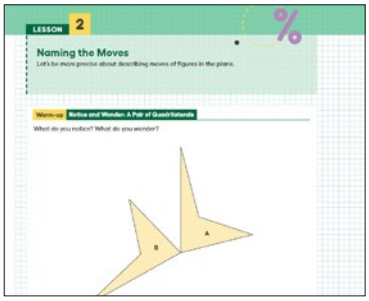
Three instructional routines frequently used in warm-up routines are *Math Talk, Notice and Wonder, and Which Three Go Together?*. In addition to their mathematical purposes, these routines serve the additional purpose of strengthening students' skills in listening and speaking about mathematics.

These instructional routines include:

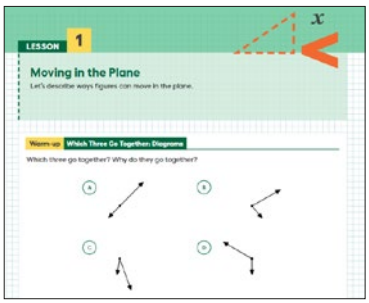
5 Practices	Poll the Class
Card Sort	Take Turns
Math Talk	Which Three Go Together?
Notice and Wonder	Mathematical Language Routines 1–8*

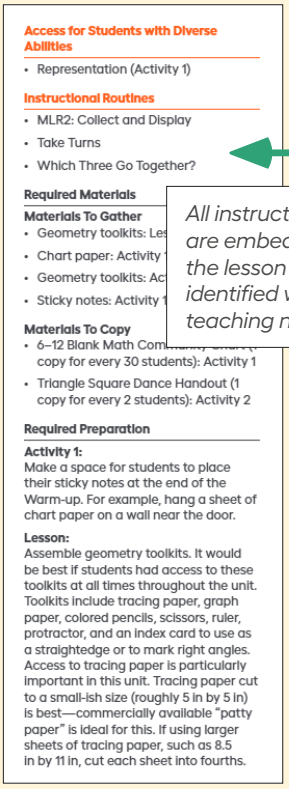
** Based on the UL/SCALE project from Stanford University, the eight mathematical language routines (MLRs) are embedded throughout all grade levels of Imagine IM to develop students' language skills. See page 7 for more on K–12 MLRs.*

Notice and Wonder invites all students into a mathematical task with two low-stakes prompts, making the mathematics truly accessible to all students.



Which Three Go Together? prompts students to choose a group of three figures, diagrams, graphs, or expressions and provide rationale for why they chose specific figures or mathematical representations.





Access for Students with Diverse Abilities
- Representation (Activity 1)

Instructional Routines
- MLR2: Collect and Display
- Take Turns
- Which Three Go Together?

Required Materials

Materials To Gather
- Geometry toolkits: Les
- Chart paper: Activity
- Geometry toolkits: Ac
- Sticky notes: Activity

Materials To Copy
- 6–12 Blank Math Com… copy for every 30 students): Activity 1
- Triangle Square Dance Handout (1 copy for every 2 students): Activity 2

Required Preparation

Activity 1:
Make a space for students to place their sticky notes at the end of the Warm-up. For example, hang a sheet of chart paper on a wall near the door.

Lesson:
Assemble geometry toolkits. It would be best if students had access to these toolkits at all times throughout the unit. Toolkits include tracing paper, graph paper, colored pencils, scissors, ruler, protractor, and an index card to use as a straightedge or to mark right angles. Access to tracing paper is particularly important in this unit. Tracing paper cut to a small-ish size (roughly 5 in by 5 in) is best—commercially available "patty paper" is ideal for this. If using larger sheets of tracing paper, such as 8.5 in by 11 in, cut each sheet into fourths.

All instructional routines are embedded within the lesson structure and identified within the teaching notes.

Grades 9–12

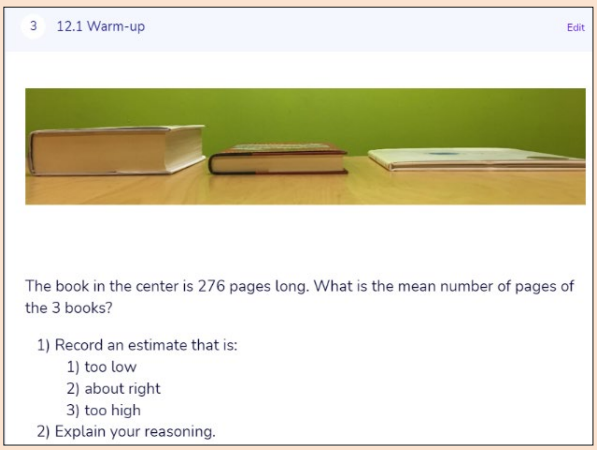
High-impact instructional routines appear throughout Imagine IM lessons. Developing a concept, mastering a procedural skill, or applying mathematics to a real-world problem are all aspects of mathematical proficiency that are interwoven within the high-leverage set of routines.

Instructional routines at high school level include:

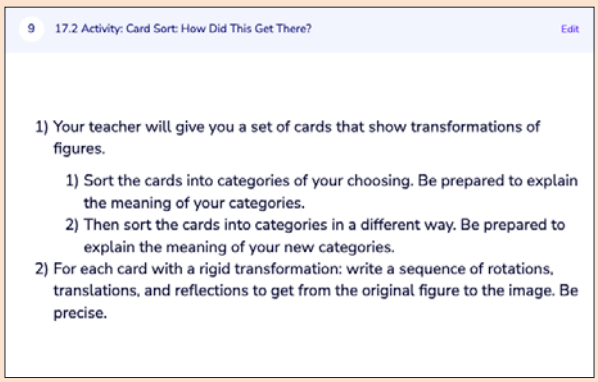
Analyze It	Estimation	Math Talk
5 Practices	Extend It	Notice and Wonder
Sequence, Connect	Fit It	Poll the Class
Card Sort	Graph It	Take Turns
Construct It	Information Gap	Which Three Go Together?
Draw It	Aspects of Mathematical Modeling	Mathematical Language Routines 1–8*

** Based on the UL/SCALE project from Stanford University, the eight mathematical language routines (MLRs) are embedded throughout all grade levels of Imagine IM to develop students' language skills. See page 7 for more on K–12 MLRs.*

Estimation gives students a low-stakes opportunity to share a mathematical claim and their reasoning behind it. Students estimate a reasonable answer based on experience and known information to help develop a deeper understanding of the meaning of standard units of measure.



Card Sort provides opportunities to attend to mathematical connections using representations that are already created. It gives students opportunities to analyze representations, statements, and structures closely and make connections.



K–12 Mathematical Language Routines

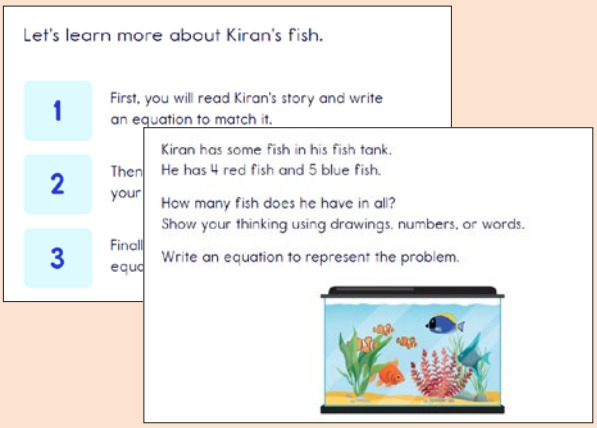
Mathematical language routines (MLRs) are instructional routines that provide structured but adaptable formats for amplifying, assessing, and developing students' language. MLRs emphasize the use of language that is meaningful and purposeful and isn't only about getting answers. The routines included in this curriculum were selected as they simultaneously support students' learning of mathematical practices, content, and language.

MLRs are included as instructional routines in select activities in each unit to provide all students with explicit opportunities to develop mathematical and academic language proficiency.

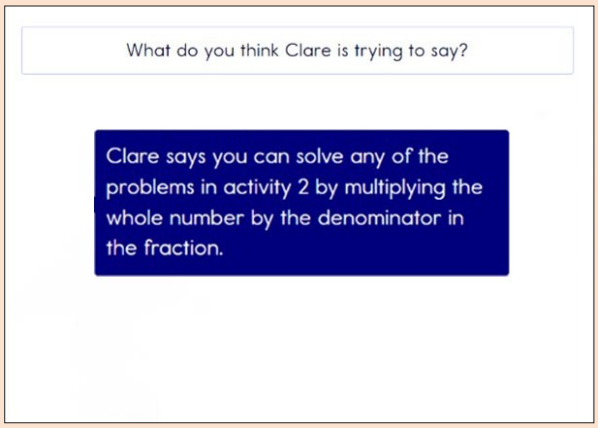
The MLRs included are:

- Stronger and Clearer Each Time (MLR1)
- Collect and Display (MLR2)
- Clarify, Critique, Correct (MLR3)
- Information Gap (MLR4)
- Co-Craft Questions (MLR5)
- Three Reads (MLR6)
- Compare and Connect (MLR7)
- Discussion Supports (MLR8)

The **Three Reads** routine ensures that students know what they are being asked to do, creates opportunities for students to reflect on the ways questions are presented, and equips students with tools used to make sense of the mathematics.

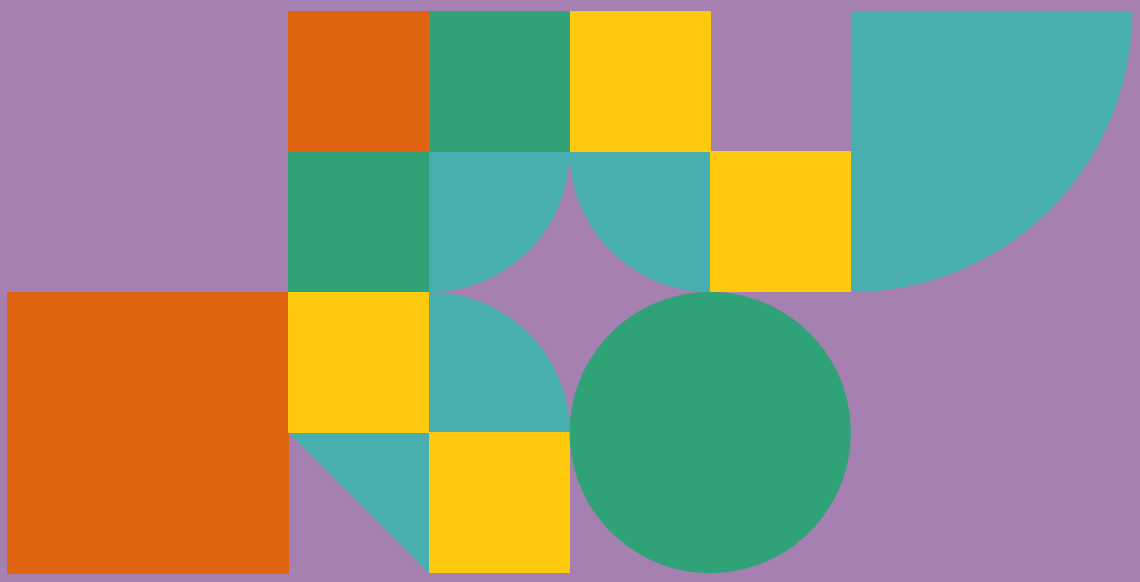


Clarify, Critique, Correct gives students an original piece of mathematical writing to analyze, reflect on, and develop. This prompts students to analyze the incorrect, incomplete, or ambiguously written mathematical statement and improve upon the work.



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