



# Imagine Math supports English learners

The CGCS' recently published *A Framework for Re-envisioning Mathematics Instruction for English Language Learners* recommends a focus on the following key instructional principles and practices:

1. Rigorous Tasks
2. Productive Struggle
3. Multiple Representations
4. Academic Language
5. Strategic Scaffolding\*

\*Council of the Great City Schools. 2016. *A Framework for Re-envisioning Mathematics Instruction for English Language Learners*

**Imagine Math** aligns with these key instructional principles and practices to support English learners (ELs) as outlined by the Council of the Great City Schools (CGCS) and has been [awarded](#) the opportunity to raise math achievement for ELs within the nation's largest urban public school systems.

## 1. RIGOROUS TASKS

Providing **rigorous tasks** is important to student learning and development, continually moving students forward in their learning. Imagine Math maintains an appropriate level of rigor at all times while ensuring a balance between cognitively demanding tasks and access.

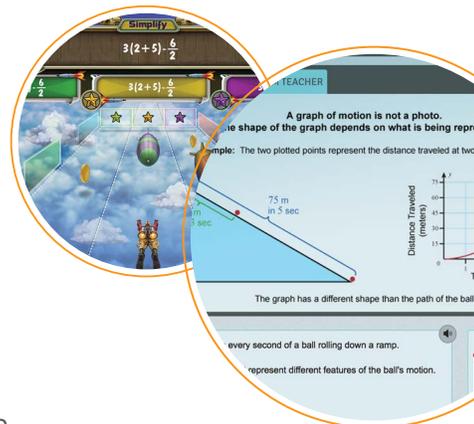
**Journaling opportunities** in Imagine Math prompt students to represent their math knowledge concretely, explaining their mathematical thinking in their own words, and creating their own representations of evolving understanding. Scaffolded journaling supports provide multiple entry points to convey mathematical understanding.

**Application tasks** in the program are intended to be used after a unit of study to provide students with relevant challenges, helping students make connections among real-world concepts.

## 2. PRODUCTIVE STRUGGLE

When students are given ample opportunity to grapple with problems and engage in **productive struggle**, they learn to stretch and strive in their learning. Imagine Math encourages productive struggle through challenging problems while offering appropriate support to ensure students experience academic success.

In Imagine Math, there are three levels of support for students to securely encounter productive. **Two "Math Helps"** ensure students get the support they need while working through challenging problems. **One-on-one online teaching** becomes available to students after they have worked at a problem and demonstrated that additional support is needed. Online teachers can incorporate a **two-way interactive whiteboard** if they deem even more support is needed. Lastly, Imagine Math's **Proactive Intervention** system is triggered when a student demonstrates need for additional support.



“Classwork and assignments that students encounter should not be limited to memorizing facts, rules, or only carrying out calculations, but should extend to showing, describing, and discussing the underlying mathematical meaning of those procedures.”

– Council of the Great City Schools. 2016. A Framework for Re-envisioning Mathematics Instruction for English Language Learners, p.10

### 3. MULTIPLE REPRESENTATIONS

Discussions and explorations via multiple representations deepen conceptual understanding of math. Students encounter a variety of representations in each Imagine Math lesson via **models, symbols, and diagrams** to assist with learning and deepen understanding.

Multiple representations are also included throughout Imagine Math Application Tasks to help students connect mathematical concepts and procedures. The **math tools** found in Imagine Math give students another way to concretely represent their mathematical thinking.

### 4. ACADEMIC LANGUAGE

Mathematical discussions are critically important to conceptual development. **Academic language** allows students to not only be able to reason and problem solve, but also to express their conceptual understanding. Additionally, students need academic language to understand others’ explanations and to be ready to challenge others’ ideas.

Multiple **journaling opportunities** within Imagine Math encourage students to reflect on their learning and communicate their growing mathematical understanding.

**Application Tasks** in the program provide opportunities for students to engage in mathematical collaboration via peer-to-peer and whole-group discussion.

Imagine Math teachers **facilitate mathematical discourse** by encouraging students to utilize mathematical language to communicate their evolving conceptual understanding.

### 5. STRATEGIC SCAFFOLDING

Imagine Math offers multiple scaffolds designed to empower students as they work toward mastering grade level standards.

Exemplars

First language support

Sample linking words and phrases

Sentence stems

Contextualized vocabulary

Math tools