



McGraw-Hill
**Illustrative
Mathematics**
Grades 6–8

To learn more about McGraw-Hill Illustrative Mathematics please visit mheonline.com/IM68-EdReports

Supporting the Illustrative Mathematics Mission

As an IM Certified™ Partner, McGraw-Hill is committed to providing the support needed to successfully implement *Illustrative Mathematics*. A portion of every purchase is earmarked toward supporting the continued development of high-quality math curriculum.

Creating a World Where Learners Know, Use, and Enjoy Mathematics

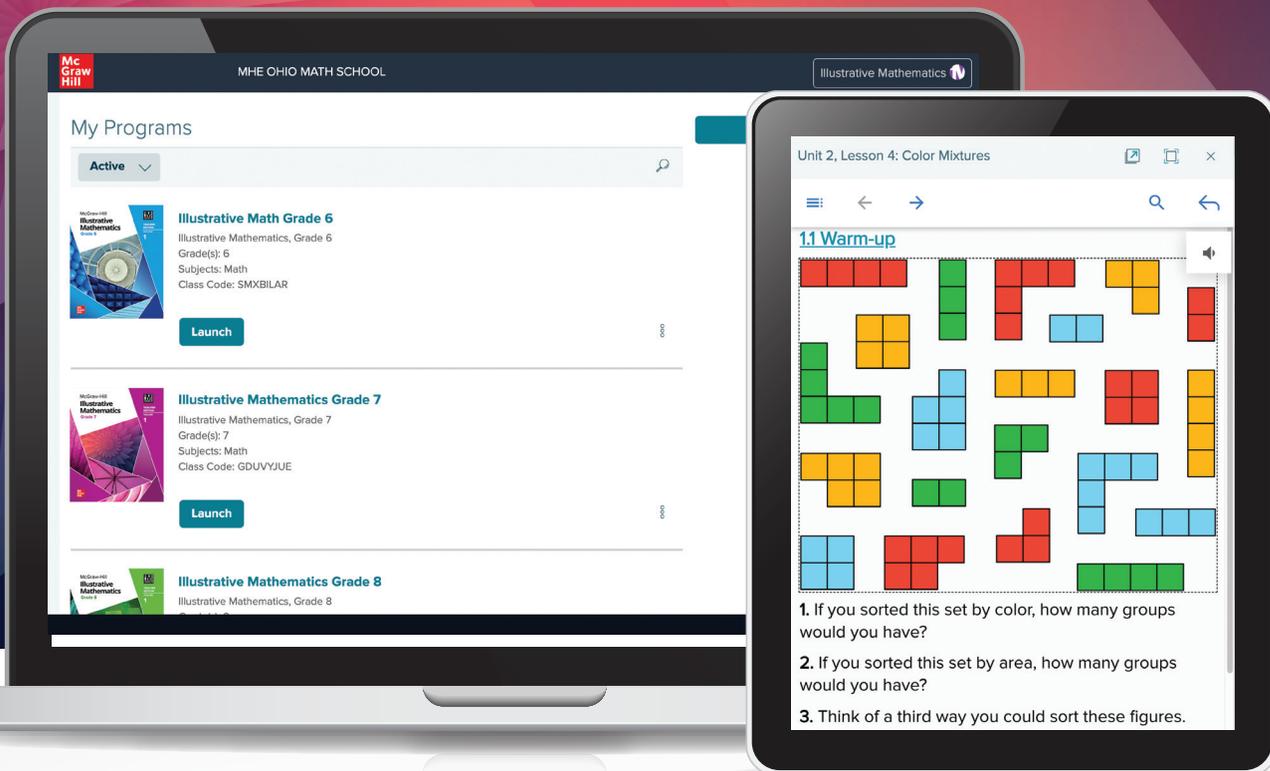
Decades of research shows that if students are given a chance to notice and wonder while trying to solve a problem by themselves, they retain procedural skills, develop problem-solving skills, build conceptual understanding, and form a mental framework for how ideas fit together. It allows students to develop strategies for tackling non-routine problems while engaging in productive struggle.

Illustrative Mathematics is a problem-based curriculum designed to address content and practice standards to foster learning for all. Students are encouraged to take an active role to see what they can figure out before having things explained to them or being told what to do.

The McGraw-Hill Difference

Only McGraw-Hill delivers certified *Illustrative Mathematics* content specifically designed for digital, print, and hybrid implementations backed by the support only McGraw-Hill can offer.

- Personalized service and support from a local McGraw-Hill sales representative
- A team of curriculum specialists to support your implementation
- On-demand customer service to get help when you need it



Digital Student and Teacher Editions

McGraw-Hill *Illustrative Mathematics* offers flexible implementations with both print and digital options that fit a variety of classrooms.

Online resources offer:

- Customizable content.
- The ability to add resources.
- Auto-scoring of student practice work.
- Ongoing student assessments.
- Classroom performance reporting.

Launch Presentations

Digital versions of lessons to present content.

Reports

Review the performance of individual students, classrooms, and grade levels.

Access Resources

Point-of-use access to resources such as assessments, eBooks, and course guides.

Enhanced Print Resources

McGraw-Hill Illustrative Mathematics offers engaging color print resources for both students and teachers. Teacher resources have an Improved layout that provides a higher degree of usability and supports instruction more efficiently.

Topic: Equivalent Ratios

Standards Alignment
Building On: 4.NBT.B.5

See the Appendix, beginning on page A1 for a description of this routine and all Instructional Routines.

Warm Up 4.1 Number Talk: Adjusting a Factor (10 minutes)

This number talk encourages students to use the structure of base ten numbers and the properties of operations to find the product of two whole numbers. **MP7**

While many strategies may emerge, the focus of this string of problems is for students to see how adjusting a factor impacts the product, and how this insight can be used to reason about other problems. Four problems are given, however, it may not be possible to share every possible strategy. Consider gathering only two or three different strategies per problem. Each problem was chosen to elicit a slightly different reasoning, so as students explain their strategies, ask how the factors impacted how they approached the problem.

Instructional Routines

- Number Talk
- Mathematical Language Routines
 - **MLR8** Discussion Supports

Launch

Display one problem at a time. Give students 1 minute of quiet think time per problem and ask them to give a signal when they have an answer and a strategy. Follow with a whole-class discussion.

Support For Students with Disabilities

Representation: Internalize Comprehension To support working memory, provide students with sticky notes or mini whiteboards.

Supports Accessibility for: Memory, Organization

Student Task Statement

Find the value of each product mentally.

1. $6 \cdot 15 = 90$. Possible strategy: $(6 \cdot 10) + (6 \cdot 5) = 90$
2. $12 \cdot 15 = 180$. Possible strategy: Since the 6 from the first question doubled to 12, and the 15 stayed the same, the product doubles to 180. This is because there are twice as many groups of 15 than in the first question.
3. $6 \cdot 45 = 270$. Possible strategy: Since the 6 is the same as the 6 in the first question, and the 15 tripled to 45, the product triples to 270. This is because the number of groups stayed the same, but the amount in each group got three times as large.
4. $13 \cdot 45 = 585$. Possible strategy: Since the 45 is the same as the previous question, we can double the 6 and the product to get 540. We need one more group of 45, and $540 + 45 = 585$.

Activity Synthesis

Ask students to share their strategies for each problem. Record and display their explanations for all to see. Ask students if or how the factors in the problem impacted the strategy choice. To involve more students in the conversation, consider asking:

- Who can restate ___'s reasoning in a different way?
- Did anyone solve the problem the same way but would explain it differently?
- Did anyone solve the problem in a different way?
- Does anyone want to add on to ___'s strategy?
- Do you agree or disagree? Why?

(continued on the next page)

Lesson 2-4 Color Mixtures 255

Teacher Materials offer Improved formatting that makes lessons easier to follow and brings greater focus to lesson prompts that support students with disabilities and English-Language Learners.

Topic: Equivalent Ratios

Lesson 2-4

Color Mixtures

NAME _____ DATE _____ PERIOD _____

Learning Goal Let's see what color-mixing has to do with ratios.

Warm Up
4.1 Number Talk: Adjusting a Factor

Find the value of each product mentally.

1. $6 \cdot 15$
2. $12 \cdot 15$
3. $6 \cdot 45$
4. $13 \cdot 45$

Activity
4.2 Turning Green

Your teacher mixed milliliters of blue water and milliliters of yellow water in the ratio 5 : 15.

1. Doubling the original recipe:
 - a. Draw a diagram to represent the amount of each color that you will combine to double your teacher's recipe.
 - b. Use a marker to label an empty cup with the ratio of blue water to yellow water in this double batch.

Lesson 2-4 Color Mixtures 157

Student Materials provide a more engaging experience for students with improved layouts in full color.

ALEKS®



A Personalized Pathway to Math Proficiency

*ALEKS® is an online personalized learning solution for grades 6–12. ALEKS can be bundled with *McGraw-Hill Illustrative Mathematics* to provide targeted, supplemental assessment and instruction. It uses artificial intelligence to identify and provide instruction on the topics each student is most ready to learn. A continuous cycle of assessment, learning, and reinforcement adapts instruction to the individual needs of each student and customizes a unique learning pathway to help accelerate students to standard mastery. The program’s three-phase cycle keeps students engaged by challenging them with concepts they are ready to learn, thus eliminating boredom and frustration.

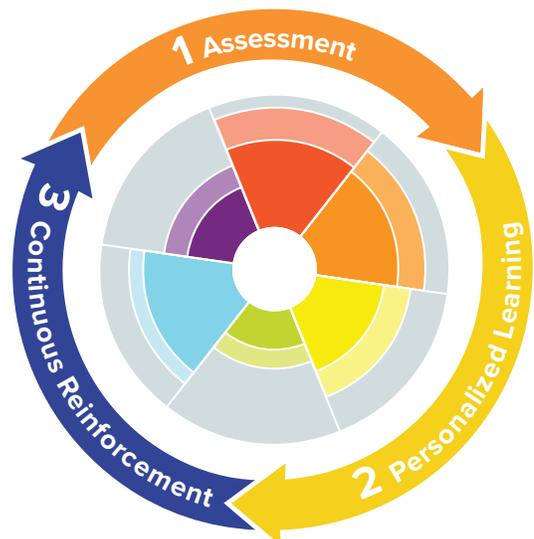
*ALEKS is not IM certified.

Features:

- An algorithm that generates a unique problem set for every student, every time.
- Detailed explanations for every problem—including dictionary and video resources.
- Learning Mode open-response problems and intuitive input tools provide an authentic measure of conceptual understanding.
- Pie reports provide in-depth analysis of student progress in multiple topics.
- Insights reports that identify students who may need intervention.
- Content in English and Spanish.
- Progress monitoring on student mastery of mathematical standards.
- Dynamic data at the student, class, school, and district level.

*2019 CODiE Award Winner

- Best Summative Assessment Solution
- Best College and Career-Readiness Solution



*The only peer-recognized competition in education and business technology.