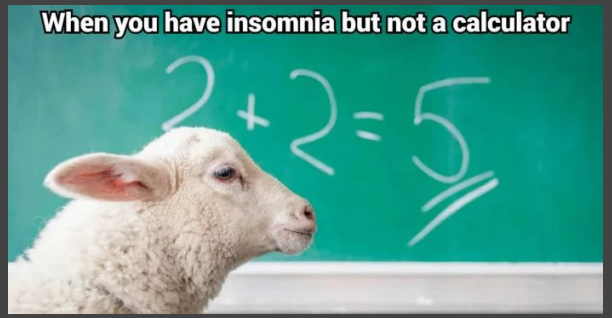
Into Math

“HMH” (Houghton Mifflin Harcourt)

Presenter:
Mr. Martin

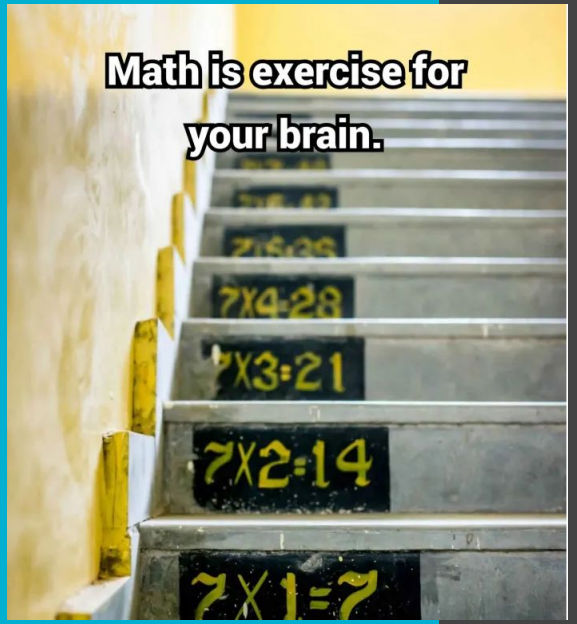
November 10, 2022

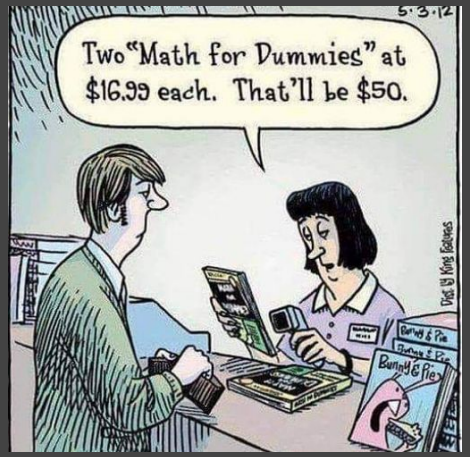
Math Funnies....or are they???

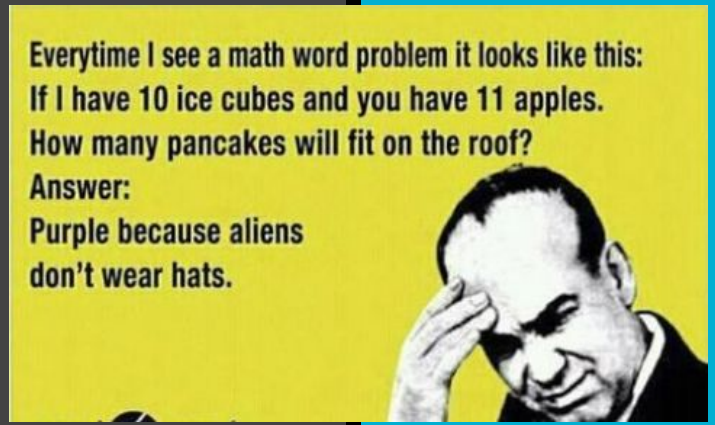


MATH

Mental Abuse To Humans







Current Needs In Math....Here is where you help!

- Our “Foundational 4” - Add, Subtract, Multiply, Divide facts
- Real-world math scenarios (carpentry, store, dinner, etc...). The possibilities are endless to show your kids math at work in the real world!!!
- Homework is ESSENTIAL! - Math is a skill and requires constant practice. Most teachers will give 10-15min of hw max! If it is taking longer, please ask your child if they are doing everything **THEY** need to do in class.
- Challenge each other!
- Don’t beat up Math or any subject for that matter!
    - Your perception becomes their perception!

Into Math Series - Adopted to Start 2022-23 School Year

Process:

- Why did we need a new math series?
  - Cohesiveness
  - Common Language
  - Bridge the gap between school and home
  - Scores Fell across the district...and state
- Math committee formed to evaluate current needs and review several text books
  - A book aligned to state and local standards
  - Clear and common vocabulary
  - **Lesson and practice that is consistent from grade level to grade level (1-6)**
  - Technology integration!

Disadvantages:

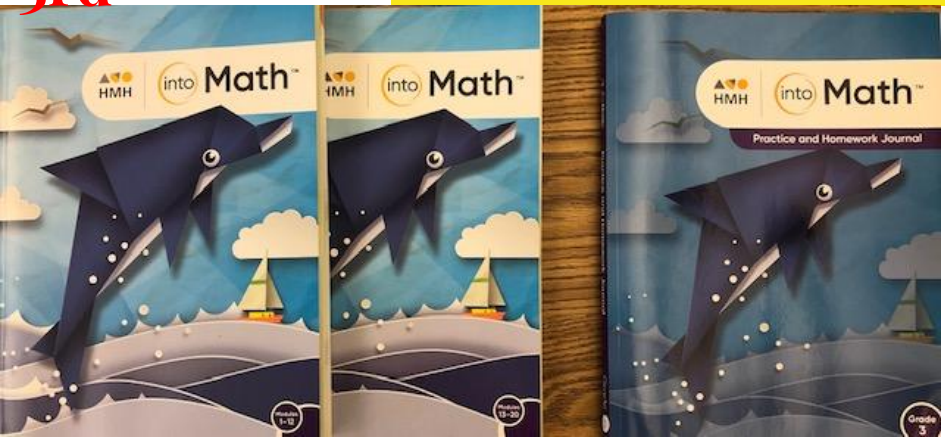
1. The language is challenging and the application problems require effort and perseverance!
   a. "Academic Rigor"
   b. Grades??

Advantages:

1. Cohesiveness across grade level
2. A physical book to work out of
3. Aligned to state and national standards
4. Integrates technology (Google)
   a. "Waggle"
5. Increased "Academic Rigor"

Meet Your Grade Level Specific Textbooks

3rd



4th

5th

6th

Typical Lesson Layout

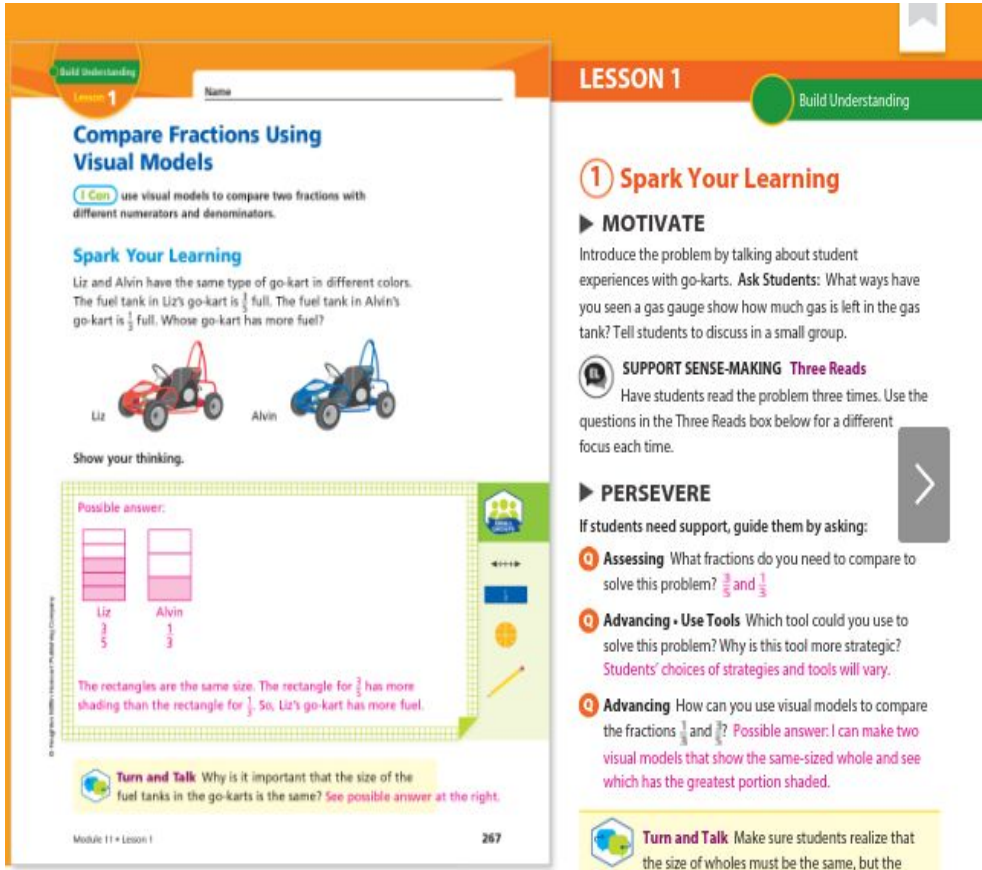
1.)Lesson introductions and connection to previous learning

*I can statement ***(expectation)***

2.) Guided questions and scaffolding of the new content w/ examples

3.) Independent practice

4.) Spiral Review



Build Understanding
Lesson 1

Name

Compare Fractions Using Visual Models

I Can use visual models to compare two fractions with different numerators and denominators.

Spark Your Learning

Liz and Alvin have the same type of go-kart in different colors. The fuel tank in Liz's go-kart is $\frac{2}{5}$ full. The fuel tank in Alvin's go-kart is $\frac{1}{3}$ full. Whose go-kart has more fuel?

Liz Alvin

Show your thinking.

Possible answer:

Liz $\frac{2}{5}$ Alvin $\frac{1}{3}$

The rectangles are the same size. The rectangle for $\frac{2}{5}$ has more shading than the rectangle for $\frac{1}{3}$. So, Liz's go-kart has more fuel.

Turn and Talk Why is it important that the size of the fuel tanks in the go-karts is the same? See possible answer at the right.

Module 11 • Lesson 1 267

LESSON 1 Build Understanding

1 Spark Your Learning

▶ **MOTIVATE**

Introduce the problem by talking about student experiences with go-karts. **Ask Students:** What ways have you seen a gas gauge show how much gas is left in the gas tank? Tell students to discuss in a small group.

SUPPORT SENSE-MAKING Three Reads

Have students read the problem three times. Use the questions in the Three Reads box below for a different focus each time.

▶ **PERSEVERE**

If students need support, guide them by asking:

Assessing What fractions do you need to compare to solve this problem? $\frac{2}{5}$ and $\frac{1}{3}$

Advancing • Use Tools Which tool could you use to solve this problem? Why is this tool more strategic? Students' choices of strategies and tools will vary.

Advancing How can you use visual models to compare the fractions $\frac{1}{3}$ and $\frac{2}{5}$? Possible answer: I can make two visual models that show the same-sized whole and see which has the greatest portion shaded.

Turn and Talk Make sure students realize that the size of wholes must be the same, but the

2 Learn Together

Build Understanding

Task 1 MP **Use Tools** Suggest that students use fraction strips to represent the lengths of the tracks. Make sure students understand that the length of a track is the distance it takes to go from one position back to the same position one time.

Sample Guided Discussion:

Q What fractions do you need to compare to solve this problem? $\frac{4}{5}$ and $\frac{7}{8}$

ch fraction model is longer, $\frac{1}{5}$ or $\frac{1}{8}$? $\frac{1}{5}$

ch fraction model would be longer, $\frac{5}{5}$ or $\frac{8}{8}$? neither ause both are the same length

Turn and Talk Encourage students to share their answers. For students who are struggling, encourage them to think about how close each fraction is to 1 mile. Possible answer: $\frac{4}{5}$ is $\frac{1}{5}$ from the whole and $\frac{7}{8}$ is $\frac{1}{8}$ from the whole. $\frac{1}{5}$ is greater than $\frac{1}{8}$ because fifths are larger than eighths. Because I remove a longer piece from the whole to make $\frac{4}{5}$ than I do to make $\frac{7}{8}$, $\frac{4}{5}$ is the lesser value.

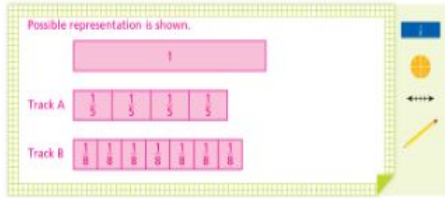
Build Understanding

1 There are two go-kart tracks. Which is the shorter track?

Use a fraction model to represent the length of each track. Then draw visual models for your representations.

Track A: $\frac{4}{5}$ mile Track B: $\frac{7}{8}$ mile

Possible representation is shown.



A. How does your fraction model represent $\frac{4}{5}$ mile? Possible answer: It has four $\frac{1}{5}$-fraction pieces placed end to end.

B. How does your fraction model represent $\frac{7}{8}$ mile? Possible answer: It has seven $\frac{1}{8}$-fraction pieces placed end to end.

C. How can you use your fraction models to compare the lengths of the tracks? Possible answer: Line up the fraction models for $\frac{4}{5}$ and $\frac{7}{8}$ on the left side and look at the right side to see which fraction model is shorter. That shorter model represents the shorter track.

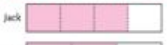
D. Which track is shorter? Track A

Turn and Talk The fractions $\frac{4}{5}$ and $\frac{7}{8}$ each have one piece missing from the whole. How can you use the sizes of the missing pieces to compare the two fractions? See possible answer at the left.

Name

2 It takes Jack $\frac{3}{4}$ hour to fix a tire. It takes Renee $\frac{2}{3}$ hour to fix a tire. Who takes a longer time to fix a tire? Possible visual models are shown.

A. Complete the visual model to show the time for each person.



B. How do the lengths of the visual models for $\frac{3}{4}$ hour and $\frac{2}{3}$ hour compare? Who takes a longer time?

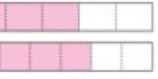
The visual model for Jack's time is longer than the one for Renee's. Jack takes a longer time.

C. Use the symbols < or > to write a statement comparing the two fractions. $\frac{3}{4} > \frac{2}{3}$

Check Understanding

Math Board Possible visual models are shown.

1 Emma fills $\frac{3}{5}$ of a jug with water. She fills $\frac{4}{5}$ of a same-sized jug with sports drink. Does Emma pour more water or more sports drink?



Complete the visual models to solve. Justify your answer.

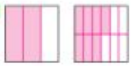
Emma pours more sports drink. Possible answer: The visual model for $\frac{4}{5}$ is longer than the one for $\frac{3}{5}$. So, $\frac{4}{5}$ is greater than $\frac{3}{5}$.

Complete the visual model to show each fraction. Then write < or > to compare. Possible visual models are shown.

2

$\frac{3}{8} < \frac{2}{4}$

3



$\frac{2}{3} > \frac{7}{12}$

Task 2 MP **Use Tools** Tell students that using area models is one way to solve this problem. Ask students to determine other visual models they could use. You could suggest a circle model because it resembles a clock face. This may help students connect the modeled value to the actual quantity of time elapsed.

Sample Guided Discussion:

Q How do the lines dividing each rectangle help you show each fraction? Possible answer: Jack's rectangle is divided into 4 equal parts, so I can shade 3 parts to show $\frac{3}{4}$. Renee's rectangle is divided into 3 equal parts, so I can shade 2 parts to show $\frac{2}{3}$.

Q How do you remember which number is greater when comparing numbers using the symbols < or >? Possible answer: I remember that the poi end of the "V" shape points to the lesser number.

OPTIMIZE OUTPUT
Stronger and Clearer

Have students share how they solved this problem. Remind students to ask questions of each other that focus on how they approached the problem. Then have students refine their answers.

Grade Level Book Layout

3rd Grade:

“Spark Your Learning”

“Build Understanding”

“Check Understanding”

“On Your Own”

4th Grade:

“Step It Out”

“Check Understanding”

“On Your Own”

***Review at the end of each module**

5th Grade:

“Step It Out”

“Check Understanding”

“On Your Own”

***Review at the end of each module**

6th Grade:

“Are You Ready”

“Check Understanding”

“On Your Own”

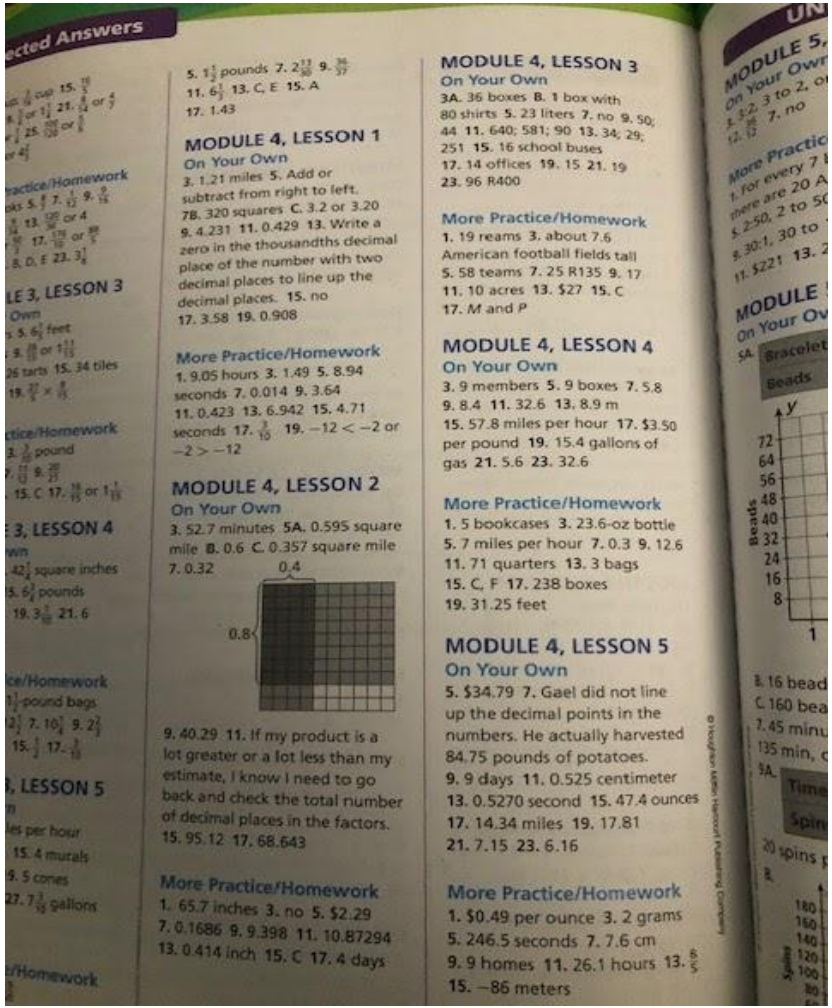
“Test Prep”

“Spiral Review”

Upon Further Investigation

More Features:

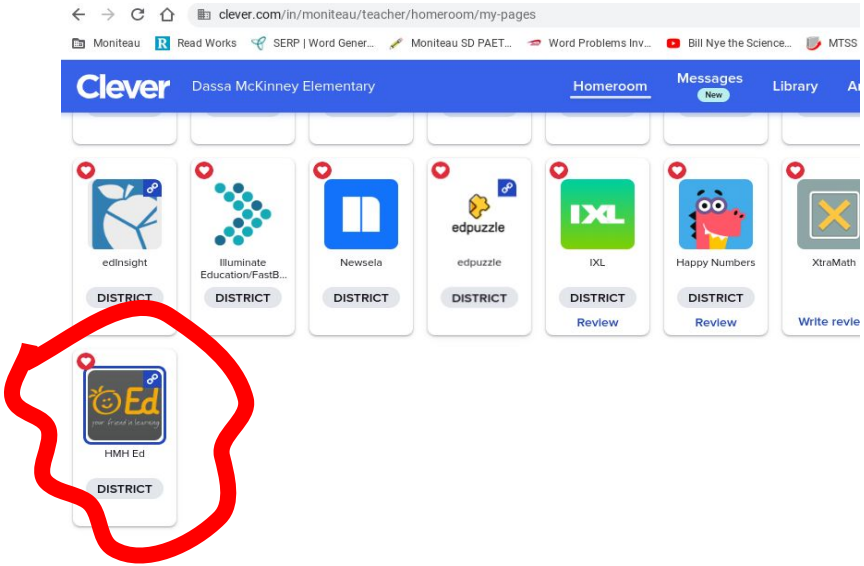
1. What is a module? …. A Chapter
2. Most modules are 4-7 lessons in length
3. Glossary of terms and definitions (some are built directly into the lesson)
4. Index - content and page #
5. **Selected answers - yes they exist!**
    a. **Are you on target?**
6. Increased opportunity for practice!
    a. Not all problems are assigned.



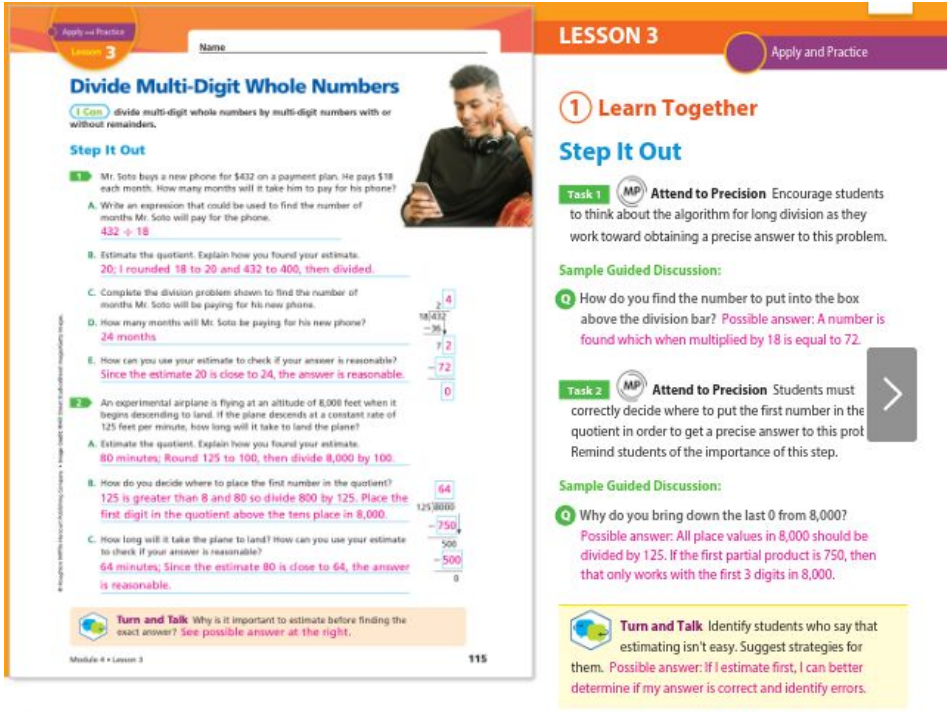
Online Textbook - YES, you all have access!

Student/Parent Access:

- All students have access to the online version of the text; accessed through [CLEVER]



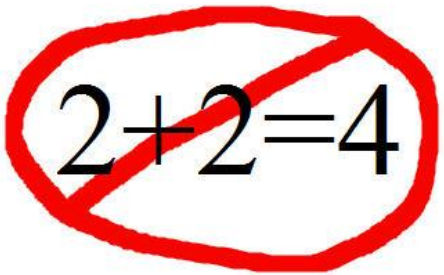
- Each student has access to grade level specific textbook (print pages, access questions, etc...)



Math Summary In General

Practice at Home:

- Don't worry about the grade, worry more about the process and are they understanding how they got to that answer!
- IXL - interactive program that is aligned and organized by standard. Students can practice as much as necessary!
- Xtramath - "foundational 4" and requires 5-10min to complete a session
- **Remember, Math is a SKILL that requires constant practice and attention!**

Communication is Key:

1. Take ownership of the educational/math process!
   a. Child/Parent communication
2. Please reach out to the math teachers with concerns you see at home (concepts, homework, etc...)
3. More than one way to achieve the outcome!
   a. "I wasn't taught like that!"