

USERS' GUIDE and LESSON PLANS



Super Star Online by Help Me 2 Learn

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Games of Math 4 Division & Fractions

Division and Fractions Practice, Timed and Untimed Games, Word Problems, Long Division with Remainders, Simplifying Fractions, Converting Fractions, Equivalent Fractions, Comparing Fractions, and Adding Fractions

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Guide written by:
Dan L. Sheffield

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Games of Math 4 – Division & Fractions

- Overview/Helpful Tips

(Target grades 3 & 4)

Dear Teachers:

Games can be a powerful instructional tool. Games of Math 4 – Division & Fractions was developed to help reinforce math skills while making learning fun and engaging.

By playing Games of Math 4 – Division & Fractions, your class will learn about:

- Simplifying Fractions
- Improper Fractions
- Equivalent Fractions
- Comparing Fractions
- Adding Fractions
- Division: divisor 1 to 12, quotient 1 to 12 (untimed game)
- Division: divisor 1 to 12, quotient 1 to 12 (timed game)
- Division: Word Problems game
- Long Division with Remainders game
- Improper Fractions and Simplifying Fractions game
- Working with Fractions game: equivalent fractions, comparing fractions, adding fractions
- And more!

Our user-friendly software uses a variation of our Super Star Motivation and Tracking System. This is a simple and effective way to keep track of your students as they progress through the game. It keeps track of their right and wrong answers! By using positive reinforcement and the Gold Star System, students are provided with incentives to get the correct answers. The goal of the program is to complete each level of each game and win a Gold Star Certificate of Completion for each game and a Gold Star Certificate for completion of all the levels of the program.

Students can keep track of their progress status by clicking on the "Progress" button from any page or screen. The progress report displays the student's name and their level of achievement in each game in a graph. With your permission, once a student has earned a Gold Star Certificate of Completion, they can print out the certificate.

While we pride ourselves on making our courses easy-to-use and user friendly, we believe that our courses are most effective when used with the guidance of a teacher or a parent.

Games of Math 4 includes all the components necessary for effective learning:

1. Instruction - in the form of animated lessons.
2. Math Practice – to build fluency and skills needed to complete the games.
3. Engaging Games – a fun way to practice and use math skills.
4. Pre-Test and Post-Test – proof of progress and mastery of the lessons.
5. The Gold Star Progress and Data Tracking System.
6. Teacher Features – to give teachers the controls and reports they need.

Instruction – Games of Math 4 features five animated instructional videos that cover the concepts of the lessons. Videos include: what are fractions?, simplifying fractions, converting fractions, comparing fractions, and adding fractions. These videos (Math Rules) can be found in the practice lessons and on the main screen of the games.

Practice Lessons - Teachers (or parents) can be most useful in helping kids with the parts of the lessons that are most difficult or not as much fun. Some kids find that our practice section may not be as much fun as the games. These practices can help build their skills. In most cases, they are similar to flash cards except there are many settings which allow you to customize the practice activities.

Here are some suggestions and tips for using our “Practice Lessons”:

- If possible, make the practice lessons a whole class activity (you may want to create a new user account for the class; you can make this account active or inactive as needed). If you can project the practice lessons to a screen and lead the class through the lessons, you will find that the kids will be more engaged.

Engaging Games – We hear it all the time how much the kids love Super Star and our games are the reason why.

Another reason that our games are among the best is that we offer a wide variety of games and game types. Our games not only require knowledge of the lesson objectives, but also require problem solving and critical thinking. If a student is unable to complete a level on the first try, they can repeat until they do pass that level. Games of Math 4 is progressive by default, students must complete games to unlock other games. Teachers have the option to open all the games using our student management features.

We also suggest that whenever possible, the practices and games also be used as a whole class activity or competition. We make several suggestions in our lessons to encourage teachers to use different methods of using our games as a whole class activity. When teachers are able to do this, it takes our lessons to a much higher level of engagement and fun, making the class and school exciting.

The main objective the games is to engage the student in learning and give the student a way of applying and using the knowledge they have gained in the lesson. We love to hear that students are learning when they think they are just playing games. "Your kids will love learning with Super Star!" Isn't that what is all about, developing a love of learning?

Pre-Test and Post-Test: This program is really two programs; the instructional and game program and a Pre-Test and Post-Test program. We highly recommend that you take advantage of our Pre- and Post-Tests. Ask your students to click on the Pre-Test Post-Test button found on the main menu page.

We recommend that most students complete all of the Pre-Tests before they begin using the program. If they score high on the Pre-Test, this would be a strong indication that they have already mastered this material. If they score low, this is a good indication that this material will help them.

Each test has multiple choice questions and is usually timed for a maximum of 3 minutes. Since there are 8 tests, it should take about 24 minutes to complete all of the tests. Upon completing a test, you will see a check mark by that test. You can see the report for the tests in the Student Management section of the program.

If you want the students to complete all of the tests, we recommend that you lock the Post-Tests from the Student Management section. You can also make sure that the students can access only the tests by locking the students from the program from the Student Management section.

Once a Pre-Test is taken, that pre-test cannot be changed or erased without deleting the student's name. The next test taken for that subject will automatically be the Post-Test. If a student repeats a Post-Test, only the last attempt will be recorded in the Post-Test report.

We recommend that a student take the Post-Test once the program has been completed or at the end of the school year. Some teachers prefer to have students take a pre-test before beginning a section and then take the Post-Test upon completing that section. The ultimate goal of the pre-test and Post-Test is to show progress and mastery of the material covered in the program.

Gold Star Progress and Tracking System - This is a simple and effective way to keep track of your students as they progress through the games. As students play each game, our system keeps track of the right and wrong answers and the points that they earn. By using positive reinforcement and a level and star system, students are provided with incentives to get the correct answers.

Teachers or students can access the "Progress Page" by clicking on the "Progress" button at the bottom center of any screen. A "Details Report" is also available from the Details button. More information is available in the back of this guide.

Teacher Features

Navigation:

With you, the teacher, in mind, we have created a simple and intuitive program. Although math can be difficult and confusing, we have broken the process into easy to learn steps. We developed the program so that almost any child can use the program successfully with a minimum amount of supervision. However, the program is most effective when teachers supervise their class while using this program.

Simply use the "Next" and "Back" buttons to navigate through the program. You can also use the buttons on the Menu screen. You can always return to the main page of the Table of Contents by clicking on the "Menu" button. While we have provided these "easy to use" navigation systems, most students will eventually learn that they can easily navigate the program by using our "Progress" page, by clicking on the Progress button in the bottom center of the page and then clicking a game.

Class Management System:

In most cases, teachers are allowed (managed by the site administrator) to manage their classes. Teachers can then add or remove the courses that are assigned to the class and add or remove students assigned to the class. Teachers can also create sub-classes and add students and courses to the sub-class so that students can have access to the courses that are most appropriate to them. Teachers may also have the ability to add new students to their class or make students inactive if they leave the class.

Student Management System: The Student Management features can be accessed from the Teachers & Admins button found on the main menu screen of Games of Math 4. You must sign-in using your teacher account to access these features. From the Student Management screen, you have several options:

- Class Progress Course Report
- Class Pre-test and Post Test Report
- Feature Locks
- Users' Guide and Lesson Plans

You can read a complete explanation of each of these features in the Student Management section of this guide found near the end of the guide.

- Using your Super Star Online teacher account, be sure to explore our Teacher & Admins Resource course which has written and video tutorials of our teacher features.

Have fun!

We congratulate you for your dedication in teaching children through the wonders of technology! We know how much you will love this title, so please try some of our other Help Me 2 Learn courses:

- Letters and Numbers
- Beginning Reading with Phonics
- Silly Pictures
- Silly Sentences
- Phonics 1a – Vowel Sounds
- Phonics 1b – Consonant Sounds
- Phonics 2a – Intermediate Level
- Phonics 2b – Intermediate Level II
- Language Arts Review 3a – Advanced Level, with Sports
- Language Arts Review 3b – Advanced Level II, with Sports
- Spanish 1a with Phonics/ Inglés 1a con Fonética
- Games of Math 1 – Addition & Money
- Games of Math 2 – Subtraction and more
- Games of Math 3 – Multiplication
- Games of Math 4 – Division and Fractions
- Super Star Movies
- Teachers and Admins Resources

Thank you,
The Help Me 2 Learn team
Contact us at:

www.helpme2learn.com

info@helpme2learn.com

toll free: 800-460-7001 fax: 888-391-8415

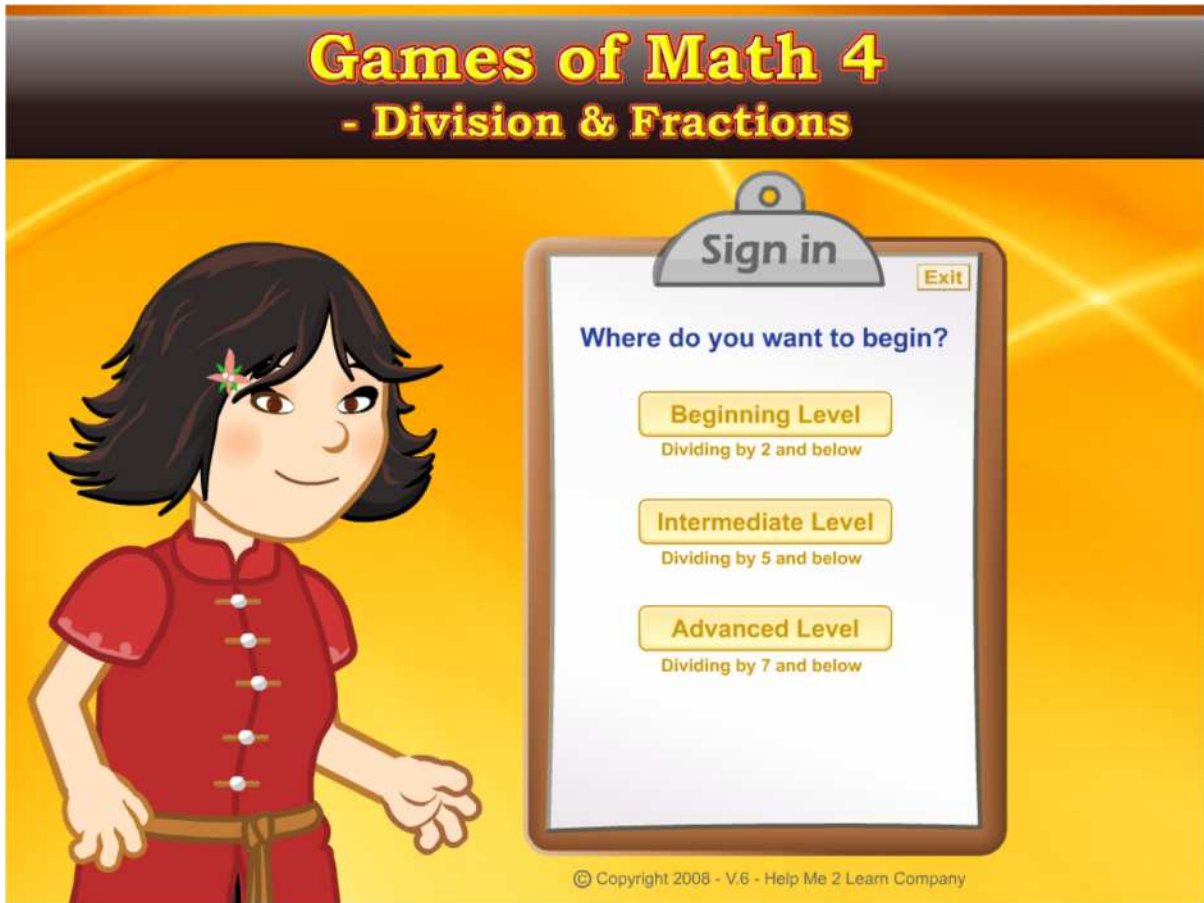
You may also want to use our app which is designed to make it easier for students to login to Super Star Online. Download our free app at:

<https://helpme2learn.com/school/apps> .

Getting Started

Once a student enters their name or clicks on their name (for the first time) on the sign in screen, they will be given the option of choosing where to begin in the program (Figure 1).

Getting Started - Figure 1



- The beginning level is problems dividing by 2 and below.
- The intermediate level is problems dividing by 5 and below.
- The advanced level is problems dividing by 7 and below.
 - If a student chooses the advanced level, they will be given 3 problems to answer. If they answer the 3 problems correctly, they can proceed to the advanced level. If they miss any of the problems, they will begin at the intermediate level.

The goal of the program is to advance through all of the levels through each game in the program and earn a Gold Star Certificate of Completion for each game. A

student who completes all the levels for all the games earns a Gold Star Certificate of Completion for Games of Math 4 – Division and Fractions. This simple system does wonders for motivating a student to complete each level and each game. This is a variation of our “Super Star Motivational and Data Tracking System”. The student progress is also displayed on the Progress screen (Figure 2), which can be accessed by clicking on the “Progress” button in the lower center portion of the screen.

Getting Started - Figure 2



When the student first begins the program, only two games are available to the student (Figure 3). Once a student completes some levels of a game, the next game will be unlocked. When a game is unlocked, a student can choose the level for the game being unlocked. All the games can be locked or unlocked from the Student Management area of the Teachers and Parents section.

Getting Started - Figure 3



The goal of each game is to achieve the required number of points (while building math skills). The goal for each level is posted at the beginning of the game and usually in the game. The beginning levels of the game are much easier than the higher levels; the problems presented become more difficult and the number of problems presented are more numerous. Usually, more gaming skills are also required. Students who complete a game level have the option of advancing to the next level of that game.

We have given the teacher a lot of control over the way this program operates. You can find these controls in the Student Management section of the Teachers' and Parents' section. These controls allow you to make the game goal level harder or easier and lock or unlock any of the games. You will also find progress reports in this section. To review the Student Management section in more detail, go to the Student Management section of this guide.

Lesson 1: Pre-Test

OBJECTIVE

Assessment: to determine the student's knowledge of division. Students will take a pre-test to determine their level of Division and Fractions skills before using Games of Math 4 - Division and Fractions. At a later time, the student will take the post-test and the teacher will assess the results.

STANDARDS

Test 1: Division 1-5: Multiple choice division problems, Divisor Range: 1-5, Dividend Range: 1-50

3.OA.7 - Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

4.NBT.6 - Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Test 2: Division 1-5: Multiple choice division problems, Divisor Range: 6-12, Dividend Range: 1-144

3.OA.7 - Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

4.NBT.6 - Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

5.NBT.6 - Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Test 3: Word Problems: Multiple choice division problems, Divisor Range: 2-11, Dividend Range: 1-121

3.OA.3 - Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by

using drawings and equations with a symbol for the unknown number to represent the problem.

3.OA.5. - Apply properties of operations as strategies to multiply and divide.

Examples: If $6 \times 4 = 24$ is known, then $4 \times 6 = 24$ is also known. (Commutative property of multiplication.) $3 \times 5 \times 2$ can be found by $3 \times 5 = 15$, then $15 \times 2 = 30$, or by $5 \times 2 = 10$, then $3 \times 10 = 30$. (Associative property of multiplication.)

Knowing that $8 \times 5 = 40$ and $8 \times 2 = 16$, one can find 8×7 as $8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56$. (Distributive property.)

4.OA.2. - Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.

Test 4: Long Division with Remainders: Multiple choice division problems, Divisor Range: 3-8, Dividend Range: 1-80

3.OA.7 - Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

4.NBT.6. - Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

5.NBT.6. - Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Test 5: Simplifying Fractions: Simplify the fraction, $16/24 = 2/3$

3.NF.3. - Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.

a. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.

b. Recognize and generate simple equivalent fractions, e.g., $1/2 = 2/4$, $4/6 = 2/3$. Explain why the fractions are equivalent, e.g., by using a visual fraction model.

c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. Examples: Express 3 in the form $3 = 3/1$; recognize that $6/1 = 6$; locate $4/4$ and 1 at the same point of a number line diagram.

d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only

when the two fractions refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.

4.NF.1. - Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.

Test 6: Converting Improper Fractions: Convert the improper fraction to a mixed fraction. The fraction may also need to be simplified, $20/6 = 3 \frac{1}{3}$, $11/2 = 5 \frac{1}{2}$

3.NF.3. - Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.

a. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.

b. Recognize and generate simple equivalent fractions, e.g., $1/2 = 2/4$, $4/6 = 2/3$. Explain why the fractions are equivalent, e.g., by using a visual fraction model.

c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. Examples: Express 3 in the form $3 = 3/1$; recognize that $6/1 = 6$; locate $4/4$ and 1 at the same point of a number line diagram.

d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.

4.NF.1. - Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.

Test 7: Comparing Fractions: Decide what fraction represents the largest number, $20/6$, $11/2$, $4/5$, $30/30$

3.NF.3. - Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.

a. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.

b. Recognize and generate simple equivalent fractions, e.g., $1/2 = 2/4$, $4/6 = 2/3$. Explain why the fractions are equivalent, e.g., by using a visual fraction model.

c. Express whole numbers as fractions, and recognize fractions that

are equivalent to whole numbers. Examples: Express 3 in the form $3 = \frac{3}{1}$; recognize that $\frac{6}{1} = 6$; locate $\frac{4}{4}$ and 1 at the same point of a number line diagram.

d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.

4.NF.1. - Explain why a fraction $\frac{a}{b}$ is equivalent to a fraction $\frac{n \times a}{n \times b}$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.

4.NF.2. - Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as $\frac{1}{2}$. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.

Test 8: Adding Fractions : Add two fractions and simplify the answer, $\frac{6}{9} + \frac{1}{8}$

3.NF.3. - Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.

a. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.

b. Recognize and generate simple equivalent fractions, e.g., $\frac{1}{2} = \frac{2}{4}$, $\frac{4}{6} = \frac{2}{3}$. Explain why the fractions are equivalent, e.g., by using a visual fraction model.

c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. Examples: Express 3 in the form $3 = \frac{3}{1}$; recognize that $\frac{6}{1} = 6$; locate $\frac{4}{4}$ and 1 at the same point of a number line diagram.

d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.

4.NF.1. - Explain why a fraction $\frac{a}{b}$ is equivalent to a fraction $\frac{n \times a}{n \times b}$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.

4.NF.2. - Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by

comparing to a benchmark fraction such as $\frac{1}{2}$. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.

5.NF.1. - Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. For example, $\frac{2}{3} + \frac{5}{4} = \frac{8}{12} + \frac{15}{12} = \frac{23}{12}$. (In general, $\frac{a}{b} + \frac{c}{d} = \frac{ad + bc}{bd}$.)

ACTIVITY

It is recommended that each student take the pre-test on a classroom or lab computer and not on a computer displayed to the class.

Click on the "Pre-Test Post-Test" button from the Menu screen (preparation - we suggest that you lock the pre-test portion of the program from the Student Management section of the Teachers & Parents section). Let the students do as many of the pre-tests as you feel appropriate (**Figure 1**).

Lesson 1 – Figure 1

Math 4 Pre-Test/Post-Test Student: Dan Sign in Menu **Exit**

Menu

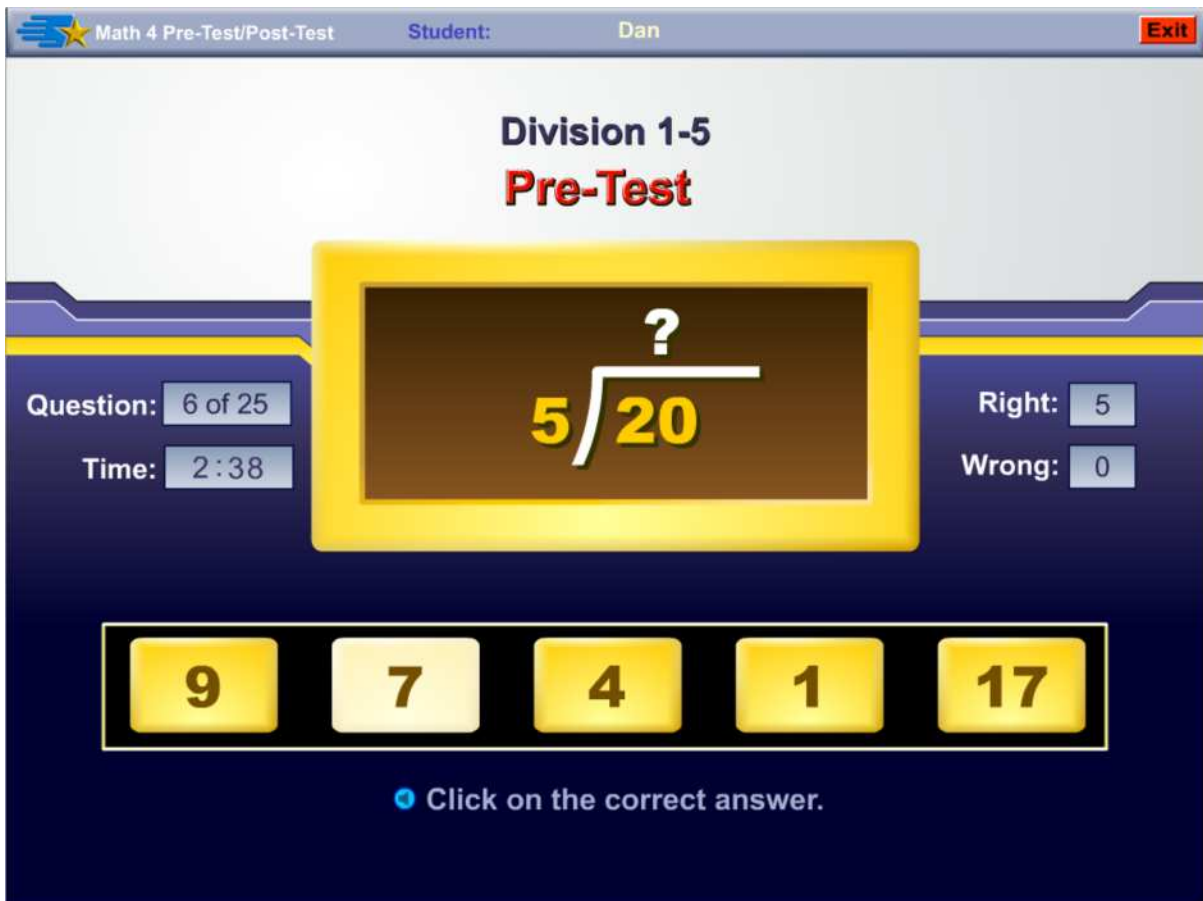
Click on one of the subjects below to test your knowledge in that subject.

Division 1-5	Pre-Test: <input type="checkbox"/>	Post-Test: <input type="checkbox"/>
Division 6-12	Pre-Test: <input type="checkbox"/>	Post-Test: <input type="checkbox"/>
Word Problems	Pre-Test: <input type="checkbox"/>	Post-Test: <input type="checkbox"/>
Long Division/Remainders	Pre-Test: <input type="checkbox"/>	Post-Test: <input type="checkbox"/>
Simplifying Fractions	Pre-Test: <input type="checkbox"/>	Post-Test: <input type="checkbox"/>
Improper Fractions	Pre-Test: <input type="checkbox"/>	Post-Test: <input type="checkbox"/>
Comparing Fractions	Pre-Test: <input type="checkbox"/>	Post-Test: <input type="checkbox"/>
Adding Fractions	Pre-Test: <input type="checkbox"/>	Post-Test: <input type="checkbox"/>

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The test is a set of 25 randomly generated multiple-choice problems. The test is a maximum of 3 minutes long. When all 25 questions are answered or the time is up, the test will end. The number of right and wrong answers are displayed (**Figure 2**) and will be recorded in the Class Test report, found in the Student Management portion of the Teachers and Parents section.

Lesson 1 – Figure 2



The first test for each of the subjects is always recorded as the pre-test and will display with a check mark in the pre-test box. When the test is taken a second time, it will always be recorded as the post-test. If the test is taken again, the previous post-test will be overwritten by the last test.

Lesson 2: Division Practice

OBJECTIVE

Division practice: Students will prepare for the games by practicing the Division and Long Division problems in a timed or untimed test.

STANDARDS

3.OA.2. - Interpret whole-number quotients of whole numbers, e.g., interpret $56 \div 8$ as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. For example, describe a context in which a number of shares or a number of groups can be expressed as $56 \div 8$.

3.OA.5. - Apply properties of operations as strategies to multiply and divide. Examples: If $6 \times 4 = 24$ is known, then $4 \times 6 = 24$ is also known. (Commutative property of multiplication.) $3 \times 5 \times 2$ can be found by $3 \times 5 = 15$, then $15 \times 2 = 30$, or by $5 \times 2 = 10$, then $3 \times 10 = 30$. (Associative property of multiplication.) Knowing that $8 \times 5 = 40$ and $8 \times 2 = 16$, one can find 8×7 as $8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56$. (Distributive property.)

3.OA.7. - Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

4.NBT.6. - Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

5.NBT.6 - Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

ACTIVITY

Click on the "Division Practice" button from the bottom of the main menu. This is one of the most powerful activities in the program. Click on the "Terms" button to review the Division terms. Click on the "Close Terms" button to return to the Division Practice screen.

Select the divisors you want to use and select the quotients (answers) you want to use (**Figure 1**). You can also select remainders (long division), if you wish. Click on the "Next" button near the top.

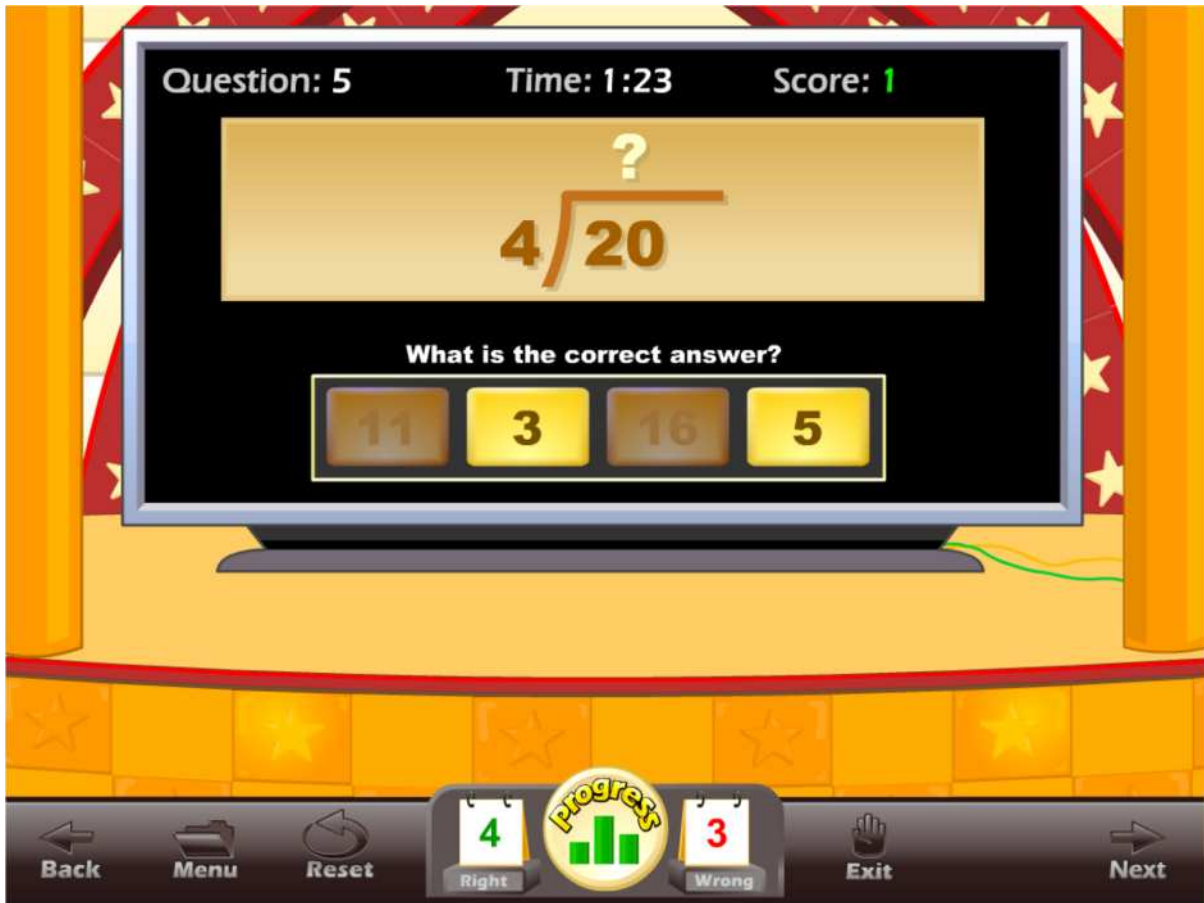
Lesson 2– Figure 1



Select the type of practice you want to take. You can set the time for a timed test or you can set the number of questions for an untimed test. Click on the “Star Practice” button to begin.

Once a timed test begins, you should click on the correct answer. If a student clicks on a wrong answer, that answer will be grayed out and the student can try another answer (**Figure 2**). (Note: in the pre-test and post-test, only one answer is allowed per question.) The time remaining is displayed at the top center of the screen along with the total score. The number of right and wrong answers is displayed at the bottom of the screen.

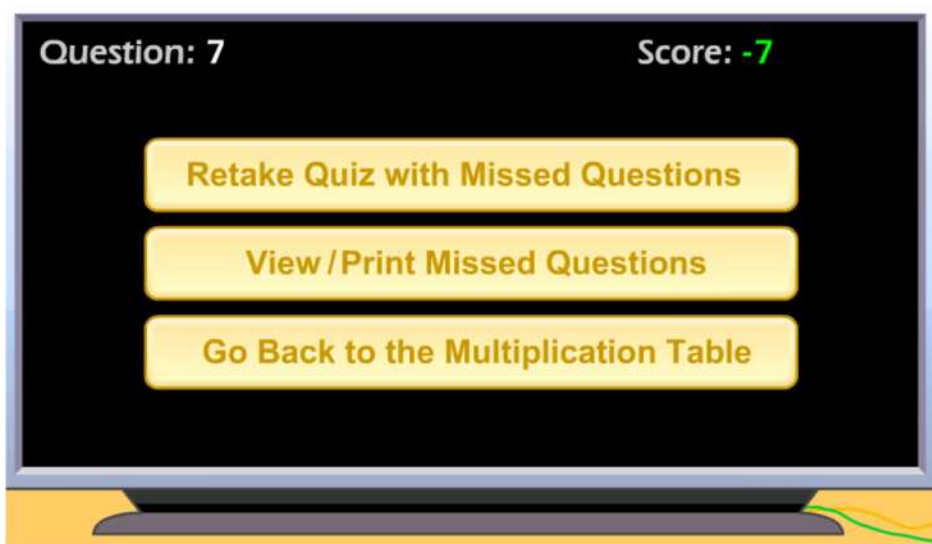
Lesson 2– Figure 2



Once the test is over and if the student missed 4 or more questions, a screen will appear with the following options (**Figure 3**):

- Retake Quiz with Missed Questions – this allows the student to retake the quiz and work on only the problems they missed.
- View/Print Missed Question – this allows the student to view and print (with your permission) a list of problems they missed. You can include this in their records or use this for additional work on paper. Note: you can lock printing from the Student Management section of the Parents and Teachers section.
- Go Back to the Division and Fractions Table – where the student can select problems for another test.

Lesson 2– Figure 3



USING THIS ACTIVITY IN CLASS

This activity can be used individually or it can be used as a great warm-up for the class, working on specific problem sets. There are many ways to make this an exciting class activity. Some of the ways to use this as a whole class activity are:

Teacher-led –

- Teacher clicks on the correct answer for the class, requires that the class come to a consensus on the answer.
- Teacher clicks on the correct answer, teacher calls on a student for the answer.
- Teacher divides the class into teams, the team leader answers for the team, the teacher clicks on the answer for the team.

Student-led –

- Students line up in front of the computer and take turns answering for the class. Each student answers one question.
- Teacher divides the class into teams; the teams compete for the highest score, the team captain clicks on the answers for the team.
- Students line up and take turns answering for the class. Each student answers as many questions as they can until they get a wrong answer.

Lesson 3: Fractions Practice

OBJECTIVE

Fractions practice. Students will prepare for the games by practicing the fractions problems in: a 1 minute timed test, a 2 minute timed test, a 3 minute timed test or a 30 question untimed test.

STANDARDS

3.NF.3. - Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.

a. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.

b. Recognize and generate simple equivalent fractions, e.g., $1/2 = 2/4$, $4/6 = 2/3$. Explain why the fractions are equivalent, e.g., by using a visual fraction model.

c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. Examples: Express 3 in the form $3 = 3/1$; recognize that $6/1 = 6$; locate $4/4$ and 1 at the same point of a number line diagram.

d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.

4.NF.1. - Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.

4.NF.2. - Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as $1/2$. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.

5.NF.1. - Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. For example, $2/3 + 5/4 = 8/12 + 15/12 = 23/12$. (In general, $a/b + c/d = (ad + bc)/bd$.)

ACTIVITY

Click on the "Fractions Practice" button from the bottom of the main menu. This is one of the most powerful activities in the program. Click on the "Terms" button to review the Fractions terms (**Figure 1**). Click on the "Close Terms" button to return to the Fractions Practice screen.

Lesson 3 – Figure 1



Select the fractions practice you want to use (**Figure 2**). You then select whether you want to practice: easy, normal or hard problems.

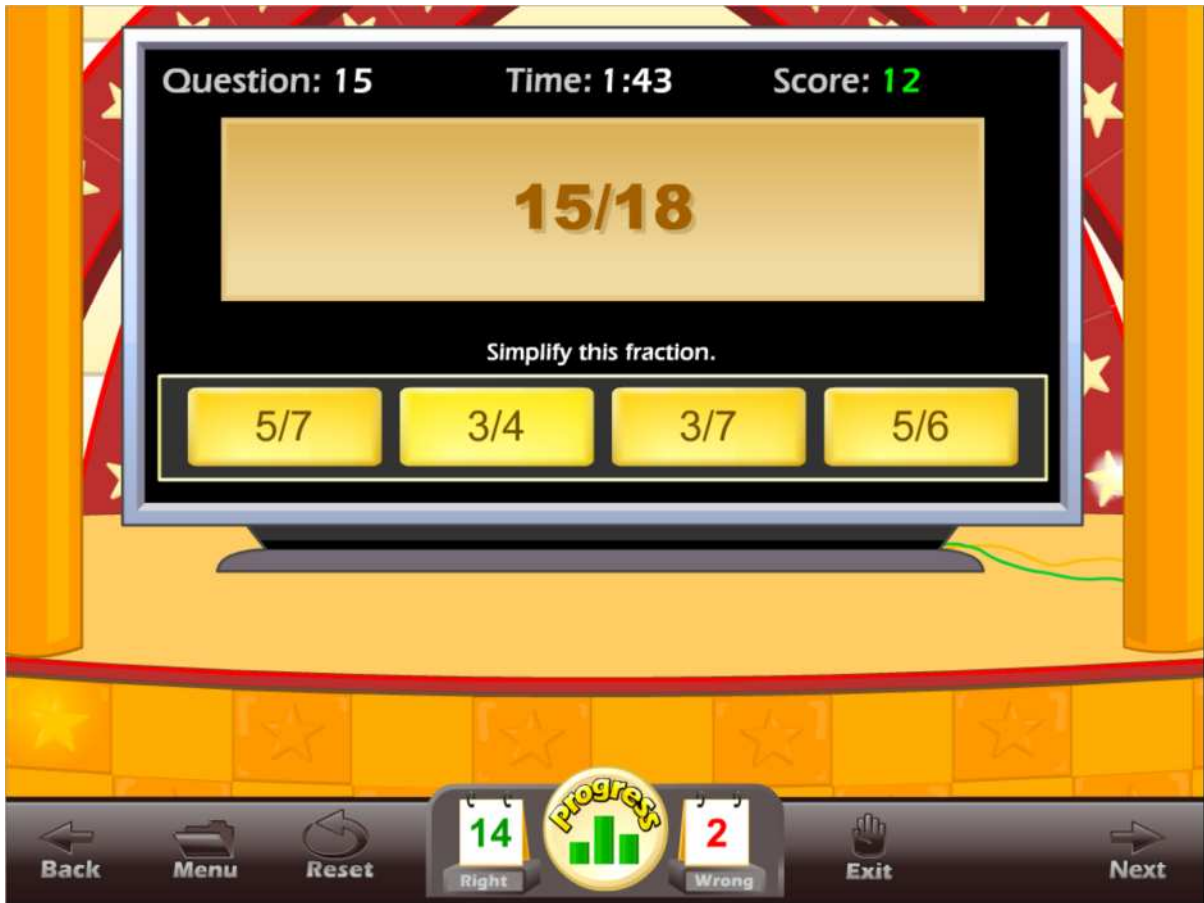
Then set the time for a timed test or you can set the number of questions for an untimed test. Click on the "Start Practice" button to begin.

Lesson 3 – Figure 2



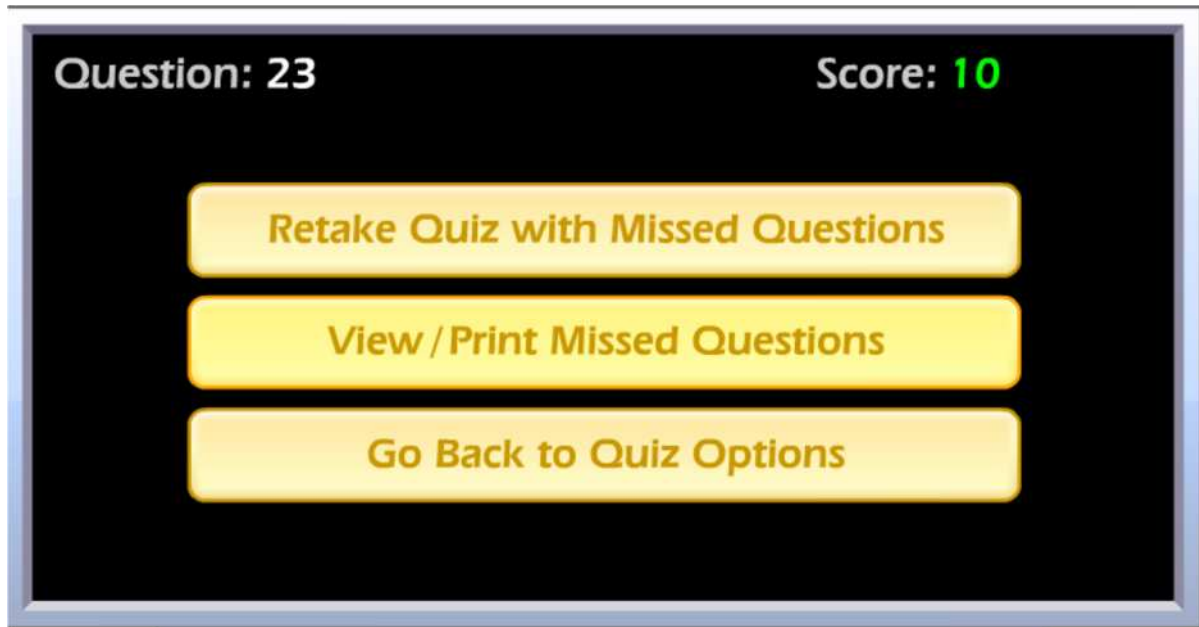
Once a timed test begins, you should click on the correct answer. If you click on a wrong answer, that answer will be grayed out and you can try another answer (**Figure 3**). The time remaining is displayed at the top center of the screen along with the total score. The number of right and wrong answers is displayed at the bottom of the screen.

Lesson 3 – Figure 3



Once the test is over and if the student missed 4 or more questions, a screen will appear with the following options (**Figure 4**):

- Retake Quiz with Missed Questions – this allows the student to retake the quiz and work on only the problems they missed.
- View/Print Missed Question – this allows the student to view and print (with your permission) a list of problems they missed. You can include this in their records or use this for additional work on paper. Note: you can lock printing from the Student Management section of the Parents and Teachers section.
- Go Back to the Division and Fractions Table – where the student can select problems for another test.



USING THIS ACTIVITY IN CLASS

This activity can be used individually or it can be used as a great warm-up for the class, working on specific problem sets. There are many problems to cover in these practices. There are many ways to making this an exciting class activity. Some of the ways to use this as a whole class activity are:

Teacher-led –

- Teacher clicks on the correct answer for the class, requires that the class come to a consensus on the answer.
- Teacher clicks on the correct answer, teacher calls on a student for the answer.
- Teacher divides the class into teams, the team leader answers for the team, the teacher clicks on the answer for the team.

Student-led –

- Students line up and take turns answering for the class. Each student answers one question.
- Students line up and take turns answering for the class. Each student answers as many questions as they can until they get a wrong answer.

Lesson 4: Division Racers

OBJECTIVE

Students will build division skills in an exciting stock car race game.

STANDARDS

Level 2 - Show a group of balls and asked how many groups of ___ are there is this group of ___ balls. Multiple choice, Divisor Range: 1-2, Dividend Range: 1-16.

3.OA.2. - Interpret whole-number quotients of whole numbers, e.g., interpret $56 \div 8$ as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. For example, describe a context in which a number of shares or a number of groups can be expressed as $56 \div 8$.

Level 3 - Show a horizontal division problem and asked how many 2's are there in 6. There is a hint below the question. Hint: inverse of $2 \times 3 = 6$. Multiple choice, Divisor Range: 1-3, Dividend Range: 1-30.

3.OA.2. - Interpret whole-number quotients of whole numbers, e.g., interpret $56 \div 8$ as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. For example, describe a context in which a number of shares or a number of groups can be expressed as $56 \div 8$.

3.OA.5. - Apply properties of operations as strategies to multiply and divide.2

Examples: If $6 \times 4 = 24$ is known, then $4 \times 6 = 24$ is also known. (Commutative property of multiplication.) $3 \times 5 \times 2$ can be found by $3 \times 5 = 15$, then $15 \times 2 = 30$, or by $5 \times 2 = 10$, then $3 \times 10 = 30$. (Associative property of multiplication.) Knowing that $8 \times 5 = 40$ and $8 \times 2 = 16$, one can find 8×7 as $8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56$. (Distributive property.)

3.OA.6. - Understand division as an unknown-factor problem. For example, find $32 \div 8$ by finding the number that makes 32 when multiplied by 8.

3.OA.7. - Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

Level 4 - Show a horizontal division problem. No hint is given. Multiple choice, Divisor Range: 1-4, Dividend Range: 1-40

3.OA.7. - Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

Level 5 - Show a horizontal division problem. No hint is given. Multiple choice, Divisor Range: 1-5, Dividend Range: 1-50

3.OA.7. - Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

Level 6 - Show four horizontal division problems at once. Multiple choice with just one choice not used, Divisor Range: 1-6, Dividend Range: 1-60

3.OA.7. - Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

Level 7 - Show four horizontal division problems at once. Multiple choice with just one choice not used. Divisor Range: 1-7, Dividend Range: 1-70.

3.OA.7. - Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

Level 8 - Show four horizontal division problems at once. Multiple choice with just one choice not used. Divisor Range: 1-8, Dividend Range: 1-80.

3.OA.7. - Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

Level 9 - Show four horizontal division problems at once. Multiple choice with just one choice not used. Divisor Range: 1-9, Dividend Range: 1-90.

3.OA.7. - Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

Level 10 - Show a horizontal division problem. They must type in the correct answer. Divisor Range: 1-10, Dividend Range: 1-100.

3.OA.7. - Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

4.NBT.6. - Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division.

Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

5.NBT.6. - Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Level 11 - Show a horizontal division problem. They must type in the correct answer. Divisor Range: 1-11, Dividend Range: 1-121.

3.OA.7. - Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

4.NBT.6. - Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

5.NBT.6. - Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Level 12 - Show a horizontal division problem. They must type in the correct answer. Divisor Range: 1-12, Dividend Range: 1-144.

3.OA.7. - Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

4.NBT.6. - Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

5.NBT.6. - Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

ACTIVITY

Click on the "Division Racers" button from the main menu. The Division Racers main screen displays the goal for the game, the personal best score, today's best score and the High Scores list.

Click on "Start" to begin the game.

The game problems and difficulty will change depending on the level of that game. There are 11 levels of play (from level 2 to level 12).

Lesson 4– Figure 1



On level 2, the program associates subtraction with division (**Figure 1**). In this example, students should be able to see that division is repeated subtraction. Click on the correct answer to solve the problem.

Lesson 4 – Figure 2



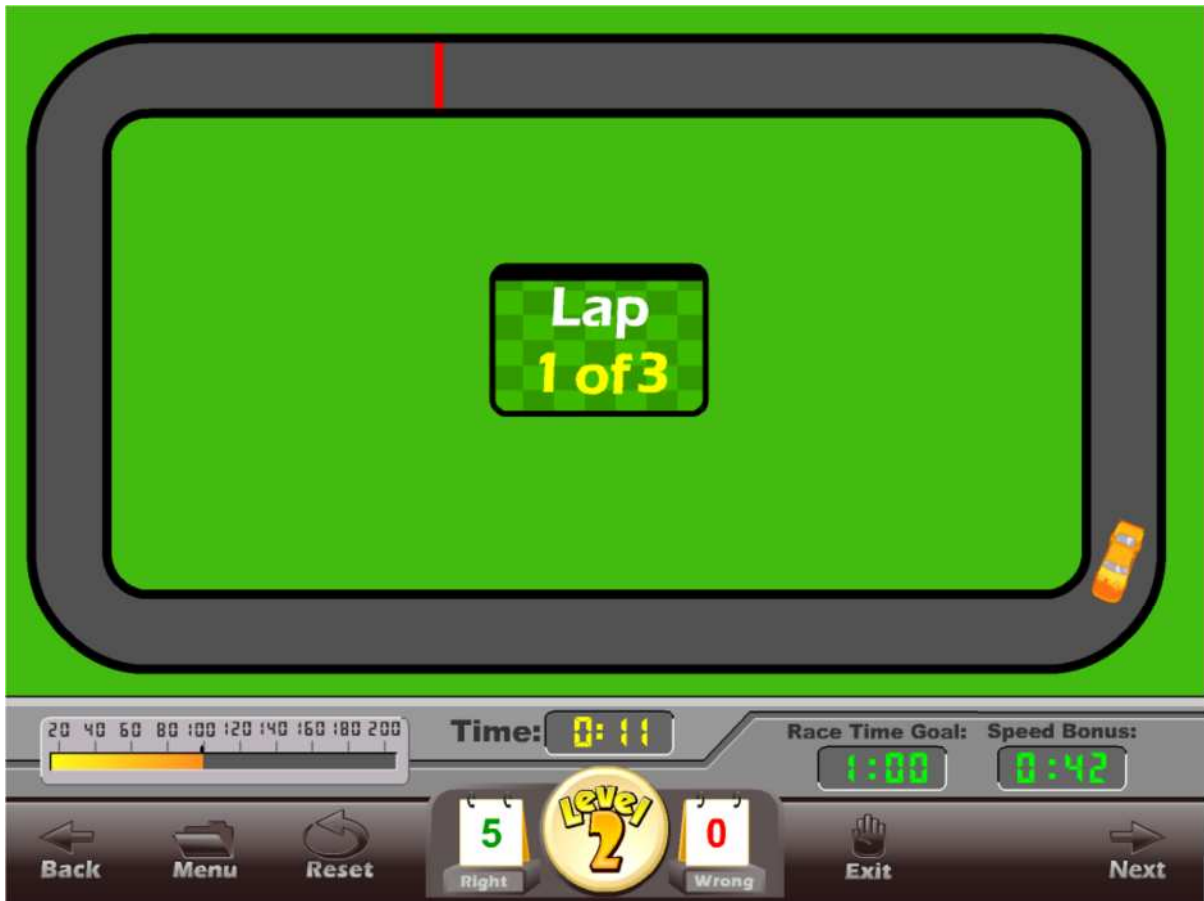
This is a strategy game and a skill game; it is also one of the most engaging games. It might appear to be somewhat more appealing to boys, but we believe you will find that it is equally appealing to girls. This program uses a wide variety of games.

The purpose of this game is to answer the division questions and earn money to buy parts to build a race car (**Figure 2**). Wrong answers result in earning less money, which means that students will not have the best parts for their race car. Students will find that even with all the correct answers, they will not have enough money to buy all the highest priced parts. Students may also learn that buying the highest priced parts may not always give them the fastest and most easily controlled race car. Once they have completed all of the questions and have made all of their car part selections, they play a race car game in order to score enough points to go to the next level.

The race game is pretty simple. A short animation explains how to play the game and race the car. The “up arrow” key on the keyboard works as the gas pedal,

the space bar on the keyboard works as the brake. Steering is automatic, however students should avoid going too fast around the turns or they will spin out and lose time and they earn penalty points. Students also earn penalty points for wrong answers during the division problems. The objective of the game is to score enough points to make the level goal.

Lesson 4– Figure 3



Near the bottom of the screen, you will see the race time goal (**Figure 3**). Finishing the race in the goal time allows the player to move to the next level. Each higher level introduces higher goals (a faster race time is required) and more difficult division problems.

Once the race is completed, a final score is displayed. All of the points earned and penalties are also displayed (**Figure 4**).

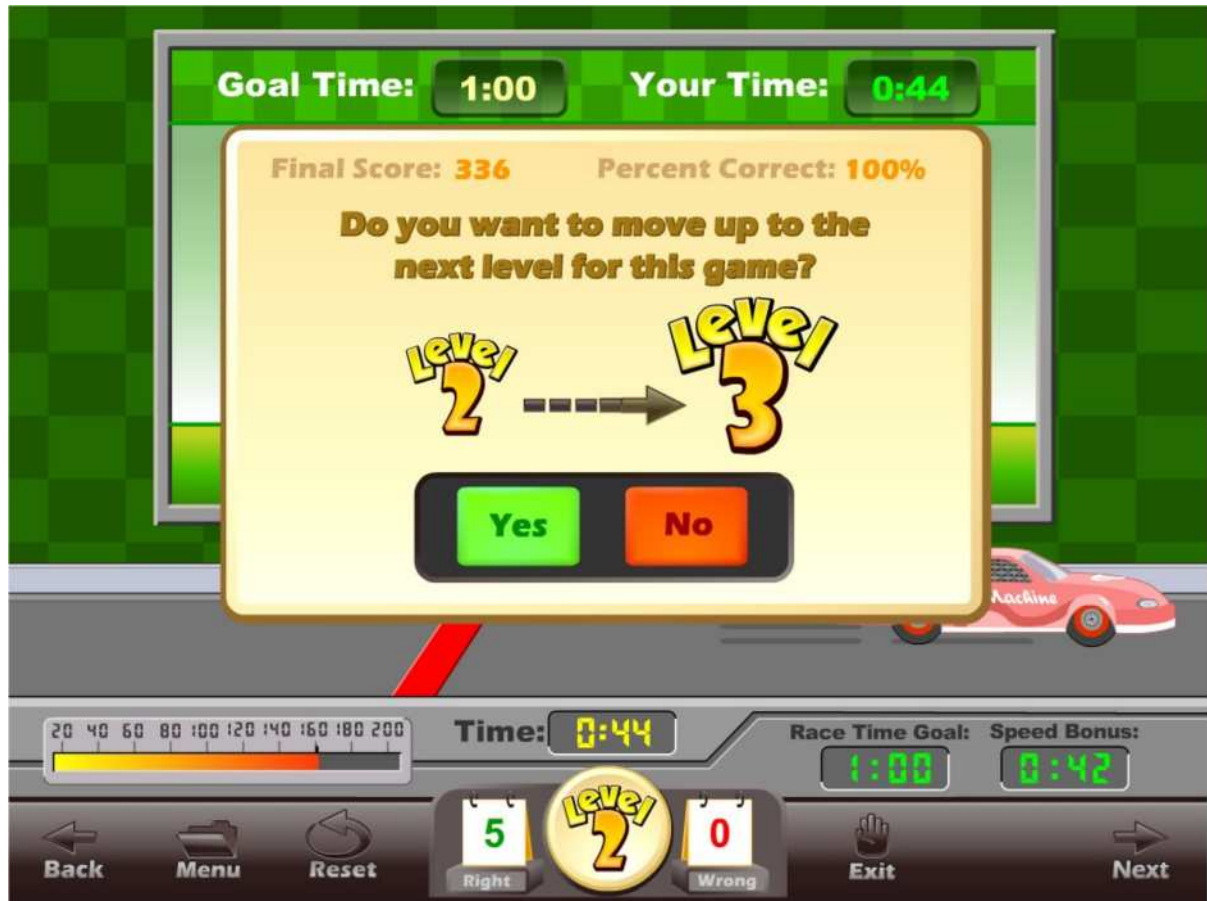
Lesson 4– Figure 4



Tips:

- The beginning levels are meant to be easy. Our goal is to move the student through the levels -- particularly through the lower levels -- as quickly as possible. As the game progresses through the levels, the student will have to answer more and more difficult questions . At the highest level, students will need to type the answers into the answer box.
- The penalty for “guessing” or answering a question wrong is that time will be added to the race score. Spin Outs are also accessed a penalty. Our objective is to make an engaging and challenging game that students would want to play over and over again.

Lesson 4– Figure 5



- Once the player achieves the required number of points, they will see the next level screen (**Figure 5**). The player can choose to move up to the next level or the player can choose to keep on playing and try to achieve a higher score for the game. We recommend that in most cases, students be encouraged to move to the next higher level.
- Each level is weighted so that the points for that level are higher than for a lower level, so it generally makes sense for a student to keep moving up the levels. Moving up the levels is also the way to unlock the next game.

USING THIS GAME IN CLASS

Teacher-led –

- Generally, the teacher should only show a few examples of this game to the class. The class will pick up the game almost instantly.
- Note: this is an exciting game and we generally recommend that this game be used later in the afternoon to avoid getting students too excited early in the day.

- After playing the game a while, you can divide the students into teams and appoint a team captain. Instruct the team captain that all of the players on the team must contribute. Let the teams meet in a strategy session to compete against other teams in the class.
 - Have the students write about their strategy session and the strategy they will be using in the competition.
 - Have a racing competition, award the winning team a small prize.
 - Have the teams write about their strategy and how it helped them win or lose the competition.
- Extend the writing assignment to writing about other games that the students play and what they learn from those games.

Student-led –

- The teacher divides the class into teams. Sign the team in on the sign in page. The teams compete for the highest score. Team members alternate at bat. As the game is played over several days or weeks, the team high scores will be shown in the high score list.
- Students line up and take turns answering for the class. Each student gets one turn at answering a division question(s) and choosing a part. You may want the class to help with the answers, or you may want them to be silent.
- Students line up and take turns answering for the class. Each student answers as many questions as they can until they get a wrong answer.

Lesson 5: Hurricane Hurdles

OBJECTIVE

Students will build division fluency in a timed hurdles race game.

STANDARDS

Level 2 - Show a multiple choice division problem. Divisor Range: 1-2, Dividend Range: 0-16.

3.OA.7. - Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

Level 3 - Show a multiple choice division problem. Divisor Range: 1-3, Dividend Range: 0-30.

3.OA.7. - Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

Level 4 - Show a multiple choice division problem. Divisor Range: 1-4, Dividend Range: 0-40.

3.OA.7. - Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

Level 5 - Show a multiple choice division problem. Divisor Range: 1-5, Dividend Range: 0-50.

3.OA.7. - Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

Level 6 - Show a multiple choice division problem. Divisor Range: 1-6, Dividend Range: 0-60.

3.OA.7. - Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

Level 7 - Show a multiple choice division problem. Divisor Range: 1-7, Dividend Range: 0-70.

3.OA.7. - Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

Level 8 - Show a multiple choice division problem. Divisor Range: 1-8, Dividend Range: 1-80.

3.OA.7. - Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

Level 9 - Show a multiple choice division problem. Divisor Range: 1-9, Dividend Range: 1-90.

3.OA.7. - Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

Level 10 - Show a multiple choice division problem. Divisor Range: 1-10, Dividend Range: 1-100.

3.OA.7. - Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

4.NBT.6. - Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

5.NBT.6. - Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Level 11 - Show a multiple choice division problem. Divisor Range: 1-11, Dividend Range: 1-121.

3.OA.7. - Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

4.NBT.6. - Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the

properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

5.NBT.6. - Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Level 12 - Show a multiple choice division problem. Divisor Range: 1-12, Dividend Range: 1-144.

3.OA.7. - Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

4.NBT.6. - Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

5.NBT.6. - Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

ACTIVITY

Click on the "Hurricane Hurdles" button from the main menu. The Hurricane Hurdles main screen displays the goal for the game, the personal best score, today's best score and the High Scores list.

Click on the "Start" button to begin the game. Click on a player. (It does not matter which player you click on.) The goal for this level is displayed. Click on the correct answers as quickly as you can (**Figure 1**). The faster you click on the correct answers, the faster your player will run. Wrong answers will slow your player down.

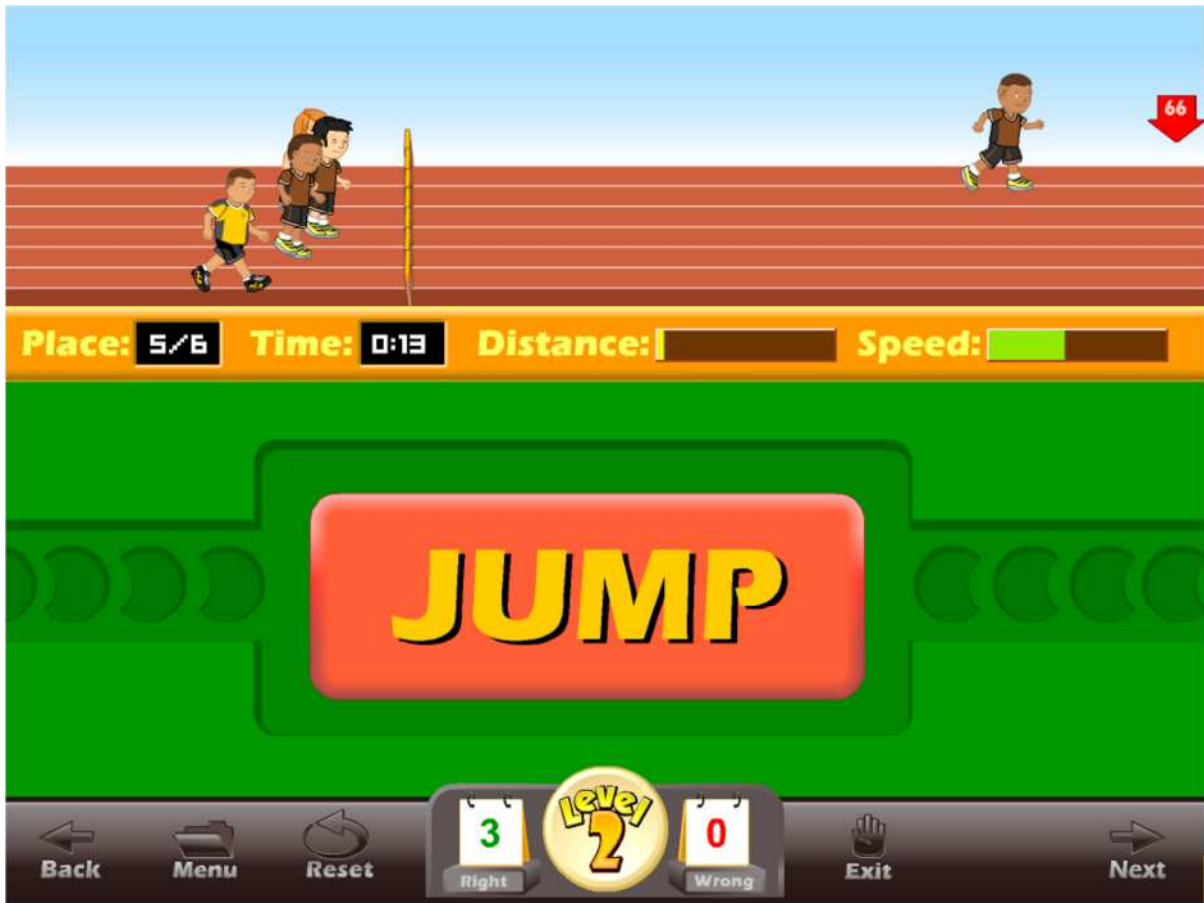
Lesson 5 – Figure 1



As your player is running, the following are displayed: the current place in the race, the total time in seconds (that the player has been running), the distance (in a bar displayed as the distance in the total race), and the speed of the player. As usual, the number of right and wrong answers is displayed at the bottom. The goal of the race is to finish in first place and advance to the next level.

Since this is a hurdles race, the player will see hurdles appear and a jump button (**Figure 2**) will also appear. The player must click on the jump button at the right moment to have the player clear the hurdle. If the player runs into the hurdle, the player will slow down and other runners may pass.

Lesson 5 – Figure 2



Each question has a power value, the faster you answer the questions, the more the question value. Answering questions correctly and quickly will improve your speed and help you pass the other runners.

If you complete a game with the required point goal, you can advance to the next level of the game. In each higher level, the problems become more difficult and the required time is lower.

USING THIS GAME IN CLASS

Teacher-led –

- Just as with the Division Racers game, the teacher should only show a few examples of this game to the class. The class will pick up the game almost instantly.
- After playing the Hurricane Hurdles in the class, take the students to a track or field. Try to recreate the game as best you can with real players. You may ask the students for ideas of how to recreate the game. It is not necessary that the students try to run or jump over hurdles; you might have the students walk or hop.

- Example: The teacher would need a set of division flash cards. Students might be divided into teams. The field would be marked with a start and a finish line. The teacher would ask each team a division question (one team at a time), if the team gets the correct answer, they would be able to take the number of steps (or hops) as the divisor used in the question. The team that crosses the finish line first, wins!

Student-led –

- The teacher divides the class into teams of 3 or more. Sign the team in on the sign in page. The teams compete for the highest score. The team members play the game and alternate student players between jump attempts. As the games is played over several days or weeks, the team high scores will be shown in the high score list.
- Students line up and take turns answering for the class. You may want the class to help with the answers or you may want them to be silent.
- Students line up and take turns answering for the class. Each student answers as many questions as they can until they get a wrong answer, then the next student steps in.

Lesson 6: The Quarter News

OBJECTIVE

Students will work on basic division skills as presented in word problems in the Quarter News game. This game uses a timer, but the timer is only one factor used to score points.

STANDARDS

Level 2 - Simple word problem. Uses numbers in questions: "How many 2's are there in 4?", "I know that 2 times 4 equals 8. What does 8 divided by 4 equal?"
Divisor Range: 1-2, Dividend Range: 0-16.

3.OA.3. - Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

3.OA.5. - Apply properties of operations as strategies to multiply and divide.
Examples: If $6 \times 4 = 24$ is known, then $4 \times 6 = 24$ is also known. (Commutative property of multiplication.) $3 \times 5 \times 2$ can be found by $3 \times 5 = 15$, then $15 \times 2 = 30$, or by $5 \times 2 = 10$, then $3 \times 10 = 30$. (Associative property of multiplication.)
Knowing that $8 \times 5 = 40$ and $8 \times 2 = 16$, one can find 8×7 as $8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56$. (Distributive property.)

4.OA.2. - Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.

Level 3 - Simple word problem. Uses words in questions. "How many two's are there in four?", "I know that two times four equals eight. What does eight divided by four equal?", Divisor Range: 1-3, Dividend Range: 0-16.

3.OA.3. - Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

3.OA.5. - Apply properties of operations as strategies to multiply and divide.
Examples: If $6 \times 4 = 24$ is known, then $4 \times 6 = 24$ is also known. (Commutative property of multiplication.) $3 \times 5 \times 2$ can be found by $3 \times 5 = 15$, then $15 \times 2 = 30$, or by $5 \times 2 = 10$, then $3 \times 10 = 30$. (Associative property of multiplication.)
Knowing that $8 \times 5 = 40$ and $8 \times 2 = 16$, one can find 8×7 as $8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56$. (Distributive property.)

4.OA.2. - Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.

Level 4 - Real life word problem involving division. Uses numbers in questions. "I won 9 game tickets at the arcade. Sour balls cost 3 tickets each. How many sour balls can I get?" Divisor Range: 1-4, Dividend Range: 0-40.

3.OA.3. - Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

4.OA.2. - Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.

Level 5 - Real life word problem involving division. Uses words in questions. "I won nine game tickets at the arcade. Sour balls cost three tickets each. How many sour balls can I get?", Divisor Range: 1-5, Dividend Range: 0-50.

3.OA.3. - Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

4.OA.2. - Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.

Level 6 - Word problems relate multiplication to division. "I have twenty four shirts in my closet. I have six times as many shirts as sweaters. How many sweaters do I have?" Divisor Range: 1-6, Dividend Range: 0-60.

3.OA.3. - Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

3.OA.5. - Apply properties of operations as strategies to multiply and divide.

Examples: If $6 \times 4 = 24$ is known, then $4 \times 6 = 24$ is also known. (Commutative property of multiplication.) $3 \times 5 \times 2$ can be found by $3 \times 5 = 15$, then $15 \times 2 = 30$, or by $5 \times 2 = 10$, then $3 \times 10 = 30$. (Associative property of multiplication.)

Knowing that $8 \times 5 = 40$ and $8 \times 2 = 16$, one can find 8×7 as $8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56$. (Distributive property.)

4.OA.2. - Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.

Level 7 - Word problems relate multiplication to division. "I have twenty four shirts in my closet. I have six times as many shirts as sweaters. How many sweaters do I have?", Divisor Range: 1-7, Dividend Range: 0-70.

3.OA.3. - Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

3.OA.5. - Apply properties of operations as strategies to multiply and divide.

Examples: If $6 \times 4 = 24$ is known, then $4 \times 6 = 24$ is also known. (Commutative property of multiplication.) $3 \times 5 \times 2$ can be found by $3 \times 5 = 15$, then $15 \times 2 = 30$, or by $5 \times 2 = 10$, then $3 \times 10 = 30$. (Associative property of multiplication.)

Knowing that $8 \times 5 = 40$ and $8 \times 2 = 16$, one can find 8×7 as $8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56$. (Distributive property.)

4.OA.2. - Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.

Level 8 - Word problems have extra information that is not needed. "I have eight socks and forty shirts in my closet. I have four times as many shirts as sweaters. How many sweaters do I have?", Divisor Range: 1-8, Dividend Range: 1-80.

3.OA.3. - Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

4.OA.2. - Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.

Level 9 - Word problems have extra information that is not needed. "I have eight socks and forty shirts in my closet. I have four times as many shirts as sweaters. How many sweaters do I have?", Divisor Range: 1-9, Dividend Range: 1-90.

3.OA.3. - Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

4.OA.2. - Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.

Level 10 - Word problems have extra information that is not needed. "I have eight socks and forty shirts in my closet. I have four times as many shirts as sweaters. How many sweaters do I have?", Divisor Range: 1-10, Dividend Range: 1-100.
3.OA.3. - Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
4.OA.2. - Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.

Level 11 - Word problems have extra information that is not needed. "I have eight socks and forty shirts in my closet. I have four times as many shirts as sweaters. How many sweaters do I have?", Divisor Range: 1-11, Dividend Range: 1-121.
4.OA.2. - Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.

Level 12 - Word problems have extra information that is not needed. "I have eight socks and forty shirts in my closet. I have four times as many shirts as sweaters. How many sweaters do I have?", Divisor Range: 1-12, Dividend Range: 1-144.
4.OA.2. - Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.

ACTIVITY

Click on the "Quarter News" button from the main menu. The Quarter News main screen displays the goal for the game, the personal best score, today's best score, and the High Scores list.

Lesson 6 – Figure 1



In this game, basic reading skills are required. Click on the "Start" button to begin the game. The newspaper editor gives basic instructions for the game. The game is simple, yet challenging. Read the question and then type the answer in the box near the bottom of the screen (**Figure 1**). Click on the bell (near the top on the right-hand side of the screen) when you have completed your answer. If your answer is correct, it will be accepted. If your answer is incorrect, the editor will ask you to try again. Watch the clock. Answering the questions quickly will give you more time to deliver the papers.

When you have completed the required number of questions, you will be given the instructions for delivering your papers to the customers. The goal of the game is to complete as many word problems as you can with as few wrong answers as possible, then correctly deliver as many papers as you can to all of the customers you can by 6:00 PM. This will insure that you keep as many happy customers as possible, thereby earning enough money to advance to the next level.

Lesson 6– Figure 2



At the top of the screen, you will notice a happy face and some progressively less happy faces (**Figure 2**). These are indicators of how happy your customers are with your service. You will notice a timer letting you know what time it is. Customers like to have their paper delivered before 6:00 PM. You can deliver the paper later than 6:00 PM, but they will not be as happy and they will not be as inclined to leave you a tip.

The counter by the house indicates how many customers you have and what house you are currently on. The counter by the piggy bank indicates how much money you have earned.

At the end of each day, you will get a report (**Figure 3**) of how many new houses have become customers, the total number of houses that are customers, your tips and the total money earned for the day. Click on "Go On" to go to the next set of problems.

Lesson 6 – Figure 3



A few notes about delivering papers. Customers like to have their papers delivered to their door. To deliver the paper, click the mouse (anywhere will do) to throw the paper as the paper carrier rides past the house. If you click the mouse at the right time, the paper will land on the door of the home. You can also deliver the paper in the mailbox, but the customer will not be quite as happy. You can also deliver the paper in the tree, to the dog, over the house or through the window (breaking a window will cause you to lose that customer), but the customer may be very unhappy. Unhappy customers will not tip you and may cancel their subscription. Happy customers may tip you and tell others about your excellent service.

There are a few tricks to delivering the papers. Holding down the space bar will speed up the rider. Sometimes, you may see a ramp. You can gain speed over the ramp by holding down the space bar. There are several other elements to make this a challenging and engaging game, such as: trees, dogs, and cracks in the pavement. Explore different ways to deal with each of these challenges.

USING THIS GAME IN CLASS

Teacher-led –

- Since this game requires reading skills, the teacher will need to assess how prepared the students are to read. If students struggle with the reading, the teacher may need to assist.
- The teacher can assign a student to read the question aloud for the class and then let that student deliver the newspapers.
- The teacher can lead the class in reading the question aloud and then let the class discuss the correct answer. Students can then take turns typing the answers and delivering the newspapers.

Student-led –

- The teacher divides the class into teams. Sign the team in on the sign in page. The teams compete for the highest score. The team members alternate at reading the question aloud and answering the questions. Students can consult their teammates to arrive at the answer, and teammates can assist helping them with the paper delivery. As the game is played over several days or weeks, the team high scores will be shown in the high score list.
- Students line up and take turns answering for the class. Each student reads the question aloud, explains the correct answer, and then rings the bell. You may want the class to help with the answers, or you may want them to be silent.

Lesson 7: Motocross Race

OBJECTIVE

Students will work on long division problems in a challenging motocross race game.

STANDARDS

Level 2 - Multi-step (long division) problem. The student must do all the steps to get the correct answer with a remainder. Divisor Range: 2-3, Dividend Range: 2-30.
3.OA.7. - Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

4.NBT.6. - Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

5.NBT.6. - Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Level 3 - Multi-step (long division) problem. The student must do all the steps to get the correct answer with a remainder. Divisor Range: 2-4, Dividend Range: 2-40.
3.OA.7. - Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

4.NBT.6. - Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

5.NBT.6. - Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Level 4 - Multi-step (long division) problem. The student must do all the steps to get the correct answer with a remainder. Divisor Range: 2-4, Dividend Range: 2-48.

3.OA.7. - Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

4.NBT.6. - Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

5.NBT.6. - Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Level 5 - Multi-step (long division) problem. The student must do all the steps to get the correct answer with a remainder. Divisor Range: 2-5, Dividend Range: 2-60.

3.OA.7. - Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

4.NBT.6. - Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

5.NBT.6. - Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Level 6 - Multi-step (long division) problem. The student must do all the steps to get the correct answer with a remainder. Divisor Range: 2-6, Dividend Range: 2-70.

3.OA.7. - Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

4.NBT.6. - Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

5.NBT.6. - Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Level 7 - Multi-step (long division) problem. The student must do all the steps to get the correct answer with a remainder. Divisor Range: 2-7, Dividend Range: 2-80.

3.OA.7. - Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

4.NBT.6. - Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

5.NBT.6. - Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Level 8 - Multi-step (long division) problem. The student must do all the steps to get the correct answer with a remainder. Divisor Range: 2-8, Dividend Range: 2-86.

3.OA.7. - Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

4.NBT.6. - Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

5.NBT.6. - Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Level 9 - Multi-step (long division) problem. The student must do all the steps to get the correct answer with a remainder. Divisor Range: 2-9, Dividend Range: 2-108.

4.NBT.6. - Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

5.NBT.6. - Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Level 10 - Multi-step (long division) problem. The student must do all the steps to get the correct answer with a remainder. Divisor Range: 2-10, Dividend Range: 2-120.

4.NBT.6. - Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

5.NBT.6. - Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Level 11 - Multi-step (long division) problem. The student must do all the steps to get the correct answer with a remainder. Divisor Range: 2-11, Dividend Range: 2-132.

4.NBT.6. - Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

5.NBT.6. - Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Level 12 - Multi-step (long division) problem. The student must do all the steps to get the correct answer with a remainder. Divisor Range: 2-12, Dividend Range: 2-144.

4.NBT.6. - Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the

properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

5.NBT.6. - Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

ACTIVITY

Click on the "Motocross Race" button from the main menu. The Motocross Race main screen displays the goal for the game, the personal best score, today's best score, and the High Scores list. Please also notice the "Math Rules" button. Click on this button to review a short explanation of long division.

Click on the "Start" button to begin the game. There is a short animated explanation of how to do tricks. You can click on the skip button, if you know how to play the game. Click on a player. (It does not matter which player you click on.)

Answer the questions as fast as you can. To solve the problem, follow each of the steps and click on the correct number to answer each step of the equation.

As a review of terms **(Figure 1)**:

The divisor is 3 - the number by which another number, the dividend, is divided

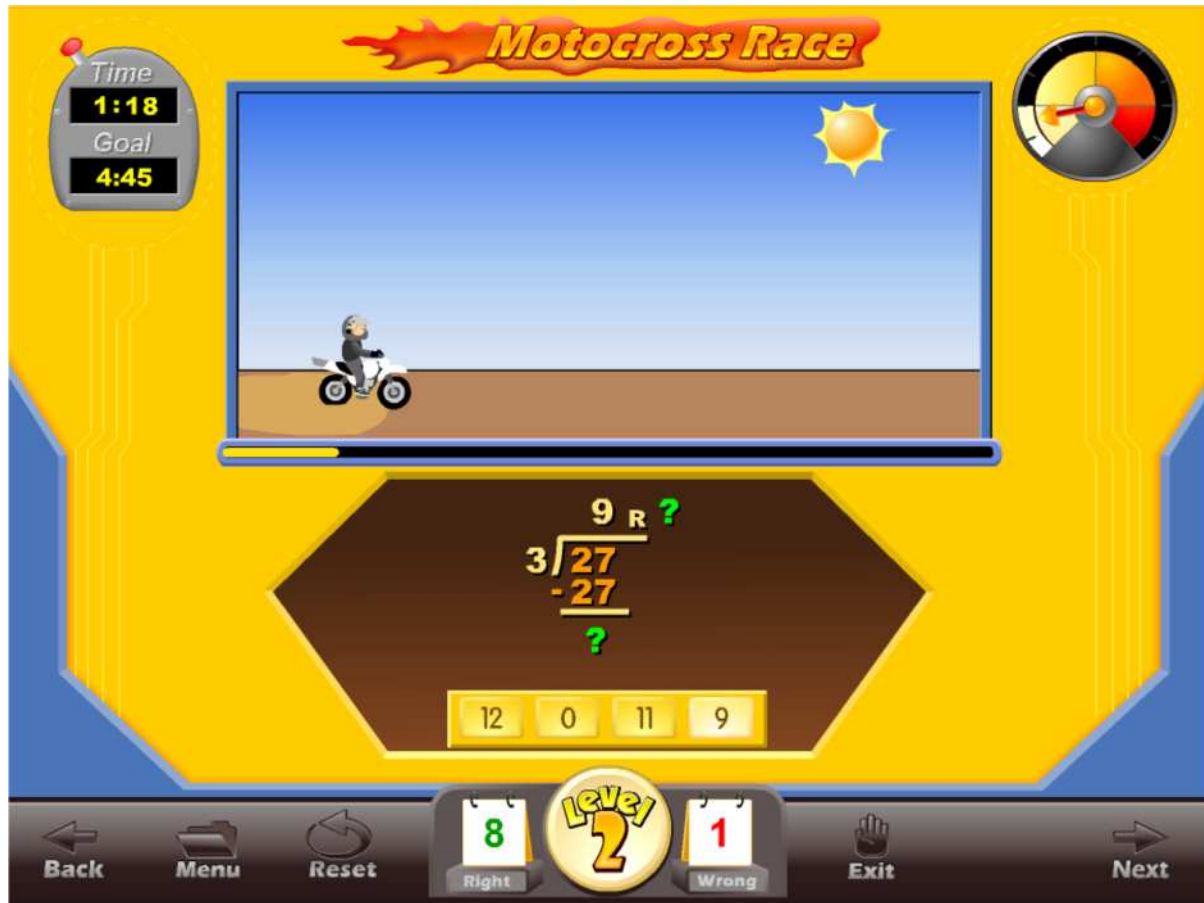
The dividend is 27 - the number that is to be divided by a divisor

The quotient is 9 - the result of division

Lesson 6– Figure 1



Lesson 7– Figure 2



Steps to solve **(Figure 2)**:

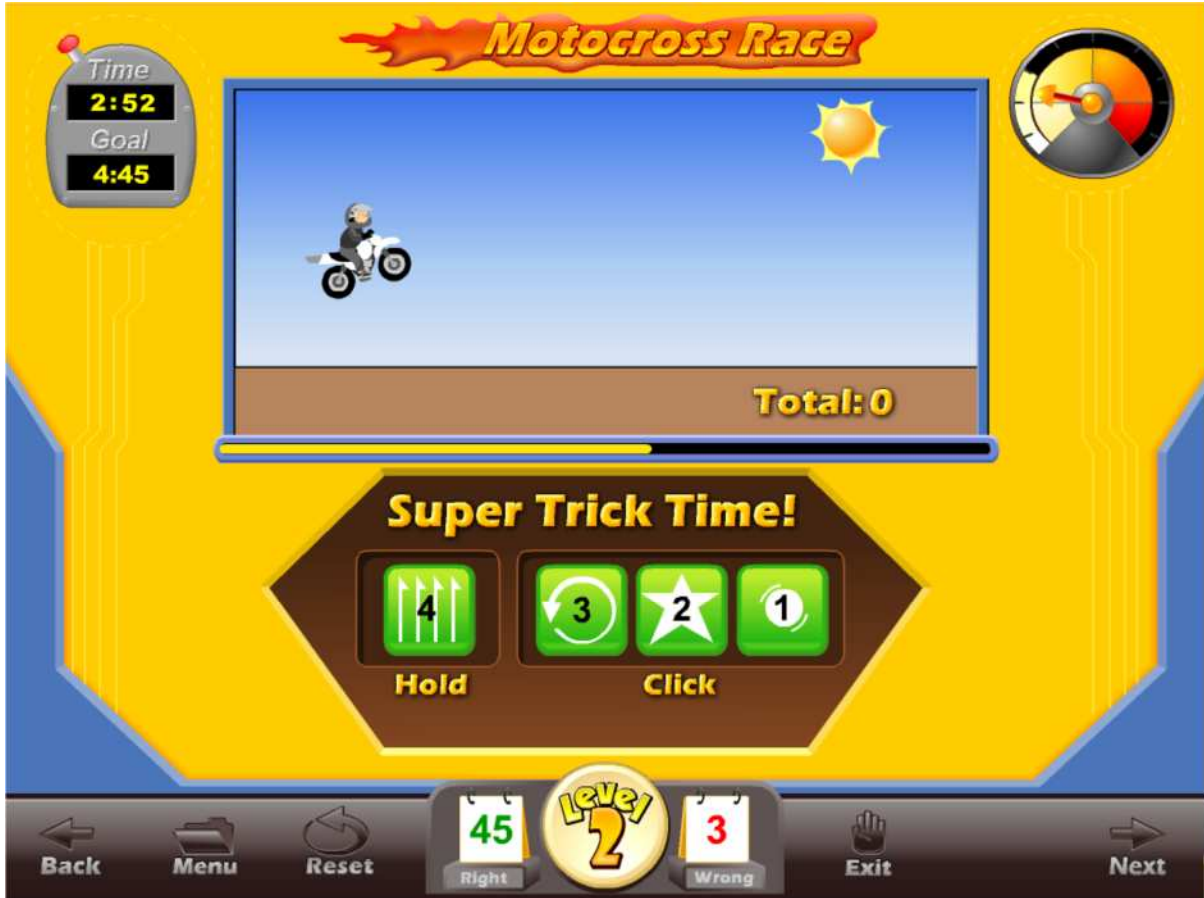
- Generally, the first step will divide the divisor into the first number of the dividend. The correct answer will be the first number of the quotient.
- Next, multiply the quotient by the divisor and place this number below the dividend. Draw a line below this number.
- Next, subtract the number below the quotient from the quotient and place that number below the line.
- Repeat until the problem is solved to the smallest whole number. Any number remaining will be the remainder.

It may take a few questions to get the hang of it, but this process should make it very easy to understand and practice long division.

After a few questions, the player will see the "Super Trick Time!" screen **(Figure 2)**. How to play this was explained in one of the opening screens. To review these instructions; click on the "How to Play" button near the top right of the screen where you select your rider. The objective is to have fun and do some cool

tricks while earning some bonus points. Click on any of the four buttons to do or control a trick.

Lesson 7– Figure 3



USING THIS GAME IN CLASS

Teacher-led –

- Generally, the teacher should only show a few examples of this game to the class. In many cases the class will pick it up faster than the teacher (especially the Super Trick Time!).
- Note: this is an exciting game and we generally recommend that this game be used later in the afternoon to avoid getting students too excited early in the day.

Student-led –

- The teacher divides the class into teams. Sign the team in on the sign in page. The teams compete for the highest score. The team members alternate between answering the question and controlling the Super

Trick Time!. As the game is played over several days or weeks, the team high scores will be shown in the high score list.

- Students line up and take turns answering for the class. Each student gets to answer the questions and do a trick. You may want the class to help with the answers, or you may want them to be silent.
- Students line up and take turns answering for the class. Each student answers as many questions as they can until they get a wrong answer.

Lesson 8: Board Breaking

OBJECTIVE

Students will work on fractions in a timed Board Breaking game. The fraction problems used in this game will cover: simplifying fractions and converting fractions.

STANDARDS

Level 2 - Simplify the fraction $2/4 = 1/2$, $3/9 = 1/3$. A hint is given such as "3 is the greatest common factor. To find the bottom number divide 9 by 3".

3.NF.1. - Understand a fraction $1/b$ as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size $1/b$.

3.NF.3. - Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. Recognize and generate simple equivalent fractions, e.g., $1/2 = 2/4$, $4/6 = 2/3$. Explain why the fractions are equivalent, e.g., by using a visual fraction model.

4.NF.1. - Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.

Level 3 - Convert the improper fraction to a whole number. The answer is always a whole number between 1-4. A hint is given such as: "Divide 4 by 4 to get a mixed fraction or a whole number. $4/4 = 1$, $4/2 = 2$."

3.NF.3. - Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. Examples: Express 3 in the form $3 = 3/1$; recognize that $6/1 = 6$; locate $4/4$ and 1 at the same point of a number line diagram.

4.NF.1. - Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.

Level 4 - Simplify the fraction, $3/15 = 1/5$, $2/14 = 1/7$. A hint is given such as "Greatest common factor is 3"

3.NF.3. - Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. Examples: Express 3 in the form $3 = 3/1$; recognize that $6/1 = 6$; locate $4/4$ and 1 at the same point of a number line diagram.

4.NF.1. - Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts

differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.

Level 5 - Convert the improper fraction to a mixed fraction. A hint is given such as: "Divide 3 by 2 to get a mixed fraction . $3/2 = 1 \frac{1}{2}$, $13/3 = 4 \frac{1}{3}$.

3.NF.3. - Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. Examples: Express 3 in the form $3 = 3/1$; recognize that $6/1 = 6$; locate $4/4$ and 1 at the same point of a number line diagram.

4.NF.1. - Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.

Level 6 - Simplify the fraction. $8/40 = 1/5$. A hint is given such as "Greatest common factors 8".

3.NF.3. - Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. Examples: Express 3 in the form $3 = 3/1$; recognize that $6/1 = 6$; locate $4/4$ and 1 at the same point of a number line diagram.

4.NF.1. - Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.

Level 7 - Convert the improper fraction to a mixed fraction. A hint is given such as: "Divide 14 by 3. The remainder goes on top of the fraction." $14/3 = 4 \frac{2}{3}$.

3.NF.3. - Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. Examples: Express 3 in the form $3 = 3/1$; recognize that $6/1 = 6$; locate $4/4$ and 1 at the same point of a number line diagram.

4.NF.1. - Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.

Level 8 - Simplify the fraction $2/18 = 1/9$. No hint is given.

3.NF.3. - Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. Examples: Express 3 in the form $3 =$

$3/1$; recognize that $6/1 = 6$; locate $4/4$ and 1 at the same point of a number line diagram.

4.NF.1. - Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.

Level 9 - Convert the improper fraction to a mixed fraction. A hint is given such as: "Divide 11 by 2. The remainder goes on top of the fraction". $11/2 = 5 \frac{1}{2}$.

3.NF.3. - Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. Examples: Express 3 in the form $3 = 3/1$; recognize that $6/1 = 6$; locate $4/4$ and 1 at the same point of a number line diagram.

4.NF.1. - Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.

Level 10 - Simplify the fraction. Now the greatest common factor is not the top number of the fraction. $8/36 = 2/9$. No hint is given.

3.NF.3. - Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. Examples: Express 3 in the form $3 = 3/1$; recognize that $6/1 = 6$; locate $4/4$ and 1 at the same point of a number line diagram.

4.NF.1. - Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.

Level 11 - Convert the improper fraction to a mixed fraction. No hint is given. $46/7 = 6 \frac{4}{7}$.

3.NF.3. - Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. Examples: Express 3 in the form $3 = 3/1$; recognize that $6/1 = 6$; locate $4/4$ and 1 at the same point of a number line diagram.

4.NF.1. - Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.

Level 12 - The student must fix the fraction. They must decide if they need to simplify the fraction, convert it to a mixed fraction or both. No hint is given. $20/6 = 3 \frac{1}{3}$.

3.NF.3. - Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. Examples: Express 3 in the form $3 = 3/1$; recognize that $6/1 = 6$; locate $4/4$ and 1 at the same point of a number line diagram.

4.NF.1. - Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.

ACTIVITY

Click on the "Board Breaking" button from the main menu. The Board Breaking main screen displays the goal for the game, the personal best score, today's best score and the High Scores list. Please also notice the Math Rules button. Click on this button to review a short explanation of:

- What are Fractions
- Simplifying Fraction
- Converting Fractions

Click on the "Start" button to begin the game. You may see a short explanation of how to play the game; click on the "Skip" button if you already know how to play the game. Click on a player to begin the game. The goal for this level is displayed.

The problem is displayed on the upper left side of the screen. The possible answers are displayed on the board near the middle. Click on the correct answer to simplify the fraction. When the answer is correct, a brief explanation of the correct answer is displayed.

Across the top of the screen, the goal in points, current score in points, time remaining, and power are displayed (**Figure 1**). The time begins with 3 minutes to complete the game level. Power is the power of the character to break the boards. The character builds power by completing the problems quickly and correctly. A wrong answer will reset the power to zero.

Lesson 8 – Figure 1



Completing a set of problems will earn you bonus icons (Figure 2) that you can use to skip a problem, get extra time or extra points. Beat the level goal and the End Game button will appear over the goal and you can click on it to advance to the next level or you can keep playing until the time runs out.

Lesson 8 – Figure 2



USING THIS GAME IN CLASS

Teacher-led –

- This is a fairly straight-forward and easy game to understand. The challenge is to answer the questions as quickly as possible. The questions are more difficult at the higher level.
- The teacher should demonstrate the game to the class (or ask a student to demonstrate the game).

Student-led –

- The teacher divides the class into teams. Sign the team in on the sign in page. The teams compete for the highest score. The team members alternate between problems or between problem sets. As the game is played over several days or weeks, the team high scores will be shown in the high score list.
- Students line up and take turns answering for the class. Each student gets two or three problems. You might want the class to help with the answers.

- Students line up and take turns answering for the class. Each student answers as many questions as they can until they get a wrong answer.
- You can have a board breaking game elimination tournament. In the first round, let each student complete a level. Take the students with the highest scores to advance to the next elimination round. Students with the lowest scores advance to a consolation round. Students who are eliminated from the top round may be moved to the consolation round.

Lesson 9: Cookie Sale

OBJECTIVE

Students will learn to work with fractions and apply their knowledge of fractions in a simulation game. The fraction problems used in this game will cover: equivalent fractions, comparing fractions, and adding fractions.

STANDARDS

Level 2 - Simplify the fractions to find out what fraction represents the greatest number. Now they only have one cookie recipe to keep track of.

3.NF.3. - Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line. Recognize and generate simple equivalent fractions, e.g., $1/2 = 2/4$, $4/6 = 2/3$. Explain why the fractions are equivalent, e.g., by using a visual fraction model. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. Examples: Express 3 in the form $3 = 3/1$; recognize that $6/1 = 6$; locate $4/4$ and 1 at the same point of a number line diagram. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.

4.NF.1. - Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.

4.NF.2. - Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as $1/2$. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.

5.NF.1. - Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. For example, $2/3 + 5/4 = 8/12 + 15/12 = 23/12$. (In general, $a/b + c/d = (ad + bc)/bd$.)

Level 3 - Simplify the fractions to find out what fraction represents the greatest number.

3.NF.3. - Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line. Recognize and generate

simple equivalent fractions, e.g., $1/2 = 2/4$, $4/6 = 2/3$. Explain why the fractions are equivalent, e.g., by using a visual fraction model. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. Examples: Express 3 in the form $3 = 3/1$; recognize that $6/1 = 6$; locate $4/4$ and 1 at the same point of a number line diagram. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.

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4.NF.2. - Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as $1/2$. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.

5.NF.1. - Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. For example, $2/3 + 5/4 = 8/12 + 15/12 = 23/12$. (In general, $a/b + c/d = (ad + bc)/bd$.)

Level 4 - Simplify the fractions and convert improper fractions to mixed fractions to find out what fraction represents the greatest number.

3.NF.3. - Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line. Recognize and generate simple equivalent fractions, e.g., $1/2 = 2/4$, $4/6 = 2/3$. Explain why the fractions are equivalent, e.g., by using a visual fraction model. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. Examples: Express 3 in the form $3 = 3/1$; recognize that $6/1 = 6$; locate $4/4$ and 1 at the same point of a number line diagram. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.

4.NF.1. - Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.

4.NF.2. - Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as $\frac{1}{2}$. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.

5.NF.1. - Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. For example, $\frac{2}{3} + \frac{5}{4} = \frac{8}{12} + \frac{15}{12} = \frac{23}{12}$. (In general, $\frac{a}{b} + \frac{c}{d} = \frac{ad + bc}{bd}$.)

Level 5 - Simplify the fractions and convert improper fractions to mixed fractions to find out what fraction represents the greatest number. Now they have two recipes.

3.NF.3. - Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line. Recognize and generate simple equivalent fractions, e.g., $\frac{1}{2} = \frac{2}{4}$, $\frac{4}{6} = \frac{2}{3}$. Explain why the fractions are equivalent, e.g., by using a visual fraction model. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. Examples: Express 3 in the form $3 = \frac{3}{1}$; recognize that $\frac{6}{1} = 6$; locate $\frac{4}{4}$ and 1 at the same point of a number line diagram. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.

4.NF.1. - Explain why a fraction $\frac{a}{b}$ is equivalent to a fraction $\frac{n \times a}{n \times b}$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.

4.NF.2. - Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as $\frac{1}{2}$. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.

5.NF.1. - Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. For example, $\frac{2}{3} + \frac{5}{4} = \frac{8}{12} + \frac{15}{12} = \frac{23}{12}$. (In general, $\frac{a}{b} + \frac{c}{d} = \frac{ad + bc}{bd}$.)

Level 6 - Simplify the fractions and convert improper fractions to mixed fractions to find out what fraction represents the greatest number. Now they have three recipes.

3.NF.3. - Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line. Recognize and generate simple equivalent fractions, e.g., $1/2 = 2/4$, $4/6 = 2/3$. Explain why the fractions are equivalent, e.g., by using a visual fraction model. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. Examples: Express 3 in the form $3 = 3/1$; recognize that $6/1 = 6$; locate $4/4$ and 1 at the same point of a number line diagram. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.

4.NF.1. - Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.

4.NF.2. - Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as $1/2$. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.

5.NF.1. - Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. For example, $2/3 + 5/4 = 8/12 + 15/12 = 23/12$. (In general, $a/b + c/d = (ad + bc)/bd$.)

Level 7 - Simplify the fractions and convert improper fractions to mixed fractions to find out what fraction represents the greatest number. Now they have three recipes.

3.NF.3. - Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line. Recognize and generate simple equivalent fractions, e.g., $1/2 = 2/4$, $4/6 = 2/3$. Explain why the fractions are equivalent, e.g., by using a visual fraction model. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. Examples: Express 3 in the form $3 = 3/1$; recognize that $6/1 = 6$; locate $4/4$ and 1 at the same point of a number line diagram. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.

4.NF.1. - Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts

differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.

4.NF.2. - Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as $\frac{1}{2}$. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.

5.NF.1. - Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. For example, $\frac{2}{3} + \frac{5}{4} = \frac{8}{12} + \frac{15}{12} = \frac{23}{12}$. (In general, $\frac{a}{b} + \frac{c}{d} = \frac{ad + bc}{bd}$.)

Level 8 - Simplify the fractions and convert improper fractions to mixed fractions to find out what fraction represents the greatest number. Now they have four recipes.

3.NF.3. - Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line. Recognize and generate simple equivalent fractions, e.g., $\frac{1}{2} = \frac{2}{4}$, $\frac{4}{6} = \frac{2}{3}$. Explain why the fractions are equivalent, e.g., by using a visual fraction model. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. Examples: Express 3 in the form $3 = \frac{3}{1}$; recognize that $\frac{6}{1} = 6$; locate $\frac{4}{4}$ and 1 at the same point of a number line diagram. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.

4.NF.1. - Explain why a fraction $\frac{a}{b}$ is equivalent to a fraction $\frac{n \times a}{n \times b}$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.

4.NF.2. - Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as $\frac{1}{2}$. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.

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Level 9 - Simplify the fractions and convert improper fractions to mixed fractions to find out what fraction represents the greatest number. Now they have four recipes.

3.NF.3. - Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line. Recognize and generate simple equivalent fractions, e.g., $1/2 = 2/4$, $4/6 = 2/3$. Explain why the fractions are equivalent, e.g., by using a visual fraction model. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. Examples: Express 3 in the form $3 = 3/1$; recognize that $6/1 = 6$; locate $4/4$ and 1 at the same point of a number line diagram. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.

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4.NF.2. - Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as $1/2$. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.

5.NF.1. - Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. For example, $2/3 + 5/4 = 8/12 + 15/12 = 23/12$. (In general, $a/b + c/d = (ad + bc)/bd$.)

Level 10 - Simplify the fractions and convert improper fractions to mixed fractions to find out what fraction represents the greatest number. Now they have four recipes.

3.NF.3. - Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line. Recognize and generate simple equivalent fractions, e.g., $1/2 = 2/4$, $4/6 = 2/3$. Explain why the fractions are equivalent, e.g., by using a visual fraction model. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. Examples: Express 3 in the form $3 = 3/1$; recognize that $6/1 = 6$; locate $4/4$ and 1 at the same point of a number line diagram. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of

comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.

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5.NF.1. - Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. For example, $2/3 + 5/4 = 8/12 + 15/12 = 23/12$. (In general, $a/b + c/d = (ad + bc)/bd$.)

Level 11 - Simplify the fractions and convert improper fractions to mixed fractions to find out what fraction represents the greatest number. Now they have five recipes.

3.NF.3. - Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line. Recognize and generate simple equivalent fractions, e.g., $1/2 = 2/4$, $4/6 = 2/3$. Explain why the fractions are equivalent, e.g., by using a visual fraction model. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. Examples: Express 3 in the form $3 = 3/1$; recognize that $6/1 = 6$; locate $4/4$ and 1 at the same point of a number line diagram. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.

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Level 12 - Simplify the fractions and convert improper fractions to mixed fractions to find out what fraction represents the greatest number. Now they have five recipes.

3.NF.3. - Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line. Recognize and generate simple equivalent fractions, e.g., $\frac{1}{2} = \frac{2}{4}$, $\frac{4}{6} = \frac{2}{3}$. Explain why the fractions are equivalent, e.g., by using a visual fraction model. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. Examples: Express 3 in the form $3 = \frac{3}{1}$; recognize that $\frac{6}{1} = 6$; locate $\frac{4}{4}$ and 1 at the same point of a number line diagram. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.

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ACTIVITY

Click on the "Cookie Sale" button from the main menu. The Cookie Sale main screen displays the goal for the game, the personal best score, today's best score and the High Scores list. Please also notice the "Math Rules" button. Click on this button to review a short explanation of comparing and adding fractions.

Lesson 9 – Figure 1



Click on the "Start" button to begin the game. After a short introduction you will see ingredients for cookies. The first time you play the game, you will be led step-by-step through the instructions for playing the game. These instructions are very important. You can always repeat these instructions by clicking on the girl in the upper left-hand corner of the screen.

Your goal is to buy the supplies you need to make cookies, bake the cookies and sell them in the park. Earn enough money and you can go to the next level. The price of the supplies is shown on the barrel (**Figure 1**); your challenge is to get the best deal by comparing the value of the fractions and choosing the fraction that is the largest value (the best deal). As you move up the levels, the problems will change. Click on a wrong answer and it will give you a wrong answer response. You will also find that fewer customers will visit your store.

Lesson 9 – Figure 2



On level 2, you will start by making sugar cookies (starting on level 4, you will be able to make other cookies, and you can make and sell more than one type of cookie). You will look at the cook book (**Figure 2**) to determine the supplies you will need for each cookie recipe and the quantity of each ingredient. You can bake as many cookies as you have supplies for. Once you have your supplies, click on the “Leave Store” button to choose how many cookies you want to bake.

Lesson 9 – Figure 3



Once you run out of supplies, the button will turn red (**Figure 3**). Also, if you do not have enough supplies to make some cookies, the button will be red. The locks indicate that you have not reached the level needed to make that cookie.

Lesson 9 – Figure 4



Now you will bake your cookies. After the instructions, the timer arrow will move across the timeline. You must click on the yellow button (**Figure 4**) to stop the baking process when the arrow is in the green time zone. Stopping the time too quickly will result in undercooked cookies and stopping it too late will result in overcooked cookies. Baking becomes even more challenging when you try to bake two or three cookie recipes at the same time.

Lesson 9 – Figure 5



Now that you have baked your cookies, you must set a price for the cookies (**Figure 5**). Set the price too low and you won't make much money. Set the price too high and customers won't buy the cookies and you will have lots of cookies left which will spoil (no day old cookies in this game). Cookies that are over cooked or under cooked will sell for a lower price. The number of customers coming by the stand will also affect the demand. You can build customers by selling your cookies at a fair price and by not making mistakes when you buy your supplies.

Lesson 9 – Figure 6



Your customers will come by your stand and some will buy your cookies. Once you sell out of your cookies or when the day is over, you will receive a report showing your sales and profit (**Figure 6**). If you have achieved the level goal, you can click on End Game to move up to the next level. Generally, students should be encouraged to move up. Click on "Next Step" to keep playing the game at the current level. You can move up to the next level when the game is finished.

USING THIS GAME IN CLASS

Teacher-led –

- The Cookie Sale game can be challenging, even for a teacher! It is suggested that the teacher learn to play the game before the class starts. Again, you may find that some of the students will be better at the game than you are! This game was designed to use fractions in an everyday simulation and to build critical thinking skills.
- The teacher should demonstrate the game to the class (or ask a student to demonstrate the game). You may want to concentrate on how to approach solving the fraction problems.

Student-led –

- The teacher divides the class into teams. Sign the team in on the sign in page. The teams compete for the highest score in the same level. The team members alternate making the choices. One member might serve as the captain for the team. As the game is played over several days or weeks, the team high scores will be shown in the high score list.
- Students line up and take turns answering for the class. Each student gets one turn at making a choice or doing a task. You may want the class to help with the answers.
- Students line up and take turns answering for the class. Each student answers as many questions as they can until they get a wrong answer or they complete a cookie game day.

The Gold Star Progress Data Tracking System

- The Gold Star Progress page

The Gold Star Progress Page



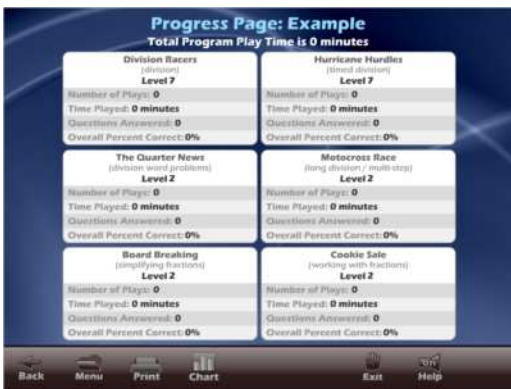
Students (or teachers) can keep track of their progress by clicking on the "Progress" button from any page or screen.



Once you are inside a game, the "Progress" button will display the level that you are working on. Click on the "Progress" button or Level button to go to the Gold Star Progress page.



The Gold Star Progress page displays the student's name and a graph showing the levels of achievement for each game. Click on the "Details" button to see a detailed view of the students' progress.



Click on the "Details" button to see a detailed view of the students' progress.

Our Gold Star Progress Motivational and Data Tracking System is a modified version of our Super Star Motivational and Data Tracking system used on our phonics courses. It serves as a way to reward students and motivate them to complete all of the levels for all of the games.

Most students love playing games and being challenged. Once they have “beat the level goal” for a few levels of a game, they want to continue to climb the levels until they have reached the Super Star level and received their certificate of achievement.

The Gold Star Progress page also serves as a guide for the teacher to all of the activities and games in the program.

Most students will use the Gold Star Progress page access the games. From the Gold Star Progress page, just click on the name of a game and you can go to that game.

Some teachers print the certificates and post them in the classroom. Other teachers create a Gold Star badge as an additional reward for students who have achieved a Gold Star Certificate.

Educational Application

- Uses
- Research and State Standards
- Instructional Design

Use of this program and this guide:

There are numerous ways to use Games of Math 4 – Division & Fractions. This guide is primarily intended for the classroom teacher who is doing a whole class presentation. The guide assumes that you have some way of displaying the program to the entire class and that all of the students will be actively engaged in the presentation of the program.

Some of the other uses of the program:

Activity Centers: The program is certainly appropriate for use in activity centers because it is easy to use and students generally require very little assistance. Teachers can then use the progress page and reporting features to track the student's progress.

Some specific activity center uses are:

1. Differentiated Instruction – working on specific and different skills needed by different students.
2. Remediation – working on specific below-grade-level skills.
3. Above Grade Level – working on skills not covered in class for students who require more challenge.

Besides the classroom, this program is also very appropriate for:

1. Computer Lab – site and network versions of this program are available to allow students to work at their own pace in a computer lab setting to build skills being covered in class or skills already covered above.
2. After-school programs – using after-school time to build and review skills required for advancement.
3. At-home use – parents can purchase the program for additional reinforcement at home or schools can make the Super Star Online version available (at no additional cost) to students and parents for at-home use. Super Star Online features a special "Parent" button to encourage parents to work with their child at home.

Research and State Standards Correlations:

Games of Math 3 - Multiplication is research based. You can review our research and effectiveness studies at: <http://helpme2learn.com/school/research> .

State Standards Correlations – Games of Math 3 - Multiplication is correlated to the state standards of all 50 states. Each User's Guide and Lesson Plans contains the standards for that course. You can request standards for a specific state.

Instructional Design:

Instructional Theory – You expect a lot out of educational software and we try to deliver everything you expect and more. We subscribe to the theory of Multiple Intelligences as developed by Howard Garner. We believe that educational instruction is most effective when it is presented in a way that reaches as many intelligences and as many students as possible. Because we use multi-media, we can be very effective at doing that. This is not just a language arts program that appeals to the logical intelligences; this program appeals to almost every intelligence to develop reading skills and other skills at the same time.

Since you are using our software, it is obvious that you are committed to using all the tools available to you to make your class instruction more interesting and more multi-dimensional. We applaud your taking the extra effort to step away from the traditional lecture-only class instruction.

We also have the following goals:

- Engaging and Fun - We try to make sure that our program will be engaging and fun. Our objective is to take the work out of learning math and make it a game. Our objective is to change students' perception about math as being difficult and boring; turning it into something they love. We want math to become easy and understandable. We want our math games to be challenging, yet give a sense of accomplishment as students progress through the lessons and games. We believe that using our software can help change students' attitudes about learning and about school. Our programs are often the school activity that they look forward to the most.
- Educationally appropriate – This program was built on the topics as outlined in state standards. Our objective is to give you, the teacher, instructional support for the lessons you commonly teach in your classroom. Our goal is to help give your students a tool to master your lessons more quickly and retain the material longer. Our programs are particularly appropriate when students need a lot of repetitive practice. When students master the material quickly, you have more time to work on other or more advanced lessons.
- User-friendly – this is a buzzword that a lot of companies use. Our customers repeatedly tell us how user-friendly our software is and we are continually looking for ways to improve the user-friendliness of our software. We also believe that the software should be user-friendly to the teacher, so we give you additional controls in the Student Management section of the Teachers and Parents section so you can make it even more appropriate to your class, if you want to.

- Reporting – Besides our progress page, we offer printer-friendly reports that can be used to track the progress of the class or student. Our most detailed report is the Pre-Test and Post-Test report.
- Multi-cultural – we are committed to multi-cultural diversity and believe that it is important that kids recognize characters in the programs with similarities to them and other characters that are different. The main characters of this program are our “Super Star” kids which represent different races, skin and hair colors. We also include both male and female characters.

Whether your class is using this program in a computer lab with headphones, or you’re using an overhead projector to present lessons to the class, you’re sure to find the activities and games motivating and rewarding.

Super Star Online

- **Overview**
- **Student Management System**
- **Parent Mode**
- **At-home Use**

Overview

Super Star Online is a web delivered subscription service to one or all of our Super Star titles.

Some of the other advantages of Super Star Online are:

1. Home use – There is probably no greater advantage than home use. Students will have access to the subscription anywhere they have access to the Internet. Many schools have days that are very full and they just don't have time to let students access the software as much as they would like. With our online version, students with a broadband connection can work in our courses at home and take as much time as they need to complete the lessons. Our online version even records how much time the students spend in each lesson.
2. Parental Involvement – The next step with at-home use is to involve parents (or family members) in helping to motivate, track, and work with the child. One of the problems with parental involvement is that some parents don't know how to help their child with homework. **We make it easy for them.** We have added a special "Parent" button to help parents use Super Star Online. The "Parent" button allows parents to view the vocabulary words, activities and games without data tracking, so they do not affect the scores or data tracking of the child. Parents can review the lessons so they know what is required of the child. We offer a wonderful and enjoyable way for parents to work with the school to become involved in the educational success of their child.
3. Family Literacy – Some parents may not have the math skills needed to help their child. Our "Parent" button gives the parent an opportunity to improve their math skills along with their child. We believe that a better educated parent will be better prepared to help their child.
4. Easy IT – Our Online version makes it easier for the school's IT department. They don't have to maintain a server, they don't have to worry nearly as much about which operating system the software will run on, and they don't have to worry about security issues with their network. Our online system is supported by most modern operating systems and web browsers.

5. Quick Updates – When we make improvements to our course titles or add course titles, the updates will be available to all students as soon as we make them. You don't have to be concerned with which version you have or if you need to upgrade.
6. Quick Delivery – Once we receive your purchase order, we can get you online in a matter of hours.
7. Remote Administration – For districts or schools that rely heavily on their IT department, our online version allows complete administration of the courses from any location.

Class Management System

Many of the features of Super Star Online are managed by the site administrator. Those features include: importing student names, assigning user names and passwords to the students and teachers, setting up classes and assigning students and teachers to those classes, assigning courses to the classes.

As a teacher, we encourage you to work with the site administrator to organize the system in the most effective way for your classroom. This may mean that you may request sub-classes for students with different program titles available to those in each group. For example, if your last name is Teacher, you might have a class called "Ms. Teacher A" with 14 students and access to Games of Math 3 and Phonics 2b. You might also have a class called "Ms. Teacher B" with 8 students and access to Games of Math 4 for more advanced students.

It is relatively easy for the site administrator to add or change the names of classes and assign students and programs to classes. But, depending on your school or district, it may not be so easy to get the site administrator to do these tasks for you.

We now offer teachers a way to do most of the class management tasks. The teacher will login to Super Star Online using their teacher account and:

1. Click on "Classes", to see the courses that are assigned to the class by the site administrator. The teacher can then click on "Edit Class" and add or remove the assigned courses by checking or unchecking the courses. The students will only have access to the courses that are assigned to the class.
2. The teacher can then scroll down to Members and check that all that all of the students have been assigned to the class. If the teacher sees the name of a student who should be included in the class, the teacher can check the name or the teacher can uncheck a name to remove the student from the class. Then click on "Update" to make the changes.

3. Adding a Student. If the teacher needs to add students that are not already in the system, the teacher can click on "Students". To add a student, the teacher would click on "Add Student". The teacher would enter the first name and last name of the student, would check the class, would enter a login name (note: read the instructions below Login Name – do not use a login name that is already in use and do not use capital letters), would enter a password, confirm, check Active? Click on "Create". (Note: the school has purchased a number of user seats and teachers cannot enter active students if that number has been exceeded.
4. Teachers can also remove a student from the class. Click on "Students", then I suggest next to "Arrange by" – click on the down arrow and click on Class to get a class list. Click on "Edit" by the name of a student and uncheck the name of the class and then "Update".

If a student is no longer at the school, the teacher can make that student inactive (making a student inactive means that the student will no longer take an active seat and will no longer be counted against the number of seats the school has purchased) uncheck "Active?" at the bottom of the screen, then Update.

Note: the user/login name and password was probably determined by the site administrator. If you find user name or password to be too difficult for your students or if a student cannot remember their password, you can change it. For security purposes, our system does not show the password, but you can change it by entering a new password in the box and confirm. Please coordinate any changes with your site administrator. If the courses are also used in a computer lab, please coordinate any changes with the computer lab instructor.

Teacher Resources

Teachers should have access to our Teacher Resources class and our Teacher & Admins Resources course. The teacher will sign in to Super Star Online using their teacher account. Click on Class and locate the Teacher Resources class. Open the class and locate the Teacher & Admins Resources course. Open the course to find video tutorials and printed instructions that will help you use the many teacher features of Super Star Online.

Also in the Teacher Resources class, you should find Super Star Movies which are movies of our songs and presentations. These movies are meant to be projected to the class as you would project any movie. You may want to play the songs without projection.

Student Management System

To access the Student Management System, click on the "Teachers & Admins" button found on the contents page.



Teachers & Admin button



The next screen shows the menu for the Teachers and Admin section.

Click on the Student Management button to enter the Student Management System.



1. Class Progress Report: Contains a summary report for the entire class and a detailed report for each student's progress.

2. Class Test Report: Contains a summary report for the entire class and a detailed report for each student's pre-test and post-test results.

3. Users' Guide/Lesson Plans: Contains this guide in an Adobe Acrobat format and requires that the Adobe Acrobat Reader be installed on the computer. The user can then review and/or print all of the pages.

4. Game Locks & Difficulty: Contains the teacher controlled setting for the program. These controls allow the teacher to set the program to run in the progressive manner (meaning that students must complete each lesson, before moving on to the next lesson). It also allows the teacher to control the difficulty level, the assignment of stars, and set activity locks.

5. Test Locks & Features: Contains a setting to control access to the program and to the pre-test and post-test as well as printing.

6. Parent Mode: Contains a setting to control the Parent Mode features.

7. Reset Default Class Settings: Allows the teachers controls to be reset to the default.



The Game Locks & Difficulty menu allows you to apply the setting to all of the students in the class or to an individual student. Our programs are designed to be fun and to make learning enjoyable. Our programs are made so that students can easily navigate through the programs and confidently advance through the levels of each game. They will be motivated to earn a Gold Star for each game as they complete each level in that game. The

ultimate goal is to complete all of the levels of each game and earn the Games of Math 4 certificate.



Individual Student Game Settings – click on the Individual Student Game Settings button to start. The first screen shows a list of the students in the class. Click on the name of the student that you want to apply the individual setting to.



Game Locks & Difficulty - The next menu has a list of activities in the Game Name column. Scroll down to the game you want to control. The Starting Level column shows the current level that the student has earned for each stage. The teacher can click on this button to change the starting level.



Set Level - It is possible that a teacher might want to set the level that the student is working on. Set the level higher to make the problems more challenging.



The Difficulty level setting can be changed to help make the course more appropriate for the student. The difficulty setting changes the points required to move up to the next level.



The final setting is the Lock. Here, teachers can lock or unlock specific games. Click on an open green lock (unlocked) to lock it (turns red when locked). Generally, you might rather use the class settings to set this lock for the entire class.



Click on the Class Game Settings button to apply settings to the entire class. These settings are similar to the individual settings only they will be applied to the entire class. The class settings will override individual settings.

Test Locks & Features – click on the Test Locks & Features button to see the Test Locks & Features menu.

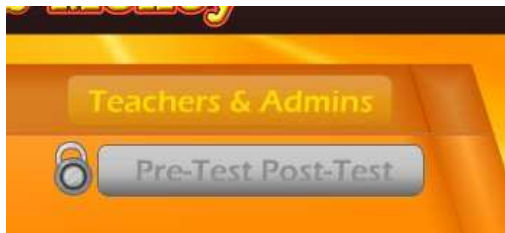


The Lock Printing button is unlocked by default. This means that anyone can use the print features within the program to print pages such as the Gold Medal Progress page reports, the Gold Medal Certificate of Achievement and any other print page. If you lock the printing, teachers will still be able to print the class and detailed reports.

To lock printing, click on the Lock Printing button. The button will turn red, the lock will show locked and the check box will be checked. Locking printing will help prevent students from printing pages that you did not want them to print, but you will need to turn this feature on if you want them to print their Certificates of Achievement.

To lock the program, click on the Lock Program button. This would prevent students from having access to any of the main program. This would typically be used if you want them to do the pre-test or post-test.

Click on the Lock Post-Test button to lock the post-test portion of the program. This is usually a good idea; however, if a student does do a post-test, it will be replaced the next time they do a post-test, so it generally isn't a problem.



Click on the Lock Pre-Test & Post-Test button to lock the test portion of the program. This will prevent students from taking the tests without your permission. If you click on the Lock Pre-Test & Post-Test button, it will appear grayed out on the main contents page and will

show locked.

Click on the Lock Individual Tests if you want to lock any of the individual tests.

Parent Mode



Parent Mode – we believe that our Super Star Online presents a wonderful opportunity for parental involvement. Parents will now have an opportunity to take a more active role in helping their child. Parents can review the lessons, review the progress of their child and print a report as often as they would like.

When parents use the Parent Mode, think of it as a practice mode. Parents can play the games and activities and none of their scores are permanently recorded, their scores do not affect the scores of their child. Parents can become familiar with the lessons their child is working on, so they will be better able to help their child with those lessons. Parents can practice the games and activities with their child, then exit the Parent Mode and let their child do the work. Parents who need help with their math skills can use the Parent Mode to learn along with their child.

We believe that there are many benefits to having the school, the teacher, the student and the parents all working together as a team to insure the success of the student. We believe that Super Star Online can greatly improve the effectiveness of this team. But we recognize that encouraging parental involvement takes a bit of work. Many parents aren't used to being involved. We believe that Super Star Online makes it easy and fun for them to be involved and is a unique way to encourage their involvement. But it takes the school, the teacher, and the student to make sure that they know about Super Star Online and how they can be involved. Please make every effort to let the parents know about your subscription and encourage your students to involve their parents.

When the Parent Mode is enabled (it is off by default), the student and/or parent will see a Parent button on the main contents screen of the course. Parents can then click on the Parent button to enter the course in the Parent Mode. Should teachers decide that they don't want to use this feature, they can disable it by clicking on the Parent Mode button. The Parent Mode button will then show locked, will turn red and will be checked. The Parent button will not be displayed to the student.



Write a Message to Parent – click on this button to display the write a message screen. This screen allows you to write a message that can be viewed by all the parents who use the Parent Mode. The idea of this screen is to allow you to communicate with parents about what the students are working on and what is expected of them. You can use it any way you want. You can type directly into the box or you can paste text into the box (keyboard

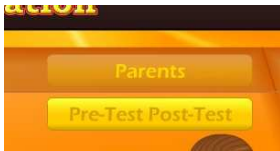
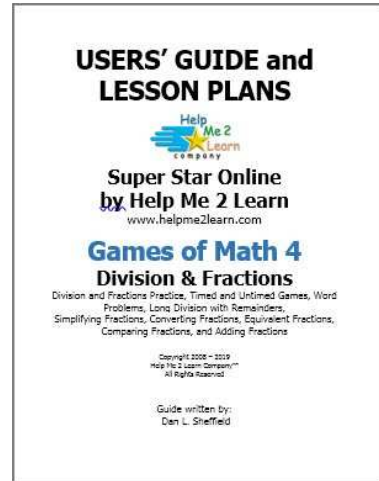
command: control + V). You should remember that all parents will see the same message and that you will need to change the message from time to time. Don't forget to click on Save to save the message.

	Parent Program Time	Student Program Time	Student Program Progress
Super Star 430	0 hr 0 min	0 hr 0 min	0%
Super Star 431	0 hr 0 min	0 hr 0 min	0%
Super Star 432	0 hr 0 min	0 hr 0 min	0%
Super Star 433	0 hr 0 min	0 hr 0 min	0%
Super Star 434	0 hr 0 min	0 hr 0 min	0%
Super Star 435	0 hr 0 min	0 hr 0 min	0%
Super Star 436	0 hr 0 min	0 hr 0 min	0%
Super Star 437	0 hr 0 min	0 hr 0 min	0%
Super Star 438	0 hr 0 min	0 hr 0 min	0%
Super Star 439	0 hr 0 min	0 hr 0 min	0%
Super Star 440	0 hr 0 min	0 hr 0 min	0%
Super Star 441	0 hr 0 min	0 hr 0 min	0%
Super Star 442	0 hr 0 min	0 hr 0 min	0%
Super Star 443	0 hr 0 min	0 hr 0 min	0%
Super Star 444	0 hr 0 min	0 hr 0 min	0%

View Parent Mode Data – once you have your parents working with their children, you can run a report to see how much time the parents are spending in the Parent Mode. Click on this button to see a report of the total parent time, student time and student program progress.

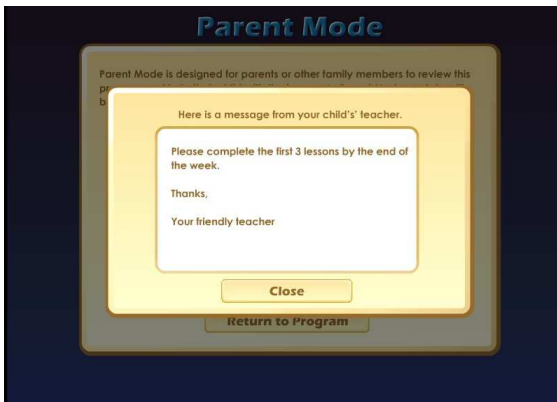
The final button on this menu resets all of the class settings to the default. Use this button if you have made some settings that are giving you some problems or if you just want a fresh start for your class settings.

Users' Guide/Lesson Plans – click on this button to view our Users' Guide and Lesson Plans. This is an Adobe Acrobat (.pdf) file and you will need to have the free Acrobat reader (www.adobe.com) installed on your computer in order to be able to view this file. Once you can view this file, you can print any of the pages you want. This file contains some helpful tips, a lesson plan for each of the lessons in the course, and printable activity pages.



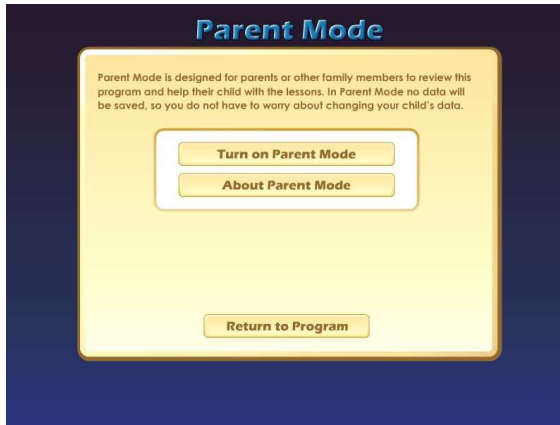
Understanding the Parent Mode

The Parent Mode – teachers can only see the Parent Mode if they look at it from a student account. Students and Parents will see a "Parent" button on the main menu or contents page (the button is in the same location as the Teachers' & Admins' button from a teacher account). Click on the Parent button to enter the Parent Mode menu.



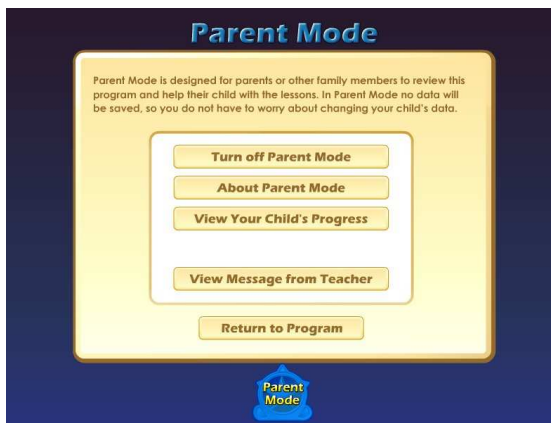
Message from the Teacher – if the teacher has written a message, the parents will see the message when they first enter the Parent Mode. If the teacher has not written a message, this screen will not appear. The purpose of this screen is to give parents some guidance as to what lessons the child is working on and what is expected of the child.

Parent Mode



Menu – the Parent Mode Menu is simple, there is a brief explanation of the Parent Mode, a button to start the Parent Mode and a button to read more about the Parent Mode. Parents can also return to the program without starting the Parent Mode.

Think of the Parent Mode as a practice mode. Parents can play any of the activities or games without affecting the reporting or the progress of the student. The only tracking that occurs is the total amount of time that the parent spends in the Parent Mode. This data is only available on a report to the teacher.



Parent Mode Menu 2 – when the parent clicks on the Turn on Parent Mode button, they will see the next screen that confirms they are now in the Parent Mode. They should notice the Parent Mode button at the bottom of the screen; this indicates that they are now in the Parent Mode. From this screen they can turn off the parent mode, read about the Parent Mode, view a progress report for their child or view the message from the teacher (if there

is one).

View Your Child's Progress – click on this button to view or print a progress report. The top of the report will show the progress through the course and the bottom of the report will show the progress of the Pre-Test and Post-Test. Click on the Print button next to the Parent Mode button to print this report. Parents can also track the progress of their child from the Gold Medal Progress page; however they need to turn off the Parent Mode in order to be able to navigate to the Gold Medal Progress page.

Progress page – Parents can view and print progress pages for their child from the Progress page. There are two different views on the Progress page:

- the Chart view
- the Details view



Each view presents the progress in a different format and is designed to help track the progress of the student. Once a student has completed all of the levels of a game, the star at the top of the game will turn gold and the student can (with your permission) print a certificate of achievement, for that game. When a student completes all of the levels, the student can print a certificate of achievement for Games of Math 4.

Parent Mode Button – to begin using the course in the Parent Mode, the parent would click on the Return to Program button. When in the Parent Mode, the Parent Mode button will be displayed at the bottom center of the screen. Parents can click on the Parent Mode button to return to the Parent Mode screen and turn off the Parent Mode.

It is our hope that the Parent Mode will be a valuable asset to the school, the teacher, the student and to the parent. Super Star Online provides a unique opportunity for the school to provide an easy to use and fun way for parents to work with their child at home. Typically, the level of parent involvement will vary greatly. Some parents will only check the progress of their child occasionally, while some parents will be actively involved. We also encourage parents to use Super Star Online to build their skills as they work with their child.

At-Home Use

We have provided the tools to enable your students to use Super Star Online at home, however at-home use will need your support and encouragement to be used. Here are some suggestions for encouraging at-home use.

1. Send a letter home with your students advising the parents that Super Star Online is available and encourage the parents to work with their child at home. We have a sample parent letter available at www.helpme2learn.com/support/online . Please use this letter as a guide. To complete this letter you will need the user name and password of each student, you should be able to get these from your school's site

- administrator. You will use the same URL (web address) that you use in your classroom.
2. Remind your students to ask their parents to work with them at home.
 3. After a couple of weeks, run a report to see how many parents have logged in and are using the program in the Parent Mode. You may need to send a follow up letter to parents who are not working with their child at home.
 4. Whenever you have an open house or meeting with parents, let them know about Super Star Online and how they can use it to work with their child.
 5. Suggest to your school administration that they hold a special Super Star Online night where your school explains the use of the program to the parents. You might be able to incorporate this as part of a back to school night or PTA meeting.
 6. Use the message center and write a message on a regular basis to your parents. Let them know what lessons you are working on and what to expect from their child.

Some students will not have Internet access at home. Encourage these students to seek out alternative access locations such as the public library, after school programs or relatives who do have Internet access.

The goal of Super Star Online is to build a better bond between the school, the teacher, the student and the parents. This stronger bond will build a better team where all parties work together. We call this the Super Star Strategy for Success.

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6. MISCELLANEOUS.

* Governing Law. The laws of the State of California shall govern this End-user License Agreement.

* Jurisdiction. In any legal action relating to this End-user License Agreement, you consent to the exercise of jurisdiction over it by a state or federal court in San Diego County, California and further agree that such court shall have exclusive jurisdiction over any such action.

* Arbitration. Help Me 2 Learn Company and you agree that in the event of any dispute arising between the parties with respect to this End-user License Agreement, such dispute shall be settled by arbitration to be conducted in San Francisco, California in accordance with the rules of the Judicial Arbitration and Mediation Service ("JAMS") applying the laws of California. Help Me 2 Learn Company and you agree that such arbitration shall be conducted by one or more retired judges who are experienced in dispute resolution, that pre-arbitration discovery shall be limited to the greatest extent provided by the rules of JAMS, that the arbitration shall not be conducted as a class action, that the arbitration award shall not include factual findings or conclusions of law and that no punitive damages shall be awarded. Help Me 2 Learn Company and you understand that any party's right to appeal or to seek modification of rulings in arbitration is severely limited. Any award rendered by the arbitrators shall be final and binding and judgment may be entered on it in any court of competent jurisdiction in San Francisco, California.

Should you have any questions concerning this End-user License Agreement, or if you desire to contact Help Me 2 Learn Company for any reason write: Help Me 2 Learn Company, PO Box 729, San Luis Rey, CA 92068, phone toll free: 1-(800) 460-7001 fax 888-391-8415.

Credits:

Executive Producer:

Dan L. Sheffield

Graphic Artist and Programmer:

Danny Glover

Educational Consultants:

Don Wigginton

Laurie Calma

Vocal Artists:

Marshall Elfstrand

Christi O'Daniel

Danny Glover

Tom Clark

Mike Schiffbauer

Breanna Craig

Jonathan Townsend

Testing:

Ernie Calma

Breanna Craig

Maureen Sheffield

Collin Craig

Susan Troop

Thomas Troop

Gregory Troop

For tech support, email: techsupport@helpme2learn.com
or 1-800-460-7001