

Summer Math Activities for Students Entering Grade 4

Dear Student / Parent / Guardian:

The following websites are designed to allow you to practice your math skills throughout the summer in a fun way! The first part of your assignment is to select 10 of the websites to practice your math for at least 10 minutes once a week. Of course, you can practice more than this, it's just a suggestion. The second part of your summer assignment is to complete the Grade 3-4 Study Island Summer Assignment. Finally, to promote a STEAM connection, there are three Problem Solving Reading Mat activities that your child is encouraged to complete.

Your teacher will collect your Website Log, the Problem Solving Reading Mat activity sheets, and the print out of the Individual Summary Report when you come back to school in September. *If you are new to Clifton School District, you will not be able to complete the Study Island Summer Assignment.*

Students who do not have computer access can go to the Clifton Public Library and request a Library Card that will grant them internet access.

An electronic list of these websites is also posted on the Clifton website, <http://clifton.k12.nj.us/>

Enjoy your Summer Vacation!!!

Math Practice Sites

The following websites are designed to allow you to practice your math skills throughout the summer in a fun way!

<https://www.pearsonrealize.com> Sign into your account, click on the Classes tab, Click on the Game Center on the right side.

<https://www.prodigygame.com/> Sign up for a free account. Role playing math game for grades 1-8

<https://www.funbrain.com/math-zone> Games are listed by grade level

<http://www.AAAMath.com> Interactive Math Activities

<http://www.missmaggie.org> “Around the World in 80 Seconds”

[http:// Brainpop.com/](http://Brainpop.com/) Try a quiz and extra practice

<http://www.arcademics.com> Lots of great interactive math games

<http://www.aplusmath.com> Games and Flashcards

<http://www.brainormous.com/> Problem solving and math games

<http://www.allmath.com/flashcards.php> Flash cards for all basic operations

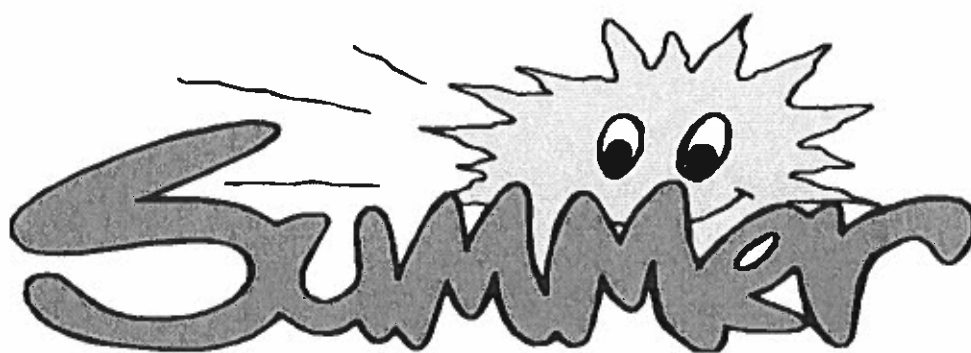
<http://www.mathplayground.com/index.html> More math games

<http://www.mathplayground.com/games.html> Games for grades 1-6.

<http://www.ericmilou.com> Browse the Grade K-3 or 4-8 Math Links

<http://www.rsinnovative.com/rulergame/> Start off with 1 inch

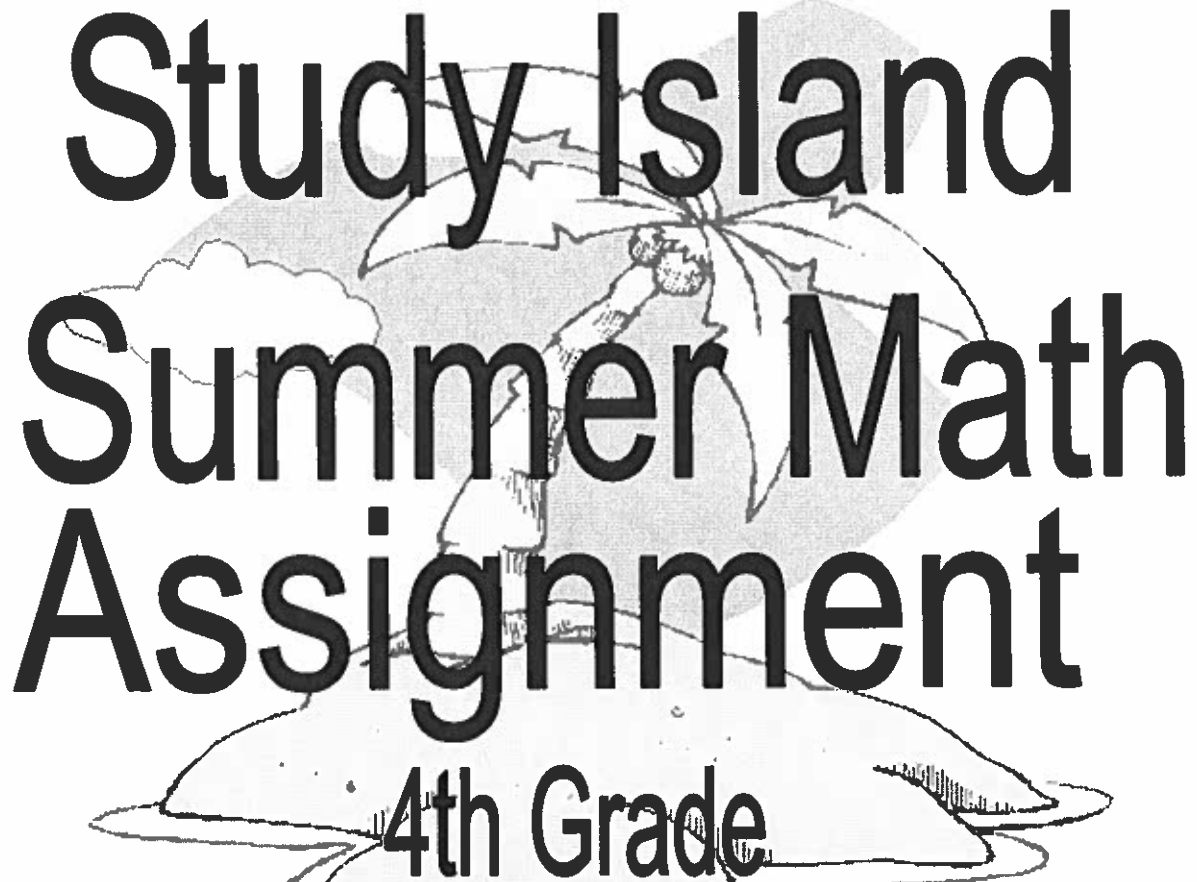
You can always choose a different online math game; just make sure it's a FREE game!



Summer Math Web Activities Log

Date	Website Name/Activity	Time	Explain What You Did

Please use the WEBSITE LOG to document what sites you've visited and how long you've spent practicing your math skills and concepts. Remember, you need to log AT LEAST 10 minutes once a week on 8 of the sites listed.



Study Island Summer Math Assignment

4th Grade

PLEASE NOTE: If you are a new student to the district, you WILL NOT be able to complete this part of the Math Summer Packet because you have not been enrolled in Study Island.

Student Name _____

Parent Signature _____

(I am aware that this assignment is due the first week of school in September to my child's teacher.)

*If packet is lost, please log onto www.clifton.k12.nj.us for an additional copy.

A portion of your summer Math packet is going to consist of Study Island assignment. Your teacher has posted an assignment on your Study Island account for you to complete. In order to complete the assignment, you must do the following:

- Ⓒ Log into www.studyisland.com
- Ⓒ Click on "Log in" → Enter *user name* and *password*
(User name is your ID#@cps and password is clifton)
- Ⓒ Click on "Summer Math Assignment" to view the list of assignments to complete

To receive full credit for this assignment **ONE of the 3 topics MUST BE from NUMBERS AND OPERATIONS: FRACTIONS.**

Follow these steps to complete each assignment:

- Ⓒ Click on the assignments you choose to complete
- Ⓒ You can choose "Game Mode" or "Practice Mode". This choice is highlighted in green.
- Ⓒ Click "Next" to begin assignment
- Ⓒ Click on "End Session" when you are notified that all 10 questions have been completed.
- Ⓒ **Parents Please Note:** In order to receive a blue ribbon, students must achieve a score of 70% for each topic. This is not required for completion of the assignment, however, students should score at least 60% for each set of 10 questions. If you choose to do over the number of questions assigned, please do not attempt to have students complete more than 30 questions in a single topic assigned for the summer.
- Ⓒ **WHEN YOU'RE DONE WITH YOUR ENTIRE SUMMER ASSIGNMENT, PLEASE PRINT YOUR INDIVIDUAL STUDENT REPORT AND BRING IT TO YOUR TEACHER.**

- CLICK ON MY REPORTS
- CLICK ON INDIVIDUAL STUDENT REPORT
- SELECT YOUR PROGRAM: 3RD GRADE NJ STANDARDS MASTERY

- SELECT YOUR SUBJECT: MATH (STUDENT LEARNING STANDARDS)
- CLICK ON VIEW REPORT--RIGHT CLICK ON THE SCREEN AND SELECT PRINT.
THIS WILL PRINT YOUR INDIVIDUAL STUDENT REPORT.

If needed, there is a red HELP tab on the top right to help navigate through any issues you may come across.

Make sure to try your personal best when completing each assignment. You have access to the scratch pad, highlighters, calculator, and timers if you choose to use them. Take your time and have fun!

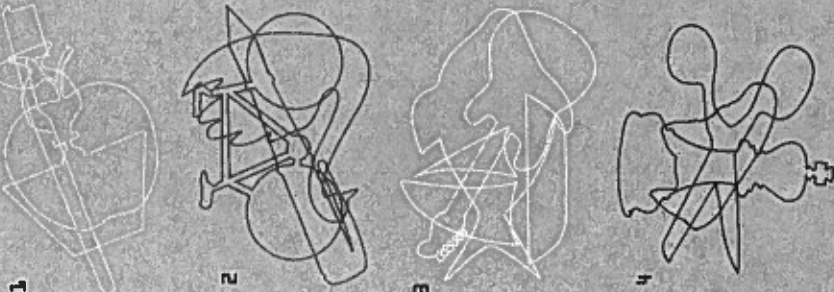


SEEING THE SOLUTION

Math doesn't have to be just strings of numbers. Sometimes, it's easier to solve a math problem when you can see it as a picture—a technique known as visualization. This is because visualizing math uses different parts of the brain, which can make it easier to find logical solutions. Can you see the answers to these six problems?

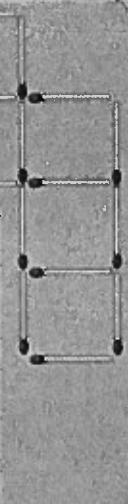
What do you see?

The first step to sharpening the visual areas of your brain is to practice recognizing visual information. Each of these pictures is made up of the outlines of three different objects. Can you figure out what they are?



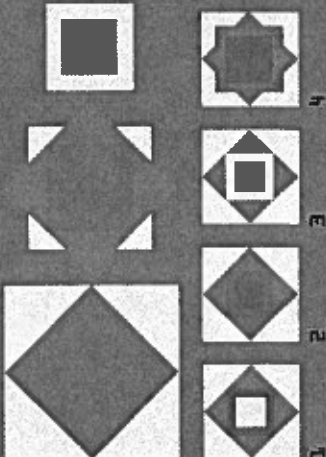
Thinking in 2-D

Lay out 16 matches to make five squares as shown here. By moving only two matches, can you turn the five squares into four? No matches can be removed.



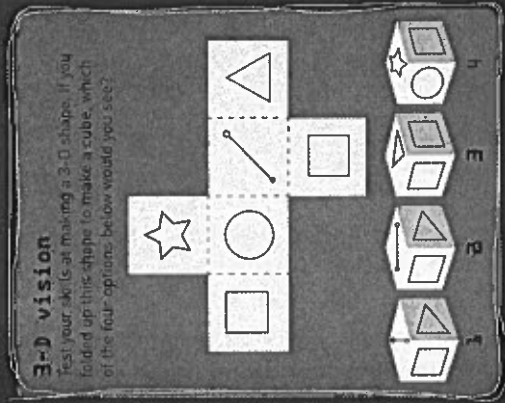
Visual sequencing

To do this puzzle, you need to visualize objects and imagine moving them around. If you placed these three piles on top of each other, starting with the largest at the bottom, which of the four shapes at the bottom would you see?



Seeing is understanding

A truly enormous snake has been spotted climbing up a tree. 15 ft of the snake is yet to arrive at the tree. 10 ft is wrapped around the tree trunk and 5 ft of snake is hanging down from the branch. How long is the snake?



3-D vision

Test your skills at making a 3-D shape. If you folded up this shape to make a cube, which of the four options below would you see?

Recent studies show that playing video games develops visual awareness and increases short-term memory and attention span.



Almost half of your brain is dedicated to seeing and processing visual material.

Illusion confusion

Optical illusions, such as this elephant, put your brain to work as it tries to make sense of an image that is in fact nonsense. Illusions also wake up the creative side of your brain and force you to see things differently. Can you figure out how many legs this elephant has?



Name _____

Just the Facts

To see the solution to a division problem, you can draw pictures, use bar diagrams, or create arrays. Another way to solve a division problem is to use a multiplication table.

1. Uh-oh! Jarid spilled juice on his multiplication table. Help Jarid complete the multiplication table below.

×	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5		7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32		
5	5		15	20	25	30	35	40		
6	6	12	18	24		36				
7	7	14	21	28	35	42				
8	8	16	24	32	40	48				
9	9	18	27		45	54			81	90
10	10	20	30	40	50	60			90	100

2. Explain how you can use a multiplication table to solve division problems.

3. Complete the statements:

$32 \div 8 =$ _____ because $4 \times 8 =$ _____.

$24 \div 3 =$ _____ because _____ = 24.

$45 \div 9 =$ _____ because _____.

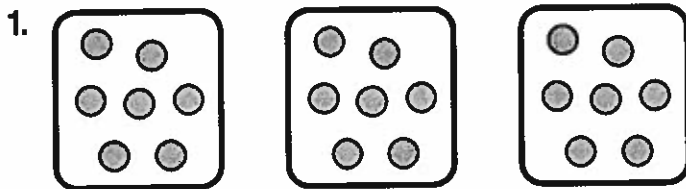
$63 \div 9 =$ _____ because _____.

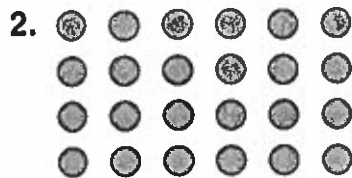
Name _____

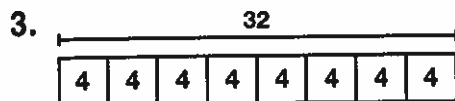
Picture a Story

Multiplication stories involve equal groups. Think about the number of groups and number in each group.

Write a multiplication story for each picture. Then write a multiplication equation and find the product.







Name _____

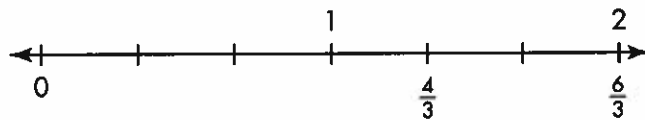
Time to Wake Up!

Humans spend about $\frac{1}{3}$ of their lives asleep. A five-year-old needs to sleep about $\frac{1}{2}$ of the hours in each day.

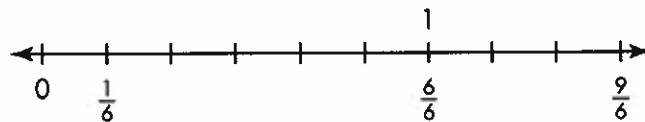
You can use fractions to describe parts of a time period. You can also use fractions to name points on a number line.



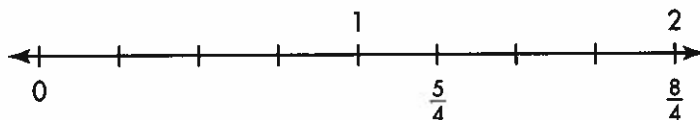
1. Paco spent $\frac{4}{3}$ hours sleeping with his dog on the bed before the dog left. The fraction $\frac{4}{3}$ is shown on the number line. Write the missing fractions for the other points shown on the number line.



2. Sue spent $\frac{7}{6}$ hours resting before a race. Write the missing fractions on the number line, including $\frac{7}{6}$.



3. Stanley napped for $\frac{5}{4}$ hours after school. The fraction $\frac{5}{4}$ is shown on the number line. Write the missing fractions for the other points on the number line.



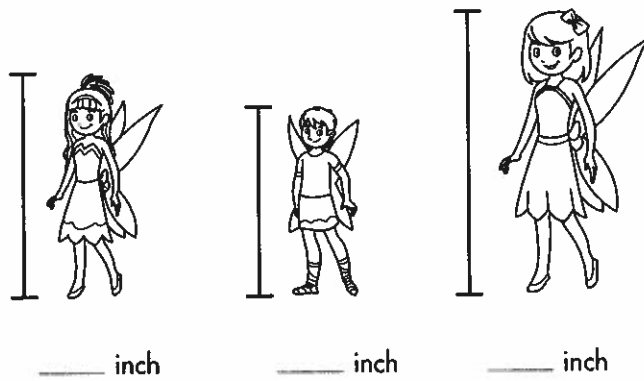
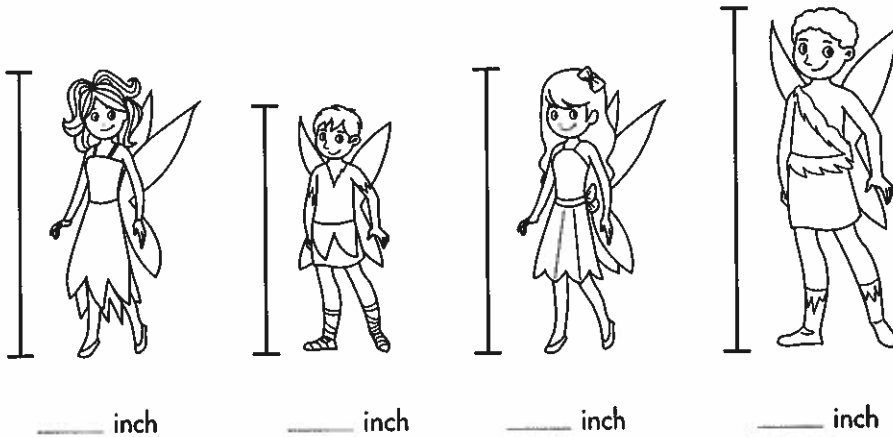
Name _____

Measuring Dreams

People dream about many different things. Some dreams are pleasant, some are scary, and some are silly.

Trina dreamed about fairies.

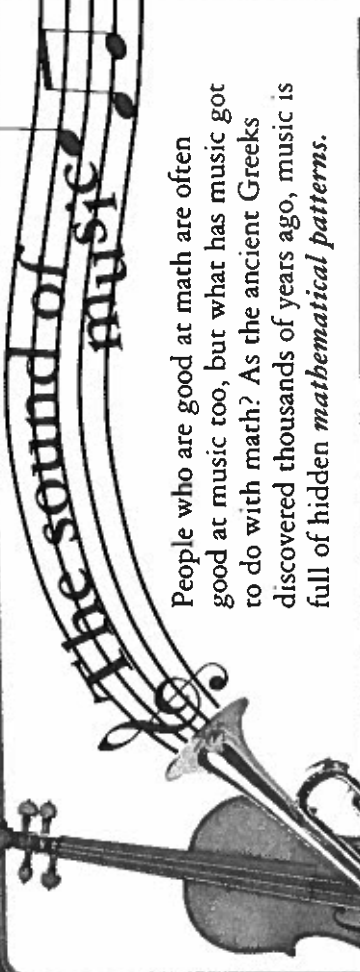
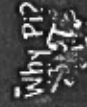
1. Measure the height of each fairy to the nearest half inch.



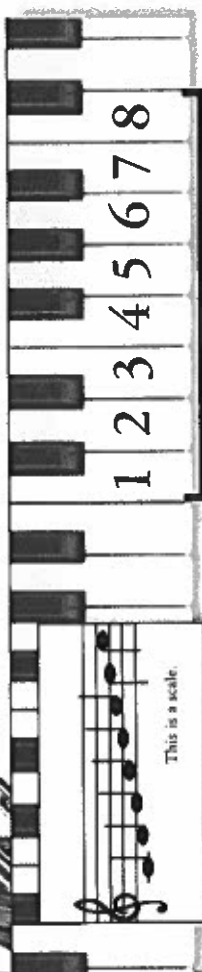
2. Complete the line plot to show the data on the heights of the fairies.



Problem-Solving Reading Mat



People who are good at math are often good at music too, but what has music got to do with math? As the ancient Greeks discovered thousands of years ago, music is full of hidden *mathematical patterns*.



Measuring music

The Greek mathematician Pythagoras was one of the first people to find math hidden in music. The story goes that Pythagoras became curious about the ringing notes made by a blacksmith's hammers striking anvils. He discovered that an anvil twice as big made a lower musical note of exactly half the pitch.

I've got it!
It's all about the length of the string!



Pythagoras (575–500 B.C.)

Strings and things

Pythagoras wondered if he could find a similar mathematical pattern in stringed instruments. Sure enough, he figured out that cutting the length of a string in half resulted in a note exactly twice the pitch. Because the shorter string vibrated twice as fast. Doubling the length produced a note of half the pitch. Pythagoras also found that by making a string longer or shorter, or by tightening it with carefully measured weights, he could create all the notes on the musical scale.



If a guitar's string is cut in half, the resulting note is half of the original.

Feel the beat

Put your hand to the left side of your chest and you'll feel your heart beating. It pounds around 60–70 beats per minute (bpm) when you're relaxed. All music has a rhythmic pulse just like a heartbeat. When you say your left or dance to music, you're moving your body with the music's "rhythm," or speed. Energetic dance music may have a tempo of 300 bpm, like a heart pounding fast out.

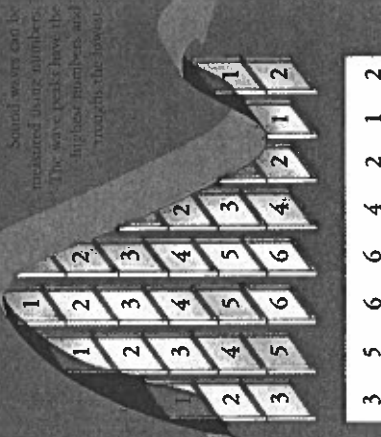


The human heart produces a rhythmic pattern like a drummer.

Digital music

When music is recorded, a computer system captures every sound wave by measuring the pitch (frequency) and loudness up to 100,000 times a second. These measurements are stored as strings of digits (numbers), which is why the music is described as digital. When you play the music, your computer or MP3 player turns the digits back into sound waves.

Sound waves can be measured using numbers. The wave peaks have the highest numbers and troughs the lowest.



Keeping time

When musicians play together in a band or an orchestra, it's important they all stick to the same rhythm and tempo. Like dancers keeping in step, there are several ways to help them keep on the beat.



Conductor

Part of a conductor's job is to keep his orchestra of 50–100 musicians in a time. He marks the beat with movements of his hand, allowing musicians to count beats when they aren't playing.



Drummer

In modern bands, an conductor marks time. Instead, the drummer helps the musicians measure out time by making the beat audible. The drummer is a bit like a conductor you can hear.



Metronome

Musicians playing alone sometimes use a device called a metronome to help them keep a constant tempo. A weighted pendulum swings from side to side. Sliding the weight up or down alters the speed.



Conducting

Conductors do not simply wave their batons back and forth. They move both in specific patterns that show the rhythm of the music and in the musicians when to emphasize a beat. The position of batons above or below musicians make the beat stronger.

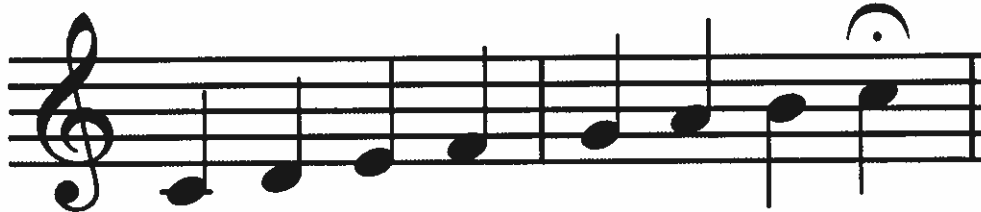


"Music is the pleasure the human mind experiences from counting without being aware that it is counting." Gottfried Leibniz (1646–1716), German mathematician

Name _____

Math in Music

Music is full of patterns and relationships. The note at the top of an octave has exactly twice the frequency (the number of vibrations per second) as the note at the bottom of the octave. The notes shown below are quarter notes. Each note indicates the amount of time it should be held, as a fraction of a measure.

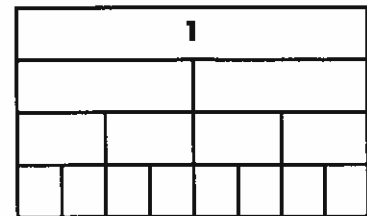


Decide which set of notes is a greater part of a measure. Compare the fractions. Write $<$, $>$, or $=$. Color the fraction strips to show each comparison.

1. An $\frac{1}{8}$ note or a $\frac{1}{4}$ note

$\frac{1}{8} \bigcirc \frac{1}{4}$

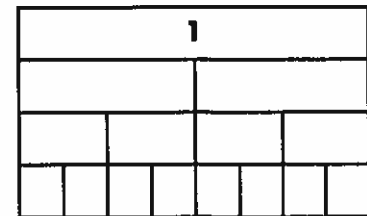
_____ is a greater part of a measure.



2. Two $\frac{1}{2}$ notes or two $\frac{1}{4}$ notes

$\frac{2}{2} \bigcirc \frac{2}{4}$

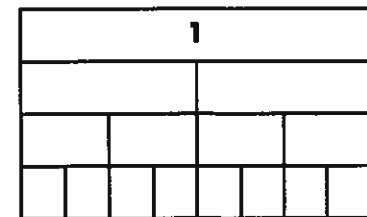
_____ are a greater part of a measure.



3. Three $\frac{1}{4}$ notes or three $\frac{1}{8}$ notes

$\frac{3}{4} \bigcirc \frac{3}{8}$

_____ are a greater part of a measure.



Name _____

We've Got the Beat!

A drum beat is based on the number of times the player hits the drum during a period of time called a measure.

Green School's drum team has tenor and bass drums. In the school song, each hit or beat of the bass drum is $\frac{1}{4}$ of a measure and each beat of the tenor drum is $\frac{1}{8}$ of a measure.

Write equivalent fractions to go with each problem. You can draw a number line or fraction strips to help.

1. How many beats are in 1 measure on the bass drum?

_____ beats $1 = \frac{\quad}{4}$

2. How many beats are in 2 measures on the bass drum?

_____ beats $2 = \frac{\quad}{4}$

3. How many beats are in 3 measures on the bass drum?

_____ beats $3 = \frac{\quad}{4}$

4. How many beats are in 1 measure on the tenor drum?

_____ beats $1 = \frac{\quad}{8}$

5. How many beats are in 2 measures on the tenor drum?

_____ beats $2 = \frac{\quad}{8}$