# Welcome to…
# College and Career Readiness
# Math
# Parent Information Night

Centennial Lane Elementary School

# College and Career Readiness Parent Night

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# Goals for our time together...

❖ Understand the reasoning behind the Common Core

❖ Become familiar with what your child will learn this year in math

❖ Experience some new and effective strategies for learning mathematics

❖ Learn ways to support children with math

Think back to your own experience as a child....

*What do you recall about math class....*

# Typical…but Unfortunate

We tend to attribute success in math to a "math gene" – either you have it or you don't….

*NOT True!!!*

Society often forgets that genius and achievement can take persistence and hard work over years. Math isn't always something a student gets or doesn't get. It's an ability that can be learned over time."

Malcolm Gladwell

# Reasoning Behind The Common Core

# The State of Mathematics…

- The United States recently ranked 25$^{th}$ out of 34 in mathematics achievement when compared to other countries.

- Over 50% of our students are not considered college-ready in mathematics when they graduate from high school.

# How can we improve?

"...research studies of mathematics in high-performing countries have pointed to the conclusion that the mathematics curriculum in the U.S. must become substantially more focused and coherent in order to improve mathematics achievement in this country"

*Common Core State Standards for Mathematics*

**Three-Minute Video Explaining the Common Core State Standards**

http://vimeo.com/51933492

# What are the Common Core State Standards?

- The Common Core State Standards set grade-by-grade learning expectations for students in grades K-12 for Mathematics and for English Language Arts and Literacy.

- While states have had standards for more than 15 years, this set of standards is more focused on preparing students for success in college and career. They set **clear**, **consistent** and **high learning goals**.

# What Your Child Will Learn

Content Standards K-5

Developing Math Behaviors

Rigor in Mathematics

# Big Ideas about Math Grades K- 2

- Counting & Cardinality (PreK & K only)
- Addition
- Subtraction
- Place Value
- Problem Solving

*Student are expected to fluently add and subtract within 100 by the end of Grade 2*

# Big Ideas about Math Grades 3

- The meaning and properties of multiplication and division

- Finding the products of single-digit multiplication and related quotients in division

- The introduction to fractions and work with equivalent fractions



*Students are expected to fluently multiply and divide within 100 by the end of Grade 3.*

# Big Ideas about Math
# Grades 4

- Solving multi-digit problems using the four operations and whole numbers

- Extending their understanding of fraction equivalence and ordering

- The introduction to decimals in relation to fractions

**WHAT WE LEARN**

*Students are expected to fluently add and subtract multi-digit numbers with the standard algorithm by the end of Grade 4.*

# Big Ideas about Math
# Grades 5

- Solving multi-digit problems using the four operations and decimals through hundredths
- Using equivalent fractions as a strategy to add and subtract fractions
- Applying and extending their understanding of multiplication and division to fractions
- Relating volume to multiplication and division

**WHAT WE LEARN**

*Students are expected to fluently multiply multi-digit number using the standard algorithm by the end of Grade 5.*

# Developing the Behaviors of Mathematicians

1. Make sense of **problems** and persevere in solving them.

2. **Reason** abstractly and quantitatively.

3. Construct viable **arguments** and critique the reasoning of others.

4. **Model** with mathematics.

9. Use appropriate **tools** strategically.

10. Attend to **precision**.

11. Look for and make use of **structure**.

12. Look for and express **regularity** in repeated reasoning.

**HOW WE LEARN**

# Required Fluencies K-6
Common Core State Standards

| Grade | Standard | Required Fluency |
|-------|----------|------------------|
| K | K.OA.5 | Add/subtract within 5 |
| 1 | 1.OA.6 | Add/subtract within 10 |
| 2 | 2.OA.2 | Add/subtract within 20 |
| 2 | 2.NBT.5 | Add/subtract within 100 |
| 3 | 3.OA.7 | Multiply/divide within 100 |
| 3 | 3.NBT.2 | Add/subtract within 1,000 |
| 4 | 4.NBT.4 | Add/subtract within 1,000,000 |
| 5 | 5.NBT.5 | Multi-digit multiplication (up to 3-digit x 4-digit) |
| 6 | 6.NS.2,3 | Multi-digit division and decimal operations |

The foundation is built as a student moves through the grades on specific content to lead to higher level studies.
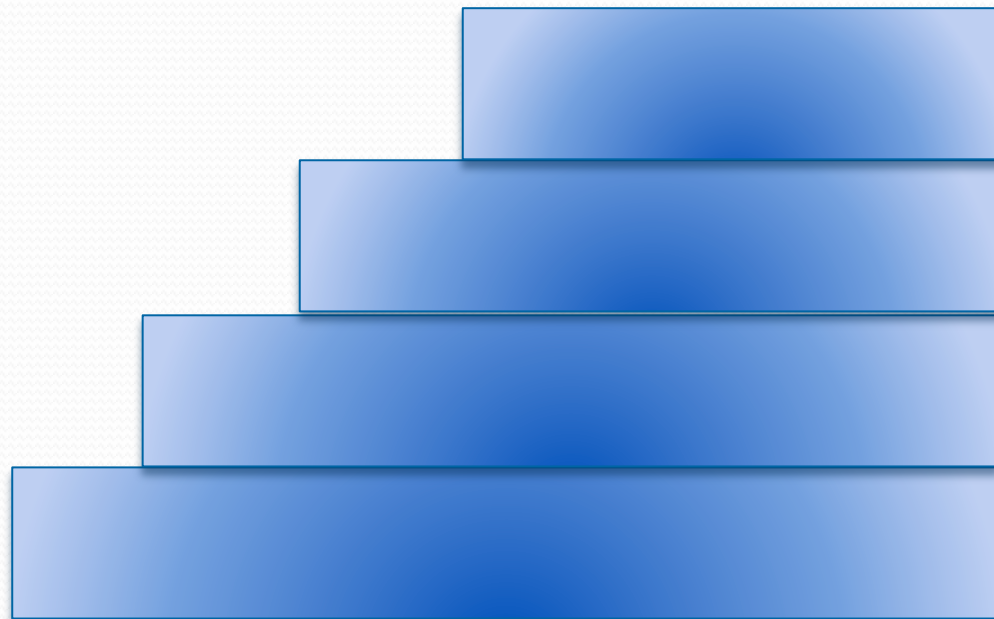
# Why does CC math "seem" different?

- The curriculum is more rigorous. It is a balance of **conceptual** understanding, **procedural** understanding, and **application** of mathematics rather than the rote memorization of the past.

MATHEMATICAL RIGOR

Conceptual Understanding

Procedural Fluency

Application
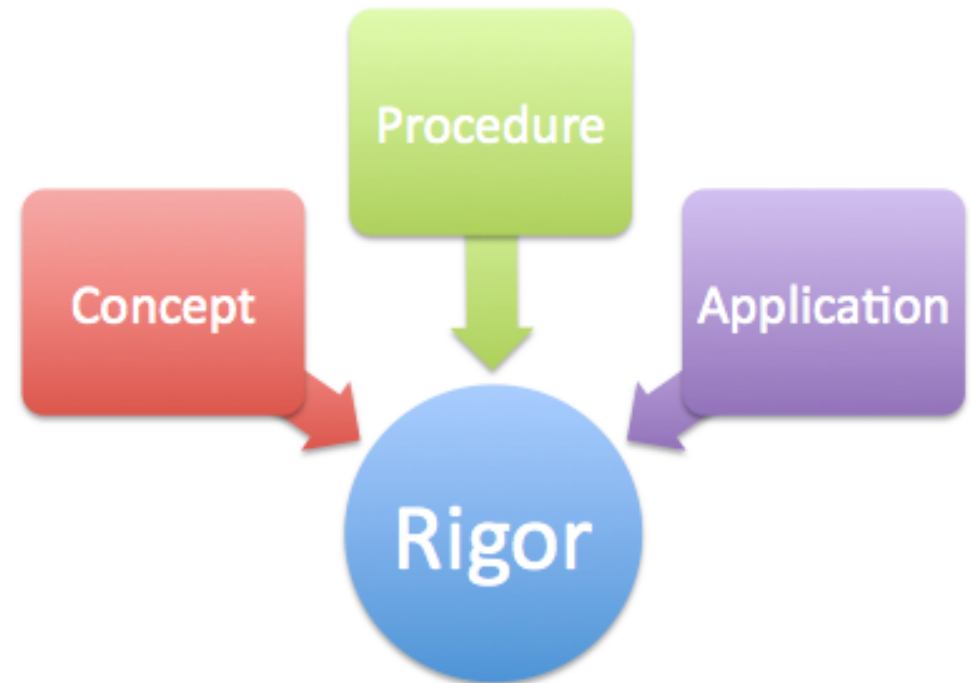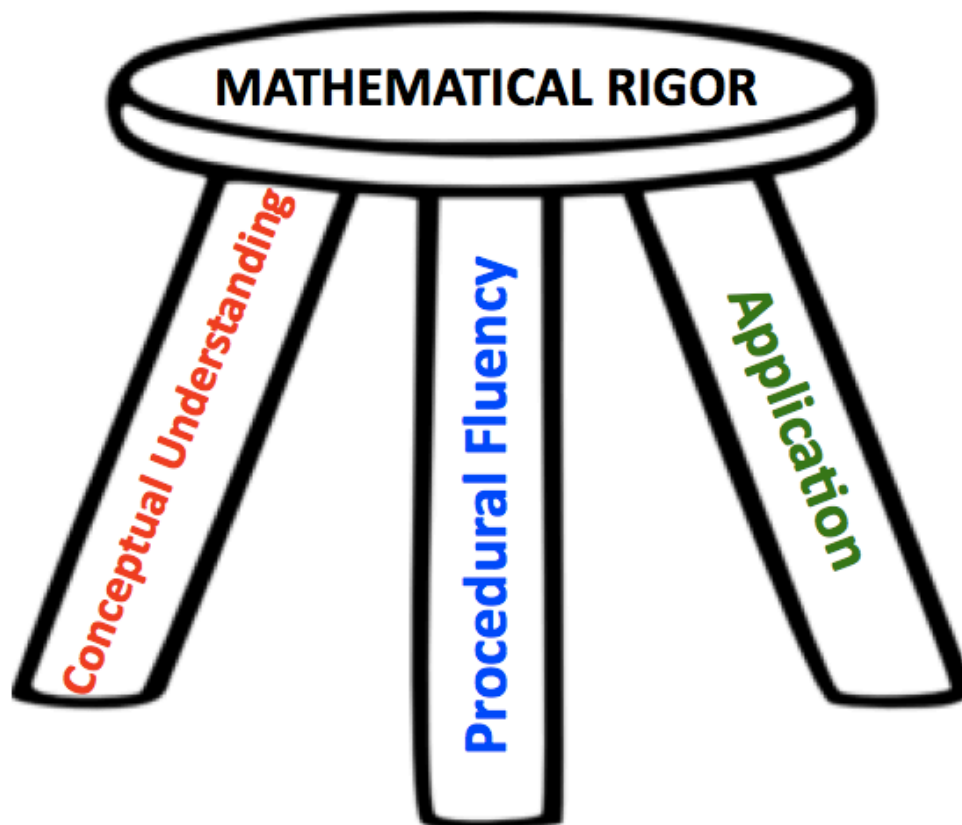
**MATHEMATICAL RIGOR** - It's for ALL students

# New Strategies in Mathematics

What Math Looks and Sounds Like

# What does math look like?

- Not just this:
  - Is 237 even or odd?

- But also this:
  - List four 3-digit numbers that have odd numbers in all the different place values.

# What does math look like?

- Not just this:
  - Add: 259 + 338 =

- But also this and that:

$$1\ \square\ 7$$
$$+\ 4\ 9\ \square$$
$$6\ 2\ 9$$

$$A\ B\ C\ D$$
$$-\quad\ F\ E\ B$$
$$F\ E\ D$$

*(using only 0-5)*

In the past....

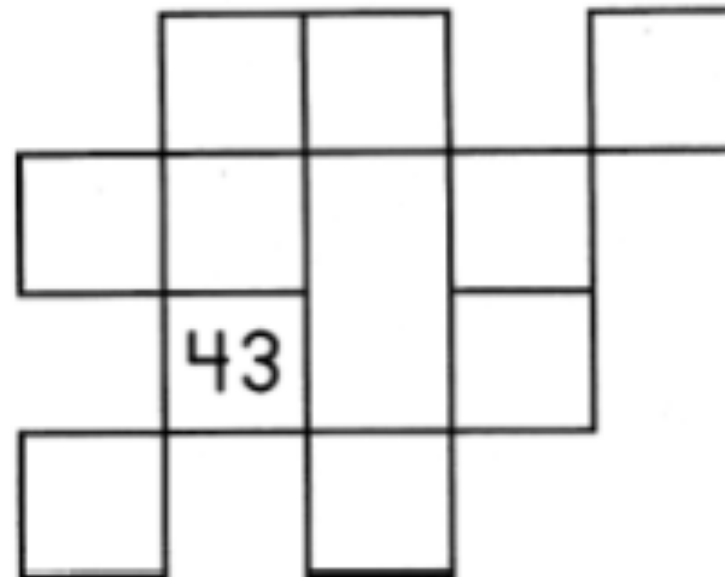| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
| 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |
| 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 |
| 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 |
| 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 |
| 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 |
| 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |

We asked
students to
fill out the
blank
Hundred
Chart.

# Now we might share….

a.

51

1.

43
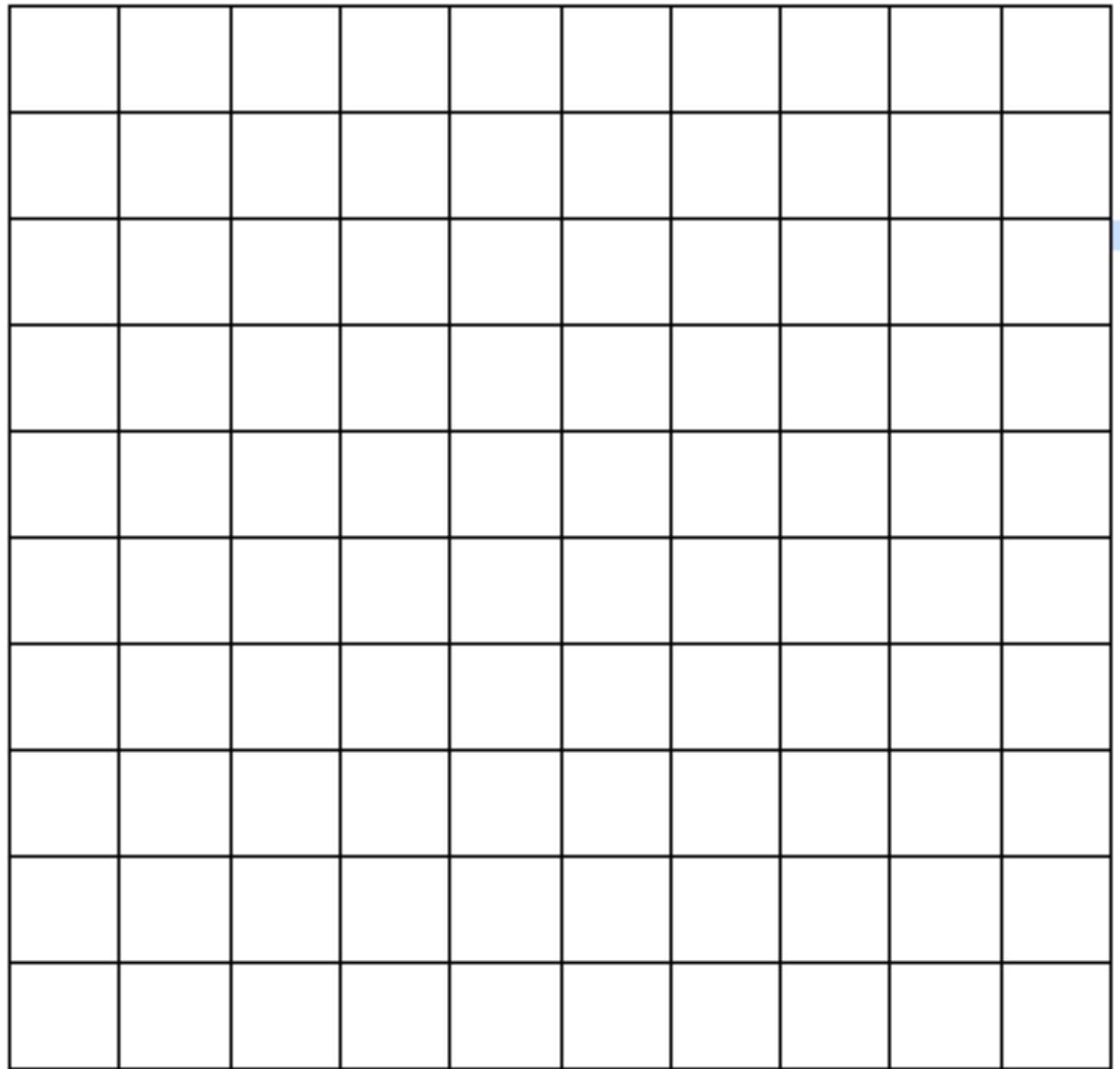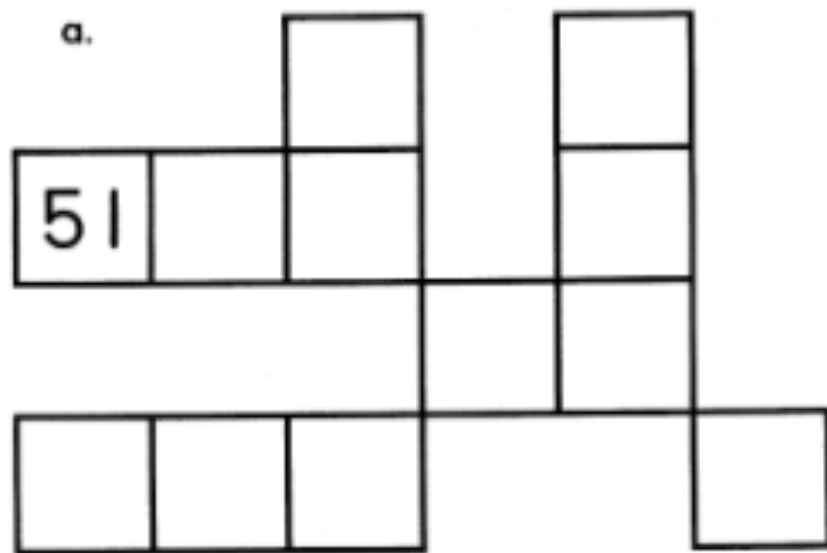
# Eliminate It!!

Which would you eliminate and why?

| | |
|---|---|
| 21 | 63 |
| 17 | 84 |

- Notice that there are a variety of strategies that student can apply to make sense of the mathematics.

- Students are able to share their thinking and defend their solutions, even at an early age.

# New Assessments in Mathematics

Next generation teaching and learning aligns with next generation assessment

# PARCC

- Partnership for Assessment of Readiness for College and Careers

- Computer based K-12 assessments in both ELA and Math

-  Assessments will better measure students' critical-thinking and problem-solving skills and their ability to communicate clearly.

- They will provide more meaningful, actionable and timely information for educators, parents and students.

# Benefits of Math PARCC

- Solving real world problems and explaining HOW.

- Measure whether students are on track for college and career.

- PARCC's computer-based assessments will be much more interactive and engaging than fill in the blank.

Questions:

- www.parcconline.org

# Math: Sample Item of the Past



Greenleaf's Common School Arithmetic 1874

A gentleman has 824 dollars. He wants to give an equal amount to each of his 8 children. How much will each child receive?

# Math: Grade 5 Sample Item of the Past



MSA Example – Grade 5 Math

The art teacher has 824 paint brushes. He wants to put 8 brushes in a box. How many boxes can he fill?

A. 4 boxes
B. 13 boxes
C. 103 boxes
D. 130 boxes

# Math: Grade 4 Sample Item of the Past

Each bus holds 65 people each. How many people do 8 buses hold?

A. 57 people

B. 73 people

C. 520 people

D. 650 people

# Buses, vans, and cars (grade 4)

Three classes at Lakeview School are going on a field trip. The table shows the number of people in each class, including the teacher.

They can choose to use buses, vans, and cars.

|  | Total number of people |
|---|---|
| Mrs. Ruiz's Class | 23 |
| Mr. Yang's Class | 25 |
| Mrs. Evans' Class | 24 |

Buses have 20 seats          Vans have 16 seats          Cars have 5 seats

Which three combinations can be used to take all three classes on the field trip?

☐ 1 bus and 4 vans                    ☐ 1 bus and 8 cars

☐ 3 vans and 11 cars                  ☐ 2 buses and 3 vans and 4 cars

☐ 1 bus and 1 van and 6 cars

Submit Answer

# Math: Grade 4 Sample Item of the Past

The side of a square is 20 feet. What is the area of the square?

A. 40 ft²

The perimeter of a rectangle is 28 inches. The length is 9 inches. What is the width?

A. 4 inches

B. 5 inches

C. 10 inches

D. 17 inches

# Deer in the park (grade 4)

Write your answers to the following problem in your answer booklet.

The perimeter of the rectangular state park shown is 42 miles.



A ranger estimates that there are 9 deer in each square mile of the park.

If this estimate is correct, how many total deer are in the park? Explain your answer using numbers, symbols, and words.

Mr. Edmunds shared 12 pencils among his four sons as follows:

- Alan received $\frac{1}{3}$ of the pencils.

- Bill received $\frac{1}{4}$ of the pencils.

- Carl received more than 1 pencil.
- David received more pencils than Carl.

## Part A

On the number line, represent the fraction of the total number of pencils that was given to both Alan and Bill combined. Use the buttons on the right to increase or decrease the number of equal sections on the number line.

| More Tick Marks |

0        1

| Fewer Tick Marks |

## Part B

What fraction of the total number of pencils did Carl and David **each** receive? Justify your answer.

HCPSS Family Mathematics Support Center

http://hcpssfamilymath.weebly.com/

# Questions??

# Please report to the following:

- Kindergarten and Grade 1:
  - Media Center (follow signs)

- Grades 2 and 3:
  - Cafeteria

- Grades 4 and 5:
  - Mrs. Matthews Room (follow signs)