

**Make Math Clear,
Then Take it Home**

The Math Mix

Research confirms that if the math curriculum includes “frequent cumulative review” that enables students to retain greater math competence. Among sources supporting this “mix” is the report “Assisting Students Struggling with Mathematics” of the What Works Clearinghouse, IES Practice Guide, US Department of Education. This chart is included to organize planning for new math content and inclusion of math learned earlier in the school year in activities such as: learning centers; “bell ringers”; homework, art, science, social science--*Integrating math into science and social science makes math more meaningful.*

Math Practice Standards should be emphasized
 —particularly standard 1: **Make sense of problems and persevere in solving them.**

Week of	New Math	Math “Mix”—Content to Revisit

Homework Essential: Students need to take home an example of how to solve problems—that teachers prepare or that *they prepare* so they can practice correctly.

Daily kinds of assessment:

__glossary __journal __my own example __change the problem, solve it

Weekly kinds of assessment:

__solve problem, explain patterns and strategies __write math booklet
 __make my own “anchor chart” __make “math path”—steps to solution

Solve the Math Homework Problem!

Students take their own guide plus the problems to solve.

My Own Math Guide

Skill: _____

Problem:

Steps to solve it.

Solve the problem here.



I solved it!

Use graphic organizers to clarify learning.

CONNECT MATH AND LITERACY.

Word	What It Means—explain in your own words or put an example.

Use graphic organizers to clarify learning.

I know my numbers from

CCSS Math Practice Standard 2. Reason abstractly and quantitatively.

This Graphic Organizer can be used to assess if completed independently, or as a learning guide.

Directions: Teachers tell students which numbers to write on the chart. It can be individualized based on different levels of student knowledge of numbers.

Then students write those numbers and their names and draw circles to show them.

It can be used to check on knowledge of number patterns such as adding by 10s or even, odd. For larger numbers students use different symbols. For example, circle stands for 10s, line stands for 1s.

Number	Word	Draw symbols to show how many this number means.

Exceed: Write a sentence using one of these numbers.

Use graphic organizers to clarify learning.

I can solve a word problem strategically!

Common Core Math Practice Standard 1: Make sense of problems and persevere in solving them.

Note to Teachers: This organizer is designed to guide a student. It also is an instant assessment. If students cannot complete steps 1, 2, or 3, the teacher learns what the kinds of help the student needs to comprehend a word problem and decide which strategies and skills to use.

What is the question asking me to figure out?	
How will I solve it?	
What information do I need to solve it?	

Your teacher will tell you how to take the next step.

You may complete it by yourself or...

pair and share—work together with another student to solve it

or

pair to compare—solve it yourself then compare your work with another student's

Use graphic organizers to clarify learning.

Math Problem Solver

The Problem—What will you figure out?

Your Strategy

The Solution

Answer:

DISPLAY learning--Example of a Math exhibit

Geometry is Everywhere!

Draw or name real objects--examples you see that use geometry.

Shape	Example
rectangle	
triangle	
circle	

Shape	Example
square	

(Another shape.)	

(Another shape.)	

PLUS

Design something that uses all of these shapes—a playground, a building, a ...

Connect Math to Science and Social Science

What's a topic you'll teach this year?

How can you connect it to math?

- collect data
 - analyze data
 - graph data
 - make up math problems
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It's Your Money!

CCSS Math Practice Standard 1. Make sense of problems and solve them persistently.

Choose a job from the table on the next page. Figure out your weekly wage. Make a budget for one week. If you get to the bottom line and have spent too much money, go back and change some of the numbers. You live at home, so you do not pay rent.

Budget Category	Cost	How Much Money I Have
Entertainment		
Lunch		
Haircuts		
Clothes		
Transportation		
Books		
Other Things:		

Surprise! You need to save \$100 a week to get ready to buy furniture when you move out of your home. If you need to, change your budget.

Another surprise! Your family decides you should pay \$75 a week to help pay for the costs of living there. Change your budget to add that weekly cost.

Chicago Jobs

CCSSR1 Competence: Locate information in a data table. Math Practice Standard 4—Model with mathematics.

The first column lists just a small number of the jobs in the Chicago area.

The second column lists the number of jobs in the Chicago area in each field.

The third column lists the hourly wage.

If you don't find a job you want on this list, look at the complete list at

http://www.bls.gov/oes/current/oes_16974.htm#%284%29

Career Area	Number of Jobs	Hourly Wage
Computer Programmers	16,480	\$36.41
Software Developers, Applications	21,170	\$40.82
Web Developers	2,610	\$31.89
Computer User Support Specialists	13,790	\$25.25
Computer Network Support Specialists	4,290	\$30.58
Architects,	3,140	\$35.12
Landscape Architects	230	\$25.77
Surveyors	750	\$30.08
Aerospace Engineers	230	\$45.84
Electrical Engineers	3,220	\$43.03
Environmental Engineers	820	\$38.70
Architectural and Civil Drafters	2,390	\$21.81
Electrical and Electronics Drafters	420	\$28.44
Environmental Engineering Technicians	360	\$26.21
Surveying and Mapping Technicians	630	\$23.90
Food Scientists and Technologists	410	\$33.08
Soil and Plant Scientists	460	\$32.42
Microbiologists	160	\$40.66
Chemists	1,700	\$34.97
Materials Scientists	210	\$36.66
Survey Researchers	830	\$27.26
Urban and Regional Planners	360	\$36.87
Geographers	80	\$43.97
Agricultural and Food Science Technicians	370	\$20.99
Forensic Science Technicians	320	\$38.85
Educational, Guidance, School, and Vocational Counselors	5,930	\$31.51
Mental Health Counselors	2,950	\$22.85
Child, Family, and School Social Workers	9,430	\$26.42
Healthcare Social Workers	2,760	\$24.42
Health Educators	1,190	\$25.63
Architects	3,140	\$35.12
Social and Human Service Assistants	5,750	\$14.17
Community Health Workers	1,870	\$18.31
Clergy	1,180	\$20.04
Lawyers	23,310	\$65.83
Judicial Law Clerks	420	\$25.82
Arbitrators, Mediators, and Conciliators	200	\$36.78
Paralegals and Legal Assistants	10,470	\$24.10
Dancers	420	\$19.31
Choreographers	40	\$24.20

How will I expand math progress?

With parents and families:

- Students take their own problem solving guides home.
 - Parents get math practice facts of the month.
 - I feature the “math website” of the week/month.
 - Students play math games.
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In my curriculum:

- I include math in science.
 - I incorporate math in social science.
 - Students create “co-anchor” charts so their pictures and examples show what to do.
 - Students solve a problem, then pair to compare, then REPAIR.
 - Students play math games at centers.
 - Students explain the math they learn in booklets and displays.
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