


**DEL MAR UNION SCHOOL DISTRICT
PARENT MATH NIGHT**


WELCOME




PURPOSE

- **California Standards**
 - **Del Mar's vision for mathematics instruction**
 - **Opportunity to experience mathematics**
 - **Ways to support your student at home**
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CALIFORNIA STATE STANDARDS

- CA Standards identify “What to Teach”.
 - Conceptual Understanding, Fluency, and Application.
 - CA Standards are rigorous.
 - Standards for Mathematical Practice.
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STANDARDS FOR MATHEMATICAL PRACTICE

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.
 5. Use Appropriate Mathematical Tools.
 6. Attend to Precision.
 7. Look for and Make use of Structure.
 8. Look for and Express Regularity in Repeated Reasoning.
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- How did you feel about word problems when you were in school?
- What made them hard or easy for you?



THEN AND NOW

Then	Now
Word problems were given the least priority.	Word problems drive instruction.
Students sat quietly during math instruction and practiced what teacher modeled.	Students work collaboratively to solve problems.
Teacher typically taught only one procedure for solving an algorithm.	Students are asked to solve problems using methods that make sense and are efficient.
Instruction was about following the right steps to get the right answer.	Instruction focuses on the process and solution.
Not all students will be strong in mathematics. Only some will “GET” it.	Belief that ALL students can learn mathematics.

MATHEMATICS IN DMUSD


- Del Mar's methods informed by 50 years of research.
 - Del Mar's mathematics instruction supports 21st Century Learning Skills.
 - All Del Mar teachers receive extensive professional learning.
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**LEARNING MATHEMATICS WITH
UNDERSTANDING IS CENTRAL
TO OUR INSTRUCTION**



IN DEL MAR KNOWLEDGE IS CONNECTED

Our students make sense of new ideas by relating them to things they already know:

- Learning with Understanding.
 - The Evolution of Students' Strategies.
 - Learning an Integrated Network of Related Ideas.
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TRY IT ON


What if you had never been taught the procedure for solving this problem? How would you attack it based on the story or problem given. Try to solve it through making sense and not a learned procedure.

Mrs. Brown has $15\frac{1}{2}$ cups of sugar. It takes $\frac{3}{4}$ cup of sugar to make a batch of cookies. If Mrs. Brown wants to use all of this sugar, how many batches of cookies can she make?

Solve this problem using two different strategies.

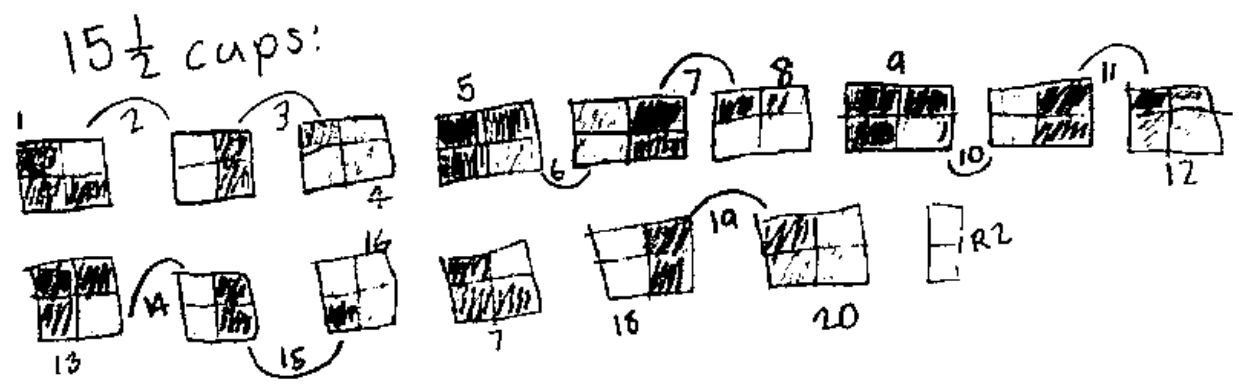
IN DEL MAR WE BELIEVE KNOWLEDGE IS GENERATIVE

Our students apply prior knowledge to new mathematical situations through problem solving:

- Children have an entry point into solving problems.
 - Children are flexible thinkers.
 - Children add layers of complexity to their strategies over time.
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Mathematician #: 1

Mrs. Brown has $15 \frac{1}{2}$ cups of sugar. It takes $\frac{3}{4}$ cup of sugar to make a batch of cookies. If Mrs. Brown wants to use all of this sugar, how many batches of cookies can she make?



20^{R2} batches of cookies

Mathematician #: 3

Mrs. Brown has $15\frac{1}{2}$ cups of sugar. It takes $\frac{3}{4}$ cup of sugar to make a batch of cookies. If Mrs. Brown wants to use all of this sugar, how many batches of cookies can she make?

$\frac{3}{4}$, $1\frac{2}{4}$, $2\frac{1}{4}$, 3, $3\frac{3}{4}$, $4\frac{2}{4}$, $5\frac{1}{4}$, 6, $6\frac{3}{4}$, $7\frac{2}{4}$
1, 2, 3, 4, 5, 6, 7, 8, 9, 10
 $8\frac{1}{4}$, 9, $9\frac{3}{4}$, $10\frac{2}{4}$, $11\frac{1}{4}$, 12, $12\frac{3}{4}$, $13\frac{2}{4}$, $14\frac{1}{4}$, 15
11, 12, 13, 14, 15, 16, 17, 18, 19, 20

$$15 + \frac{3}{4} = 15 \neq 15\frac{1}{2}$$

20 batches
of cookies



Mrs. Brown has $15 \frac{1}{2}$ cups of sugar. It takes $\frac{3}{4}$ cup of sugar to make a batch of cookies. If Mrs. Brown wants to use all of this sugar, how many batches of cookies can she make?

$$15 = \frac{60}{4}$$

$$\frac{1}{2} = \frac{2}{4}$$

$$\frac{60}{4} + \frac{2}{4} = \frac{62}{4}$$


$$\begin{array}{r} 20 \text{ r } \frac{2}{4} \\ \frac{3}{4} \overline{) \frac{62}{4}} \\ \underline{6} \\ 02 \end{array}$$

$$\frac{2}{4} = \frac{2}{3} \text{ of } \frac{3}{4}$$

$20 \frac{2}{3}$ batches of cookies

IN DEL MAR OUR STUDENTS DESCRIBE, EXPLAIN, AND JUSTIFY MATHEMATICAL THINKING

Our students can describe, explain and justify their mathematical thinking, which is an integral part of understanding of math at all levels of instruction:

- Mathematical reasoning expands students understanding.
 - Students are expected to explain why an approach works.
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Mathematician #: 25

Mrs. Brown has $15 \frac{1}{2}$ cups of sugar. It takes $\frac{3}{4}$ cup of sugar to make a batch of cookies. If Mrs. Brown wants to use all of this sugar, how many batches of cookies can she make?

(15) $\frac{3}{4}$ s in 15


$15 - \frac{1}{4}$ s are left and it takes

$3 \times \frac{1}{4}$ to make a batch so
that is (5) more batches

$15 + 5 = 20$ batches with

$\frac{1}{2}$ a cup of sugar left


IN DEL MAR STUDENTS IDENTIFY THEMSELVES AS MATHEMATICAL THINKERS

- Students are capable and not afraid of mathematics – willing to try hard problems.
 - Students know they can figure out challenging problems and do not wait for the teacher to show them how to solve.
 - Students learn by solving problems and exchanging ideas with peers.
 - Students see that explaining, asking questions, and trying something new will help solve a new problem or use a different strategy.
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Our primary goal is for ALL students to see themselves as mathematicians with the ability to tackle rigorous mathematics.



WHEN YOU ENGAGE IN CONVERSATIONS ABOUT MATH WITH YOUR CHILD, KEEP THESE RULES OF THUMB IN MIND:

- Let your child drive the conversation.
 - Ask your child to explain his or her thinking with words, pictures, or diagrams, and numbers.
 - Remember that your child's strategy may be different from your own.
 - Encourage alternative strategies.
 - Be patient. Explaining ideas can take time.
 - Expect the unexpected. Math is a strong web of deeply interconnected ideas. The conversation could expand your child's thinking – and your own.
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RESOURCES

Dept. of Education resources
for parents:

<http://www.cde.ca.gov/re/cc/mathinfoparents.asp>

It's Elementary: A Parent's
Guide to K-5 Mathematics –
available through NCTM
Resources

<http://www.nctm.org/Store/Products/It-s-Elementary-A-Parent-s-Guide-to-K-5-Mathematics/>

Smarter Balanced Assessment
Consortium practice tests:

<http://sbac.portal.airast.org/practice-test/>

A free online collection of
videos aimed to help parents
understand grade level
expectations

<http://www.greatschools.org/gk/milestones/>

QUESTIONS

