

Mental Strategies for Addition

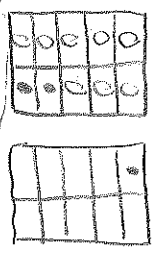
equal sign
 $3+2=5$
 Addition sign plus sign
 sum
 $5=2+3$

Adding in our heads

Ms. Ellis catches 8 fireflies. She catches 3 more. How many fireflies did she catch?

Ms. Garcia catches 3 fireflies. She catches 4 more. How many fireflies did she catch?

Making Ten
 $8+3=11$



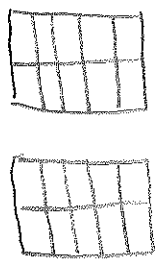
8+2 makes 10. I need 2 more. That makes 11.
 $8+3=11$
 $8+2+1=11$

Counting On
 $8+3=$

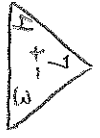


I start at 8 and count on 3 more.
 $8+3=11$

(Interim area - use clear laminate or tape)



Using fact families



$4+3=7$
 $3+4=7$
 $7-3=4$
 $7-4=3$

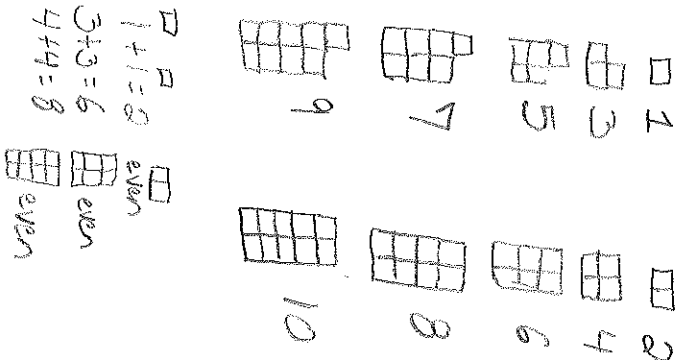
Creating an easier problem

$3+4=$
 $3+3+1=$
 $6+1=7$



All numbers are...

Odd or even
 • have one left over
 • have a partner



$1+1=2$ even
 $3+3=6$ even
 $4+4=8$ even

22 Standards and Mathematical Practices

1) We will persevere in using mental strategies to solve addition problems.

2) We will understand even and odd numbers and explain our thinking to others.

What we know about addition

Inquiring

What we want to learn about addition



Big idea: You can solve problems in many ways.
Knowing multiple strategies can make me more efficient at solving problems.

UNIT PLANNING TOOL

Unit 1: Developing Number Sense Within 20

CCSSM: (Units of Study)

2.O.A.B.2 Add... within 20 using mental strategies

2.O.A.C.3 Determine whether a group of objects has an odd or even number of members; write an equation to express an even number as a sum of two equal addends

Math Practices being emphasized:

- 3. Construct viable arguments and critique the reasoning of others.
- 7. Look for and make use of structure.
- 8. Look for and express regularity in repeated reasoning.

Essential Questions

Why is it helpful to use multiple strategies to solve addition problems?
Why is it important to be able to solve addition problems in your head?
How do you know if a number is even or odd?

Pre and Post Assessments

Observations and interviews.
(mental math)
teacher made assessments

Key Concepts

Specific strategies in standards:

- * Counting on
- * making ten
- * decomposing a # leading to a ten
($13-4 = 13-3-1 = 10+1 = 9$)
- * using the relationship between addition and subtraction
($8+4 = 12, 12-8 = 4$)
- * creating equivalent but easier or known sums
($6+7 = 6+6+1 = 13$)

Understand odd and even numbers

Visual Models of Concepts

mental math

I can start at 8 and count on 3 more.

Making Ten

0	0	•	
0	0		
0	0		
0	0		
0	0		

$8+3=11$
 $8+2+1=11$
 $10+1=11$

Counting on

$8+3=11$
 $8+2+1=11$
(fingers)

Algorithms/Diagrams/Visuals

Using fact families

$4+3=7$
 $3+4=7$
 $7-3=4$
 $7-4=3$

IF I know $5+2=7$ then $2+5=7$

Create an easier problem

$3+4 = \square$
 $3+3 = \square$

Since $3+3=6$, I just need to add one more.

Connections (Real World Applications)

- Finding out how many cards or pieces or... of something you have.
- Knowing if everyone has a partner for a game (odd and even)
- Being able to add numbers quickly in my head

add even

- have one left over
 - have a partner
- | | |
|-----|------|
| | |
| | |
| | |
| " 7 | " 8 |
| " 9 | " 10 |

<p>___ is <u>odd/even</u> because ___</p> <p>___ plus ___ equals ___</p> <p>___ + ___ = ___</p> <p>___ add ___ is ___</p>	<p align="center">Language Functions/Structures</p> <p>[Language to describe strategies:] If I know ___, then ___ (fact families) (to add ___ + ___) I start at ___ (counting on) and add ___ more. ___ + ___ makes ten. Then I need to add ___ more. (making ten)</p>	<p>Compare Describe Explain</p>
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<p>make ten Count on add sum addends</p>	<p>fact families mental math mental strategies addition fact turnaround fact related fact</p>	<p align="center">Vocabulary</p>	<p>odd even partner</p>
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<p align="center">Focus and Motivation</p> <p>Brain Pop Jr. - Basic Adding animation</p> <p>Ten Flashing Fireflies by Philemon Sturges</p> <p>Big books + activities in Stepping Stones (Bears on Buses...)</p> <p>Chant - Addition mental math Gyaloo</p> <p>"Making Ten" game — Stepping Stones Module 6, lesson 1, step 2</p>
