

Session 2

Operations

Greg Jr's Need-To-Have Blueprint

K: Joining and Separating within 5

1: Add within 20: Make 10 Strategy

2: Subtract within 100: Regrouping

3: Multiply within 100: Times Table

4: Divide within 1,000

5: Proportional Reasoning

Greg Jr's Need-To-Have Blueprint

K: Joining and Separating within 5

K: Subitize to 10

1: Add within 20: Make 10 Strategy

1: Shifting 10

2: Subtract within 100: Regrouping

2: Equal Groups

3: Multiply within 100: Times Table

3: Renaming

4: Divide within 1,000

4: Multiplicative Comparison

5: Proportional Reasoning

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$$\begin{array}{c}
 8 + 5 = \underline{\quad} \\
 \swarrow \quad \nearrow \\
 10 \quad 2 \quad 3
 \end{array}$$

$$8 + 2 = 10$$

$$10 + 3 = 13$$

$$\begin{array}{c}
 8 \text{ in} + 5 \text{ in} = \underline{\quad} \\
 \swarrow \quad \nearrow \\
 1 \text{ ft} \quad 4 \text{ in} \quad 1 \text{ in}
 \end{array}$$

$$8 \text{ in} + 4 \text{ in} = 12 \text{ in}$$

$$12 \text{ in} + 1 \text{ in} = 1 \text{ ft } 1 \text{ in}$$

$$\begin{array}{c}
 8/9 + 5/9 = \underline{\quad} \\
 \swarrow \quad \nearrow \\
 9/9 \quad 1/9 \quad 4/9
 \end{array}$$

$$8/9 + 1/9 = 9/9$$

$$1 + 4/9 = 1 \frac{4}{9}$$

$$18 + 5 = \underline{\quad}$$

(^
 2 3

$$18 + 2 = 20$$
$$20 + 3 = 23$$

$$80 + 50 = \underline{\quad}$$

(^
 20 30

$$80 + 20 = 100$$
$$100 + 30 = 130$$

$$8 \text{ units} + 5 \text{ units} = \underline{\quad} \text{ units}$$

Prepare for Grade 2

$$\begin{array}{c} 45 \\ \wedge \\ \cancel{40} \quad \cancel{5} \\ 30 \quad 15 \end{array}$$

$$\begin{array}{c} 38 \\ \wedge \\ \cancel{30} \quad \cancel{8} \\ 20 \quad 18 \end{array}$$

$$\begin{array}{c} 52 \\ \wedge \\ \cancel{50} \quad \cancel{2} \\ \cancel{40} \quad \cancel{12} \\ 30 \quad 22 \end{array}$$

$$\begin{array}{r}
 54 + 23 \\
 \wedge \quad \wedge \\
 50 \ 4 \quad 20 \ 3
 \end{array}$$

$$\begin{array}{r}
 50 + 20 = 70 \\
 4 + 3 = 7 \\
 \hline
 77
 \end{array}$$

$$\begin{array}{r}
 54 - 23 \\
 \wedge \quad \wedge \\
 50 \ 4 \quad 20 \ 3
 \end{array}$$

$$\begin{array}{r}
 50 - 20 = 30 \\
 4 - 3 = 1 \\
 \hline
 31
 \end{array}$$

$$\begin{array}{r}
 54 - 27 \\
 \wedge \quad \wedge \\
 \cancel{50} \ \cancel{4} \quad \cancel{20} \ 7 \\
 40 \ 14
 \end{array}$$

$$\begin{array}{r}
 40 - 20 = 20 \\
 14 - 7 = 7 \\
 \hline
 27
 \end{array}$$

$$654 - 327$$

$\swarrow \quad \searrow$
~~600~~ ~~50~~ ~~4~~ ~~300~~ ~~20~~ ~~7~~
 600 40 14

$$\begin{array}{r}
 600 - 300 = 300 \\
 40 - 20 = 20 \\
 14 - 7 = 7 \\
 \hline
 327
 \end{array}$$

$$654 - 382$$

$\swarrow \quad \searrow$
~~600~~ ~~50~~ ~~4~~ ~~300~~ ~~80~~ ~~2~~
 500 150 4

$$661 - 382$$

$\swarrow \quad \searrow$
~~600~~ ~~60~~ ~~1~~ ~~300~~ ~~80~~ ~~2~~
~~500~~ ~~160~~ ~~1~~
 500 150 11

$$800 - 479$$

	↑			↑		
800	0	0		400	70	9
700	100	0				
700	90	10				

$$700 - 400 = 300$$

$$90 - 70 = 20$$

$$10 - 9 = 1$$

Prepare for Grade 3

Equal Groups

Concrete (Cubes)

3 groups of 5

Pictorial (Bar Model)

3 groups of 5

Abstract (Equation)

3×5

1 is simple as can be, it's known as the identity!

2 is never any trouble

$$\begin{array}{c} 2 \times 9 \\ \wedge \\ 1 \quad 1 \end{array}$$

3 is very fast and fun

$$\begin{array}{c} 3 \times 6 \\ \wedge \\ 2 \quad 1 \end{array}$$

4 is such a breeze to do

$$\begin{array}{c} 4 \times 7 \\ \wedge \\ 2 \quad 2 \end{array}$$

5 is always quick to do

$$\begin{array}{c} 5 \times 3 \\ \wedge \\ 3 \quad 2 \end{array}$$

6 is easy as can be

$$\begin{array}{c} 6 \times 8 \\ \wedge \\ 3 \quad 3 \end{array}$$

7 isn't one to hate

$$\begin{array}{c} 7 \times 2 \\ \wedge \\ 5 \quad 2 \end{array}$$

8 is really nothing more

$$\begin{array}{c} 8 \times 4 \\ \wedge \\ 4 \quad 4 \end{array}$$

9 is big but do not fear

$$\begin{array}{c} 9 \times 5 \\ \wedge \\ 5 \quad 4 \end{array}$$

10 is when we really thrive, by using groups of 5 and 5.
Another way you can amend? Just put a zero at the end!

Multiplication Rhymes

by Greg Tang

1 is simple as can be, it's known as the identity.

2 is never any trouble, start with **1** and then just double.

3 is very fast and fun, first do **2** and then add **1**.

4 is such a breeze to do, break it into **2** and **2**.

5 is always nice and quick, **3** and **2** will do the trick.

6 is easy as can be, think in groups of **3** and **3**.

7 isn't one to hate, **5** and **2** will make it great.

8 is really nothing more, than equal groups of **4** and **4**.

9 is big but do not fear, **5** and **4** will make it clear.

10 is when we really thrive, using groups of **5** and **5**.

Another way you can amend, just put a **0** at the end!

Prepare for Grade 4: Renaming

54 has how many tens? Ones?

367 has how many hundreds? Tens?

8,291 has how many thousands? Huns?

2.16 has how many tenths? Hundredths?

Round 278 to the nearest ten

Round 3,619 to the nearest hundred

$$42 \div 3$$

$$\begin{array}{r} \wedge \\ 30 \quad 12 \end{array}$$

$$56 \div 4$$

$$\begin{array}{r} \wedge \\ 40 \quad 16 \end{array}$$

$$784 \div 7$$

$$\begin{array}{r} \wedge \\ 700 \quad 84 \\ \wedge \\ 70 \quad 14 \end{array}$$

$$389 \div 6$$

$$\begin{array}{r} \wedge \\ 360 \quad 29 \\ \wedge \\ 24 \quad 5 \end{array}$$

$$\underline{\hspace{1cm}} \underline{\hspace{1cm}} \underline{\hspace{1cm}} \div \underline{\hspace{1cm}}$$

Prepare for Grade 5

Multiplicative Comparison

