

Strategies & Associated Number Strings

ADDITION		SUBTRACTION	
Friendly 10	Doubles	Adding Up	Removal
99 + 48	40 + 40	42 - 38	97 - 50
98 + 57	29 + 29	42 - 25	97 - 54
98 + 97	29 + 28	52 - 29	97 - 60
99 + 99 + 5	28 + 27	52 - 25	97 - 63
Compensation (change one addend to a multiple of ten and then adjust the other addend to keep the balance)	Decomposing by Place Value		
19 + 63	32 + 38		
47 + 48	53 + 28		
57 + 18	45 + 37		
58 + 32	24 + 36		

MULTIPLICATION			DIVISION	
Making Friendly Numbers	Partial Products	Doubling & Halving	Partial Quotients	Multiplying Up
5 x 5	5 x 60	8 x 12	60 ÷ 6	26 x 5
5 x 10	10 x 60	4 x 24	120 ÷ 6	26 x 10
5 x 40	3 x 15	2 x 48	24 ÷ 6	26 x 20
5 x 49	6 x 15		144 ÷ 6	910 ÷ 26
	15 x 63			
		112 x 2		
		56 x 4	400 ÷ 4	
		28 x 8	160 ÷ 4	
		14 x 16	560 ÷ 4	

NCTM 2018 - Number Talks: A Routine Empowering ALL Students

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Sample Number Talk Plan

112(2)

$$112 + 112 = 224$$

$$\begin{array}{l} 100(2) = 200 \\ + 10(2) = 20 \\ \hline 2(2) = 4 \end{array} \quad \begin{array}{l} 100(2) + 10(2) + 2(2) \\ = 200 + 20 + 4 \\ = 224 \end{array}$$

$$112(2) = 224$$

$$\begin{array}{r} 112 \\ \times 2 \\ \hline 224 \end{array}$$

$$\begin{array}{r} 112 \\ \times 2 \\ \hline 4 \\ + 20 \\ \hline 200 \\ \hline 224 \end{array}$$

56(4)

$$\begin{array}{l} 50(4) = 200 \\ + 6(4) = 24 \\ \hline 56(4) = 224 \end{array}$$

$$\begin{array}{l} 50(4) + 6(4) \\ = 200 + 24 \\ = 224 \end{array}$$

$$56(2) = 112 > 112(2) = 224$$

$$4 \div 2 = 2$$

$$\begin{array}{r} 2 \\ 56 \\ \times 4 \\ \hline 224 \end{array}$$

$$\begin{array}{r} 56 \\ \times 4 \\ \hline 24 \\ + 200 \\ \hline 224 \end{array}$$

28(8)

$$\begin{array}{l} 20(8) = 160 \\ + 8(8) = 64 \\ \hline 28(8) = 224 \end{array} \quad \begin{array}{l} 20(8) + 8(8) \\ = 160 + 64 \\ = 224 \end{array}$$

$$28(2) = 56 > 56(4) = 224$$

$$8 \div 2 = 4$$

$$28(4) = 112 > 112(2) = 224$$

$$8 \div 4 = 2$$

$$\begin{array}{r} 28 \\ \times 8 \\ \hline 224 \end{array}$$

$$\begin{array}{r} 28 \\ \times 8 \\ \hline 64 \\ + 160 \\ \hline 224 \end{array}$$

14(16)

$$\begin{array}{l} 14(10) = 140 \\ + 14(6) = 84 \\ \hline 14(16) = 224 \end{array}$$

$$\begin{array}{l} 14(10) + 14(6) \\ = 140 + 84 \\ = 224 \end{array}$$

$$\begin{array}{l} 10(16) = 160 \\ + 4(16) = 64 \\ \hline 14(16) = 224 \end{array}$$

$$\begin{array}{l} 10(16) + 4(16) \\ = 160 + 64 \\ = 224 \end{array}$$

$$14(2) = 28 > 28(8) = 224$$

$$16 \div 2 = 8$$

$$14(4) = 56 > 56(4) = 224$$

$$16 \div 4 = 4$$

$$14(8) = 112 > 112(2) = 224$$

$$16 \div 8 = 2$$

$$\begin{array}{r} 14 \\ \times 16 \\ \hline 84 \\ + 140 \\ \hline 224 \end{array}$$

$$\begin{array}{r} 14 \\ \times 16 \\ \hline 24 \\ + 60 \\ \hline 40 \\ + 100 \\ \hline 224 \end{array}$$

key

- ☒ Repeated addition
- ☒ Decomposing / Distributive Property
- ☒ Standard Algorithm
- ☒ Standard Algorithm w/ place value
- ☒ connection to previous problem