Activity 12 Assessment
Fluency with Whole Numbers Consolidation

Developing Fluency with Whole Number Operations

Understands number relationships and properties and applies them to whole number operations.

$$? - 240 = 720 \qquad 50 \times ? = 2000$$
$$720 + 240 = 960 \qquad 2000 \div 50 = 40$$

"I solved each equation using an operation I am comfortable with."

Uses estimation to check reasonableness of solutions.

A forklift can carry 2000 kg. An operator is unloading boxes of shoes weighing 78 kg. How many boxes can the forklift safely carry at one time?

$$78 \times ? = 2000$$

"78 is close to 80. I know $80 \times 20 = 1600$ and $80 \times 5 = 400$. $1600 + 400 = 2000$. An estimate of 25 boxes seems reasonable."

Uses mental math strategies to solve single-step equations with larger numbers.

$$78 \times 25 = (70 + 8) \times (20 + 5)$$
$$= (70 \times 20) + (8 \times 20) + (70 \times 5) + (8 \times 5)$$
$$= 1400 + 160 + 350 + 40$$
$$= 1950$$

```
    7 8
  × 2 5
  1 4 0 0   (70 × 20)
    1 6 0   (20 × 8)
    3 5 0   (70 × 5)
  +   4 0   (8 × 5)
  1 9 5 0
```

	70	8
20	1400	160
5	350	40

"I decomposed the numbers to make multiplying easier."

Observations/Documentation

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Activity 12 Assessment
Fluency with Whole Numbers Consolidation

Developing Fluency with Whole Number Operations (cont'd)

Solves multi-step equations using mental math strategies and properties of operations.	Uses order of operations to solve equations and explains the effect when order is not followed.	Flexibly selects mental math strategies and applies order of operations to solve multi-step equations/problems.

Solves multi-step equations using mental math strategies and properties of operations.

$1560 + 1682 - 440 - 602 = ?$

$1560 - 440 = \textbf{1120}$

$1682 - 602 = \textbf{1080}$

$\textbf{1120} + \textbf{1080} = 2200$

Uses order of operations to solve equations and explains the effect when order is not followed.

$9 \times 8 - 3 + 16 \div 4 = 72 - 3 + 4$
$$= 73$$

"I have to do multiplication and division first. If the order isn't followed and I perform the operations in the order in which they appear, I get 21 R1."

Flexibly selects mental math strategies and applies order of operations to solve multi-step equations/problems.

To claim the prize in a contest, you must answer this skill-testing question:
$19 + 11 \times 6 - 4 = ?$

$19 + 11 \times 6 - 4 = 19 + 66 - 4$
$$= 20 - 1 + 66 - 4$$
$$= 20 + 66 - 1 - 4$$
$$= 86 - 5$$
$$= 81$$

Observations/Documentation

Activity 12 Assessment
Fluency with Whole Numbers Consolidation

Representing Equivalent Ratios and Rates

Represents and records ratios and rates symbolically.	Represents and creates equivalent ratios and rates.	Represents and creates in-between ratios and rates.	Flexibly solves problems involving ratios, including percents, and rates.
10 glue sticks cost $4. How much will 60 glue sticks cost?	10 glue sticks cost $4. How much will 60 glue sticks cost?	A crafter sells 2 hand-painted pots for $18. How much will the crafter make if 7 pots are sold?	The ratio of dogs to cats in the animal shelter is 8:12. Show the comparison using percents.
For example, using rates:	For example, using ratios:	For example, using rates:	"The whole is 8 + 12 = 20. Since percent is "out of 100", I multiply each term in the ratio by 5 because 5 × 20 = 100. 8 × 5:12 × 5, or 40:60 40% of the animals are dogs and 60% are cats."

For example (first column table):

Glue Sticks	10	20	30	40	50	60
Cost ($)	4	8	12	16	20	24

"I skip-counted by 10s and 4s."

"The ratio of glue sticks to cost is 10:4. To find the cost of 60 glue sticks, I multiply each term by 6."

$$10 × 6 : 4 × 6$$
$$60 : 24$$

Pots Sold	2	4	6	8	10
Amount Made ($)	18	36	54	72	90

"7 is halfway between 6 and 8, so I find the number halfway between 54 and 72, which is $63.00."

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