Sample problems - https://elementarynumbertalks.wordpress.com/

Possible debriefing questions

How does *(name strategy)* help to find the difference/sum/product/quotient?
Why did you choose to add/subtract/multiply/divide the numbers that you did?
How did you keep track of the numbers you added/subtracted/multiplied/divided mentally?
Each strategy is different, yet each arrives at the same answer. Why do you think this is so?"

String of Number sentences – Use a string of 3-5 number sentences. Design the sequence of problems to allow students to describe and apply computational strategies.

Ex. 2 x 8 = ; 5 x 8 = ; 7 x 8 = ; 10 x 8 = ; 17 x 8 =

How can you use the first problem(s) to solve the others?
Which of these number sentences are easier to solve? Why?
Can you modify any of the number sentences to use what you know to solve it?
Can you modify any of the number sentences to make friendlier numbers?

Real World Context **-** (Put your name, the names of the students, and other teachers at the school in the problem.)

Addition/Subtraction

Part-Part-Whole - Mrs. Muth's and Mrs. Kremer's third grade classes are raising money for their end of the year field trip. Mrs. Muth's class has raised $119 and Mrs. Kremer's class has raised $126. How much have their classes raised for their joint field trip?

Compare - Mrs. MacCudden's and Mr. Keiper's third grade classes are having a penny war to raise money for a Thanksgiving dinner hosted by the school for neighborhood families. Mrs. MacCudden's class has raised $151 and Mr. Keiper's class has raised $96. How much more money has Mrs. MacCudden's class raised?

Dontre plans to read 90 pages each day to reach his quarter goal for outside reading and earn Bonus Bucks. So far today, he has read 16 pages. How many more pages does he need to read today to be on track to reach his goal?

Michaela saved $182. She bought a video game for $53. How much money does Michaela have left?

Multiplication/Division

Michelle baked 5 pans of cookies. Each pan has 18 cookies. How many cookies did Michelle bake?

Include problems that promote use of the distributive property, round a factor and adjust, doubling and halving, promote understanding of multiplication; Ex. 12 x 18; 25 x 16; 29 x 7; 32 x 4

Fractions and Decimals - Use benchmarks to judge the size of a number. Utilize the strategies used with whole numbers when introducing operations with fractions and decimals.

2 ¼ + 7/8; 3 ½ + ¾; 7.48 + 8.9; 3.76 – 1.99; 3 1/8 – 1 7/8; 3 1/3 – 5/6

Is the sum/difference more than/less than a benchmark?

2 1/3 x 12; 11.75 x 40; 0.8 x 1.2;

Andre has run ¾ of a mile. If this is the half of the race, how long is the race? Should the answer be more than ¾ mile or less than ¾ mile? Why?

1 ¾ ÷ ½; 3 ÷ 1/3; 9.9 ÷ 0.3;

Celia has $2.35 in nickels. How many nickels does she have?

Today is May 4. Write as many equations as you can that equal 4. (Change the problem to match the date, the number of students in the class, or any number with personal connections or connections to topics studied in other classes.)

Fraction Talks – Nat Banting http://musingmathematically.blogspot.ca/2015/06/fraction-talks.html

Visual Patterns http://www.visualpatterns.org/

Video Examples

https://www.youcubed.org/from-stanford-onlines-how-to-learn-math-for-teachers-and-parents-number-talks/ Jo Boaler shares her experience with using number talks with her students and provides examples of possible visual representations for multiplication.

Third Grade

- Number Patterns https://www.teachingchannel.org/videos/teaching-number-patterns
- Strategies to Put Together and Break Apart Two Digit Numbers https://www.teachingchannel.org/videos/third-grade-mental-math
- Looking for Patterns and Structure; Multiplication and Division https://www.teachingchannel.org/videos/multiplication-division-in-the-core
- Multiplication http://www.insidemathematics.org/classroom-videos/number-talks

Fourth Grade

- Area and Perimeter https://www.youtube.com/watch?v=Ihz-0pGmhLI
- 2-Digit Multiplication https://www.teachingchannel.org/videos/4th-5th-grade-number-talks

- Reasoning About Division https://www.teachingchannel.org/videos/common-core-teaching-division

Fifth Grade

- Adding Fractions Without Common Denominators - https://www.youtube.com/watch?v=7l7WfEOi12w
- Fifth Grade - Fraction Multiplication - https://www.teachingchannel.org/videos/fraction-multiplication-intro-sbac
- Fifth Grade – Division Strategies -https://www.youtube.com/watch?v=DQtgFaVqv7c
- Fifth/sixth grade – Guess my rule (The teacher has students pick an x value that is within a given interval and he provides a y value in a t-chart)

  http://www.insidemathematics.org/classroom-videos/number-talks/5th-6th-grade-math-guess-my-rule/number-talk-part-1

  http://www.insidemathematics.org/classroom-videos/number-talks/5th-6th-grade-math-guess-my-rule/number-talk-part-2

  http://www.insidemathematics.org/classroom-videos/number-talks/5th-6th-grade-math-guess-my-rule/number-talk-part-3

  https://www.teachingchannel.org/videos/number-talks-for-assessments Multiplying a whole number and a mixed number. (This video is from a 6th grade classroom, but the assessment strategies and individualized follow up this teacher uses are applicable to all levels). Focus on the questions the teacher asks to identify student misconceptions.

- Math Reasoning Inventory https://www.mathreasoninginventory.com/Home/Practice Short videos with student reasoning to practice recording on chart paper; provides several key mental reasoning strategies for whole numbers, decimals, and fractions

References

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