COMPUTATIONAL FLUENCY CHALLENGES

Computational Fluency Challenge problems appear on the Spiral Review pages of the new *MathLinks* 6th grade and 7th grade packets. The word fluent is used in the standards to mean "reasonably fast and accurate" and possessing the ability to use certain facts and procedures with enough facility that using such knowledge does not slow down or derail the problem solver as they work on more complex problems.

As an example, by the end of 6th grade, students should be able to fluently add, subtract, multiply, and divide whole numbers. (4, NTB.4, 5.NTB.5, 6.NS.2). However, many students need additional work past 6th grade to meet this goal. Variations of this Computational Fluency Challenge may be used throughout the year for practice.

Though there are no 7th grade computational fluency requirements, the 7th grade packets each include a maze for skills practice that reviews many different rational number computation skills.

Why: Attain skills so that problem solving is not derailed by computation. Practice computational skills without losing ground on current work

Grade 6 Launch Activity:
Use Computational Fluency Challenge: Even and Odd as a starting activity.

- Students choose any single digit number. This is their start number.
- For Part 1, ask students to multiply the start number by 2. Then multiply that result by 4. Then multiply that result by 6. Then multiply that result by 8. They should have a "big number" now.
- For Part 2, ask students to divide their big number by 2. Then divide the result by 4. Then divide the result by 6. Then divide the result by 8. ***What is the final result?*** The final result should be the start number.
- For Part 3, ask students to begin with the same big number. Divide it by 16, and then divide the result by 24. ***What is the final result?*** The final result should be the start number. ***Did you get the same final result for Part 2 and Part 3?*** Yes, if no errors were made. ***Why?*** Because $2 \times 8 = 16$ and $4 \times 6 = 24$

Grade 6 Accountability/Follow-up Ideas:

- Ask students to try the same challenge with a different start number. Use odd digits as multipliers and divisors.
- Choose a different start number and use the digits 2, 3, 4, 5, 6, 7, 8, and 9 and multipliers and divisors.
- Start with a one-digit number multiplied by 1,000. Create challenge adaptations using decimal multipliers and divisors.

Grade 7 Launch Activity:
Use A Math Path to Computational Fluency as a starting activity. Students begin at the START location and compute the given value to arrive at the next location. Continue until the FINISH location is attained.

Grade 7 Accountability/Follow-up Ideas:

- If students work individually, have pairs or small groups compare papers or trade papers to correct.
- Students may create their own math path pages to challenge classmates.

COMPUTATIONAL FLUENCY CHALLENGE: EVEN AND ODD

Gaining fluency with multiplication and division takes practice. Try to complete these challenges without any errors. Use a separate sheet of paper.

EVENS	ODDS
Begin with any single digit whole number. We will call this the start number. Part 1: • Multiply the start number by 2. • Multiply that result by 4. • Multiply that result by 6. • Multiply that result by 8. You should have a big number now!) My start number was _____. After performing multiplications, my big number is _____. Part 2: Challenge A: Begin with your big number. • Divide your big number 2. • Divide that result by 4. • Divide that result by 6. • Divide that result by 8. After dividing I got _____. Part 3: Challenge B: Start with your same big number. • Divide your big number by 16. • Divide that result by 24. After dividing I got _____. Did you get the same results for Challenge A and Challenge B? Explain why you think this happened.	Begin with any single digit whole number. We will call this the start number. Part 1: • Multiply the start number by 3. • Multiply that result by 5. • Multiply that result by 7. • Multiply that result by 9. You should have a big number now!) My start number was _____. After performing multiplications, my big number is _____. Part 2: Challenge A: Begin with your big number. • Divide your big number 3. • Divide that result by 5. • Divide that result by 7. • Divide that result by 9. After dividing I got _____. Part 3: Challenge B: Start with your same big number. • Divide your big number by 21. • Divide that result by 45. After dividing I got _____. Did you get the same results for Challenge A and Challenge B? Explain why you think this happened.

COMPUTATIONAL FLUENCY CHALLENGE: MATH PATH

From START, circle the correct simplified version of the given expression and continue until making your way to FINISH.