

COMPUTATIONAL FLUENCY CHALLENGE

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 he or she works on more complex problems. 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.

Why?

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

Launch Activity: Use Computational Fluency Challenge (Even) 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 it by 4. Then divide it by 6. Then divide it by 8. **What is the result?** *The result should be the start number.*
- Part 3: Ask students to begin with the same big number. Divide it by 16, and then divide it by 24. **What is the result?** *The result should be the start number.*
Did you get the same result for Part 2 and Part 3? *Yes, if no errors were made. Why?*
Because $2 \times 8 = 16$ and $4 \times 6 = 24$

Accountability/Followup 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.
- Try starting with a one digit number multiplied by 1000. Create challenge adaptations using decimal multipliers and divisors.
- Computational fluency challenges are located in Student Packets and in Choices and Challenges throughout the Grade 6 program.

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
<p>Begin with any single digit whole number. We will call this the <u>start number</u>.</p>	<p>Begin with any single digit whole number. We will call this the <u>start number</u>.</p>
<p>Part 1:</p>	<p>Part 1:</p>
<ul style="list-style-type: none">• Multiply the start number by 2.• Multiply that result by 4.• Multiply that result by 6.• Multiply that result by 8.	<ul style="list-style-type: none">• Multiply the start number by 3.• Multiply that result by 5.• Multiply that result by 7.• Multiply that result by 9.
<p>You should have a <u>big number</u> now!)</p>	<p>You should have a <u>big number</u> now!)</p>
<p>My start number was _____.</p>	<p>My start number was _____.</p>
<p>After performing multiplications, my <u>big number</u> is _____.</p>	<p>After performing multiplications, my <u>big number</u> is _____.</p>
<p>Part 2:</p>	<p>Part 2:</p>
<p>Challenge A: Begin with your <u>big number</u>.</p>	<p>Challenge A: Begin with your <u>big number</u>.</p>
<ul style="list-style-type: none">• Divide your big number 2.• Divide that result by 4.• Divide that result by 6.• Divide that result by 8.	<ul style="list-style-type: none">• Divide your big number 3.• Divide that result by 5.• Divide that result by 7.• Divide that result by 9.
<p>After dividing I got _____.</p>	<p>After dividing I got _____.</p>
<p>Part 3:</p>	<p>Part 3:</p>
<p>Challenge B: Start with your same <u>big number</u>.</p>	<p>Challenge B: Start with your same <u>big number</u>.</p>
<ul style="list-style-type: none">• Divide your <u>big number</u> by 16.• Divide that result by 24.	<ul style="list-style-type: none">• Divide your <u>big number</u> by 21.• Divide that result by 45.
<p>After dividing I got _____.</p>	<p>After dividing I got _____.</p>
<p>Did you get the same results for Challenge A and Challenge B? Explain why you think this happened.</p>	<p>Did you get the same results for Challenge A and Challenge B? Explain why you think this happened.</p>