

Materials Needed:

- Whiteboard or large paper
 - Markers or pens
 - Timer (optional, for challenges)
 - List of practice problems (included below)
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Introduction: Unleash Your Brain Power! (5 mins)

Hey! Ever wish you could crunch numbers like a superhero, without needing a calculator? That's what mental math is all about! It's not just useful for school, but amazing for everyday life – figuring out discounts, splitting bills, or just impressing your friends. Today, we'll learn some cool tricks to make arithmetic fast and fun, all inside your head.

Activity 1: Speedy Addition & Subtraction (15 mins)

Let's ditch carrying numbers the old way. Try adding left-to-right!

Example (Addition): $345 + 523$

- Add the hundreds: $300 + 500 = 800$
- Add the tens: $40 + 20 = 60$
- Add the ones: $5 + 3 = 8$
- Combine: $800 + 60 + 8 = 868$

Example (Subtraction using Compensation): $500 - 297$

- It's easier to subtract 300. $500 - 300 = 200$.
- But we subtracted 3 too many (because $300 - 297 = 3$).
- So, add that 3 back: $200 + 3 = 203$.

Practice:

- $672 + 215$
- $834 - 198$
- $1560 + 327$
- $1000 - 546$

Activity 2: Multiplication Magic (20 mins)

Calculators hate these tricks!

Multiplying by 11: For a 2-digit number (e.g., 43×11):

- Separate the digits: $4 _ 3$
- Add the digits: $4 + 3 = 7$
- Place the sum in the middle: 473. (If the sum is > 9 , carry the ten.) Example: $78 \times 11 \rightarrow 7 _ 8 \rightarrow 7+8=15 \rightarrow$ Place 5, carry 1 to the 7 $\rightarrow 858$.

Multiplying by 5: Multiply by 10, then divide by 2.

- Example: $68 \times 5 \rightarrow 68 \times 10 = 680 \rightarrow 680 / 2 = 340$.

Squaring numbers ending in 5: (e.g., 35×35)

- Take the first digit (3).
- Multiply it by the next consecutive integer ($3 \times 4 = 12$).
- Append 25 to the result: 1225.
- Example: $75 \times 75 \rightarrow 7 \times 8 = 56 \rightarrow 5625$.

Practice:

- 52×11
- 89×11
- 124×5
- 48×5
- 65×65
- 95×95

Activity 3: Estimation Station (10 mins)

Sometimes close enough is good enough! Estimation helps check answers or get quick ideas.

Technique: Rounding

- Example: $497 \times 19 \rightarrow$ Round to $500 \times 20 = 10,000$. (Actual answer: 9443)

Technique: Compatible Numbers

- Example: $23 + 78 + 51 + 49 \rightarrow$ Pair numbers that add easily: ($78 + 23$ is tricky, but $78 + 51$ is easier maybe? Or ($23 + ?$) No... ($49 + 51$) = 100. And $23 + 78$ is about $20 + 80 = 100$. So, approx $100 + 100 = 200$. (Actual: 201) Let's try $23 + 78$. Think $20 + 70 = 90$, $3 + 8 = 11$. $90 + 11 = 101$. Then $101 + 100 = 201$. Got it!

Practice Estimation:

- 58×31
- $798 + 103 + 51$
- $1987 / 49$

Wrap-up & Challenge (10 mins)

Awesome work! You've learned some powerful mental math tools. The key is practice. Try using these tricks whenever you can.

Challenge Round (Optional: Timed):

- $345 + 199 = ?$
- $700 - 496 = ?$
- $63 \times 11 = ?$
- $148 \times 5 = ?$
- $85 \times 85 = ?$
- Estimate: $78 \times 42 = ?$

Keep practicing these techniques daily, even for just 5-10 minutes. You'll be amazed how fast your mental arithmetic skills improve!