Materials Needed:

- Whiteboard or large paper
- Markers or pens
- Timer (optional, for challenges)
- List of practice problems (included below)

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 x 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 x 11 -> 7 _ 8 -> 7+8=15 -> Place 5, carry 1 to the 7 -> 858.

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

• Example: 68 x 5 -> 68 x 10 = 680 -> 680 / 2 = 340.

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

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

Practice:

- 52 x 11
- 89 x 11
- 124 x 5
- 48 x 5
- 65 x 65
- 95 x 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 x 19 -> Round to 500 x 20 = 10,000. (Actual answer: 9443)

Technique: Compatible Numbers

Example: 23 + 78 + 51 + 49 -> 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 x 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 x 11 = ?
- 148 x 5 = ?
- 85 x 85 = ?
- Estimate: 78 x 42 = ?

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