



MATH WITH MR DJ

GRADE 5 · NUMBER & OPERATIONS IN BASE TEN

MULTIPLYING MULTI-DIGIT NUMBERS

Today's goal: I can fluently multiply multi-digit whole numbers using the standard algorithm.



Tan



Digit



Blaze



Pi



Estimate before you start

1 47×23 . About 50×20 .

TURN & TALK

About 1000. Now nothing wrong can hide.



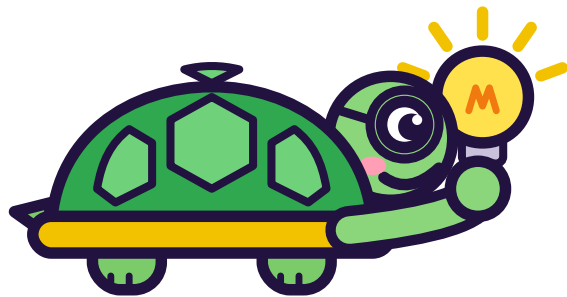
The first partial product

1 $47 \times 3 = 141.$

2 $7 \times 3 = 21$: write 1, carry 2. Then $4 \times 3 = 12$, + 2 = 14.

REMEMBER

Multiply, THEN add the carry.



WATCH OUT!

The second one is not 47×2

1 The 2 in 23 means TWENTY.

2 $47 \times 20 = 940$.

DON'T FALL FOR IT

That is why the line moves along.



BIG IDEA 2

Add them

1 $141 + 940 = 1081.$

2 Estimate said about 1000.

REMEMBER

Right size. Right answer.



BIG IDEA 3

Forget the shift

1 $141 + 94 = 235.$

REMEMBER

Not a slip. A quarter of the estimate.



BIG IDEA 4

A zero inside the number

1 306×24 . The 0 adds nothing ...

2 ... and still holds a place. Drop it and you have 36.

REMEMBER

Estimate $300 \times 24 = 7200$. 864 is caught at once.



SPOT THE SLIP!

Turn & talk

Digit found a slip...

THE PROBLEM

Estimate, then work out 208×45 .

WHAT A STUDENT DID

Answered 1260, having read 208 as 28. The interior zero again, and 1260 against 9000 is the wrong size by a factor of seven.

YOUR MISSION

What went wrong? What's the right answer?



Estimate, then work out 208×45 .

1 Estimate: $200 \times 45 = 9000$.

2 $208 \times 5 = 1040$.

3 $208 \times 40 = 8320$.

4 $1040 + 8320 = 9360$.

Answer:

estimate about $200 \times 45 = 9000$; answer 9360



Pick your pepper!



MILD

Estimate, then work out
 47×23 .

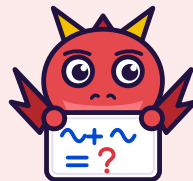
#1 on your practice sheet



MEDIUM

Work out 47×3 , writing
each step. Where exactly
does the carried 2 get
used?

#3 on your practice sheet

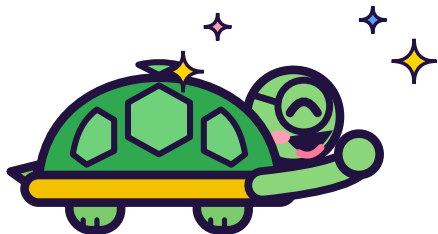


SPICY

Mo works out 47×3 as 181. He
did $7 \times 3 = 21$, wrote the 1,
carried the 2, then worked out
 $(4 + 2) \times 3$. What did he do in
the wrong order?

#5 on your practice sheet

How's it going?



3 • Got it!

I could teach it



2 • Almost

One more example, please



1 • Not yet

I need some help



MATH WITH MR DJ

NOW YOU!

Practice sheet: everyone does Mild & Medium, then climb the peppers.

Stuck? Look back at Mr DJ's example at the top of the sheet.

Need it again? Watch “2-3 Digit Multiplication Step by Step (Fast Method)” on YouTube @MathWithMrDJ

Brain break: 3 new daily puzzles at puzzles.mathwithmrdj.com

