

Hands-on
and
Engaging!

Activates
Problem
Solving

Perfect
for Math
Centers

Non-Routine
and
Challenging

Time to Tile!



PLACE VALUE RIDDLES

1 USING NUMBER TILES 0-9, MAKE...

- 1 ...the largest 5-digit number possible.
- 2 It must be even.
- 3 It must contain more odd digits than even digits.
- 4 The sum of the last two digits is greater than 10.
- 5 The digit in the thousands place is less than the digit in the ten-thousands place.

2

USING NUMBER TILES 0-9, MAKE...

- 1 ...the smallest 6-digit number possible.
- 2 It must be even.
- 3 The digit 7 is in the ten-thousands place
- 4 It is a multiple of 5.
- 5 The digit in the hundreds place is less than the digit in the thousands place.

MILLIONS				THOUSANDS			HUNDREDS	TENS	ONES
BILLIONS	ONE	HUNDRED	TEN	ONE	HUNDRED	TEN	ONE		

Helping teachers thrive in the classroom

Teacher THRIVE

Thank you for downloading this resource! There is nothing more rewarding to me than creating resources that make teachers' jobs easier.

Also, thank you for all that you do with our most precious resource—children! Your job is far from easy, so anything I can do to help you brings me great joy. Please feel free to email me anytime with questions, feedback, or comments.

Melissa Tallman
info@teacherthrive.com

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Time to Tile: Tips for Implementation

Time to Tile: Place Value Riddles is a hands-on activity that takes students' thinking beyond procedures and rote memorization. This engaging resource activates critical thinking and problem-solving skills, all while developing a deep, conceptual understanding of whole-number place value. Students must place 10 number tiles (0-9) on the Time to Tile cards in order to correctly solve 60 different riddles. Each riddle provides students with 5 clues

This resource includes:

- 30 different Time to Tile cards (60 different riddles)
- An "Answer Recording Sheet," where students can record their answers so they can be corrected later. This allows the resource to be used as a perfect independent or center activity.
- Answer keys
- Management and organization tips for successfully implementing Time to Tile in your classroom.

Where can I get number tiles?

You can also purchase these number tiles. You can get 150 of these tiles, which will make 15 student sets, for about \$12 on Amazon. They are made by Eureka. The set also comes with operation signs (+, -, ×, ÷, =), which are nice to have on hand, though you won't use them for the Time to Tile activities. Click on the image to the right for the link.



You can also make your own number tiles for very little money. Using these sheets of craft foam, cut 1 inch x 1 inch squares and then write the digits on them with the a permanent marker. The foam tiles are nice because you can use a variety of colors. However, don't plan on them lasting for more than one school year. They can start to degrade pretty quickly, and some students might start picking at them.



Time to Tile: Tips for Implementation

How should I organize and manage the materials for optimal classroom use?

In my class, each student has a set of number tiles in their desks so they are ready to go at a moment's notice. I made sure to label each set of number tiles with student identification numbers (1-36) so that if a missing tile is found, we know who to return it to. I have the students store their number tiles in the smallest reusable food containers that I could find. I also wrote student identification numbers on these.

The Time to Tile cards can be printed on cardstock and laminated. I suggest making multiple sets to make it easy for your students to access them. I actually made a set for each table group and store the cards in a hanging file container at the front of each table. This way if we have an extra few minutes of class time, the students can quickly grab a card and get to work. Of course, if you only plan to use these cards as a center activity, then you could only make just one or two sets of cards.

The Student Answer Recording Sheets are double-sided; problems 1-15 are on one side and problems 16-30 are on the reverse side. Students keep these in a "Works-in-Progress" folder in their desks.

I place the Answer Keys in sheet protectors and store them in a binder. Twice a week I collect student answer sheets to correct. The answer sheets do not have to be complete to be corrected. If a student gets a card correct, I star it. If one is incorrect, I simply write a small dot near it. The student then knows that he/she needs to revisit that one. He/she can then resubmit the answer sheet and if the proper corrections have been made, I simply draw a star right over the dot.

PLACE VALUE RIDDLES

1 USING NUMBER TILES 0-9, MAKE...

- ❶ ...the largest 5-digit number possible.
- ❷ It must be even.
- ❸ It must contain more odd digits than even digits.
- ❹ The sum of the last two digits is greater than 10.
- ❺ The digit in the thousands place is less than the digit in the ten-thousands place.

2 USING NUMBER TILES 0-9, MAKE...

- ❶ ...the smallest 6-digit number possible.
- ❷ It must be even.
- ❸ The digit 7 is in the ten-thousands place
- ❹ It is a multiple of 5.
- ❺ The digit in the hundreds place is less than the digit in the thousands place.

BILLIONS				THOUSANDS					
MILLIONS				THOUSANDS					
ONE	HUNDRED	TEN	ONE	HUNDRED	TEN	ONE	HUNDREDS	TENS	ONES

PLACE VALUE RIDDLES

1 USING NUMBER TILES 0-9, MAKE...

① ...the largest 5-digit number possible.

② It must be even.

③ It must contain more odd than even digits.

④ The sum of the last two digits is greater than 10.

⑤ The digit in the thousands place is less than the digit in the ten-thousands place.

2 USING NUMBER TILES 0-9, MAKE...

① ...the smallest 6-digit number possible.

② It must be even.

7 is in the thousands place

multiple of 5.

the digit in the hundreds place is the same as the digit in the ones place.

Black & White
Versions
Included

BILLIONS	MILLIONS			THOUSANDS					
ONE	HUNDRED	TEN	ONE	HUNDRED	TEN	ONE	HUNDREDS	TENS	ONES

PLACE-VALUE-RIDDLES

ANSWER RECORDING SHEET

1. _____	21. _____	41. _____
2. _____	22. _____	42. _____
3. _____	23. _____	43. _____
4. _____	24. _____	44. _____
5. _____	25. _____	45. _____
6. _____	26. _____	46. _____
7. _____	27. _____	47. _____
8. _____	28. _____	48. _____
9. _____	29. _____	49. _____
10. _____	30. _____	50. _____
11. _____	31. _____	51. _____
12. _____	32. _____	52. _____
13. _____	33. _____	53. _____
14. _____	34. _____	54. _____
15. _____	35. _____	55. _____
16. _____	36. _____	56. _____
17. _____	37. _____	57. _____
18. _____	38. _____	58. _____
19. _____	39. _____	59. _____
20. _____	40. _____	60. _____

PLACE-VALUE-RIDDLES

DIVISIBILITY RULES TO KNOW

- A number is divisible by...**
- 2** If the last digit is 0, 2, 4, 6, or 8
 - 3** If the sum of the digits is divisible by 3
 - 4** If the last two digits are divisible by 4
 - 5** If the last digit is 0 or 5
 - 6** If the number is divisible by 2 and 3
 - 8** If the last three digits are divisible by 8
 - 9** If the sum of the digits is divisible by 9
 - 10** If the last digit is 0

VOCABULARY TO KNOW

- ascending order** Numbers in **ascending order** when they are arranged from the smallest to the largest number.
Example: 1, 2, 3... 5, 8, 9
- composite numbers** Composite numbers have more than two factors (1 and the number itself).
Example: 6 is a composite number because its factors are 1, 2, 3, & 6.
- descending order** Numbers in **descending order** when they are arranged from the largest to the smallest number.
Example: 3, 2, 1... 9, 5, 3
- digit** A **digit** is one of the ten single symbols used to make a numeral.
Example: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9
- factor** **Factors** are numbers that you can multiply together to make another number.
Example: $2 \times 4 = 8$; 2 and 4 are **factors** of 8.
- multiples** **Multiples** are numbers that can be divided by another number without a remainder.
Example: 2, 4, 6, 8, 10 are all **multiples** of 2.
- period** A **period** is a group of three digits in a number that are separated by commas.
- prime numbers** **Prime numbers** are numbers greater than 1 that only have two factors, 1 and the number itself.
Example: 5 is a **prime number** because it only has two factors; 1 and 5
- value** **Value** is the product of a digit and its place value.
Example: the **value** of the digit 8 in the number 18,536 is 8,000 ($8 \times 1,000 = 8,000$)

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5 The digit in the thousands place is less than the digit in the ten-thousands place.

- 2 USING NUMBER TILES 0-9, MAKE...
1 ...the smallest 6-digit number possible.
2 It must be even.
3 The digit 7 is in the ten-thousands place.
4 It is a multiple of 5.
5 The digit in the hundreds place is less than the digit in the thousands place.

MILLIONS			THOUSANDS				TENS	ONES
ONE	HUNDRED	TEN	ONE	HUNDRED	TEN	ONE	HUNDRED	TENS

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&
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0 1 2 3 4 5 6 7 8 9

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Background

Layout

Theme

Transition

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1

PLACE-VALUE RIDDLES

USING NUMBER TILES 0-9, MAKE...

• the smallest 3-digit number possible.

• It must be even.

• It must contain two odd digits that are not adjacent.

• The sum of the last two digits is greater than 5.

• The digit in the thousands place is less than the digit in the hundreds place.

THOUSANDS

HUNDREDS

TENS

ONES

0 1 2 3 4 5 6 7 8 9

2

PLACE-VALUE RIDDLES

USING NUMBER TILES 0-9, MAKE...

• the smallest 4-digit number possible.

• It must be even.

• The digit 7 is in the ten-thousands place.

• It is a multiple of 5.

• The digit in the thousands place is greater than the digit in the hundreds place.

THOUSANDS

HUNDREDS

TENS

ONES

0 1 2 3 4 5 6 7 8 9

3

PLACE-VALUE RIDDLES

USING NUMBER TILES 0-9, MAKE...

• the smallest 5-digit number possible.

• It must be odd.

• It is a multiple of 3.

• It contains three prime numbers.

• The digit in the thousands place is greater than the digit in the hundreds place.

THOUSANDS

HUNDREDS

TENS

ONES

0 1 2 3 4 5 6 7 8 9

4

PLACE-VALUE RIDDLES

USING NUMBER TILES 0-9, MAKE...

• the smallest 6-digit number possible.

• It must be even.

• It contains only one prime number.

• The sum of the last two digits is greater than 5.

• The product of the last two digits is less than 4.

THOUSANDS

HUNDREDS

TENS

ONES

0 1 2 3 4 5 6 7 8 9

5

PLACE-VALUE RIDDLES

USING NUMBER TILES 0-9, MAKE...

• the smallest 7-digit number possible.

• It must be even.

• It is a multiple of 10.

• The digit in the hundreds place is a multiple of 3 and 5.

• All even digits are adjacent to each other.

THOUSANDS

HUNDREDS

TENS

ONES

0 1 2 3 4 5 6 7 8 9

6

PLACE-VALUE RIDDLES

USING NUMBER TILES 0-9, MAKE...

• the smallest 8-digit number possible.

• It must be even.

• All factors of 9 are included in the number.

• It is in the thousands place.

• The last three digits are in ascending order from left to right.

THOUSANDS

HUNDREDS

TENS

ONES

0 1 2 3 4 5 6 7 8 9

2

PLACE-VALUE RIDDLES

USING NUMBER TILES 0-9, MAKE...

1 ...the smallest 6-digit number possible.

2 It must be even.

3 The digit 7 is in the ten-thousands place

4 It is a multiple of 5.

5 The digit in the hundreds place is less than the digit in the thousands place.

BILLIONS

MILLIONS

THOUSANDS

HUNDREDS

TENS

ONES

0 1 2 3 4 5 6 7 8 9

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STUDENT Place Value Riddles

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Transition

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1

PLACE-VALUE RIDDLES

USING NUMBER TILES 0-9, MAKE...

- the smallest 5-digit number possible.
- it must be even.
- it must contain two odd digits that are even digits.
- The sum of the last two digits is greater than 5.
- The digit in the thousands place is less than the digit in the hundreds place.

0

1

2

3

4

5

6

7

8

9

2

PLACE-VALUE RIDDLES

USING NUMBER TILES 0-9, MAKE...

- the smallest 4-digit number possible.
- it must be even.
- The digit 7 is in the thousands place.
- it is a multiple of 5.
- The digit in the thousands place is less than the digit in the hundreds place.

0

1

2

3

4

5

6

7

8

9

3

PLACE-VALUE RIDDLES

USING NUMBER TILES 0-9, MAKE...

- the smallest 5-digit number possible.
- it must be odd.
- it contains all the factors of 6.
- it contains three prime numbers.
- The digit in the thousands place is greater than the digit in the tens place.

0

1

2

3

4

5

6

7

8

9

4

PLACE-VALUE RIDDLES

USING NUMBER TILES 0-9, MAKE...

- the smallest 4-digit number possible.
- it must be even.
- it contains only one prime number.
- The sum of the last two digits is greater than 5.
- The product of the last two digits is less than 4.

0

1

2

3

4

5

6

7

8

9

5

PLACE-VALUE RIDDLES

USING NUMBER TILES 0-9, MAKE...

- the smallest 4-digit number possible.
- it must be even.
- it is a multiple of 10.
- The digit in the hundreds place is a multiple of 3 and 3.
- All even digits are adjacent to each other.

0

1

2

3

4

5

6

7

8

9

6

PLACE-VALUE RIDDLES

USING NUMBER TILES 0-9, MAKE...

- the smallest 4-digit number possible.
- it must be even.
- All factors of 9 are included in the number.
- it is in the thousands place.
- The last three digits are in ascending order from left to right.

0

1

2

3

4

5

6

7

8

9

3

PLACE-VALUE RIDDLES

USING NUMBER TILES 0-9, MAKE...

1 ...the smallest 5-digit number possible.

2 It must be odd.

3 It contains all the factors of 6.

4 It contains three prime numbers.

5 The digit in the thousands place is greater than the digit in the tens place.

BILLIONS	MILLIONS			THOUSANDS					
ONE	HUNDRED	TEN	ONE	HUNDRED	TEN	ONE	HUNDREDS	TENS	ONES

0

1

2

3

4

5

6

7

8

9

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Number Patterns

13, 17, 19, [], [], 31

[], [], 49, 52, 57, 64

68, 59, [], [], 41, 32

70, [], [], 52, 43, 34

81, 85, 89, 93, [], []

0 1 2 3 4 5 6 7 8 9

Digital Math Tiles in Google Classroom

NOT SURE WHERE TO BEGIN?

Watch this short tutorial on how to use digital math tiles with Google Classroom.

It's so easy--I promise!



MORE HANDS-ON MATH ACTIVITIES

Time to Tile!

0 1 2 3 4 5 6 7 8 9

Adding and Subtracting

Hands-on and Engaging! Activates Problem Solving Perfect For Math Centers Non-Routine and Challenging

Time to Tile!

0 1 2 3 4 5 6 7 8 9

All Operations

Hands-on and Engaging! Activates Problem Solving Perfect For Math Centers Non-Routine and Challenging

Time to Tile!

0 1 2 3 4 5 6 7 8 9

Area Model Multiplication

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Time to Tile!

0 1 2 3 4 5 6 7 8 9

Area of Triangles

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Time to Tile!

0 1 2 3 4 5 6 7 8 9

Decimal Place Value on a Number Line

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Time to Tile!

0 1 2 3 4 5 6 7 8 9

Elapsed Time

Hands-on and Engaging! Activates Problem Solving Perfect For Math Centers Non-Routine and Challenging

Time to Tile!

0 1 2 3 4 5 6 7 8 9

Equivalent Decimals & Fractions

Hands-on and Engaging! Activates Problem Solving Perfect For Math Centers Non-Routine and Challenging

Time to Tile!

0 1 2 3 4 5 6 7 8 9

Long Division

Hands-on and Engaging! Activates Problem Solving Perfect For Math Centers Non-Routine and Challenging

Time to Tile!

0 1 2 3 4 5 6 7 8 9

Missing Divisors, Dividends, & Quotients

Hands-on and Engaging! Activates Problem Solving Perfect For Math Centers Non-Routine and Challenging

Time to Tile!

0 1 2 3 4 5 6 7 8 9

Multi-Digit Multiplication

Hands-on and Engaging! Activates Problem Solving Perfect For Math Centers Non-Routine and Challenging

Time to Tile!

0 1 2 3 4 5 6 7 8 9

Order of Operations 1

Hands-on and Engaging! Activates Problem Solving Perfect For Math Centers Non-Routine and Challenging

Time to Tile!

0 1 2 3 4 5 6 7 8 9

Fractions on a Number Line

Hands-on and Engaging! Activates Problem Solving Perfect For Math Centers Non-Routine and Challenging

Foster critical thinking and problem solving skills, while developing a concrete understanding of Fractions!

Pattern Block Fraction Task Cards

Perfect for math centers, Fast-Finishers, and cooperative learning activities.

Foster critical thinking and problem solving skills, while developing a concrete understanding of fractions!

Tangram Fraction Task Cards

Perfect for math centers, Fast-Finishers, and cooperative learning activities.

36 fun logic riddles that can be used independently or in groups of 4.

Problem Solving with Pattern Blocks 1

Activate critical thinking and problem solving skills, while reinforcing essential math concepts.

Cooperative learning task cards that promote critical thinking, problem solving, and spatial reasoning.

It Takes Two to Tangram

Two students • Two tangram sets • Too much fun!