

Problem of the Week

by Leanne Luttrell

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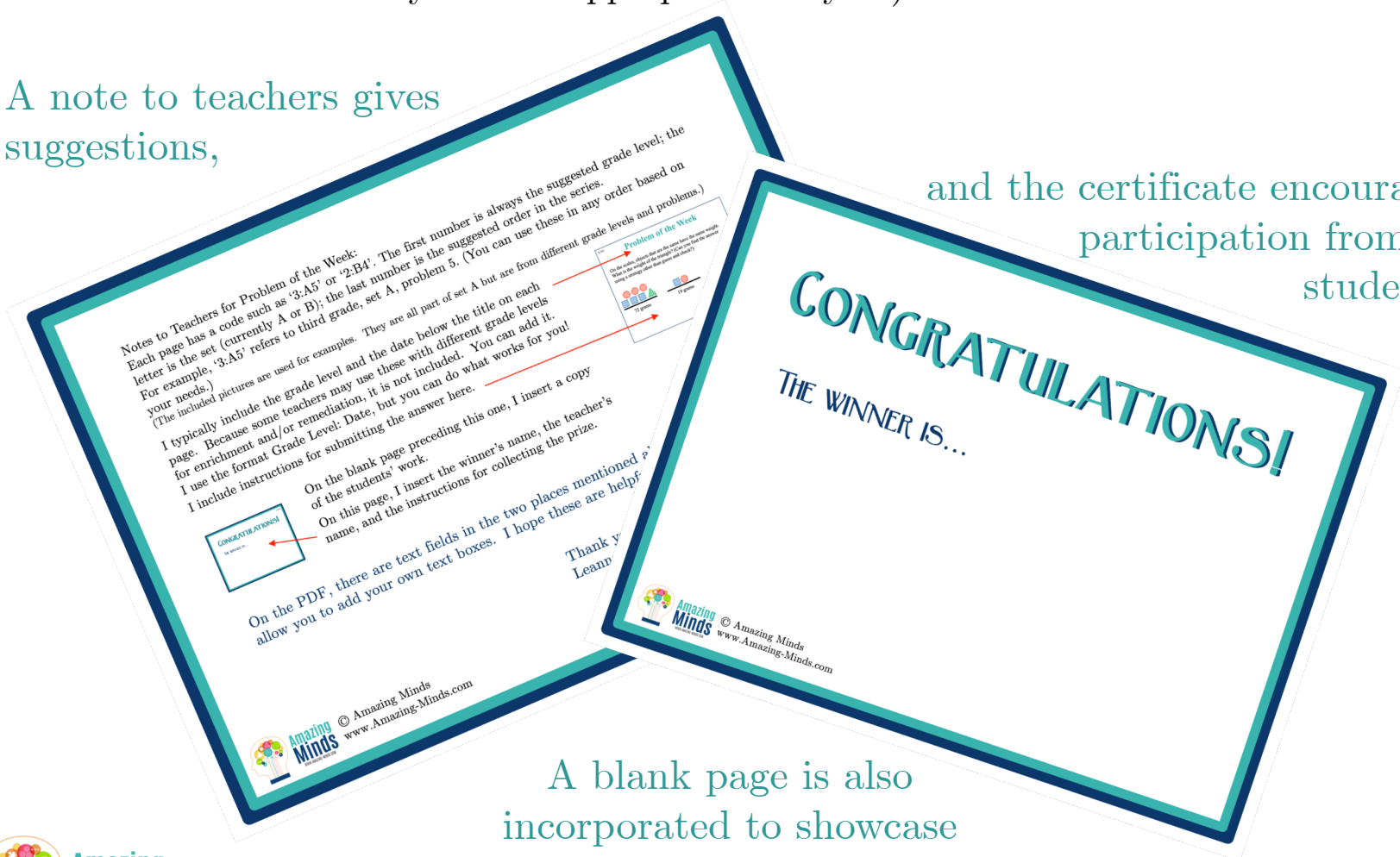
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Each product contains a note to teachers and 6 problem-solving tasks. Each problem has one page with the problem for students, a step-by-step solution, a blank page for student work, and a certificate. (We selected one winner each week, but you can use the certificate in whatever way is most appropriate for you.)

A note to teachers gives suggestions,

and the certificate encourages participation from all students!



A blank page is also incorporated to showcase student solutions!



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Third Grade Sample


Every student receives the problem.

3:A1 **Problem of the Week**

A third grade teacher was thinking of a mystery number! She gave her students these clues:

- When rounded to the nearest hundred, my number is rounded to 600.
- When rounded to the nearest ten, my number is rounded to 650.
- The digit in the tens place is not a 5.
- My number is an even number.
- None of my digits are the same.

What is the mystery number?

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After students have an opportunity to solve it, you can show a step-by-step solution!


3:A1 **Problem of the Week**

A third grade teacher was thinking of a mystery number! She gave her students these clues:

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- The digit in the tens place is not a 5.
- My number is an even number.
- None of my digits are the same.

What is the mystery number?

I do not have to use the clues in order! If I begin with rounding to the nearest 10, I will only have 10 numbers. That is a good place to start!


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3:A1 **Problem of the Week**


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- When rounded to the nearest ten, my number is rounded to 650.**
- The digit in the tens place is not a 5.
- My number is an even number.
- None of my digits are the same.

What is the mystery number?



| | | |
|--|-----|-----|
| The whole numbers that are rounded to 650 when rounded to the nearest ten are: | 645 | 650 |
| | 646 | 651 |
| | 647 | 652 |
| | 648 | 653 |
| | 649 | 654 |

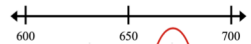
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3:A1 **Problem of the Week**

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- The digit in the tens place is not a 5.
- My number is an even number.
- None of my digits are the same.

What is the mystery number?



| | |
|-----|-----|
| 645 | 650 |
| 646 | 651 |
| 647 | 652 |
| 648 | 653 |
| 649 | 654 |

These numbers are rounded to 700 when rounded to the nearest hundred, so none of these numbers are the mystery number.


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3:A1 **Problem of the Week**

A third grade teacher was thinking of a mystery number! She gave her students these clues:

- When rounded to the nearest hundred, my number is rounded to 600.
- When rounded to the nearest ten, my number is rounded to 650.
- The digit in the tens place is not a 5.
- My number is an even number.**
- None of my digits are the same.


What is the mystery number?



The mystery number is an even number, so it can not be an odd number.

| | |
|-------|-----|
| -645- | 650 |
| 646 | 651 |
| -647- | 652 |
| 648 | 653 |
| -649- | 654 |

These numbers are rounded to 700 when rounded to the nearest hundred, so none of these numbers are the mystery number.

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3:A1 **Problem of the Week**


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- When rounded to the nearest ten, my number is rounded to 650.
- The digit in the tens place is not a 5.
- My number is an even number.
- None of my digits are the same.**

What is the mystery number?

None of the digits are the same, so the mystery number can not be 646.

| | |
|-------|-----|
| -645- | 650 |
| -646- | 651 |
| -647- | 652 |
| 648 | 653 |
| -649- | 654 |

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3:A1 **Problem of the Week**


A third grade teacher was thinking of a mystery number! She gave her students these clues:

- When rounded to the nearest hundred, my number is rounded to 600.
- When rounded to the nearest ten, my number is rounded to 650.
- The digit in the tens place is not a 5.
- My number is an even number.
- None of my digits are the same.**

What is the mystery number?

The only answer left is 648. That is the mystery number!

| | |
|-------|-----|
| -645- | 650 |
| 646 | 651 |
| -647- | 652 |
| 648 | 653 |
| -649- | 654 |

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Fourth Grade Sample

Every student receives the problem.

4:A5

Problem of the Week

Four students were reading the same book for a book club. They were asked how much of the book they had finished, and the responses are listed.

| Name | Fraction of the Book Read |
|---------|---------------------------|
| Juan | $\frac{3}{7}$ |
| Rachel | $\frac{7}{8}$ |
| Timothy | $\frac{5}{6}$ |
| Alicia | $\frac{3}{8}$ |

Who had read the least? Who had read the most? Put them in order from least to greatest, and explain your reasoning.



After students have an opportunity to solve it, you can show a step-by-step solution!

4:A5

Problem of the Week

Four students were reading the same book for a book club. They were asked how much of the book they had finished, and the responses are listed. Who had read the least? Who had read the most? Put them in order from least to greatest, and explain your reasoning.

First, I thought I would use a benchmark fraction to group them. I used one-half. To do this, I used equivalent fractions for sixths and eighths.

For sevenths, I thought about what was remaining to equal one whole.

less than $\frac{1}{2}$ $\frac{3}{7} < \frac{4}{7}$ greater than $\frac{1}{2}$ $\frac{5}{6} > \frac{7}{8}$



| Name | Fraction of the Book Read |
|---------|---------------------------|
| Juan | $\frac{3}{7}$ |
| Rachel | $\frac{7}{8}$ |
| Timothy | $\frac{5}{6}$ |
| Alicia | $\frac{3}{8}$ |

4:A5

Problem of the Week

Four students were reading the same book for a book club. They were asked how much of the book they had finished, and the responses are listed. Who had read the least? Who had read the most? Put them in order from least to greatest, and explain your reasoning.

First, I thought I would use a benchmark fraction to group them. I used one-half. To do this, I used equivalent fractions for sixths and eighths.

For sevenths, I thought about what was remaining to equal one whole.

Next, I compared the fractions that were less than one-half. They have common numerators. The whole is the same, so $\frac{1}{8} < \frac{1}{7}$ so $\frac{3}{8} < \frac{3}{7}$ because it is the same book.

Finally, I compared the fractions that were greater than one-half. I knew both fractions were one unit less than the whole. (Some people call this 'one missing part' from the whole.) Because one-sixth is greater than one-eighth, five-sixths is missing a larger part.



| Name | Fraction of the Book Read |
|---------|---------------------------|
| Juan | $\frac{3}{7}$ |
| Rachel | $\frac{7}{8}$ |
| Timothy | $\frac{5}{6}$ |
| Alicia | $\frac{3}{8}$ |

4:A5

Problem of the Week

Four students were reading the same book for a book club. They were asked how much of the book they had finished, and the responses are listed. Who had read the least? Who had read the most? Put them in order from least to greatest, and explain your reasoning.

First, I thought I would use a benchmark fraction to group them. I used one-half. To do this, I used equivalent fractions for sixths and eighths.

For sevenths, I thought about what was remaining to equal one whole.

Next, I compared the fractions that were less than one-half. They have common numerators. The whole is the same, because it is the same book.

$\frac{1}{8} < \frac{1}{7}$ so $\frac{3}{8} < \frac{3}{7}$ greater than $\frac{1}{2}$

$\frac{5}{6}$
 $\frac{7}{8}$



| Name | Fraction of the Book Read |
|---------|---------------------------|
| Juan | $\frac{3}{7}$ |
| Rachel | $\frac{7}{8}$ |
| Timothy | $\frac{5}{6}$ |
| Alicia | $\frac{3}{8}$ |

4:A5

Problem of the Week

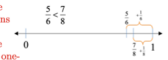
Four students were reading the same book for a book club. They were asked how much of the book they had finished, and the responses are listed. Who had read the least? Who had read the most? Put them in order from least to greatest, and explain your reasoning.

First, I thought I would use a benchmark fraction to group them. I used one-half. To do this, I used equivalent fractions for sixths and eighths.

For sevenths, I thought about what was remaining to equal one whole.

Next, I compared the fractions that were less than one-half. They have common numerators. The whole is the same, because it is the same book.

Finally, I compared the fractions that were greater than one-half. I knew both fractions were one unit less than the whole. (Some people call this 'one missing part' from the whole.) Because one-sixth is greater than one-eighth, five-sixths is missing a larger part.



Alicia read the least, and Rachel read the most!

Here is the list from least to greatest:

| Alicia | Juan | Timothy | Rachel |
|---------------|---------------|---------------|---------------|
| $\frac{3}{8}$ | $\frac{3}{7}$ | $\frac{5}{6}$ | $\frac{7}{8}$ |



Fifth Grade Sample

Every student receives the problem.

5:A5 **Problem of the Week**

On the scales, objects that are the same have the same weight. What is the weight of the triangle? (Can you find the answer using a strategy other than guess and check?)

72 grams 19 grams 42 grams

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After students have an opportunity to solve it, you can show a step-by-step solution!

5:A5 **Problem of the Week**

On the scales, objects that are the same have the same weight. What is the weight of the triangle? (Can you find the answer using a strategy other than guess and check?)

I do not want to use guess and check. I looked at each scale to see if it would help me in any way.

I noticed the 2nd scale had a square and a circle, and it weighs 19 grams.

72 grams 19 grams 42 grams

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5:A5 **Problem of the Week**

On the scales, objects that are the same have the same weight. What is the weight of the triangle? (Can you find the answer using a strategy other than guess and check?)

I knew a circle and a square on the first scale would also weigh 19 grams. This happened 3 times.

72 grams 19 grams 42 grams

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5:A5 **Problem of the Week**

On the scales, objects that are the same have the same weight. What is the weight of the triangle? (Can you find the answer using a strategy other than guess and check?)

$19 + 19 + 19 = 57$
Since the first scale weighs 72 grams,
I subtracted 57 from 72.
 $72 - 57 = 15$

72 grams 19 grams 42 grams

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5:A5 **Problem of the Week**

On the scales, objects that are the same have the same weight. What is the weight of the triangle? (Can you find the answer using a strategy other than guess and check?)

$19 + 19 + 19 = 57$
Since the first scale weighs 72 grams,
I subtracted 57 from 72.
 $72 - 57 = 15$

The triangle is the only object not included, so the difference gives us the weight of the triangle!

72 grams 19 grams 42 grams

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5:A5 **Problem of the Week**

On the scales, objects that are the same have the same weight. What is the weight of the triangle? (Can you find the answer using a strategy other than guess and check?)

$19 + 19 + 19 = 57$
Since the first scale weighs 72 grams,
I subtracted 57 from 72.
 $72 - 57 = 15$

The triangle is the only object not included, so the difference gives us the weight of the triangle!

The triangle weighs 15 grams!

72 grams 19 grams 42 grams

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5:A5 **Problem of the Week**

On the scales, objects that are the same have the same weight. What is the weight of the triangle? (Can you find the answer using a strategy other than guess and check?)

The triangle weighs 15 grams!

Can you also determine the weight of the square and the circle?
What is your strategy?

72 grams 19 grams 42 grams

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I appreciate your interest and hope this is helpful!
If you have any questions, please send an email!

Thanks!
Leanne

