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Lower Level ☆ Rubric 1



Zoe wrote a two-digit number. Its digits added up to 7.

What number might she have written? Write all possible numbers.

Achievement Level	Criteria
 <p>Task fully accomplished.</p>	<p>Student writes all possible numbers and no other numbers, either repeated or incorrect. There are seven possible numbers: 16, 25, 34, 43, 52, 61 and 70.</p>
 <p>Task nearly accomplished but clear understanding is evident.</p>	<p>Student does one of the following:</p> <ol style="list-style-type: none"> Writes six or more of the possible numbers but then repeats one of them. (See student work sample A.) Writes five or more of the possible numbers and no incorrect or repeated numbers. (See student work sample B.) Writes all possible numbers and no incorrect or repeated numbers, but writes them as additions: $5 + 2 = 7$, $3 + 4 = 7$ and so on. (See student work sample C) <p>Incorrect numbers are:</p> <ul style="list-style-type: none"> numbers that are not two-digit numbers numbers where the digits do not total 7 the number 7 written as 07.
 <p>Task partly accomplished but misconceptions evident.</p>	<p>Student does one of the following:</p> <ol style="list-style-type: none"> Writes four of the possible numbers and no incorrect or repeated numbers. Writes four or more of the possible numbers but may repeat some numbers, include one incorrect number, write the numbers as additions or a combination of the above. (See student work sample.)
 <p>Makes some progress but understanding is limited.</p>	<p>Student does one of the following:</p> <ol style="list-style-type: none"> Writes more than one incorrect number as part of the numbers written but has more correct than incorrect numbers. (See student work sample.) Writes less than four of the possible numbers and no other numbers. Writes less than four of the possible numbers and repeats one or more or writes an incorrect number.
 <p>Little or no understanding evident.</p>	<p>Student does one of the following:</p> <ol style="list-style-type: none"> Makes no attempt or an obviously incorrect attempt. Writes the same number of correct as incorrect numbers. Writes more incorrect numbers than correct numbers. (See student work sample.)

🔗 **Activity:** See p. 155 for the activity sheet for this task.

This task was given to students in years 1 and 2.
Relevant work samples are shown for each achievement level.

Student Work Samples

Student writes all possible numbers and no other numbers.

61 34 52
16 43
70 25

Sample A
Six numbers written but one is repeated (43).

61 43 43
34 52
25 16

Sample B
At least five numbers written and no incorrect or repeated numbers.

61 52 43 34
16

Sample C
All numbers written as additions.

6+1=7
5+2=7
4+3=7
3+4=7
2+5=7
1+6=7
7+0=7

Student writes all possible numbers but includes one incorrect number (07).

61 52 43 34 25
16 07 70

Student writes two incorrect numbers (17 and 7) but has more correct than incorrect numbers.

43 25 34
52 17 7

Student writes more incorrect numbers (32, 10, 60, 17) than correct numbers.

32 10 60
52 67 17

NOTE: Accept mirror image digits for this task as long as the student's intention is clear.

Where to Next?

Achievement
Level

Suggestions for future work



These students would benefit from doing the activity as a group. Draw a number line on the board the same as the one in the task. Discuss what the arrows at each end of the line mean. Ask students to suggest techniques they could use to work out where numbers should be placed and discuss the merits of each. Ask, *Which number is smallest?* (805) *Which number is largest?* (1600) *What sections could we divide the number line into to help us place the numbers?* (100s). Show students how marking the number line in 100s helps them to work out where to place numbers. When all numbers are placed, write other numbers on the board, such as 1150 and 775, and ask students to justify where they would fit on the line. Repeat for other numbers. Draw another number line on the board like the first one but this time place 1600 about three-quarters of the way along the line. Ask different students to place the other numbers on the line and ask them to justify the various placements. Provide regular practice with number line activities similar to this one.



Students in these two levels can order a group of numbers but have difficulty placing them in their relative positions on a number line. Make a set of number cards that includes 100s numbers (100 to 500) and fifteen to twenty other numbers in the same range, such as 250, 190, 410, 305 and so on. Draw a number line across the board or a chalk line across the floor and work with students to place the 100s cards in position. Shuffle and hand out five of the other cards to different students and allow them to place them in position. Discuss and ask students to justify each placement. As students become more adept, extend the range of numbers. We want students to understand the steps that are required to place numbers on a number line: before placing the numbers, they first have to put the numbers in order and then work out which numbers (100s or otherwise) will help them place the given numbers in their relative positions.



Students in this level need lots of practice at ordering sets of numbers before they can begin to place them in their relative positions on a number line. Start with comparing two numbers, such as 560 and 395, and then progress to groups of three and four numbers. Include some numbers below 100 and some above 1000. Make sets of number cards that students can use for ordering activities like the following:

- a) Write a number on the board and then hand out number cards, one to each student. Ask students to stand up if their card is more than the number on the board. Choose three or four of those students and ask them to put their cards in order from smallest to largest.
- b) Write two numbers on the board and ask all students whose card comes between those numbers to stand up. Work together to order those numbers.

When you feel students are confident, repeat the number line task with different numbers.

Before students attempt the new task, tell them the criteria so they know what is expected in each level. When students have completed the task, assess each one according to the stated criteria and then tell/show students the category in which their work was assessed.

Middle Level Rubric

Numeration ☆ Years 3 – 4



The number 352 can be written as $300 + 50 + 2$. It can also be written as $300 + 40 + 12$ and $200 + 140 + 12$. Using the same format as the examples above (hundreds + tens + units), record other ways that 352 can be written.

About this Task

The main requirement of this task is for students to demonstrate that they understand place value with three-digit numbers and that they can use hundreds, tens and units to rename 352 in different ways.

When assessing this task we only accepted responses that used two addition signs, for example $300 + 20 + 32$ and $200 + 100 + 52$. We did not accept responses like $3 \times 100 + 20 + 32$ or $300 + 52$ because the task required that the responses be in the same format as the examples given. Although $300 + 52$ does equal 352 and does show some understanding of place value, we did not accept it unless it was written as $300 + 0 + 52$; it is important that students demonstrate that they know there are no tens when written as $300 + 52$. In the same way, we did not accept $350 + 2$ because it should be written as $0 + 350 + 2$ to show there are no hundreds, 35 tens and 2 units.

A few students used the addition format but gave responses such as $150 + 127 + 75$ and $200 + 107 + 45$. Responses such as this, even though having a total of 352, were not accepted, as they showed no understanding of place value.

Where students wrote hundreds, tens and units in a different order, we decided to mark them as correct even though we preferred them to be written in order. For example, instead of $300 + 10 + 42$ they may have written $300 + 42 + 10$. As long as the response included hundreds, tens and units, we accepted whatever order they were in.

Quite a few students repeated the three examples from the task ($300 + 50 + 2$, $300 + 40 + 12$, $200 + 140 + 12$). Where this occurred, they were not marked as correct or incorrect. We also ignored any that were repeated, such as $200 + 90 + 62$, $90 + 62 + 200$, $200 + 62 + 90$, and so on. The first one was marked as correct and the others were ignored. Similarly, if an incorrect response was repeated, we only marked the first one as incorrect and ignored any others.

Some students used a pattern to generate responses. For example: $100 + 140 + 112$, $100 + 130 + 122$, $100 + 120 + 132$, $100 + 110 + 142$, and so on. However, those students who made an error in one of their responses and did not notice it continued to make errors in subsequent responses. It is important that students develop strategies to check responses rather than only relying on a pattern.

We analysed the work samples of 273 students in years 3 and 4 with the following results:

- ★ 9.9% were in Achievement Level 1
- ★ 10.6% were in Achievement Level 2
- ★ 25.6% were in Achievement Level 3
- ★ 32.6% were in Achievement Level 4
- ★ 21.3% were in Achievement Level 5

Lower Level ☆ Task 6

Moira painted half of her bedroom wall one colour and the other half in another colour. Do some different drawings to show what her wall might look like.



Middle Level ★ Task 7

A tablecloth has only two colours. One-quarter of it is blue. Draw what the tablecloth might look like. Draw at least three different tablecloths.

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