



Petals Place Value

Grade 1

Adding and Subtracting by Tens

1 level

Probing Questions

- What do you need to do to help JiJi cross?
- What do the flowers stand for?
- What do the petals stand for?

What's Important Here?

This game provides a review of the petals/flowers model for place value which will be used in subsequent games. You may find that students who struggled with place value earlier in the year, are now able to understand and use the model easily.

What Concepts Are Being Developed?

This objective focuses on using place value to easily add and subtract by tens and ones. Understanding that the number in the tens place represents how many groups of ten is an important part of developing an understanding of place value.

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Numbers range from 11 to 99.

88

Either petals or flowers can be chosen first.

88

Adding and Subtracting by Tens - 1



Add or Subtract by 1 or 10

Grade 1

Adding and Subtracting by Tens

4 levels

Probing Questions

- How do you decide how many creatures to choose?
- What does the puzzle show you? What do you need to find out?

What Strategies Are Being Used?

Students may not be interpreting, for example, 23 petals as being 2 flowers and 3 petals. Talk with students to see how they are seeing the problem and help them connect the petal/flower model with the numeric representation.

Classroom Connection

Project the game and allow students to discuss strategies for solving the problems with the model (Levels 1-3) and then connecting those strategies when solving the numeric problems in Level 4. The visual proof models dealing with flowers first and then petals.

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Levels 1-3 progress from adding petals to adding flowers to a mix of both.

27 + =

Level 4 gives a numeric problem and then the visual proof.

39 - 10 = 29

Adding and Subtracting by Tens - 2



Add or Subtract Single Place Numbers

Grade 1

Adding and Subtracting by Tens

4 levels

Probing Questions

- What do the petals represent?
- What do the flowers represent?
- What does the numeral tell you?

Stop the Animation in Teacher Mode

Slowing down or stopping the animation in Teacher Mode will allow students to see the flowers being added to or subtracted from flowers and petals being added to or subtracted from petals.

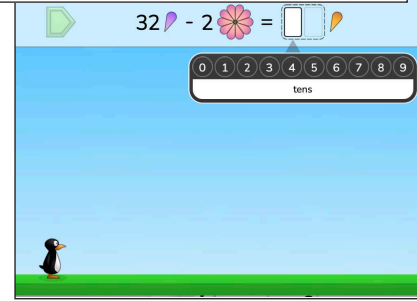
Supporting Struggling Students

Be sure students are looking carefully at the problems before entering their answers. It can be challenging to interpret, for example, 22 petals plus 6 flowers as $22 + 60$ rather than $22 + 6$.

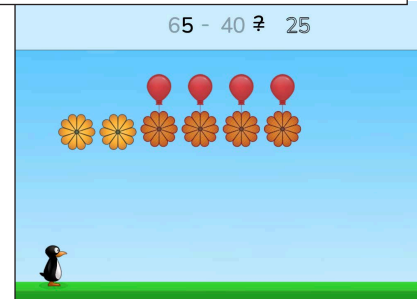
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No regrouping is required in this game.



Level 4 gives a numeric problem and then the visual proof.



Adding and Subtracting by Tens - 3



Table Directions

Grade 1

Adding and Subtracting by Tens

5 levels

Probing Questions

- What does going up one row or down one row represent?
- What does going to the right or the left one column represent?

Emphasize the Connection

Facilitate students' understanding of the patterns on the 100 chart and how they can be used to solve addition and subtraction problems.

Classroom Connection

Challenge students to use arrows like those shown during the visual proof to create problems such as $29 \downarrow \downarrow = ?$ (49) or $15 \rightarrow \uparrow = ?$ (6).

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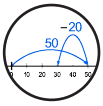
Solving problems on a 100 chart emphasizes patterns and place value.

| | | | | | | | | | |
|----|----|----|----|----|----|----|----|----|-----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
| 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |
| 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 |
| 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 |
| 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 |
| 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 |
| 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |

The visual proof shows solving the problem using directional arrows.

| | | | | | | | | | |
|----|----|----|----|----|----|----|----|----|-----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
| 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |
| 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 |
| 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 |
| 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 |
| 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 |
| 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |

Adding and Subtracting by Tens - 4



Addition and Subtraction on the Number Line

Grade 1

Adding and Subtracting by Tens

3 levels

Probing Questions

- How do you know where to place the blue bar if the exact answer isn't shown on the number line?
- Why do the arrows always start at zero?

Something to Think About

Adding or subtracting $y \times 10$ and adding or subtracting $y \times 1$ are contrasted in Levels 1 and 2. Understanding the place value system will help students in regrouping, decimals, and rounding.

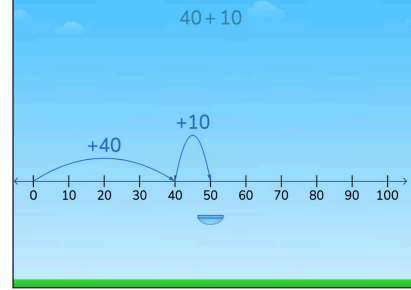
What Do the Standards Say?

Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten. CCSS. MATH.CONTENT.1.NBT.4

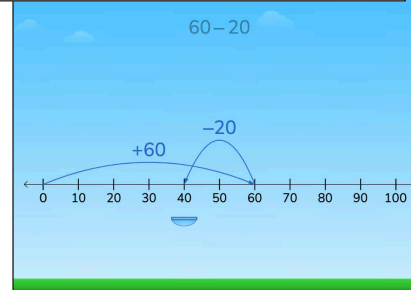
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Modeling addition on the number line requires moving to the right.



Modeling subtraction requires moving to the left.



Adding and Subtracting by Tens - 5