i-Ready

Grade 2 Mathematics
Student At-Home Activity Packet

This At-Home Activity Packet includes 22 sets of practice problems that align to important math concepts your student has worked with so far this year.

We recommend that your student completes one page of practice problems each day.

Encourage your student to do the best they can with this content—the most important thing is that they continue developing their mathematical fluency and skills.

See the Grade 2 Math concepts covered in this packet!

i-Ready®

Grado 2 Matemáticas

Paquete de actividades para el hogar del estudiante

Este Paquete de actividades para el hogar incluye un conjunto de 22 problemas prácticos que están alineados con importantes conceptos de matemáticas en los que sus estudiantes ya han trabajado durante este año.

Se recomienda que el estudiante complete una página de problemas de práctica cada día.

Anime al estudiante a hacer su mejor esfuerzo al trabajar en este contenido. Lo más importante es que continúe desarrollando sus habilidades y fluidez en matemáticas.

¡Mire los conceptos de Matemáticas del Grado 2 que cubre este paquete!

Grade 2 Math concepts covered in this packet

Grado 2 Conceptos de matemáticas cubiertos en este paquete

Name: _____

Add.

1 $8 + 2 =$ _____

2 $8 + 3 =$ _____

3 $6 + 4 =$ _____

4 $6 + 8 =$ _____

5 $7 + 3 =$ _____

6 $7 + 5 =$ _____

7 $9 + 1 =$ _____

8 $9 + 6 =$ _____

9 $5 + 5 =$ _____

10 $5 + 8 =$ _____

11 $9 + 2 =$ _____

12 $2 + 9 =$ _____

13 $8 + 4 =$ _____

14 $4 + 8 =$ _____

15 $6 + 9 =$ _____

16 $6 + 7 =$ _____

17 Which strategy did you use to solve problem 11? Explain.

Name: _____

Add.

1 $4 + 4 =$ _____

2 $4 + 5 =$ _____

3 $6 + 6 =$ _____

4 $5 + 6 =$ _____

5 $7 + 7 =$ _____

6 $8 + 7 =$ _____

7 $9 + 9 =$ _____

8 $8 + 9 =$ _____

9 $5 + 5 =$ _____

10 $6 + 5 =$ _____

11 $8 + 8 =$ _____

12 $7 + 8 =$ _____

13 Which strategy did you use to solve problem 12? Explain why.

Name: _____

Complete each set of equations.

1 $12 - 3 = \square$

$3 + \square = 12$

2 $14 - 5 = \square$

$5 + \square = 14$

3 $11 - 3 = \square$

$3 + \square = 11$

4 $15 - 7 = \square$

$7 + \square = 15$

5 $12 - \square = 10$

$12 - 4 = \square$

6 $13 - \square = 10$

$13 - 6 = \square$

7 $16 - \square = 10$

$16 - 9 = \square$

8 $15 - \square = 10$

$15 - 9 = \square$

9 In problem 6, how did you use your first answer to find your second answer?

Name: _____

Solve problems 1–6.

1 Hailey buys 9 potatoes. 4 potatoes are white. The rest are red. How many red potatoes are there? Show your work.

Solution _____ potatoes are red.

2 Levi has 17 pet fish. 7 of the fish are goldfish. The rest are mollies. How many fish are mollies? Show your work.

Solution _____ fish are mollies.

3 Ada wants to read 12 books over the summer. 5 books are stories about cats. The rest are stories about horses. How many books are stories about horses? Show your work.

Solution _____ books are stories about horses.

4 There are 16 chairs at a table. 7 students sit down. The rest of the chairs are empty. How many chairs are empty? Show your work.

Solution _____ chairs are empty.

Name: _____

5 Luis sees 14 dogs at the dog park. 6 of the dogs are small dogs. The rest of the dogs are big dogs. How many dogs are big? Show your work.

Solution _____ dogs are big.

6 Sadie has 20 crayons. She finds 8 crayons in her desk. The rest of the crayons are in her crayon box. How many crayons are in Sadie's crayon box? Show your work.

Solution _____ crayons are in the crayon box.

7 Which strategy did you use to solve problem 6? Explain why.

Name: _____

Solve problems 1–6. Show your work.

1 There are 4 fewer cats than dogs. There are 2 cats. How many dogs are there?

_____ dogs

2 Trevor sees 8 red birds. He sees 5 more red birds than blue birds. How many blue birds does Trevor see?

Trevor sees _____ blue birds.

3 Anna has 7 baskets and some flowers. She has 5 fewer baskets than flowers. How many flowers does Anna have?

Anna has _____ flowers.

4 There are 14 coats and some hats. There are 6 more coats than hats. How many hats are there?

_____ hats

5 There are 9 apples. There are 6 fewer apples than oranges. How many oranges are there?

_____ oranges

6 Brynne has 13 books. She has 8 more books than games. How many games does Brynne have?

Brynne has _____ games.

Name: _____

Solve problems 1–6. Show your work.

1 Jack has 9 flowers to plant. He plants 2 flowers before lunch. Then he plants 3 more after lunch. How many flowers does Jack have left to plant?

Jack has _____ flowers left to plant.

2 There are 8 girls at the park. First, 5 girls go home. Then 6 more girls come to the park. How many girls are at the park now?

There are _____ girls at the park.

3 Bella paints 6 pictures on Monday and 8 pictures on Wednesday. Then she paints 3 more pictures on Friday. How many pictures does Bella paint this week?

Bella paints _____ pictures this week.

4 Ali puts 12 books in a box. She takes 4 books out of the box. Then she puts 6 books in the box. How many books are in the box now?

There are _____ books in the box.

5 Lucas has 5 crayons. His sister gives him 6 more. Then he gives 4 to a friend. How many crayons does Lucas have now?

Lucas has _____ crayons.

6 Miss Brady puts 15 pencils in her desk. Then she takes out 9 pencils. After school she puts 5 pencils back in her desk. How many pencils are in Miss Brady's desk now?

There are _____ pencils in the desk.

Name: _____

Solve problems 1–6. Show your work.

1 Tony has 37 building blocks. Then he buys more blocks. Now he has 51 blocks. How many blocks does Tony buy?

Tony buys _____ blocks.

2 There are some chairs in the art room. Mrs. Lopez brings in 16 more chairs. Now there are 42 chairs. How many chairs were in the room at the start?

There were _____ chairs in the room at the start.

3 Jen has some buttons. She gets 23 more buttons from her mom. Now she has 65 buttons. How many buttons did Jen have to begin with?

Jen had _____ buttons to begin with.

4 Colby packs 31 boxes in one day. He packs 12 boxes in the morning and some boxes after lunch. How many boxes does Colby pack after lunch?

Colby packs _____ boxes after lunch.

5 Ayanna reads 26 pages of her book at school. Later she reads more pages at home. Now she has read 54 pages. How many pages does Ayanna read at home?

Ayanna reads _____ pages at home.

6 The camp has some tents. Campers set up 42 more tents. Now the camp has 60 tents. How many tents did the camp have to begin with?

The camp had _____ tents to begin with.

Name: _____

Find the sums and missing addends.

1 $30 + 7 + 50 + 3 = $ __90__

2 $37 + 53 = $ _____

3 $20 + 8 + 40 + 2 = $ _____

4 $28 + 42 = $ _____

5 $60 + 6 + 10 + 4 = $ _____

6 $66 + 14 = $ _____

7 $40 + 5 + 40 + 5 = $ _____

8 $45 + $ _____ $= 90$

9 $30 + 9 + 20 + 1 = $ _____

10 _____ $+ 21 = 60$

11 $20 + 4 + 60 + 6 = $ _____

12 $24 + $ _____ $= 90$

13 $40 + 3 + 30 + 7 = $ _____

14 _____ $+ 37 = 80$

15 How does the information in problem 9 help you solve problem 10?

Name: _____

Subtract.

1 $50 - 29 = ?$

$\underline{\quad 29 + 20 \quad} = \underline{\quad 49 \quad}$

$\underline{\quad 49 + 1 \quad} = \underline{\quad 50 \quad}$

$\underline{\quad 20 + 1 \quad} = \underline{\quad 21 \quad}$

$50 - 29 = \underline{\quad 21 \quad}$

2 $71 - 45 = ?$

$\underline{\quad\quad} + \underline{\quad\quad} = \underline{\quad\quad}$

$\underline{\quad\quad} + \underline{\quad\quad} = \underline{\quad\quad}$

$\underline{\quad\quad} + \underline{\quad\quad} = \underline{\quad\quad}$

$\underline{\quad\quad} + \underline{\quad\quad} + \underline{\quad\quad} = \underline{\quad\quad}$

$71 - 45 = \underline{\quad\quad}$

3 $80 - 41 = ?$

$\underline{\quad\quad} + \underline{\quad\quad} = \underline{\quad\quad}$

$\underline{\quad\quad} + \underline{\quad\quad} = \underline{\quad\quad}$

$\underline{\quad\quad} + \underline{\quad\quad} = \underline{\quad\quad}$

$80 - 41 = \underline{\quad\quad}$

4 $63 - 28 = ?$

$\underline{\quad\quad} + \underline{\quad\quad} = \underline{\quad\quad}$

$\underline{\quad\quad} + \underline{\quad\quad} = \underline{\quad\quad}$

$\underline{\quad\quad} + \underline{\quad\quad} = \underline{\quad\quad}$

$\underline{\quad\quad} + \underline{\quad\quad} + \underline{\quad\quad} = \underline{\quad\quad}$

$63 - 28 = \underline{\quad\quad}$

5 $43 - 28 = ?$

$\underline{\quad\quad} + \underline{\quad\quad} = \underline{\quad\quad}$

$\underline{\quad\quad} + \underline{\quad\quad} = \underline{\quad\quad}$

$\underline{\quad\quad} + \underline{\quad\quad} = \underline{\quad\quad}$

$\underline{\quad\quad} + \underline{\quad\quad} + \underline{\quad\quad} = \underline{\quad\quad}$

$43 - 28 = \underline{\quad\quad}$

6 $95 - 65 = ?$

$\underline{\quad\quad} + \underline{\quad\quad} = \underline{\quad\quad}$

$95 - 65 = \underline{\quad\quad}$

Name: _____

7 65 − 39 = ?

_____ + _____ = _____

_____ + _____ = _____

_____ + _____ = _____

_____ + _____ + _____ = _____

65 − 39 = _____

8 47 − 15 ?

_____ + _____ = _____

_____ + _____ = _____

_____ + _____ = _____

_____ + _____ + _____ = _____

47 − 15 = _____

9 75 − 28 = ?

_____ + _____ = _____

_____ + _____ = _____

_____ + _____ = _____

_____ + _____ + _____ = _____

75 − 28 = _____

10 54 − 12 = ?

_____ + _____ = _____

_____ + _____ = _____

_____ + _____ = _____

_____ + _____ + _____ = _____

54 − 12 = _____

13 How did you decide what to add first? Then how did you get the answer?

Name: _____

Circle all the problems where you can regroup a ten to help subtract. Then solve the circled problems.

(1)
```
  32
- 16
────
  16
```

2
```
  48
- 15
────
```

3
```
  57
- 25
────
```

4
```
  63
- 39
────
```

5
```
  76
- 26
────
```

6
```
  82
- 37
────
```

7
```
  38
- 28
────
```

8
```
  53
- 44
────
```

9
```
  42
- 25
────
```

10
```
  96
- 40
────
```

11
```
  92
- 56
────
```

12
```
  65
- 23
────
```

13
```
  86
- 19
────
```

14
```
  59
- 33
────
```

15
```
  77
- 48
────
```

16
```
  62
- 27
────
```

17 How did you know which problems to circle?

18 Check one of your answers by solving it using a different strategy. Show your work.

Name: _____

Solve.

1 35 + __10__ = 45

35 + __20__ = 55

35 + __25__ = 60

2 24 + _____ = 34

24 + _____ = 64

24 + _____ = 68

3 42 + _____ = 52

42 + _____ = 82

42 + _____ = 87

4 51 + _____ = 61

51 + _____ = 71

51 + _____ = 76

5 26 + _____ = 36

26 + _____ = 66

26 + _____ = 69

6 58 + _____ = 60

58 + _____ = 70

58 + _____ = 71

7 39 + _____ = 40

39 + _____ = 70

39 + _____ = 75

8 27 + _____ = 30

27 + _____ = 60

27 + _____ = 65

9 44 + _____ = 54

44 + _____ = 64

44 + _____ = 67

10 69 + _____ = 70

69 + _____ = 90

69 + _____ = 93

Name: _____

11 33 + _____ = 43

33 + _____ = 73

33 + _____ = 76

12 48 + _____ = 50

48 + _____ = 80

48 + _____ = 85

13 26 + _____ = 70

32 + _____ = 61

49 + _____ = 95

14 57 + _____ = 83

34 + _____ = 67

28 + _____ = 53

15 62 + _____ = 85

41 + _____ = 96

53 + _____ = 77

16 19 + _____ = 75

43 + _____ = 87

68 + _____ = 99

17 Explain how the strategy to solve problem 5 is different from the strategy used to solve problem 6.

18 Explain the strategy you used to solve the first part of problem 14.

Name: _____

The answers are mixed up at the bottom of the page. Cross out the answers as you complete the problems.

1 300 + 50 + 1 = _____

2 2 hundreds + 6 tens + 7 ones = _____

3 400 + 20 + 6 = _____

4 400 + 60 + 2 = _____

5 600 + 40 + 2 = _____

6 5 hundreds + 1 ten + 3 ones = _____

7 3 hundreds + 7 tens + 5 ones = _____

8 500 + 20 + 6 = _____

9 200 + 8 = _____

10 2 hundreds + 8 tens + 0 ones = _____

11 600 + 70 + 1 = _____

12 6 hundreds + 0 tens + 7 ones = _____

13 400 + 70 + 6 = _____

14 2 hundreds + 3 tens + 3 ones = _____

15 3 hundreds + 2 tens + 3 ones = _____

16 3 hundreds + 3 tens + 2 ones = _____

Answers:

233	607	476	323	267	671
426	513	526	208	642	462
332	375	280	351		

Name: _____

Write the number using only digits.

1 one hundred sixty-four _____

2 six hundred fifty-two _____

3 three hundred twelve _____

4 two hundred sixty-one _____

5 two hundred five _____

6 five hundred nineteen _____

Write the number using only digits.

7 100 + 10 + 6 _____

8 500 + 4 _____

9 300 + 40 + 5 _____

10 300 + 50 + 4 _____

11 400 + 60 _____

12 500 + 40 _____

Name: _____

Write the number as a sum of hundreds, tens, and ones. Then write the number using words.

13 522   _____ + _____ + _____

_____

14 435   _____ + _____ + _____

_____

15 218   _____ + _____ + _____

_____

16 310   _____ + _____

_____

17 Explain how problem 8 is the same and different from problem 12.

Name: _____

Compare the numbers in each problem two different ways.

1 Compare 250 and 200.

_____ < _____ and

_____ > _____

2 Compare 170 and 180.

_____ < _____ and

_____ > _____

3 Compare 346 and 325.

_____ < _____ and

_____ > _____

4 Compare 235 and 261.

_____ < _____ and

_____ > _____

5 Compare 424 and 453.

_____ < _____ and

_____ > _____

6 Compare 833 and 824.

_____ < _____ and

_____ > _____

7 Compare 637 and 682.

_____ < _____ and

_____ > _____

8 Compare 362 and 326.

_____ < _____ and

_____ > _____

9 Compare 531 and 513.

_____ < _____ and

_____ > _____

10 Compare 714 and 741.

_____ < _____ and

_____ > _____

11 Compare 468 and 486.

_____ < _____ and

_____ > _____

12 Compare 967 and 959.

_____ < _____ and

_____ > _____

13 What strategies did you use to compare the numbers?

Name: _____

The answers are mixed up at the bottom of the page.
Cross out the answers as you complete the problems.

1   635
    + 321

2   439
    + 154

3   336
    + 123

4   825
    + 166

5   512
    + 336

6   246
    + 348

7   772
    + 109

8   347
    + 314

9   483
    + 208

10   225
     + 224

11   548
     + 406

12   475
     + 515

13   273
     + 211

14   728
     + 253

15   627
     + 263

Answers:

449	594	881	956	691
484	661	890	991	593
954	848	990	459	981

Name: _____

Look at the hundreds digits in each problem. Circle those that will have a sum greater than 500. Then find the exact sums of only the problems you circled.

(1)
```
  435
+ 283
-----
  718
```

2
```
  205
+ 113
-----
```

3
```
  586
+ 130
-----
```

4
```
  378
+ 343
-----
```

5
```
  186
+ 175
-----
```

6
```
  476
+ 234
-----
```

7
```
  152
+ 169
-----
```

8
```
  214
+ 225
-----
```

9
```
  362
+ 556
-----
```

10
```
  481
+ 262
-----
```

11
```
  145
+ 239
-----
```

12
```
  347
+ 133
-----
```

13
```
  286
+ 644
-----
```

14
```
  267
+ 174
-----
```

15
```
  383
+ 319
-----
```

16 How do you know that 361 + 283 is greater than 500 without finding the sum?

Name: _____

Circle all the problems where you must regroup a ten to subtract the ones. Then find the differences of only the problems you circled.

(1) 875
− 646
_____
229

2 478
− 226
_____

3 692
− 437
_____

4 345
− 224
_____

5 761
− 338
_____

6 514
− 402
_____

7 953
− 821
_____

8 474
− 156
_____

9 320
− 210
_____

10 663
− 425
_____

11 619
− 308
_____

12 847
− 628
_____

13 736
− 517
_____

14 563
− 249
_____

15 375
− 163
_____

16 How can you tell by looking at the problem if you need to regroup a ten to subtract the ones?

Name: _____

The answers are mixed up at the bottom of the page.
Cross out the answers as you complete the problems.

1 816
  − 432

2 927
  − 563

3 506
  − 315

4 448
  − 160

5 743
  − 471

6 476
  − 293

7 628
  − 236

8 961
  − 470

9 527
  − 256

10 347
  − 154

11 835
  − 285

12 624
  − 382

13 329
  − 170

14 465
  − 195

15 519
  − 378

Answers:

193	242	191	384	272
364	271	491	288	392
183	141	550	159	270

Adding Four Two-Digit Numbers

Find the sum. Show your work.

1 $29 + 34 + 21 + 36$

$$50 + 70$$

_____

2 $45 + 38 + 62 + 15$

_____

3 $17 + 36 + 43 + 74$

_____

4 $55 + 49 + 71 + 15$

_____

5 $32 + 24 + 68 + 46$

_____

6 $27 + 19 + 33 + 81$

_____

7 $32 + 13 + 29 + 35$

_____

8 $53 + 74 + 13 + 44$

_____

9 $24 + 12 + 74 + 68$

_____

10 $92 + 37 + 71 + 14$

_____

11 Explain how you found the answer to problem 8.

Name: _____

1 Use a ruler to measure the length of the piece of tape in inches.
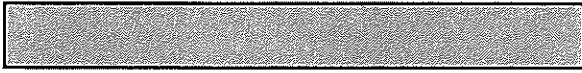
What is the length of the tape? _____ inches

2 Use a ruler to measure the length of the pencil in inches.
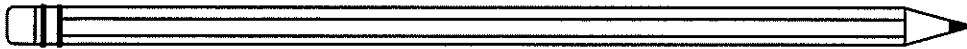
What is the length of the pencil? _____ inches

3 Use a ruler to measure the length of the shoe in centimeters.
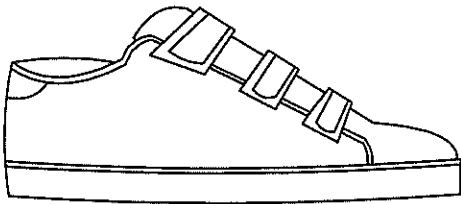
What is the length of the shoe? _____ centimeters

4 Use a ruler to measure the length of the fish in centimeters.
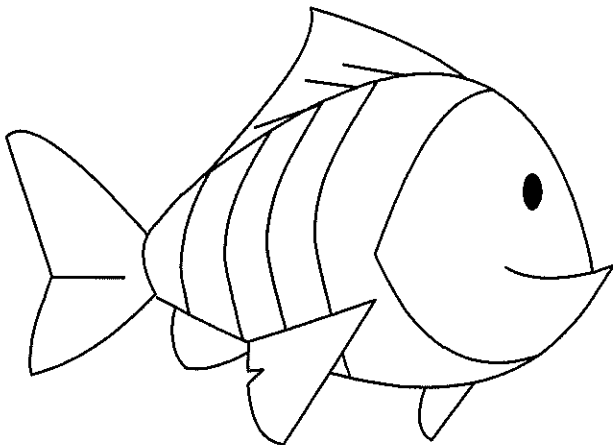
What is the length of the fish? _____ centimeters

Name: _____

5 Use a ruler to measure the length of the string in both inches and centimeters.

_____

What is the length of the string in inches? _____ inches

What is the length of the string in centimeters? _____ centimeters

6 Use a ruler to measure the length of the rectangle in both inches and centimeters.

What is the length of the rectangle in inches? _____ inches

What is the length of the rectangle in centimeters? _____ centimeters

7 For problem 6, did you write different numbers for the length in inches and the length in centimeters? Explain.

Name: _____

1 Circle the objects that are easier to measure with an inch ruler.
Underline the objects that are easier to measure with a yardstick.

a bike   a leaf   a table

a book   a sticker

2 Circle the objects that are easier to measure with an inch ruler.
Underline the objects that are easier to measure with a yardstick.

a window   a cracker   a tent

a marker   a blanket

3 What is the length of the rectangle to the nearest inch?

0	1	2	3	4	5	6
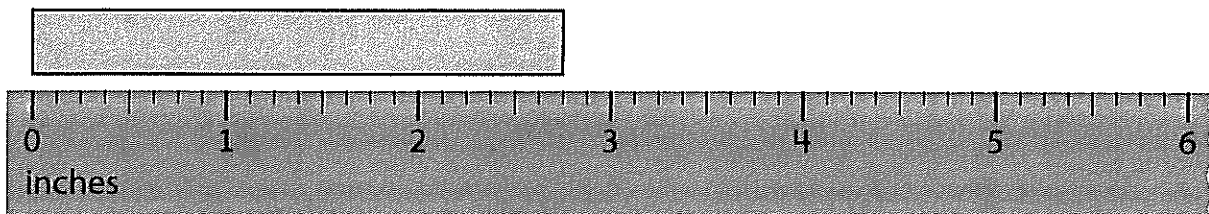
inches

The rectangle is about _____ inches long.

Name: _____

4 What is the length of the baseball bat to the nearest foot?
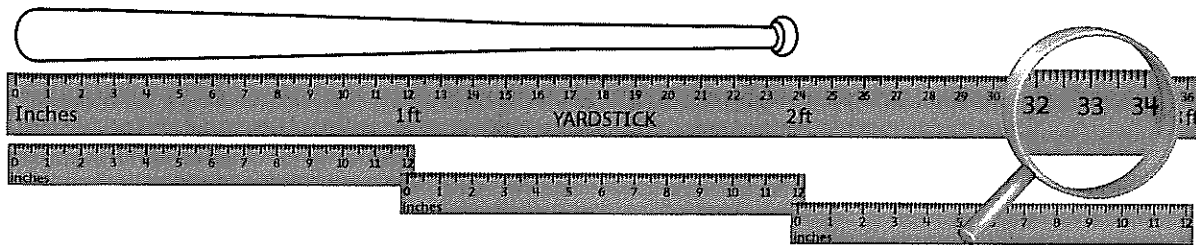
The baseball bat is about _____ feet long.

5 What is the length of the branch to the nearest foot?
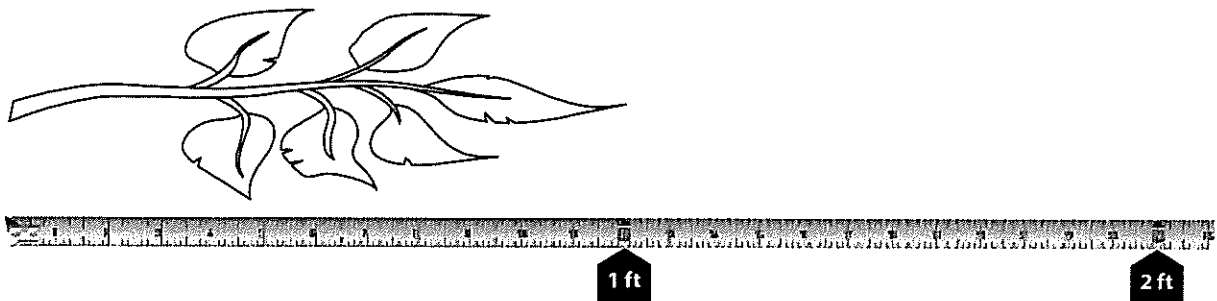
The branch is about _____ foot long.

Name: _____

1 Circle the objects that are easier to measure with a centimeter ruler. Underline the objects that are easier to measure with a meter stick.

a rug   a mitten   a pool

a bee   a shell

2 Circle the objects that are easier to measure with a centimeter ruler. Underline the objects that are easier to measure with a meter stick.

a porch   a spoon

a watch   a bus   a lunch bag

3 What is the length of the tape to the nearest centimeter?

```
0  1  2  3  4  5  6  7  8  9  10  11  12  13  14  15  16  17  18
centimeters
```
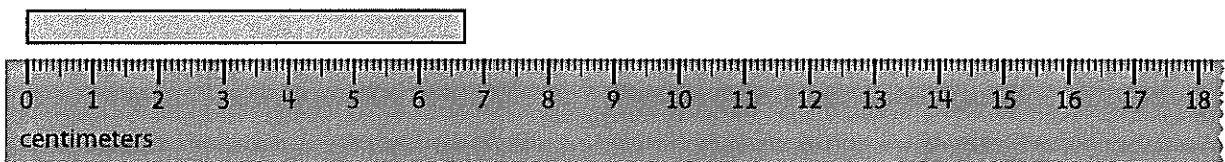
The tape is about _____ centimeters long.

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Name: _____

4 What is the length of the bench to the nearest meter?
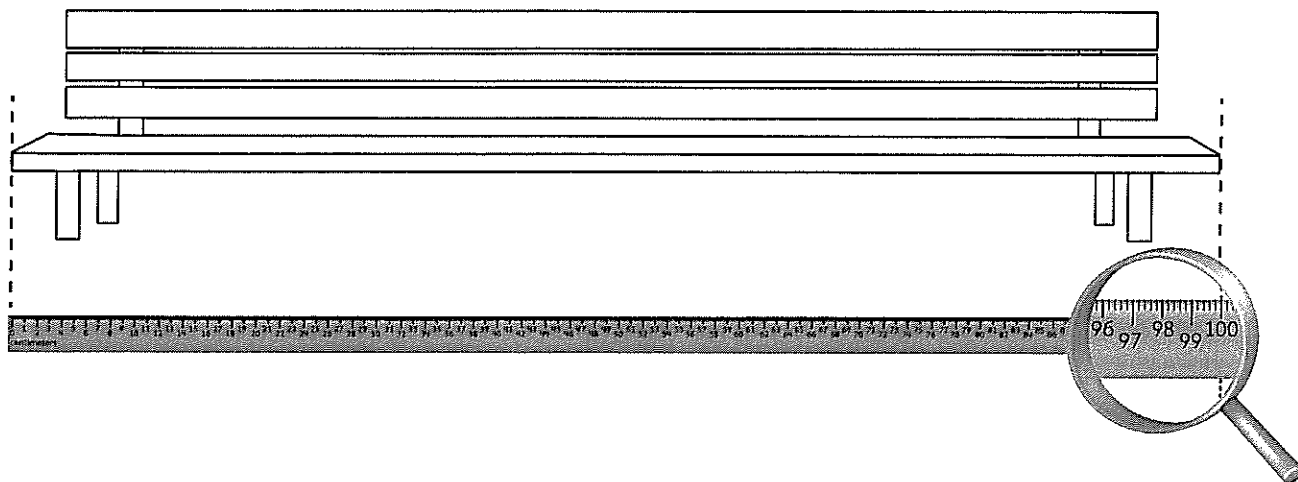
The bench is about _____ meter long.

5 What is the length of the rectangle to the nearest centimeter?
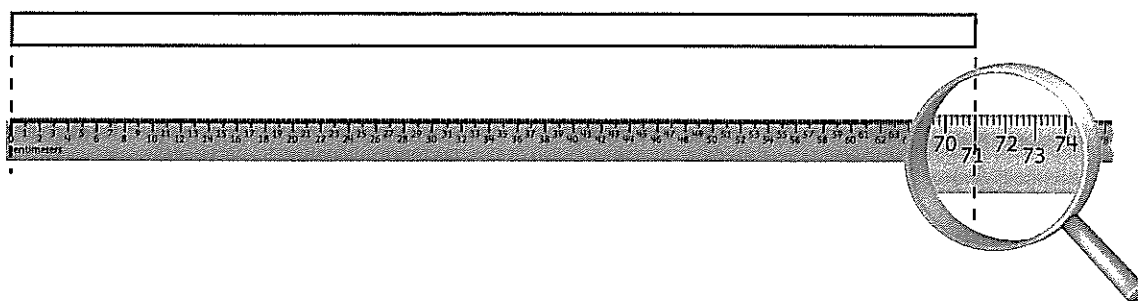
The rectangle is about _____ centimeters long.

ZEARNPD

PARTICIPANT NOTES

CURRICULUM STUDY
G2M5 Add and Subtract Big Numbers

14 Pages

Overview

① **Read the Mission 5 Overview.**

Identify strategies students will use to add and subtract.
How are these strategies similar to and different from the strategies students used in Mission 4?

Mission 5

Add and Subtract Big Numbers

OVERVIEW

In Mission 4, students developed addition and subtraction fluency within 100 and began developing conceptual understanding of the standard algorithm by means of place value strategies. In Mission 5, students build upon their mastery of renaming place value units and extend their work with conceptual understanding of the addition and subtraction algorithms to numbers within 1,000, always with the option of modeling with materials or drawings. Throughout the mission, students continue to focus on strengthening and deepening conceptual understanding and fluency.

Topic A focuses on place value strategies to add and subtract within 1,000. Students relate *100 more* and *100 less* to addition and subtraction of 100. They add and subtract multiples of 100, including counting on to subtract (e.g., for 650 − 300, they start at 300 and think, "300 more gets me to 600, and 50 more gets me to 650, so ... 350"). Students also use simplifying strategies for addition and subtraction. They extend the make a ten strategy to make a hundred, mentally decomposing one addend to make a hundred with the other (e.g., 299 + 6 becomes 299 + 1 + 5, or 300 + 5, which equals 305) and use compensation to subtract from three-digit numbers (e.g., for 376 − 59, add 1 to each, 377 − 60 = 317). The topic ends with students sharing and critiquing solution strategies for addition and subtraction problems. Throughout the topic, students use place value language and properties of operations to explain why their strategies work.

In Topics B and C, students continue to build on Mission 4's work, now composing and decomposing tens and hundreds within 1,000. As each topic begins, students relate manipulative representations to the algorithm and then transition to creating math drawings in place of the manipulatives. As always, students use place value reasoning and properties of operations to explain their work.

Throughout Mission 5, students maintain addition and subtraction fluency within 100 as they use these skills during their Whole Group Word Problem time to solve one- and two-step word problems of all types. The focus of the lesson is adding and subtracting within 1,000: using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction, and relating strategies to a written method. Note that a written method can include number bonds, chip models, arrow notation, the algorithm, or tape diagrams.

→

Many students will need to record these strategies to solve correctly. The lessons are designed to provide ample time for discussions that center on student reasoning, explaining why their addition and subtraction strategies work. For example, students may use the relationship between addition and subtraction to demonstrate why their subtraction solution is correct.

The mission culminates with **Topic D**, wherein students synthesize their understanding of addition and subtraction strategies and choose which strategy is most efficient for given problems. They defend their choices using place value language and their understanding of the properties of operations.

Note that, beginning in Topic C, and for the remainder of the year, each day's Fluency Practice includes an opportunity for review and mastery of the sums and differences with totals through 20 by means of the Core Fluency Practice Sets during whole group time or Sprints during Independent Digital Lessons.

The Mid-Mission Assessment follows Topic B. The End-of-Mission Assessment follows Topic D.

2 **Read and solve this problem from the Mid-Mission Assessment.**
Consider strategies students may use to solve these problems.

Solve for each problem with two written strategies such as a tape diagram, a number bond, the arrow way, the vertical form, or chips on a place value chart.

a. 299 + 436 = _____	
b. 470 + 390 = _____	
c. 268 + 122 = _____	
d. 330 – 190 = _____	

3 **Read and solve this problem from the End-of-Mission Assessment.**
Consider strategies students may use to check their work.

Solve. Draw a place value chart with chips to model the problems. Show a written subtraction method to check your work.

---

a. 756 + 136 = _____

Subtraction number sentence:

---

b. 267 + 545 = _____

Subtraction number sentence:

Draw a place value chart to model the problems. Show a written addition method to check your work.

---

c. 617 − 229 = _____

Check:

---

d. 700 − 463 = _____

Check:

Fluency

1 **Read Making the Next Hundred from Lesson 5.**

Consider what strategies or tools you could use to help students who might be struggling with this activity.

Making the Next Hundred
(4 min)

📀 Note: This fluency activity reviews foundations that lead into Small Group Lesson 5.

T: (Post 170 + ___ = 200 on the board.) Let's find missing parts to make the next hundred. I say 170, you say 30. Ready? 170.

S: 30.

T: Give the number sentence.

S: 170 + 30 = 200.

Continue with the following possible sequence: 190, 160, 260, 270, 370, 380, 580, 620, 720, 740, 940, 194, 196, 216, 214, and 224.

---

2 **Skim through the Whole Group Fluency materials.***

Identify 1-2 fluency activities you'll want to emphasize to practice place value strategies that will help students add and subtract numbers within 1,000.

*Access **Whole Group Fluency** materials in the Teacher-Led Instruction section of the G2M5 mission page.

Word Problems

Read and solve Lesson 7's Whole Group Word Problem.
Consider strategies students may use to solve this problem.

Jeannie got a pedometer to count her steps. The first hour, she walked 43 steps. The next hour, she walked 48 steps.

a.   How many steps did she walk in the first two hours?

b. How many more steps did she walk in the second hour than in the first?

2 **Read and solve Lesson 16's Whole Group Word Problem.**
Consider strategies students may use to solve this problem.

Will read 15 more pages than Marcy. Marcy read 38 pages. The book is 82 pages long.

a.   How many pages did Will read?

b. How many more pages does Will need to read to finish the book?

3 **Skim through the Whole Group Word Problems materials.***
Take note of the different strategies and models that students will use throughout this mission.

*Access Whole Group Word Problems materials in the Teacher-Led Instruction section of the G2M5 mission page.

Small Group Lessons

(1) Read through Lesson 10.

What place value representations are used in this lesson to add?

Lesson 10

Use math drawings to represent additions with up to two compositions and relate drawings to the addition algorithm.

Materials: (S) Math journal or paper

(✎) Note: As students learn to make math drawings like the chip model to represent the vertical form, it is important to emphasize precision in aligning digits in their proper place, drawing place value disks in clear 5-groups, and showing new groups below in the correct place.

Problem 1: 126 + 160

T: (Write 126 + 160 vertically. Draw two long vertical lines, which serve as the place value chart, next to the vertical form. See image to the right.)
T: Let's show one part. How many hundreds in 126?
S: 1 hundred.
T: (Draw 1 hundred.) How many tens?
S: 2 tens. (Count tens as the teacher draws.)
T: How many ones?
S: 6 ones. (Count ones as the teacher draws.)
T: Let's count the first part to be sure our chip model is correct.
S: 100, 110, 120, 121, 122, 123, 124, 125, 126.
T: Now, let's show the other part. (Repeat the process to model 160.)
T: Let's count the second part to check our model.
S: 100, 110, 120, 130, 140, 150, 160.
T: It's important that our chip model matches the problem we're solving.
T: Now, let's solve the problem. 6 ones + 0 ones?
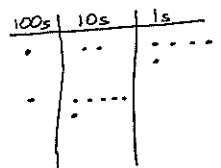S: 6 ones!
T: Do we make a new ten?
S: No!
T: So, we write the number of ones, 6, below the line in the ones place.
T: 2 tens + 6 tens?
S: 8 tens!
T: Do we make a new hundred?

YOUR NOTES

YOUR
NOTES

S: No!

T: So, we write the number of tens, 8, below the line in the tens place.

T: 1 hundred + 1 hundred?

S: 2 hundreds!

T: We write the number of hundreds, 2, below the line in the hundreds place. Read the problem with me.

S: 126 + 160 = 286.

T: Did we need to bundle units in this problem? Why or why not? Discuss with your partner.

S: 6 + 0 and 2 + 6 don't equal 10, and you only bundle when there are partners to ten or more. → The ones didn't make a ten, and the tens didn't make a hundred. → First, I looked in the ones column, and 6 plus 0 doesn't make a new ten. Then, I looked in the tens column, and 20 plus 60 isn't enough to make a new hundred.

T: Now, explain to your partner how the chip model matches the vertical form. Explain your thinking using place value language.

Problem 2: 326 + 167

T: Let's work through another problem together in your math journal. Turn your journal so the lines are already vertical on the page for easy setup. (Repeat the above process to model 326 + 167.)

T: Let's begin by adding the ones. Look at the vertical form and chip model. Tell your partner what you notice. How are they the same?

S: They both show 6 and 7. → They show the same parts. → They both show 13 ones, but one is dots and the other is numbers.

T: Aha! They show the same total, and that total is 13. What do we do now?

S: Bundle 10 ones as 1 ten! → Compose a ten! → Rename 13 ones as 1 ten 3 ones!

T: Excellent! Remember, what we do on the chip model, we do to the numbers. We composed a ten, so we circle the 10 ones and draw an arrow into the tens place, where we draw the new unit of 10. (See image to the right.)

T: Using vertical form, we show this new unit of 10 by writing a 1 on the line below the tens place. This way, we remember to add it in when we count the tens.

T: We write 3 below the line in the ones place. When we look at the model, we see that there are 3 dots left.

T: Now, let's add the tens. Remember to add the new unit. (Point to the model.) 2 tens + 6 tens + 1 ten is...?

S: 9 tens!

T: Did we make a new hundred?

S: No!
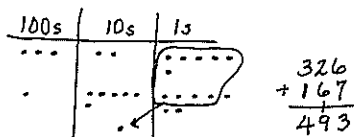
T: So, we write 9 tens below the line in the tens place.

T: And now, let's add our hundreds. 3 hundreds + 1 hundred is...?

S: 4 hundreds!

T: We record the digit 4 below the line in the hundreds place. Read the entire problem.

S: 326 + 167 = 493.

T: How does each step in the chip model match what we do in the vertical form? Talk with your partner. Explain your thinking using place value language.

T: Now, it's your turn. Draw a model and use it to solve 462 + 284. I'll walk around to see how it's going.

Follow the above procedure to guide students as they write 462 + 284 vertically, model it, and solve. Remind students to be precise in lining up the digits and drawing their chips in neat 5-groups. Have them use place value language to explain each action they take on their model and how it is represented in the written addition.

Repeat the process for 487 + 345 with two renamings. Continue to support students working below grade level, but as students demonstrate proficiency throughout the Mission, instruct them to work more independently.

YOUR NOTES

NOTES

Debrief Questions

- Explain how we solved using a chip model and vertical form. How could you solve differently using a simplifying strategy?
- How do you know when to bundle a new unit of 10 or 100?

Multiple Means of Action and Expression

Since it is important to teach precision when drawing chips and aligning digits, students should use a pencil and paper, which allows for greater accuracy than a white board marker. As they work through each problem step-by-step, students can highlight each column on the place value chart and vertical form. Also, if a student continues to struggle with place value understanding, try highlighting the ones, tens, and hundreds columns in different colors.

Multiple Means of Engagement

Use a simple rhythm or jingle to help students remember the key concept of composing a new unit. The following are examples:

- "Add your ones up first! Make a bundle if you can!"
- "Add your tens up next! Make a bundle if you can!"

2 **Reread Problem 2 of Lesson 10.**

Solve the follow up addition problem, 462 + 284, using strategies described in the lesson.

What connections would you want students to make between the chip model and vertical form?

3 **Look again at Problem 2 from Lesson 10.**

How can you support students who are struggling to explain the connections between the chip model and vertical form using place value language?

Mark up the lesson with questions or scaffolding strategies you might use.

4 **Skim through the Small Group Lessons materials* to find another lesson from Mission 5.**

Underline and/or add questions you can use to support students in using place value reasoning to explain why their strategies work.

*Access Small Group Lessons materials in the Teacher-Led Instruction section of the G2M5 mission page.

Learning Extension

With Zearn Math, students learn content in two ways. During today's Grade 2 Mission 5 Study, we explored one way - **Teacher-Led Instruction.**

As learning extension work, we recommend that you complete all the **Independent Digital Lessons** to explore the other way that students will learn content in Grade 2 Mission 5. We have highlighted some of these lessons below, and have suggested ways to incorporate content from these lessons into your live instruction.

Focus on the following lessons in Grade 2 Mission 5:

- **Lesson 5**
  In this lesson, students make the next hundred to add. They might struggle in the Independent Digital Lesson with decomposing an addend or writing an equivalent addition expression. Whole Group Fluency provides an opportunity for students to practice mentally making 100.

- **Lessons 13 and 14**
  In these lessons, students subtract on the place value chart and use vertical form with up to two decompositions. Unbundling twice in the place value chart is new and may be challenging for some students. During Small Group Lessons, prompt students to check each place value before subtracting by asking, "Do I have enough ones/tens/ hundreds to subtract?" When students build the habit of asking these questions before subtracting, it can set them up for success while solving.

- **Lesson 16**

  In this lesson, students subtract from numbers with a zero in the tens place. Prompt students to model a variety of strategies during Small Group Lessons to support them with this. For example, guiding students to show the problem on the place value chart, or using the arrow way, can help them to accurately solve.

- **Lessons 18 and 19**

  In these Independent Digital Lessons, students can choose the strategy they use to solve. You may see more Tower Alerts as students explore different strategies. Support students during Whole Group Word Problems by encouraging them to check their work by solving each problem using multiple methods.

If your students need additional support with this content, consider using Small Group Lessons from these foundational missions during flex time:

- **G1M4, G1M6**

ZEARNPD

CURRICULUM STUDY
G2M6 Equal Groups

23 Pages

Overview

(1) **Read the Mission 6 Overview.**

Underline the different representations students use to build a foundation for multiplication and division in this mission.

Mission 6

Equal Groups

OVERVIEW

Grade 2 Mission 6 lays the conceptual foundation for multiplication and division in Grade 3 and for the idea that numbers other than 1, 10, and 100 can serve as units.

In **Topic A**, students begin by making equal groups using concrete materials, learning to manipulate a given number of objects to create equal groups (e.g., given 15 objects, they create 3 groups of 5 or 5 groups of 3), and progress to pictorial representations where they may begin by circling a group of 5 stars, adding 5 more, and then adding 5 more. They determine the total and relate their drawings to the corresponding repeated addition equation (pictured below). Students calculate the repeated addition sums by adding on to the previous addends, step-by-step, or by grouping the addends into pairs and adding. By the end of Topic A, students draw abstract tape diagrams to represent the total and to show the number in each group as a new unit (pictured below). Hence, they begin their experience toward understanding that any unit may be counted (e.g., 3 dogs, 3 tens, or even 3 fives). This is the bridge between Grades 2 and 3. Grade 2 focuses on the manipulation of place value units, whereas Grade 3 focuses on the manipulation of numbers 1 through 10 as units.

In **Topic B**, students organize the equal groups created in Topic A into arrays, wherein either a row or column is seen as the new unit being counted. They use manipulatives to compose up to 5 by 5 arrays one row or one column at a time and express the total via repeated addition equations. For example, students might arrange one column of 5 counters, then another, and then another to compose an array of 3 columns of 5, or 15 counters. As they compose and decompose arrays, students create different number sentences yielding the same total (e.g., 5 + 5 + 5 = 15 and 3 + 3 + 3 + 3 + 3 = 15). They find the total number of objects in each array by counting on from left to right. "Three plus 3 is 6. Six plus 3 is 9. Nine plus 3 is 12." As Topic B progresses, students move to the pictorial level to represent arrays and to distinguish rows from columns by separating equal groups horizontally and vertically (e.g., 3

columns of 5 or 5 rows of 3). Then, they use same-size square tiles, moving them closer together in preparation for composing rectangles in Topic C. Topic B concludes with students using tape diagrams to represent array situations and the RDW process to solve word problems.

In **Topic C**, students build upon their work with arrays to develop the spatial reasoning skills they need in preparation for Grade 3's area content. They use same-size squares to tile a rectangle with no gaps or overlaps and then count to find the total number of squares that make up the rectangle. After composing rectangles, students partition, or decompose, rectangles. First, they decompose rectangles made of square tiles. Next, they use scissors to cut apart paper rectangles. Finally, they draw and iterate a square unit. In doing so, students begin to see the row or the column as a composite of multiple squares or as a single entity, or unit, which is, in turn, part of the larger rectangle. Students further develop spatial structuring skills by copying and creating drawings on grid paper. Note that the concept of a square unit begins in Grade 3 and is not assessed in Grade 2. Throughout the topic, students relate repeated addition to the model. They are encouraged to think flexibly and to consider the many ways to construct or partition a given array. Students are not multiplying or dividing in Grade 2; rather, this topic lays the foundation for the relationship between the two operations. As equal parts can be composed to form a whole, likewise, a whole can be decomposed into equal parts.

Topic D focuses on doubles and even numbers, thus setting the stage for the multiplication table of two in Grade 3. As students progress through the lessons, they learn the following interpretations of even numbers:

1. A number that occurs when skip-counting by twos is even: 2, 4, 6, 8, ...

2. When objects are paired up with none left unpaired, the number is even.

3. A number that is twice a whole number (doubles) is even.

4. A number whose last digit is 0, 2, 4, 6, or 8 is even.

Armed with an understanding of the term *even*, students learn that any whole number that is not even is called *odd* and that when 1 is added to or subtracted from an even number, the resulting number is odd.

Initially, students arrange pairs into two rows and realize that an even number is the sum of two equal addends, or a repeated sum of twos. They then write number sentences to express the even number (e.g., 2 rows of 7 can be expressed as 7 + 7 = 14 or as 2 + 2 + 2 + 2 + 2 + 2 + 2 = 14). Next, students pair objects to make groups of two with none left over, thus discovering one means of determining whether a group of objects (up to 20) has an even or odd number of members. Finally, students learn that any number up to 20 whose last digit is 0, 2, 4, 6, or 8 is even. After gaining a firm understanding of even numbers, students learn that all other whole numbers are odd. They use the previously learned rules and patterns to identify larger numbers as even or odd and to defend their reasoning. The mission concludes with an investigation of what happens when we add two even numbers, two odd numbers, or an odd number with an even number, and the relationship of these pairings to repeated addition (e.g., 3 + 3 is even, but 3 + 3 + 3 is odd).

The Mid-Mission Assessment follows Topic B. The End-of-Mission Assessment follows Topic D.

2 Share your reflections on the progression of this mission with a partner.

12

| 4 | 4 | 4 |

4
4
4
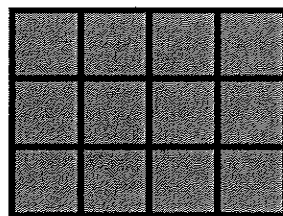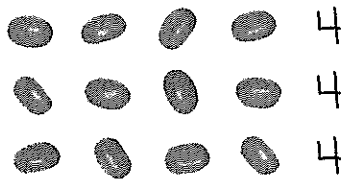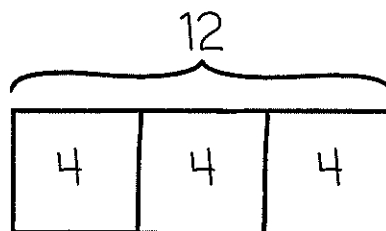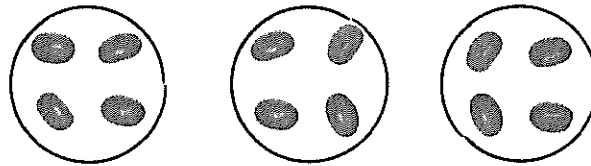
$$4 + 4 + 4 = 12$$

3 **Solve this problem from the End-of-Mission Assessment.**
Consider strategies your students might use to solve.

Complete each sentence. Explain your thinking using pictures, numbers, or words.

a. 2 groups of 4 make _____.	b. _____ groups of 2 make 6.

Fluency

By the end of Grade 2, students should be able to fluently add and subtract numbers to 20 using mental strategies. Many Mission 6 fluencies focus on achieving this goal.

1 **Review the Core Fluency Practice Sets from this mission.**

Take note of how students demonstrate fluency with addition and subtraction to 20.

Grade 2 Core Fluency Practice Sets
(5 min)

Materials: (S) Core Fluency Practice Sets

Note: During Topic A and for the remainder of the year, each day's Fluency Practice includes an opportunity for review and mastery of the sums and differences with totals through 20 by means of the Core Fluency Practice Sets during your whole group time or Sprints during Independent Digital Lessons. Five options are provided in the Appendix for the Core Fluency Practice Set, with Set A being the simplest and Set E the most complex. Start all students on Set A.

Students complete as many problems as they can in 120 seconds. One hundred percent accuracy and completion is recommended before moving to the next level. Collect any Practice Sets that have been completed within the 120 seconds, and check the answers. The next time Core Fluency Practice Sets are used, students who have successfully completed their set can move on to the next level. Keep a record of student progress.

For enrichment, consider assigning a counting pattern and start number (e.g., count by fives from 195). Celebrate improvement as well as advancement. Students should be encouraged to compete with themselves rather than their peers. Discuss with students possible strategies to solve. Notify caring adults of each student's progress.

➜

Core Fluency Practice Set A

Name _____   Date _____

1.	10 + 3 = _____	21.	7 + 9 = _____
2.	10 + 6 = _____	22.	4 + 8 = _____
3.	10 + 4 = _____	23.	5 + 9 = _____
4.	5 + 10 = _____	24.	8 + 6 = _____
5.	8 + 10 = _____	25.	7 + 5 = _____
6.	10 + 9 = _____	26.	5 + 8 = _____
7.	12 + 2 = _____	27.	8 + 3 = _____
8.	13 + 4 = _____	28.	9 + 8 = _____
9.	16 + 3 = _____	29.	6 + 5 = _____
10.	2 + 17 = _____	30.	7 + 6 = _____
11.	5 + 14 = _____	31.	4 + 6 = _____
12.	7 + 12 = _____	32.	8 + 7 = _____
13.	16 + 3 = _____	33.	7 + 7 = _____
14.	11 + 5 = _____	34.	8 + 6 = _____
15.	9 + 2 = _____	35.	6 + 9 = _____
16.	5 + 9 = _____	36.	8 + 5 = _____
17.	7 + 9 = _____	37.	4 + 7 = _____
18.	9 + 4 = _____	38.	3 + 9 = _____
19	7 + 8 = _____	39.	6 + 6 = _____
20.	8 + 8 = _____	40.	4 + 9 = _____

Core Fluency Practice Set B

Name _____   Date _____

1.	10 + 4 = _____	21.	4 + 8 = _____
2.	10 + 9 = _____	22.	7 + 6 = _____
3.	5 + 10 = _____	23.	_____ + 4 = 11
4.	2 + 10 = _____	24.	_____ + 8 = 13
5.	11 + 4 = _____	25.	6 + _____ = 14
6.	12 + 5 = _____	26.	8 + _____ = 15
7.	16 + 2 = _____	27.	_____ = 9 + 8
8.	13 + _____ = 18	28.	_____ = 4 + 7
9.	11 + _____ = 20	29.	_____ = 7 + 8
10.	14 + 3 = _____	30.	3 + 9 = _____
11.	_____ = 3 + 16	31.	6 + 7 = _____
12.	_____ = 7 + 12	32.	8 + _____ = 13
13.	_____ = 15 + 4	33.	_____ = 7 + 9
14.	9 + 2 = _____	34.	6 + 5 = _____
15.	6 + 9 = _____	35.	_____ = 5 + 7
16.	_____ + 4 = 11	36.	_____ = 8 + 4
17.	_____ + 6 = 13	37.	15 = 8 + _____
18.	_____ + 5 = 12	38.	17 = _____ + 9
19	8 + 8 = _____	39.	14 = _____ + 7
20.	6 + 6 = _____	40.	19 = 8 + _____

Core Fluency Practice Set C

Name _____   Date _____

1.	12 – 2 = ____	21.	16 – 9 = ____
2.	18 – 8 = ____	22.	14 – 6 = ____
3.	19 – 10 = ____	23.	16 – 8 = ____
4.	14 – 10 = ____	24.	15 – 6 = ____
5.	16 – 6 = ____	25.	17 – 8 = ____
6.	11 – 10 = ____	26.	18 – 9 = ____
7.	17 – 12 = ____	27.	15 – 7 = ____
8.	20 – 10 = ____	28.	13 – 8 = ____
9.	13 – 11 = ____	29.	11 – 3 = ____
10.	18 – 13 = ____	30.	12 – 5 = ____
11.	12 – 3 = ____	31.	11 – 2 = ____
12.	11 – 2 = ____	32.	13 – 6 = ____
13.	14 – 2 = ____	33.	16 – 7 = ____
14.	13 – 4 = ____	34.	12 – 8 = ____
15.	11 – 3 = ____	35.	16 – 13 = ____
16.	13 – 2 = ____	36.	15 – 14 = ____
17.	12 – 4 = ____	37.	17 – 12 = ____

Core Fluency Practice Set D

Name _____   Date _____

1.	19 – 9 = _____	21.	16 – 7 = _____
2.	12 – 10 = _____	22.	17 – 8 = _____
3.	18 – 11 = _____	23.	16 – 7 = _____
4.	15 – 10 = _____	24.	14 – 8 = _____
5.	17 – 12 = _____	25.	17 – 9 = _____
6.	16 – 13 = _____	26.	12 – 9 = _____
7.	12 – 2 = _____	27.	16 – 8 = _____
8.	20 – 10 = _____	28.	15 – 7 = _____
9.	14 – 11 = _____	29.	13 – 8 = _____
10.	13 – 3 = _____	30.	14 – 7 = _____
11.	_____ = 11 – 3	31.	13 – 9 = _____
12.	_____ = 14 – 4	32.	15 – 9 = _____
13.	_____ = 13 – 4	33.	14 – 6 = _____
14.	_____ = 11 – 4	34.	_____ = 13 – 5
15.	_____ = 12 – 3	35.	_____ = 15 – 8
16.	_____ = 13 – 2	36.	_____ = 18 – 9
17.	_____ = 11 – 2	37.	_____ = 20 – 4
18.	16 – 8 = _____	38.	_____ = 20 – 17
19	15 – 6 = _____	39.	_____ = 20 – 11
20.	12 – 5 = _____	40.	_____ = 20 – 3

Core Fluency Practice Set E

Name _____　　Date _____

1.	13 + 3 = _____	21.	11 − 8 = _____
2.	12 + 8 = _____	22.	13 − 7 = _____
3.	16 + 2 = _____	23.	15 − 8 = _____
4.	11 + 7 = _____	24.	12 + 6 = _____
5.	6 + 9 = _____	25.	13 + 2 = _____
6.	7 + 8 = _____	26.	9 + 11 = _____
7.	4 + 7 = _____	27.	6 + 8 = _____
8.	13 − 5 = _____	28.	8 + 9 = _____
9.	16 − 6 = _____	29.	7 + 5 = _____
10.	17 − 9 = _____	30.	13 − 7 = _____
11.	14 − 6 = _____	31.	15 − 8 = _____
12.	18 − 7 = _____	32.	11 − 9 = _____
13.	8 + 8 = _____	33.	12 − 3 = _____
14.	7 + 6 = _____	34.	14 − 5 = _____
15.	4 + 9 = _____	35.	13 + 6 = _____
16.	5 + 7 = _____	36.	8 + 5 = _____
17.	6 + 5 = _____	37.	4 + 7 = _____
18.	13 − 8 = _____	38.	7 + 8 = _____
19	16 − 9 = _____	39.	4 + 9 = _____
20.	14 − 8 = _____	40.	20 − 12 = _____

We just looked at the Core Fluency Practice sets, an activity that focuses on fluency with addition and subtraction to 20.

2 Share your reflections of the Core Fluency Practice Sets with a partner.

What mental strategies might students use to demonstrate fluency with addition and subtraction within 20 by the end of this mission?
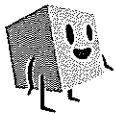
Many other fluency activities in Mission 6 continue to develop fluency with addition and subtraction to 20.

3 Skim through your Whole Group Fluency materials*.

If students are struggling with Core Fluency Practice Sets, which activities could you focus on to practice addition and subtraction to 20?

Other fluency activities in Mission 6 give students opportunity to practice additional Grade 2 concepts.

4 **Skim through your Whole Group Fluency materials* again.**

If students are not struggling with Core Fluency Practice Sets, which fluency activities could you focus on to practice other Grade 2 concepts?

*Access **Whole Group Fluency** materials in the Teacher-Led Instruction section of the **G2M6 mission page.**

Word Problems

In Mission 6, students apply their understanding of equal groups to solve word problems. Let's look at three problems from the beginning of the mission.

1 Solve the word problems from Lesson 3, 4, and 7.

LESSON 3

Markers come in packs of 2. If Jessie has 6 packs of markers, how many markers does she have in all?
   a. Draw groups to show Jessie's packs of markers.
   b. Write a repeated addition equation to match your drawing.
   c. Group addends into pairs, and add to find the total.

LESSON 4

The flowers are blooming in Maria's garden. There are 3 roses, 3 buttercups, 3 sunflowers, 3 daisies, and 3 tulips. How many flowers are there in all?
   a. Draw a tape diagram to match the problem.
   b. Write a repeated addition equation to solve.

LESSON 7

Bobby puts 3 rows of tile in his kitchen to make a design. He lays 5 tiles in each row.
   a. Draw a picture of Bobby's tiles.
   b. Write a repeated addition equation to solve for the total number of tiles Bobby used.

2 Share what you notice about the students' solutions with a partner.

How do each of these representations help students think about the number of groups and the size of the groups in the word problem?

Later in the mission, students apply their understanding of equal groups to solve problems with rectangular arrays.

**3** Solve the Whole Group Word Problem from Lesson 12.

Lulu made a pan of brownies. She cut them into 3 rows and 3 columns.
   a. Draw a picture of Lulu's brownies in the pan.
   b. Write a number sentence to show how many brownies Lulu has.
   c. Write a statement about Lulu's brownies.

4   **Share what you notice about the student's solution with a partner.**

How is this similar and different from the problems students solved early in the mission?
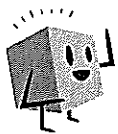
We just looked at a number of different word problems from Mission 6.

5   **Skim through your Whole Group Word Problems materials*.**

Which of these representations do you anticipate will be challenging for students?

How can you support students to draw these representations?

*Access Whole Group Word Problems materials in the Teacher-Led Instruction section of the G2M6 mission page.

Small Group Lessons

Small Group Lessons focus on the big idea of the mission, building a foundation for multiplication and division.

1

Read Lesson 4.

What ideas would you emphasize to build a foundation for students' work with multiplication and division in Grade 3?

How do the representations in this lesson help students recognize the number of groups, size of the group, and the total?

Lesson 4	YOUR NOTES
Represent equal groups with tape diagrams, and relate to repeated addition.	

Materials: (S) Personal white board, counters

T: Let's read this word problem together.

T: (Project or write the problem on the board.) There are 2 apples in Jane's bag, 3 apples in Sam's bag, and 1 apple in Ann's bag. How many apples do the children have in all?

T: Use part–whole language to tell me how to solve.

S: We know the parts, so we add them together. → We add the parts, 2 + 3 + 1, to get the whole, which is 6.

T: Draw a tape diagram on your personal white board, and use your counters to model the problem. (Model on the board, drawing dots, as students do the same using counters.)

T: Now, talk with your partner. How would this model be different if there were equal groups of 2 apples in each bag? Show the change on your model.

S: You would put 2 counters in each box. → There are still 3 groups, but they are all equal. → Now we have 3 groups of 2.

T: You've noticed that the boxes represent the groups and that the counters inside are the number, or amount, in each group.

T: Now, let's change our model to show numbers instead of counters. What number should we write in each box?

S: 2.

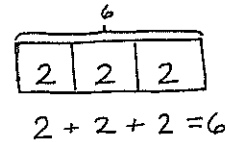T: Of course! Remove your counters, and write 2 in each box.
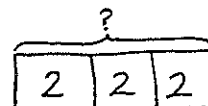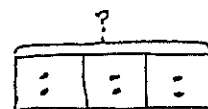
YOUR NOTES

T: What do we do when we know the parts?

S: We add to find the whole!

T: It's easy to see the repeated addition, isn't it? Write the repeated addition equation to find the total for this tape diagram. Read the equation.

$$2 + 2 + 2 = 6$$

S: 2 + 2 + 2 = 6.

T: So, we are adding twos! Just like we have added units of 1 or 10, we can also add units of two.

T: Let's try another one! Draw a tape diagram that has 4 parts. (Model as students do the same.)

T: Use your counters to show 2 in the first group, 3 in the next group, 5 in the next group, and 2 in the last group. (Model on the board.)
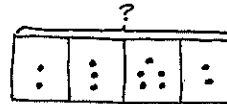
T: Are all of the groups equal?

S: No!

T: Move your counters to show equal groups of 3 in each part. (Model with dots as students rearrange their counters.
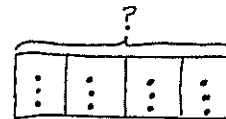
T: Say it with me: "We have 4 equal groups of 3." (Students repeat.)

T: Remove your counters, and write the number in each group. What number will you write?

S: 3.

T: Yes! Write the repeated addition equation that relates to this model, and then solve.

T: Read the equation.

S: 3 + 3 + 3 + 3 = 12.
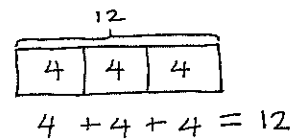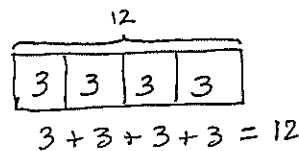
$$3 + 3 + 3 + 3 = 12$$

T: Tell your partner how you added to find the answer.

S: 3 + 3 is 6. 6 + 3 is 9. 9 + 3 is 12. → I used doubles, so 3 + 3 = 6 and 3 + 3 = 6. Then, 6 + 6 = 12.

T: So, 4 groups of 3 is...?

S: 12.

T: Talk with your partner: How would the tape diagram change if there were 3 groups of 4? Draw a tape diagram that shows 3 groups of 4 to explain your thinking.

$$4 + 4 + 4 = 12$$

Circulate to check for understanding, and call on students to share.

3 groups of 4 = 12

S: There are only 3 boxes because there are 3 groups. → We can write 4 in each box. → The repeated addition is 4 + 4 + 4. Before, it was 3 + 3 + 3 + 3. But they both equal 12.

T: Excellent reasoning! Let's do one more. Draw a tape diagram that shows 4 groups of 5.

T: Explain to your partner which part of the tape diagram stands for the number of groups and which part represents the number in each group.

S: The 4 boxes are the 4 groups. → The number 5 is how many are in each group.

T: What repeated addition equation matches your diagram?

S: 5 + 5 + 5 + 5 = 20.

T: So, you added 4 groups of five, or 4 fives. What new unit did you repeatedly add?

S: 5.

Continue working with students who struggle, using concrete objects such as counters or linking cubes to model the problem and draw the tape diagram.

NOTES

Debrief Questions

- Draw a tape diagram to find the total for 3 + 3 + 3 + 3. Then draw a tape diagram for 4 + 4 + 4. What do you notice about these two problems? How are they the same and different?

Multiple Means of Representation

Some students may benefit from writing the numerals within the groups and placing the counters on top of the written numeral. Then, have them remove the counters so they see only the abstract number.

Now let's take a closer look at the end of the lesson.

2 Complete the activity from the Debrief Questions at the end of Lesson 4.

How do the Debrief Questions continue to build a foundation for Grade 3 multiplication and division work?

We looked at a Small Group Lesson that focuses on the big idea of the mission, building a foundation for multiplication and division.

Flip through the Small Group Lessons materials* to find the next lesson you are going to teach.

How does the work students are doing with equal groups build a foundation for their work with multiplication and division in Grade 3?

*Access **Small Group Lessons** materials in the Teacher-Led Instruction section of the G2M6 mission page.

Learning Extension

With Zearn Math, students learn content in two ways. During today's Grade 2 Mission 6 Study, we explored one way - **Teacher-Led Instruction.**

As learning extension work, we recommend that you complete all the **Independent Digital Lessons** to explore the other way that students will learn content in Grade 2 Mission 6. We have highlighted some of these lessons below, and have suggested ways to incorporate content from these lessons into your live instruction.

Focus on the following lessons in Grade 2 Mission 6:

- **Lesson 4**
  This is an important foundational lesson. Students represent equal groups using a tape diagram, and write repeated addition expressions to find the total. During Small Group Lessons, highlight multiple ways to represent equal groups to familiarize students with different representations.

- **Lesson 5**
  This lesson can be tricky for students. Describing arrays using both rows and columns can be a challenge for students if they aren't familiar with these terms. Consider using a pictorial word wall to give students a reference for this new vocabulary during all parts of the math block.

- **Lesson 9**
  Students often struggle with this lesson. They need to apply their understanding of arrays and tape diagrams to solve word problems. Discussing and sharing a range of strategies during Whole Group Word Problem time can support students with this

work.

- **Lesson 10**
  This is an important lesson where students transition to using square tiles to compose a rectangle. This starts to build a foundation for finding area in Grade 3. If students need support with this transition, use Small Group Lessons or flex time to give students time building arrays with square tiles.

If your students need additional support with this content, consider using Small Group Lessons from these foundational missions during flex time:

- **G1M1, G1M5**