COMMON CORE
COLLABORATIVE
CARDS

Didax

Grades 3–5

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TEACHER GUIDE

8 × □ = 72

IN	OUT
1	5
3	7
6	10
9	13

63 ÷ ? = 7
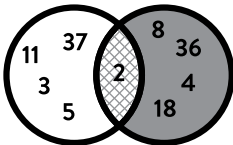
ALGEBRAIC THINKING

by Kit Norris

OVERVIEW

Common Core Collaborative Cards support the teaching and learning of mathematics in several ways. They can be used:

- As an activator for the day's lesson
- To review previous content
- As a learning center activity
- For students' independent practice

Common Core Collaborative Cards provide convenient and motivating ways to place students in collaborative teams for an upcoming unit or problem-solving lesson.
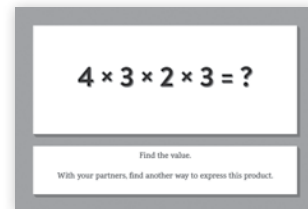
The Common Core Collaborative Cards series consists of three decks of cards per box, each focusing on the same domain in the Common Core State Standards (CCSS). Each deck provides problems representing the standards articulated in the CCSS for a particular grade level.

Teachers using these decks have commented that they have been able to observe what their students understand as well as identify their misconceptions. Teachers have also noted that their students began to rely on each other more instead of seeking out the teacher to answer their questions.

The cards are designed to place students in groups of four. Students are each given a card asked to solve the problem on it. They then look for three other students who have the same solution. Once they have located their team, the students must be ready to explain why each team member's card belongs in the group. Here is one group of cards from the Grade 4 Algebraic Thinking deck:
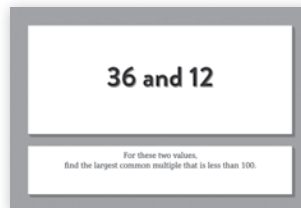

All four cards in this set have the same answer, 72, so students who receive one of these cards form a group.

GROUP MEMBER ROLES

The cards offer a second feature: the reverse side of each card indicates the role the student holding the card is to perform in the group. After the students are presented with the task for that day's lesson, each member of the group takes on the role designated. These roles are as follows:

- Discussion Director
- Resource Manager
- Recorder
- Team Captain

Teachers can easily identify the roles that students are expected to perform since students place their cards on their desk with the side indicating the role facing up. The roles are explained as follows:

If you are the **Discussion Director**, your job is to . . .

- Make sure that everyone has read the problem and understands what the question is asking. You can ask, "What do we know?" "What do we want to find out?" and "Can we make a prediction?"
- Invite everyone in the group to participate. You can use statements such as, "What is your idea?" and "What are you thinking?"

If you are the **Resource Manager**, your job is to . . .

- Ask the teacher a question if all of the members of the team have the same question.
- Get any supplies needed by the group.
- Keep track of time.

The Resource Manager's role goes beyond taking care of the supplies. The Resource Manager is the only member of the group who may ask the teacher a question. Before asking a question, every member of the group must have the same question, and the teacher can then direct the answer to the whole group. This helps the members of the group become more interdependent, since group members can answer many of their questions themselves rather than relying on the teacher.

If you are the **Recorder**, your job is to . . .

- Keep track of the thinking of the group. Be ready to answer how the group approached the problem. What strategy did the group use to solve the problem?
- Record the work of the group. Be organized and clear.
- Ask, "Is there anything else we need to include?"

If you are the **Team Captain**, your job is to . . .

- Make sure that everyone in your group can explain to the class the solution and the strategies used to solve the problem.
- Ask each member of your group, "How would you explain what we did to get this answer?" "What questions do you have?"
- Check the group's solution by asking, "Does our answer make sense?"
- Take on any role if one member of your group is absent.

MANAGING THE CARDS IN YOUR CLASSROOM

Like any other classroom materials, you'll need to manage your Common Core Collaborative Cards. It is essential to group the cards by shared answer after each use. Since the cards are designed to place students in groups of four and since class size will vary, this end-of-activity organizational task will make it easier to distribute the cards the next time you use them. Here are some suggestions for organizing the cards after each use:

- As you collect the cards from each student group, place a rubber band around each group of four cards with the same answer before storing.
- After the activity, collect the cards from the class in any order and designate a student to organize the cards into groups of four according to the answer.

WHAT THE RESEARCH SAYS

Research on the effectiveness of collaborative learning abounds. For more information on the research that informs this product, as well as a complete list of bibliographic references and suggestions for further reading, please visit didax.com/cccc.

COMMON CORE STATE STANDARDS – MATHEMATICAL PRACTICES

The Common Core State Standards define what mathematically proficient students know and are able to demonstrate. Combining the process standards from NCTM's Principles and Standards for School Mathematics with the definition of mathematical proficiency from Kilpatrick, Swafford, and Findell's *Adding It Up: Helping Children Learn Mathematics*, the Common Core Standards present the Mathematical Practices.

These practices focus on the specific actions taken by students who are mathematically proficient.

The eight mathematical practices are:

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

(*Common Core State Standards for Mathematics*, 2010, pp. 6–8)

The authors of the Common Core carefully chose to begin the mathematical practices with problem solving. "Problem solving is not only a goal of learning mathematics but also a major means of doing so" (NCTM, 2000, p. 52). Students who are engaged in solving meaningful tasks are in the process of building their understanding. They are making connections, constructing arguments, analyzing approaches, looking for patterns, and reflecting on their thinking. These students are learning mathematics, and they have opportunities to exhibit the eight mathematical practices.

The Collaborative Cards provide students with opportunities to develop proficiency in the eight mathematical practices. Students solve problems, discuss strategies, and reason mathematically (Mathematical Practices 1–3). They work with patterns and apply them in various contexts (Mathematical Practices 7–8). They determine whether to calculate problems mentally or use paper and pencil (Mathematical Practice 5). By attending to the use of appropriate vocabulary and the accuracy of their responses, they are attending to precision (Mathematical Practice 6). They use equations to model problem situations (Mathematical Practice 4).

The Collaborative Cards provide teachers with insights into what individual students truly understand. As they apply their knowledge in new contexts, students use what they know. As one fifth-grade teacher in Grafton, Massachusetts stated, "I gained insights into my students' misconceptions. These cards are an easy way to learn about students' strengths."
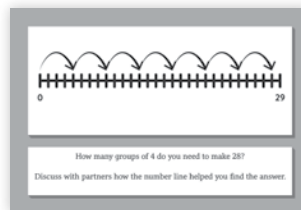
OPERATIONS AND ALGEBRAIC THINKING (OA): GRADE 3

The Grade 3 deck focuses on the Operations and Algebraic Thinking standards laid out on page 23 of the Common Core State Standards for Mathematics (2010).

This deck of cards presents opportunities for students to work with multiple representations of quantities, solve problems, investigate patterns, and distinguish among the four operations and their applications.

In some cases, students may not have studied a particular topic. In the process of finding their group, many students learn from each other. This opportunity initiates thinking upon which students can build in the future.
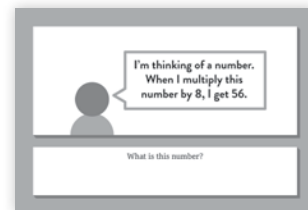
As mentioned earlier in the guide, students build their understanding through problem solving. As students apply the skills they truly understand to solve meaningful tasks, teachers gain insights into what students have mastered and can plan lessons for individuals and small groups based those insights. For grade-level tasks, please visit didax.com/cccc.

Here is one group of four cards from the Grade 3 Algebraic Thinking deck.
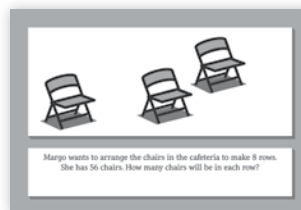

How many groups of 4 do you need to make 28?
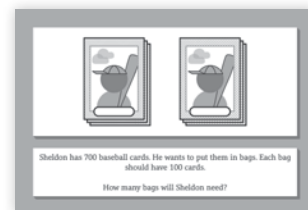Discuss with partners how the number line helped you find the answer.

I'm thinking of a number. When I multiply this number by 8, I get 56.

What is this number?

Margo wants to arrange the chairs in the cafeteria to make 8 rows. She has 56 chairs. How many chairs will be in each row?

Sheldon has 700 baseball cards. He wants to put them in bags. Each bag should have 100 cards.

How many bags will Sheldon need?

With this set of four cards, students work with contexts involving both multiplication and division. They also work with equal groups on a number line, which provides them with an opportunity to discuss how they interpret this number line. Students also work symbolically as they solve the equation that has the same answer as the other cards.

The Common Core Standards present the necessary skills developmentally. Students are expected to know

the standards from a previous grade level; consequently, these cards offer opportunities to review previous expectations and then proceed to problems within the domain at the current grade level. For example, in Grade 3 students are developing an intuitive understanding of the meaning of multiplication and division. The decks help students work in a familiar context to see the relationship between these two operations. Students experience these operations in the context of their work with number lines, arrays, and making sense of the numbers involved. In Grade 4, students are expected to solve two-step word problems using drawings, arrays, and equations. Students are also expected to distinguish between additive and multiplicative reasoning. The practical contexts provided by their work in Grade 3 prepare students for the next level of expectations in Grade 4.

Answers for the Grade 3 Algebraic Thinking deck are provided on pages 10–12 of this guide.

OPERATIONS AND ALGEBRAIC THINKING (OA): GRADE 4

The Grade 4 deck focuses on the Operations and Algebraic Thinking standards laid out on page 29 of the Common Core State Standards for Mathematics (2010):

The Grade 4 standards in the Operations and Algebraic Thinking domain require that students distinguish between situations that involve additive reasoning and those that require multiplicative reasoning. Many situations can be solved by either addition or subtraction. For example, "Mary has 3 bags of apples with 6 apples in each bag. How many apples does Mary have?" This can be solved by addition (6 + 6 + 6) or by multiplication (3 × 6). When presented with a problem such as "Tess has purchased a hat for $25. She also bought shoes costing three times that amount. How much did her shoes cost?" students should recognize that multiplication is the most efficient means to find the solution. Students in Grade 4 also explore and extend patterns and work with factors and multiples.

Here is one group of four cards from the Grade 4 deck:

Michele spent $7 on a pair of baby shoes for her niece.
She spent six times that much for a pair of shoes for herself.
How much did Michele's shoes cost?

The library bookcase has 4 shelves.
There are 168 books in the bookcase and each shelf has the same
number of books. How many books are on one shelf?

Let's compare two pieces of string.
The first is 6 inches long. The second is 7 times longer.
How long is the second string?

$$121 - \square = 79$$

What number goes in the box to make the statement true?

When you find your group, make up a story problem
that can be solved by the number equation above.

This set of four cards present opportunities for students to work with multiplication and division in a familiar context. One card asks students to compare the length of two pieces of string and use multiplication to find the actual length of the larger string. Another card asks students to work symbolically to solve an equation.

Answers for the Grade 4 Algebraic Thinking deck are provided on pages 13–15 of this guide.

OPERATIONS AND ALGEBRAIC THINKING (OA): GRADE 5

The Grade 5 deck focuses on the Operations and Algebraic Thinking standards laid out on page 35 of the Common Core State Standards for Mathematics (2010).

The work with patterns in Grade 4 continues in Grade 5 as students analyze patterns and relationships. 5.OA.3 extends students' thinking to work with two sequences. Grade 5 also includes work on the order of operations and writing expressions.

Here is one group of four cards from the Grade 5 deck:

$$3 + 4 + 5 + 6 + 7 = 25$$
$$2 + 3 + 4 + 5 + 6 = 20$$
$$5 + 6 + 7 + 8 + 9 = 35$$

Lucy says, "Wow! I don't have to add these numbers.
For each equation, I can multiply the middle number
by the same value to get the sum."
What value is Lucy thinking of?

0	2	4	6	8
0	10	20	30	40

Determine the rule used to make this table.
Your partners have the same value.

Be ready to explain your reasoning to your partners.

$$\square = 20 - 8 \times 2 + 1$$

What number goes in the box?

Desean spent $8 on his toy truck.
Olivia spent 9 times that amount on a sweater.
How much did the sweater cost?

The first two cards in this set provide students with an opportunity to look at patterns both numerically and in a table. The next card involves the order of operations, while the fourth card promotes algebraic thinking by asking students to work backwards from the answer. As students recognize others who have the same answer on their individual cards, students share their solutions. Students are extending their thinking through these conversations and frequently challenging each other's thinking.

Answers for the Grade 5 Algebraic Thinking deck are provided on pages 16–18 of this guide.

VISIT DIDAX.COM/CCCC ...

For the following important resources:

- A complete bibliography and links to research that informed this product

- A complete correlation to the Common Core State Standards for each grade-level deck

- Meaningful tasks to be used at each grade level (once students have used the Common Core Collaborative Cards to form their groups)

ADDITIONAL MEANINGFUL TASKS

One of the best sources of meaningful tasks related to the Common Core is the book *NCSM: Great Tasks for Mathematics (K–5)* by Connie Schrock, Kit Norris, David K. Pugalee, Richard Seitz, and Fred Hollingshead. (National Council of Supervisors of Mathematics, 2013, ISBN: 978-0-9890765-0-0.)

Correlation to the Common Core State Standards for each group of 4 cards can be found at didax.com/cccc.

ANSWER 6

Juan has 5 bags of apples. He knows he has 30 ap[...]

How many apples are in each bag?

Peter is organizing his toy car collecti[...]
He has 42 cars, and he is placing them in 7 rows[...]

How many cars will be in each row?

Guess my num[...]
My number is less t[...]
If I count by tv[...]
my number is the t[...]

What is Thomasina's number?

$6 + 8 \div 2 - 4$

Peter says the answer is 3. Sara thinks the answer is 6.
Which answer is correct?

Be ready to explain your thinking to your group.

ANSWER 30

Harriet purchased 3 boxes of candy[...]
Harriet's mother also purchased 3 boxes o[...]
Each box contained 5 candy bars.
How many candy bars do they have altog[...]

A classroom has 6 rows of chairs, with 5 chairs[...]

How many chairs are in the classroom[...]

$3 \times 5 \times 2$

Marion solves the problem in the order given. Georg[...]
What answer do they get?

Explain to your partners why George wanted to s[...]

Pedro has 300 baseball cards. He wants to sort his cards into piles. Each
pile should have 10 cards.

How many piles will Pedro have?

ANSWER 7

How many groups of 4 do you need to ma[...]

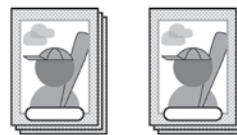Discuss with partners how the number line helped yo[...]

I'm thinking of a nu[...]
When I multiply [...]
number by 8, I get[...]

What is this number?

Margo wants to arrange the chairs in the cafeteria[...]
She has 56 chairs. How many chairs will be in[...]

Sheldon has 700 baseball cards. He wants to put them in bags. Each bag
should have 100 cards.

How many bags will Sheldon need?

Correlation to the Common Core State Standards for each group of 4 cards can be found at didax.com/cccc.

GRADE 3 GROUPINGS

4(3) + 4(7)

What is the solution?

Discuss with your group an easy way to solve t...

How many x's are there?
(Hint: You do not have to count each o...

Explain to your group what strategy you...

I have four groups of 6 coins.

I have four groups of 4 coins.

How many coins do the girls have altoge...

Is there an easier way than counting all th...
Discuss with your group.

How many stars are there?

Find the total number of stars without counting all of them.

ANSWER 40

---

63 ÷ ? = 7

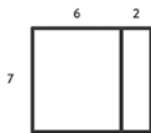What is the value for "?" that makes this stat...

Today we are going on a class trip to the Pythago...
We have 63 students, and we have rented...

How many students will be in each va...

Here is a challenge.
990 by 10. Reme...
your answer. Then n...
9 × 10. Now subtrac...
second answer fro...
first answer.

Find the answer to François' challeng...

---

8 × □ = 72

What number goes in the box to make the statement true?

ANSWER 9

---

6   2

7

Ms. Fleur is planting roses and sunflowers in...
The space she has for roses measures 6 yards wide...
The space she has for sunflowers measures 2 yards...
long. How many total square yards does she have...

Kathy wants to find the total number of stars, but sh...
count each one. She thinks counting is too m...

Help Kathy find the number of stars without count...

Tom, what's 8 × 7?

I don't know, but 8...
is the same as 4 × 2,
so I'll try 4 × 2 × 7.

Find the answer. Did you get the same answer usin...

Be ready to explain your thinking to your...

---

6 × 7 + 2 × 7 = ?

Find the value of "?"

With your group, write another problem that has the same answer.
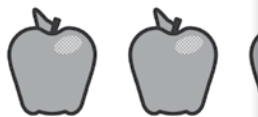
ANSWER 56

11

GRADE 3 GROUPINGS

Correlation to the Common Core State Standards for each group of 4 cards can be found at didax.com/cccc.

ANSWER 8
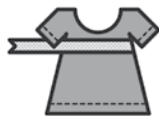
Marie wants to put ribbon on the dresses she has m
She has 32 inches of ribbon. Each dress needs 4 i
How many dresses will she be able to decorate

There are 4 rows of apple trees in the or
If there are 32 trees altogether, how many trees mus

$10 \times 8 \div 10$

Trey says to his friend, "Here is a mental math
Do it as quickly as you can."

Find the answer and be ready to explain you
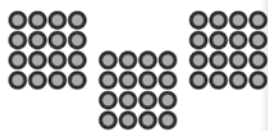
Jennifer has 320 jellybeans.
She is placing them in bags for her friends.
If she wants each bag to hold 40 jellybeans,
how many bags will she need?

ANSWER 64

How many jellybeans are there altogeth
Write a number sentence to show your a

Discuss with your group why each of you has th

How many dots are there altogether
Write a number sentence to show your a

Discuss with your group why each of you has th

How many pencils will you have if you double t

Discuss with your group why each of you has the

$4 \times 2 \times 4 \times 2$

Find the value.

Discuss with your group why each of you has the same answer.

ANSWER 20

6×4

Find the product. What is the nearest ten to th

Your group has the same answer.
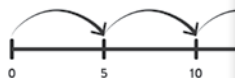
On the fourth jump, what number will the arrow

This number line shows a multiplication
Which one is it? Discuss with your gro

$10 \times 2 \times 10 \div$

What is this value?

With your group, find a quick way to do this in

$2 \times 2 \times 5$

Find the value.

Correlation to the Common Core State Standards for each group of 4 cards can be found at didax.com/cccc.

GRADE 4 GROUPINGS

Desean spent $8 on his toy truck.
Olivia spent 9 times that amount on a sw
How much did the sweater cost?

4 × 3 × 2 × 3 =

Find the value.
With your partners, find another way to express

36 and 12

For these two values,
find the largest common multiple that is less

ANSWER 72

Peter just got a puppy! He wants to know if his back yard
is big enough for his puppy to play in. His yard measures
9 meters long and 8 meters wide. What is the area of Peter's yard?
Discuss with your group: Is this enough space for the puppy to play in?

William wants to organize his baseball card
He has 108 cards. He has just three teams, with the
cards for each team. How many cards does William ha

Deval and Betty brought bags of canned food to
Deval brought 9 bags, with 4 cans in eac
Betty brought 4 bags, with 9 cans in each
How many cans did each student brin

11 37
3
5
2
8 36
4
18
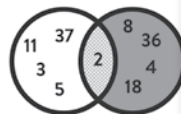
Your partners have the largest composite number

Answer with your group:
Why is 2 in the intersection of this Venn D

1, 4, 9, 16, 25, __

ANSWER 36

Figure out the pattern. Then determine the value that goes in the blank.
(Your team has the same value.)

Michele spent $7 on a pair of baby shoes for
She spent six times that much for a pair of shoe
How much did Michele's shoes cost?

The library bookcase has 4 shelves
There are 168 books in the bookcase and each she
number of books. How many books are on

Let's compare two pieces of string.
The first is 6 inches long. The second is 7 tim
How long is the second string?

121 − ☐ = 79

ANSWER 42

What number goes in the box to make the statement true?
When you find your group, make up a story problem
that can be solved by the number equation above.

GRADE 4 GROUPINGS

Correlation to the Common Core State Standards for each group of 4 cards can be found at didax.com/cccc.

ANSWER 4

4 has three factors: 1, 2, and 4.

How many factors does 27 have?

I'm thinking of a num... If I add 12 to the nu... and then divide by... the result is 4.
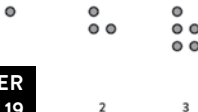
Find Rebecca's original number.

IN	OUT
1	5
3	7
6	10
9	13

Jeremiah built this table.
What value did he add to each input to get th...

Peter is three years older than Kit.
Mike is 3 years younger than Kit.
The sum of all of their ages is 12. How old is Kit?

ANSWER 19

2   3

How many dots will be in the 10th figu...

With your group, determine a rule to represent...

1, 3, 6, 9, 12, 1...
17, 19, 21, 33, ...

Find the largest prime number in this...

I'm thinking of a num... If I subtract 1 and t... divide by 3, the answe... What is my numbe...
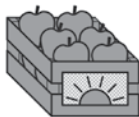
Find Tavi's number.

Tanisha has some pennies. Her sister has five times as many pennies.
If her sister has 95 pennies, how many does Tanisha have?

ANSWER 12

Mathville Junior High School has a small au...
The auditorium has 216 seats arranged in...
If there are 18 seats in each row, how many rows...

Michael works on an apple farm.
He helps pack the apples for shipmen...
He recently shipped 300 apples with 25 apples i...
How many crates did he use?
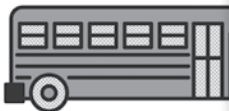
The fourth graders are going on a field trip to th...
There are 430 students. If each bus holds 36...
how many buses should the principal or...

12   21

$3 + 5 \times 4 - 11 =$
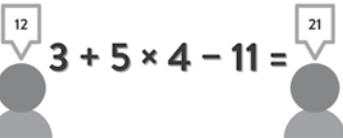
Tanisha thinks the answer is 12. Deval disagrees.
He thinks you have to begin on the left to solve the problem.
The answer he gets is 21.
Which is the correct answer?

GRADE 4 GROUPINGS

IN	OUT
1	3
3	7
5	11
7	15
9	
11	?

Your partners have the same value as the last ent...

With your partners, find the rule that represents th...
chart. Might the value 35 be listed in the right colum...

Harry spent some of his money on an action figure. M...
as much money as Harry on a shirt. Pierre bought ...
dollars more than Melissa spent. If Harry spent $10...
much money did Pierre spend on his b...

I'm thinking of a nu...
If I multiply the numb...
and then add 4, I g...

What is Gerald's original number?...

Be ready to share with your group how you found G...

What is a prime number?

A prime number is a number that can only be divided evenly by itself and 1.

ANSWER 23

Find the largest prime number that is a factor of 92.

Four children are sharing a bottle of appl...
The bottle holds 27 ounces of juice. If the children...
equally and each child drinks a whole number...
how much will be left in the bottle?

Sheryl has collected 282 Popsicle sticks for her...
She wants to store the Popsicle sticks in...
If she places 94 sticks in each bag, how many bags...

$36 \times \square = 10$...

What value goes in the box to make this a true...

$10 \times 30 \div 100 = \square$

ANSWER 3

What value goes in the box?

Can you find the solution in your head?
Share your strategy with your group.

Rashawn has $15 in his wallet. He wants to buy 2 l...
costing $1.29 each, 4 packs of paper for $2.38 apiece, ...
$1.90. Does he have enough money? If yes, how muc...
get? If no, how much more money does he...

$140 \div 140$ $\dfrac{36}{36}$

$\dfrac{xy}{xy}$ $1{,}245 \div 1{,}245$

These expressions all represent the same value...

$\dfrac{?}{?}$

Duncan says any number can be written as a fractio...
think of how you would write 18 as a fra...

What would the denominator be?...

I'm thinking of a number.
It is not prime,
and it's not composite...

ANSWER 1

What number is Belize thinking of?

GRADE 5 GROUPINGS

Correlation to the Common Core State Standards for each group of 4 cards can be found at didax.com/cccc.

ANSWER 20

26

$3 \times (2 + 3 \times 2) - 4$

Joe says the answer is 26.
Jamal says the answer is 20. Which answer is

(If neither boy is correct, your team has the an

I'm thinking of a number. When I dou
number and divide by 5, the answe

Find Roberto's number.

Four times the quan
two plus three

Write the expression and then find its v

$10 \times 20 \times 100 \div 1,000$

Find the value.

Share your strategy with your team.
How could you calculate this mentally?

ANSWER 2

IN	OUT		IN	OUT
0	0		0	0
1	2		1	4
2	4		2	8
3	6		3	12
4	8		4	16
5	?		5	?

How many times greater is the last value in the seco
last value in the first table?

Share with your partners what caused this re

$(12 - 6 \div 3) \div 5$

Find the value.

Be ready to share your process with your

Multiply a number by
Subtract 4 and the result

What is the number?

I don't think even numbers
can be prime numbers.

Mostly you're right,
but there is one
even prime number.

What is this even prime number?

ANSWER 40

☆ ☆   ☆ ☆ ☆   ☆
☆ ☆   ☆   ☆   ☆
          ☆ ☆ ☆   ☆
                      ☆

If this pattern continues, how many ☆'s will be in

Be ready to share your thinking with your

Find the sum of 12 and
and then multiply the resul

Write the expression and then find its v

Be ready to share your expression with yo

$100 \times 40 \div 10 \div 1$

Do this calculation. Try to do it menta

Share your strategy with your team

$2 \times (4 + 8 \div 2) + 24$

Half the class thinks 36 is the answer.
The other half disagrees. Find the correct answer.

Explain to your team why 36 is not the correct answer.

GRADE 5 GROUPINGS

Think of any number
Multiply your number b
Add 9.
Divide by 3.
Subtract your original nu

What number do you get? Your team has the s

(With your team, try other beginning va
Notice what happens. Why does it happ

$$\frac{5 + 3 \times 2 + 7}{6}$$

Find the value.

Be ready to explain to your group how you got

IN	OUT
1	4
5	8
9	12
12	15

Here is the chart that Melissa created. What is

Your partners have the same value

?

One-third of what value is 1?

Prove with your group that your answer is correct.

ANSWER 3

How many stars will be in the 7th sha

Be ready to explain your thinking to your

$$3 \times (7 + 3) - 7$$

Your team has the answer to this expres

What would happen if the parentheses were not inclu
with your team.

11	13	15	17	19
15	17			?

Given the rule "add 4," find the last value in

Be ready to share with your team how you figu

I'm thinking of a number. When I double
the number and subtract 1, the result is 45.

What is the number?

Be ready to share your thinking with your group.

ANSWER 23

$$3 + 4 + 5 + 6 + 7 =$$
$$2 + 3 + 4 + 5 + 6 =$$
$$5 + 6 + 7 + 8 + 9 =$$

Lucy says, "Wow! I don't have to add these n
For each equation, I can multiply the middle
by the same value to get the sum."
What value is Lucy thinking of?

0	2	4	6	8
0	10	20	30	40

Determine the rule used to make this t
Your partners have the same value

Be ready to explain your reasoning to your

$$\square = 20 - 8 \times 2 +$$

What number goes in the box?

When I multiply my number by 3
and then subtract 8, the result is 7.

What number is George thinking of?

ANSWER 5

17

Correlation to the Common Core State Standards for each group of 4 cards can be found at didax.com/cccc.

ANSWER 14

$3 + 6 \times [(5 + 4) \div 3]$

Robin says, "This looks hard, but I'll do it one st...
What answer does Robin get?

Show the steps of your solution on another she...

$2(3 + 4) = 2(3) + 2($
$10 + 4 = 7(2)$
$2 + 2 + 2 + 2 + 2 + 2$

Harriet thinks these number sentences and the...
all represent the same value. If she is correct, your te...

(If she is not correct, your team's answer is...)

14, 28, 42, 56, 7(

Rashawn followed one rule to create thi...
Your partners have the value used to create...

There are 252 seats in the auditorium at Mathville Middle School. If there are 18 seats in each row, how many rows are there?

Be ready to explain your answer to your team.

ANSWER 17

$5 + \dfrac{3 + 7 \times 9 + 6}{6} =$

Luigi thinks, "If I work with the numerator first...
denominator, maybe it will lead to something l...

Try Luigi's approach to determine the sol...

$14 + 6 \div 2 = 10$
$2 + 3 \times 5 = 17$
$8 + (3 + 3) \div 2 = $

The equation with the correct solution matches you...
Find that solution.

Work with your group to explain the errors in the ot...

?

Ralph is thinking of a number. His number is prime,...
29. The sum of the number's digits is...

What is Ralph's number?

$10 \times 17 \times 100 \div 2 \times 2 \div 1{,}000$

Sarah thinks, "This problem looks hard, but I know how to divide and multiply by 10, 100, and 1,000. I think I can do this mentally."

What answer does Sarah get?

ANSWER 10

$\dfrac{8 \times (3 + 2)}{2 \times 2} = ?$

Find the value.

With your team, discuss how you could write the s...
without using the "×" to indicate multiplic...

$3 \times 6 - 4 \times 2$

Find the value.

An incorrect answer to this problem is 28. Discuss...
What mistake is being made to get that wron...

I'm thinking of a number. If I multip...
number by 3 and add 4, my answer...

What is Malcolm's number?
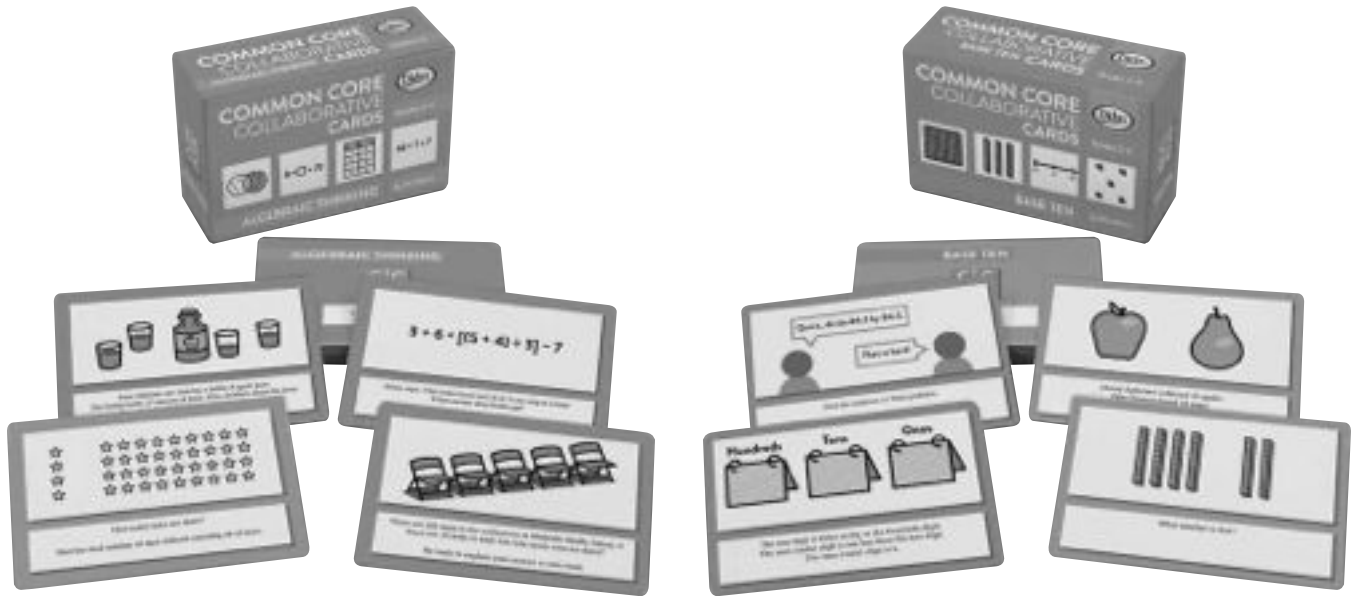
IN	OUT
2	12
3	13
12	22
33	43

What rule was used to build this table?
Your partners have the value used to create this rule.

ALSO AVAILABLE:

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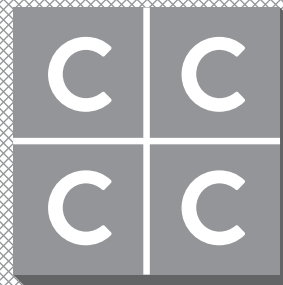**Common Core Collaborative Cards ALGEBRAIC THINKING**

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ALGEBRAIC THINKING

TEACHER GUIDE

Practice and reinforce the content from the Common Core State Standards with these innovative activity cards.

Created using the standards in the Operations and Algebraic Thinking domain, these cards actively engage students in problem solving and promote mathematical discussion. Students solve the question on their individual card and then look for others who have the same solution. The four students holding cards with the same answer form a group; the back of their cards show the role that each student will play as the group works on the next task. Based on the most recent research about the effectiveness of collaborative learning, and in accordance with the Common Core Mathematical Practices, these card sets can be used repeatedly to group students for an upcoming unit or problem-solving lesson. Cards can also be used for small-group instruction or as an independent activity. Each set includes 40 durable, two-color cards per grade level for a total of 120 cards. (Each grade-level deck includes four blank cards for teachers to create their own content.) Teacher's Guide includes suggestions for classroom use, activities, and access to website with additional tasks and resources.

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