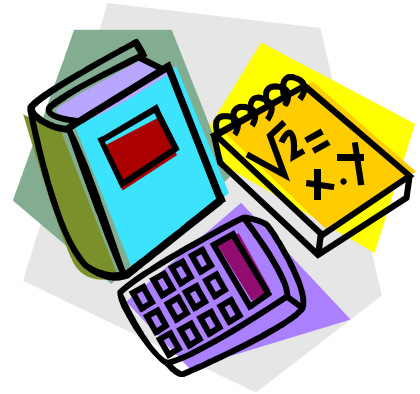


Order of Operations Bingo

Level 2

Created by Laura Candler
www.lauracandler.com



Teacher Information and Directions

This mini pack includes strategies for reviewing order of operations. Along with the Order of Operations Bingo game, you'll find a review page and teaching suggestions to use as needed. There are two versions of Order of Operations Bingo, Level 1 and Level 2, and each level is sold separately. The instructions and teaching materials are similar, but the math problems and game boards are different. Level 1 problems are shorter and do not include exponents. Level 2 problems are longer, involve multiple steps, and may include exponents. This packet includes the materials for Level 2 only.

Materials Included:

- Order of Operations Review Page
- Order of Operations Practice Page (and Answer Key)
- Team Bingo Directions
- Level 2 Order of Operations Problem Cards
- Level 2 Order of Operations Answer Key
- 30 Order of Operations Bingo Game Boards

Advanced Preparation

Note: If you are planning to use both Level 1 and Level 2 in the same classroom, you may want to duplicate all the materials for each level on different colored paper. Use one color for all Level 1 materials and a different color for all Level 2 materials. If possible, laminate the problem cards and Bingo boards before use.

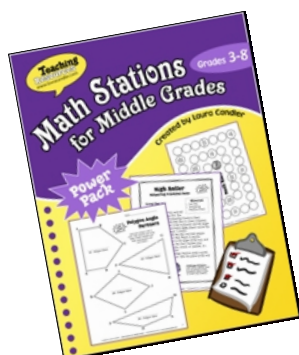
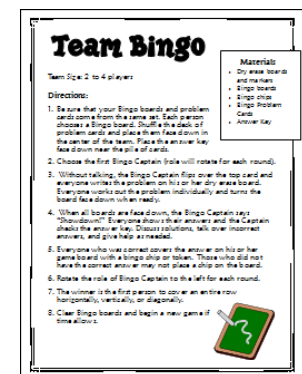
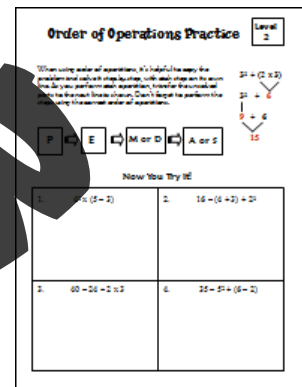
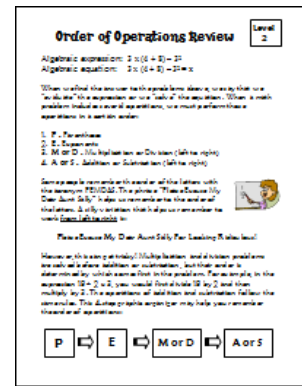
Bingo Preparation: If you're planning to use the Bingo game in a math center or in cooperative learning teams, duplicate one copy of the Team Bingo directions for each group. You'll also need a set of Order of Operations problem cards and one answer key for each group or center. Each student needs one of the Bingo boards (half page) and an individual dry erase board with a marker to work out the problems. They will need Bingo chips or other items such as dried beans to cover their answers on their game boards.

21	46	23	30
9	35	19	22
16	32	20	34
14	15	25	6

BINGO
Card 1

Teaching Suggestions

- Order of Operations Review** - Begin by displaying the Order of Operations Review page on an overhead projector or interactive whiteboard. Explain each part of the review page as needed.
- Individual Practice or Partner Pass** - Next, display the Order of Operations Practice page and review the sample problem. Use the four problems on the bottom of the page for practice. To save paper, have students work the problems on individual dry erase boards, one at a time, holding them up for you to check after each problem. You can allow one student to come to the projector or whiteboard to work out each problem in a step-by-step manner. Refer to the answer key as needed. For a variation, allow students to work with a partner on this activity. They share one dry erase board and pass the board back and forth after each step. Working with a partner encourages discussion and helps to clear up problems right on the spot.
- Class Bingo** - Distribute one Bingo board and a handful of Bingo chips to each student. For the class, you'll need just one set of Bingo cards. Play as you normally would play any math Bingo game. Shuffle the cards and draw one out. Display the card or write the problem on the board. Students work out the problem individually and cover up their answer if they find it. If they don't find the answer, they didn't work out the problem correctly. The winner is the first person to cover any row vertically, diagonally, or horizontally. In order for this to be an effective learning experience, you'll need to stop after each problem and have someone in the class work it out on the board. However, you can make the rule that in order to cover up the answer, each student had to have gotten the problem correct before the answer was revealed to the class.
- Team Bingo** - Students can play Team Bingo following the directions on page 6. Be sure to review the directions with the class before you allow students to play in teams. This game can be effective if you have students on different levels. Several groups can be playing the Level 1 game while others can play the Level 2 version. Allowing students to work in teams gives you, the teacher, the opportunity to move around the room and observe how they are interacting and solving the problems. However, students who have special needs or struggle in math will need a teacher assistant, parent volunteer, or student "expert" to supervise the game and provide assistance.



5. **Math Centers** - Team Bingo also works well in a math center or station. Just store all the materials in a large brown envelope with the directions laminated onto the front. You'll need four game boards, one set of problem cards, and an answer key for each packet. Be sure to keep a jar of Bingo chips or dried beans nearby. For more information on how to effectively implement math stations, check out **Math Stations for Middle Grades** on Teaching Resources (www.lauracandler.com).

Order of Operations Review

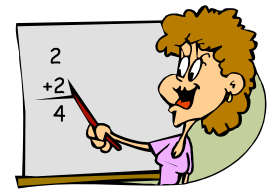
Algebraic expression: $3 \times (4 + 8) - 3^2$

Algebraic equation: $3 \times (4 + 8) - 3^2 = x$

When we find the answer to the problems above, we say that we “evaluate” the expression or we “solve” the equation. When a math problem includes several operations, we must perform those operations in a certain order:

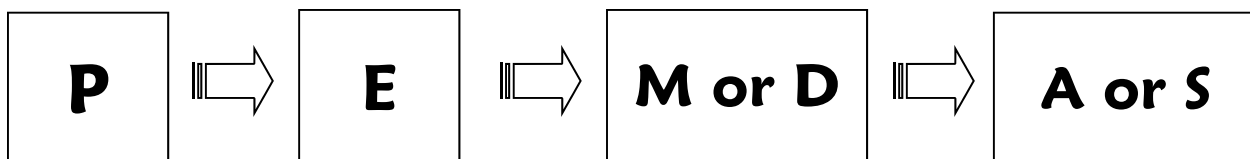
1. **P** - Parentheses
2. **E** - Exponents
3. **M or D** - Multiplication or Division (left to right)
4. **A or S** - Addition or Subtraction (left to right)

Some people remember the order of the letters with the acronym PEMDAS. The phrase “Please Excuse My Dear Aunt Sally” helps us remember to the order of the letters. A silly variation that helps us remember to work from left to right is:



Please Excuse My Dear Aunt Sally For Looking Ridiculous!

However, this can get tricky! Multiplication and division problems are solved before addition or subtraction, but their order is determined by which comes first in the problem. For example, in the expression $18 \div 2 \times 3$, you would first divide 18 by 2 and then multiply by 3. The operations of addition and subtraction follow the same rules. This 4-step graphic organizer may help you remember the order of operations:

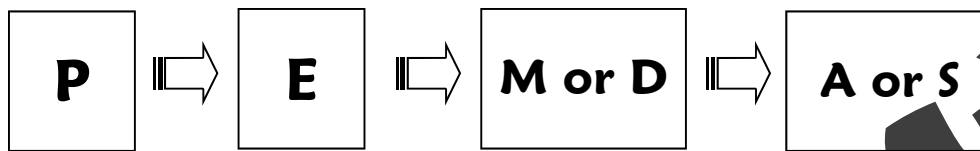


Order of Operations Practice

Level
2

When using order of operations, it's helpful to copy the problem and solve it step-by-step, with each step on its own line. As you perform each operation, transfer the unsolved parts to the next line as shown. Don't forget to perform the steps using the correct order of operations.

$$\begin{array}{r} 3^2 + (2 \times 3) \\ \quad \quad \quad \swarrow \quad \searrow \\ 3^2 + 6 \\ | \\ 9 + 6 \\ \quad \quad \quad \swarrow \quad \searrow \\ 15 \end{array}$$



Now You Try It!

1. $4^2 \times (5 - 3)$

2. $16 - (4 + 3) + 2^3$

3. $40 - 24 \div 2 \times 3$

4. $35 - 5^2 + (6 - 2)$

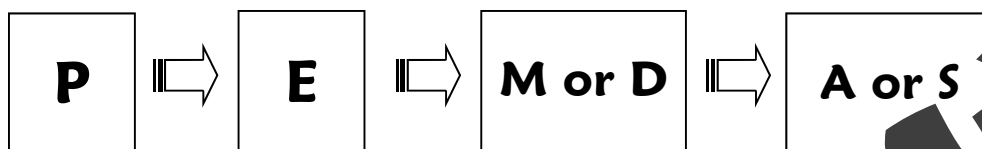
Order of Operations Practice

Level
2

(Key)

When using order of operations, it's helpful to copy the problem and solve it step-by-step, with each step on its own line. As you perform each operation, transfer the unsolved parts to the next line as shown. Don't forget to perform the steps using the correct order of operations.

$$\begin{array}{r} 3^2 + (2 \times 3) \\ \quad \quad \quad \swarrow \quad \searrow \\ 3^2 + 6 \\ | \\ 9 + 6 \\ \quad \quad \quad \swarrow \quad \searrow \\ 15 \end{array}$$



Now You Try It!

1. $4^2 \times (5 - 3)$

$$\begin{array}{r} 4^2 \times (5 - 3) \\ \quad \quad \quad \swarrow \quad \searrow \\ 4^2 \times 2 \\ | \\ 16 \times 2 \\ \quad \quad \quad \swarrow \quad \searrow \\ 32 \end{array}$$

2. $16 - (4 + 3) + 2^3$

$$\begin{array}{r} 16 - (4 + 3) + 2^3 \\ \quad \quad \quad \swarrow \quad \searrow \\ 16 - 7 + 2^3 \\ \quad \quad \quad | \\ 16 - 7 + 8 \\ \quad \quad \quad \swarrow \quad \searrow \\ 9 + 8 \\ \quad \quad \quad \swarrow \quad \searrow \\ 17 \end{array}$$

3. $40 - 24 \div 2 \times 3$

$$\begin{array}{r} 40 - 24 \div 2 \times 3 \\ \quad \quad \quad \swarrow \quad \searrow \\ 40 - 12 \times 3 \\ \quad \quad \quad \swarrow \quad \searrow \\ 40 - 36 \\ \quad \quad \quad \swarrow \quad \searrow \\ 4 \end{array}$$

4. $35 - 5^2 + (6 - 2)$

$$\begin{array}{r} 35 - 5^2 + (6 - 2) \\ \quad \quad \quad \swarrow \quad \searrow \\ 35 - 5^2 + 4 \\ \quad \quad \quad | \\ 35 - 25 + 4 \\ \quad \quad \quad \swarrow \quad \searrow \\ 10 + 4 \\ \quad \quad \quad \swarrow \quad \searrow \\ 14 \end{array}$$

Team Bingo

Team Size: 2 to 4 players

Directions:

1. Be sure that your Bingo boards and problem cards come from the same set. Each person chooses a Bingo board. Shuffle the deck of problem cards and place them face down in the center of the team. Place the answer key face down near the pile of cards.
2. Choose the first Bingo Captain (role will rotate for each round).
3. Without talking, the Bingo Captain flips over the top card and everyone writes the problem on his or her dry erase board. Everyone works out the problem individually and turns the board face down when ready.
4. When all boards are face down, the Bingo Captain says "Showdown!" Everyone shows their answers and the Captain checks the answer key. Discuss solutions, talk over incorrect answers, and give help as needed.
5. Everyone who was correct covers the answer on his or her game board with a Bingo chip or token. Those who did not have the correct answer may not place a chip on the board.
6. Rotate the role of Bingo Captain to the left for each round.
7. The winner is the first person to cover an entire row horizontally, vertically, or diagonally.
8. Clear Bingo boards and begin a new game if time allows.

Materials

- ◆ Dry erase boards and markers
- ◆ Bingo boards
- ◆ Bingo chips
- ◆ Bingo math problem cards
- ◆ Answer key



Order of Operations Bingo Cards

1.

$$5^2 - (3 \times 2) + 6$$

Level 2 Order of Operations Problem Card

2.

$$5 \times 2^3 \div 2$$

Level 2 Order of Operations Problem Card

3.

$$4^2 - 5 \times 2$$

Level 2 Order of Operations Problem Card

4.

$$(19 - 5) \times 2 + 6$$

Level 2 Order of Operations Problem Card

5.

$$8 \times 5 - 3^3 + 2$$

Level 2 Order of Operations Problem Card

6.

$$5^2 - 4 \times 2 + 4$$

Level 2 Order of Operations Problem Card

7.

$$4^3 \div 8 \times 2 + 3$$

Level 2 Order of Operations Problem Card

8.

$$14 - (3^2 - 6) + 5$$

Level 2 Order of Operations Problem Card

Order of Operations Bingo Cards

9.

$$6^2 + 4 - 4 \times 2$$

Level 2 Order of Operations Problem Card

10.

$$15 - (3 \times 4) + 6$$

Level 2 Order of Operations Problem Card

11.

$$5 \times 10 - 5^2 + 5$$

Level 2 Order of Operations Problem Card

12.

$$7 \times 6 + (4 \times 2) \div 2$$

Level 2 Order of Operations Problem Card

13.

$$9 \times 5 - 2^4 + 6$$

Level 2 Order of Operations Problem Card

14.

$$(2^3 + 8) - 8 \div 4$$

Level 2 Order of Operations Problem Card

15.

$$14 + 12 \div 3 \times 2$$

Level 2 Order of Operations Problem Card

16.

$$25 - (4^2 - 6) + 4 \times 2$$

Level 2 Order of Operations Problem Card

Order of Operations Bingo

Answer Key

Level 2

Card #	Answer		Card #	Answer
1.	25		9.	32
2.	20		10.	9
3.	6		11.	30
4.	34		12.	46
5.	15		13.	35
6.	21		14.	14
7.	19		15.	22
8.	16		16.	23

Order of Operations

Level 2

21	46	23	30
9	35	19	22
16	32	20	34
14	15	25	6

B I N G O

Card 1

Order of Operations

Level 2

30	21	23	16
14	15	46	22
25	34	20	9
19	6	32	35

B I N G O

Card 2

Order of Operations

Level 2

21	35	23	46
9	15	30	22
25	6	34	32
14	16	19	20

B I N G O

Card 3

Order of Operations

Level 2

30	21	46	23
19	15	9	22
14	25	20	32
16	34	6	35

B I N G O

Card 4

Order of Operations

Level 2

21	25	35	46
9	22	23	30
19	15	6	34
14	20	16	32

B I N G O

Card 5

Order of Operations

Level 2

30	46	23	9
21	34	15	22
25	14	35	20
19	16	6	32

B I N G O

Card 6

Order of Operations

Level 2

9	35	46	21
30	20	15	19
25	23	22	34
6	14	16	32

B I N G O

Card 7

Order of Operations

Level 2

30	21	46	32
15	9	6	22
16	34	19	35
25	20	14	23

B I N G O

Card 8

Order of Operations

Level 2

21	15	23	46
9	35	22	30
25	6	20	19
14	16	32	34

B I N G O

Card 9

Order of Operations

Level 2

30	22	15	25
14	46	21	20
9	32	16	23
35	6	19	34

B I N G O

Card 10

Order of Operations

Level 2

21	35	32	46
9	16	22	30
25	19	6	20
14	15	23	34

B I N G O

Card 11

Order of Operations

Level 2

14	6	9	30
19	15	21	22
25	34	20	23
16	46	32	35

B I N G O

Card 12

Order of Operations

Level 2

21	35	23	20
15	9	22	46
25	6	34	30
14	19	16	32

B I N G O

Card 13

Order of Operations

Level 2

30	15	46	9
14	21	34	22
6	25	20	23
16	32	19	35

B I N G O

Card 14

Order of Operations

Level 2

21	35	23	46
25	9	15	22
6	20	16	19
30	32	14	34

B I N G O

Card 15

Order of Operations

Level 2

9	30	46	34
14	21	19	22
25	23	20	15
16	6	32	35

B I N G O

Card 16

Order of Operations

Level 2

21	35	9	46
19	25	23	22
14	6	20	30
32	16	34	15

B I N G O

Card 17

Order of Operations

Level 2

30	46	6	32
16	21	14	23
25	34	20	15
19	9	22	35

B I N G O

Card 18

Order of Operations

Level 2

21	19	23	46
9	15	22	30
16	25	6	20
14	32	35	34

B I N G O

Card 19

Order of Operations

Level 2

19	21	30	9
14	46	15	22
32	34	20	23
25	16	6	35

B I N G O

Card 20

Order of Operations

Level 2

21	35	23	46
30	22	15	9
25	6	20	19
14	16	32	34

B I N G O

Card 21

Order of Operations

Level 2

30	21	9	46
32	14	15	22
25	34	20	6
16	35	23	19

B I N G O

Card 22

Order of Operations

Level 2

21	35	15	30
9	23	22	46
25	6	20	34
14	19	16	32

B I N G O

Card 23

Order of Operations

Level 2

9	16	20	30
19	15	22	23
14	21	35	46
25	6	32	34

B I N G O

Card 24

Order of Operations

Level 2

21	19	35	46
9	23	15	30
25	22	20	34
6	14	16	32

B I N G O

Card 25

Order of Operations

Level 2

25	14	46	9
30	21	15	22
16	34	20	23
32	6	19	35

B I N G O

Card 26

Order of Operations

Level 2

46	35	23	34
9	20	25	22
19	6	15	30
21	16	32	14

B I N G O

Card 27

Order of Operations

Level 2

25	21	30	23
9	14	15	22
6	34	20	19
16	32	35	46

B I N G O

Card 28

Order of Operations

Level 2

46	35	15	34
9	30	20	25
6	23	22	14
21	16	32	19

B I N G O

Card 29

Order of Operations

Level 2

9	30	21	25
14	34	15	22
16	23	20	32
6	19	35	46

B I N G O

Card 30

Order of Operations

Level 2

B I N G O

Order of Operations

Level 2

B I N G O

Preview

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