



Activity—Strategies

Editions used: Single Digits; Double Digits; Variables; Fractions; Decimals; Integers; Algebra; Exponents

Strategy—Grouping numbers

There are two different grouping strategies in solving 24 game cards with four numbers. Look at the numbers not as four independent numbers but as two pairs.



For example: $4 \div 2 = 2$; $4 \times 3 = 12$; $12 + 2 = 24$

Choose one number and turn the other three numbers into what you need

There is a 3, turn 4, 4 and 2 into an 8.

$$4 - 2 = 2, 2 \times 4 = 8$$

There is a 4, turn 3, 2 and 4 into a 6.

$$4 \div 2 = 2, 2 \times 3 = 6$$

Often there are multiple ways to use a number in a pattern. For example, if you have a 3, you can make 24 if you have an 8, 21, 27 or 72. If a student is having difficulties, instead of giving them the answer, suggest a pattern. Using the card 3,7,4,5, suggest the student try and make 8×3 , $12 + 12$, etc.

Another way to help is to point out a number on the card and suggest the student work with the other three numbers on the card.

Strategy—Making ones

Using division or subtraction to make a 1 is a strategy that can be used with many 24 game editions.



Example: There is a 5 and a 4 on the card. That is almost 6×4 . If you can make a 1 with the other numbers on the card and add it to the 5, you can make a 6.

$$2 \div 2 = 1; 5 + 1 = 6; 6 \times 4 = 24$$

If you see a card that has a (7 and 3), (9 and 3), (8 and 3), (8 and 2), or (8 and 4), try to make a 1 to complete an 8×3 pattern. If you see a card that has a (5 and 4), (7 and 4), (6 and 4), (6 and 3), or (6 and 5), try to make a 1 to complete a 6×4 pattern.

Example: There is a 8 and a 4 on the card. Make a 1 with the 6 and 5.

$$6 - 5 = 1; 4 - 1 = 3; 8 \times 3 = 24$$

For further challenge, try this activity: Select a card and write the numbers on the board. Ask a student to solve the card. Ask a different student to identify the type of strategy used; pairing, pick one and make what you need, or making a one. Another option is to choose a card and ask the class to try and solve it using a specific strategy that you have chosen. Or: Ask students to solve a card by picking one number and making what they need from the other three. By limiting students to the type of strategy that may be used, you encourage the class to practice different strategies.