

Explore Number Order

1 Player



Ages 3+



2-5 min

GOAL

Children arrange the *Count and See* Cards in the correct order, with assistance if needed.

This is the first step of the *Count and See* games. Watching children play this game can help you figure out the right level of challenge for future *Count and See* games.

CARDS TO USE

1-6 *Count and See* Cards



VOCABULARY

Smallest
Highest
Lowest
Greatest
Order

QUESTIONS

What do you notice about the cards?
What do you notice about the number of dots?
What do you notice about the written numerals?

HOW TO PLAY

1. Shuffle the cards and hand them to the child.
2. Ask questions about the cards:
"What do you notice?"
"Do you see any numbers that you know?"
"Can you count the dots? How many dots are there?"

"If there are 3 dots on the card, then what number is on the card?"

3. Ask the child to put the cards in order from 1-6 (smallest to biggest). Notice if children are able to put the cards in the correct order. If they aren't sure what the order is, you could help them count the dots to figure out where they go.



TIPS FOR PLAYING

- Talk to children about their strategy: how are they ordering the cards? Some children may order them based on their written numerals; others may order them according to their dots (least to most).
- If a child is not yet ready to put cards 1-6 in order, use cards 1-3. If a child easily orders cards 1-6, use more cards or move on to another game using these cards.
- For children that are ready for a higher challenge, or for any children that like to see the number path that the ordered cards create, use the 1-10 cards or 0-12 cards. Some children might be able to order these cards independently, while others will enjoy watching an adult put them in order. Either way, you can ask questions like, "What do you notice about these cards? Do you recognize any numbers?"
- For an extra challenge, once the cards are in order, ask children to close their eyes while you remove one of the cards. See if they can figure out which card is missing and then ask, "How did you know which card I took out?"

WHAT CHILDREN ARE LEARNING

- As children explore the cards, see if they recognize the numerals. Do they associate the numerals with the numbers of dots? Learning to associate a number word with its written

numeral and matching quantity of dots is an important step in understanding numbers.

MATH TOPICS

Number: Counting and Cardinality

VIDEO



Watch Game Video

View the QR code in your smartphone's camera app or QR code reader to watch a video that shows how to play Explore Number Order.

What's the Missing Card?

YM | YOUNG MATHEMATICIANS

1-4 Players



Ages 3+



5-10 min

GOAL

Children identify which number cards are missing from the line.

CARDS TO USE

1-5 Count and See Cards

Add more cards as children gain experience.



VOCABULARY

In order

Next to

Hidden

Missing

QUESTIONS

How did you know in which order to put them in?

How can we figure out which one is missing? What clues can you use?

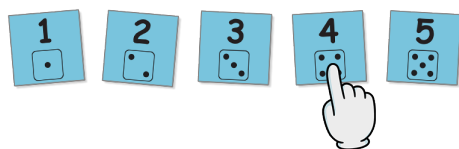
HOW TO PLAY

1. Shuffle the cards.
2. Ask children to put the cards in order from 1-5.



3. Say, "Close your eyes. I'm going to take one card away. See if you know which card is missing!"

4. Once the children close their eyes, remove one card.



5. Ask the children to open their eyes. Ask one player, "What's the missing card?"



If the player correctly identifies the missing card, say, "Yes, it is 4! How do you know it's 4?" Give time for children to answer. Then you can say, "Yes, 4 comes after 3 and before 5." Replace the card and play again with the next player.

If the player cannot correctly identify the missing card, help them count the cards from 1 to find the missing card.

TIPS FOR PLAYING

- If a child is not yet ready to put the cards from 1 to 5 in order, use cards 1 to 3. If a child can easily order the cards 1 to 5, use cards to 8, 9 or 10, or move on to another game that is more challenging.
- Talk to children about their strategy. For example, how are they ordering the cards? Some children may order them based on their written numerals; others may order them by counting the dots.

WHAT CHILDREN ARE LEARNING

- Some children will count the cards from 1 up to the missing card. Other children will know the missing card right away because they know 4 comes after 3 and before 5. Encourage children to notice the number that comes before and the number that comes after by pointing it out each time you play.
- When children practice ordering number cards and find the

missing card in a number path, they're developing their number sense. Having a strong number sense helps children identify, order, and talk about numbers more easily.

MATH TOPICS

Number: Counting and Cardinality

VIDEO



Watch Game Video

View the QR code in your smartphone's camera app or QR code reader to watch a video that shows how to play What's the Missing Card.

Hidden Card (X-Ray Vision Game)

YM | YOUNG MATHEMATICIANS

Players 2-4



Ages 4+



5-10 min

GOAL

Children identify the hidden numbers on the face-down cards.

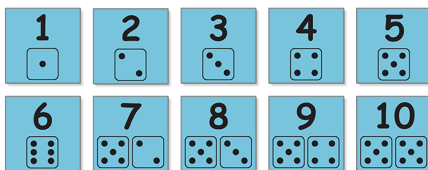
CARDS TO USE

Start with: 1-5 Count and See Cards

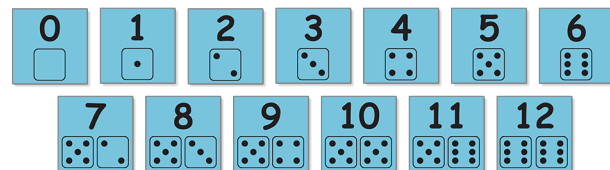


For later games:

1-10 Count and See Cards



0-12 Count and See Cards



VOCABULARY

In order

Next to

Hidden

QUESTIONS

How did you know what the number on the hidden card was?

If someone needs help figuring out the hidden card, how could you help them?

HOW TO PLAY

1. Shuffle the cards.



2. Ask the children to put the cards in order from 1-5.

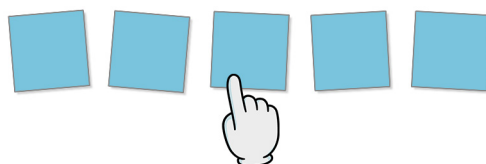


3. While the children are watching, turn the cards face down.



4. Ask one player, "Can you point to a card? I will tell you what number is on the card using my special x-ray vision!"

The child points to one card:



5. Say, "It is 3! Turn the card over to check." The player turns the card over and checks the number.



6. Replace the card on the table face down. Say to the next player, "Now it is your turn to use your x-ray vision. Are you ready?"
7. If they are ready, have children take on the role of identifying the cards that you or other players point to.

TIPS FOR PLAYING

- A variation of this game is to leave the cards face-up after they have been identified. If a hidden card is to the left of a face-up card, you can ask questions like, "what number comes before three?" or "what number is two less than five?"
- If a hidden card is to the right of a face-up card, encourage children to "count on" from the face-up card to the hidden card. For example, you can count on from the face-up 3 card to the hidden 5 card: "3...4, 5!" Counting on is an important math skill for children to practice.

WHAT CHILDREN ARE LEARNING

- Notice which strategies children use to identify hidden cards. If a player is unsure of what to do, help them count up from the first card to the hidden card, pointing to each card as they count.
- This game helps children practice three executive function skills: inhibitory control, working memory, and attention shifting. Children must *inhibit* themselves from impulsively turning the cards over. They use their *working memory* to sort the cards into the correct order to begin with, and they remember that order throughout the game. *Attention shifting* is practiced when children switch between the role of the card selector to the role of the card identifier.
- For more information on math and executive function, check out this article: [Double Impact: Mathematics and Executive Function](#).

MATH TOPICS

Number: Counting and Cardinality

VIDEO



Watch Game Video

View the QR code in your smartphone's camera app or QR code reader to watch a video that shows how to play Hidden Card.

Roll One

Players 1-4



Ages 3+



5-10 min

GOAL

To match the number rolled on the die to the cards.

MATERIALS

1-6 *Count and See* cards for each player:



1 die



VOCABULARY

Die/dice

In order

Number words 1 to 6

QUESTIONS

How did you put the cards in order?

What number do you hope you roll?

What numbers do you still need to roll?

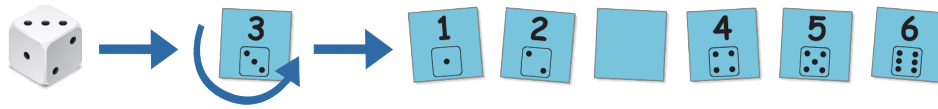
HOW TO PLAY

1. Give each child a set of 1-6 cards in random order.
2. Ask children to put their cards in order from 1 to 6. See if they can do this independently, and support them as needed.



Note: If you only get this far in the game, great! Children have worked on the important skill of ordering numbers. You can come back to play the rest of the game another time.

3. Roll the die. Turn over the card that matches the number rolled.



4. If the number rolled does not match any of your face-up cards, pass the die to the next player.
5. The game ends when all players have turned over all of their cards!

TIPS FOR PLAYING

- This game can be played individually, in pairs, or in small groups.
- Some children might not want to move on to the next player if they couldn't turn over a card. Encourage players to talk about that! If everyone agrees, they can keep rolling the die until every player turns over a card.
- Sometimes children like to play cooperatively and "share a roll". Players can still take turns rolling the die, but everyone gets to turn over their cards based on each player's rolls.
- In addition to the *Count and See* cards, you can play with dot cards or any other cards that you have.

WHAT CHILDREN ARE LEARNING

- Children need lots of practice connecting written number symbols to number names and the quantities they represent.
- This game helps children practice connecting exactly one counting word to exactly one object. That's called one to one correspondence. For example, a child counts three dots as "one, two, three," touching each dot once and assigning one counting word to each.

- This game helps children practice subitizing, or quickly recognizing quantities, because they see the dots on the dice and want to quickly figure out which card they can turn over. Subitizing is an important skill for children's understanding of number.

MATH TOPICS

Number: Counting and Cardinality

VIDEO



Watch Game Video

View the QR code in your smartphone's camera app or QR code reader to watch a video that shows how to play Roll One.

Roll Two 1-6

Players 1-4



Ages 4+



5-10 min

GOAL

To match and combine the numbers rolled on the dice to the cards.

MATERIALS

1-6 *Count and See* cards for each player:



2 dice with 1-3 dots



VOCABULARY

Dice

Combine numbers

QUESTIONS

How did you put the cards in order? What were you thinking about? What were you noticing?

How did you decide to combine those numbers to turn over a card?

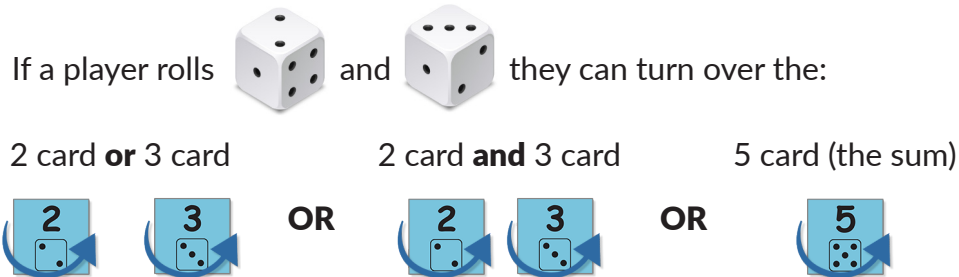
Who has more cards left to turn over?

HOW TO PLAY

1. Give each child a set of 1-6 cards in random order.
2. Ask children to put their cards in order from 1 to 6. See if they can do this independently, and support them as needed.



3. Roll the dice. The player can then turn over cards that match **one** of the rolled numbers, **both** rolled numbers, **or** the **sum** of the two rolled numbers. For example:



4. If the numbers rolled, or their sum, **do not match** any of the face-up cards, pass the dice to the next player.
5. The game ends when all players have turned over all of their cards!

TIPS FOR PLAYING

- Make rolling doubles a “wild card.” When a player rolls a “wild card,” they can choose any card to turn over. See if children choose wisely! Help them choose a number card that would otherwise be hard to roll. This can also speed the game up.
- Encourage players to talk about the game rules! They might decide that players can keep rolling the dice until they're able turn over cards (instead of moving on to the next player after each roll).
- In addition to the *Count and See* cards, you can play with dot cards or any other cards that you have.

WHAT CHILDREN ARE LEARNING

- Children are recognizing the numbers of dots on the dice and connecting the quantity of dots to the numerals on the cards.

- When children combine their dice roll, they are adding two numbers together to make a new number. To combine numbers, children may need to count each dot on both dice. Or, if they roll a 3 and a 2, they might count on from 3 and say "4, 5". Counting on means that instead of starting at 1 and counting all the way up to 5, we count on from 2 or 3.
- Children may also start to notice that some numbers are hard to roll while others come up a lot. Help them think about their game strategy, and which number cards they should turn over based on which numbers are easier to roll.

MATH TOPICS

Number: Counting and Cardinality

VIDEO



Watch Game Video

View the QR code in your smartphone's camera app or QR code reader to watch a video that shows how to play Roll Two 1-6.

Roll Two 1-12

Players 1-4



Ages 5+



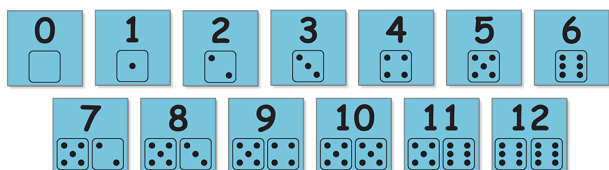
5-10 min

GOAL

To match and combine the numbers rolled on the dice to the cards.

MATERIALS

1-12 or 0-12 *Count and See* cards for each player:



2 dice



VOCABULARY

Dice

Add

Subtract

Number words 1 to 12

QUESTIONS

How did you decide to turn over two number cards instead of one?

Can you tell me how you added those numbers together?

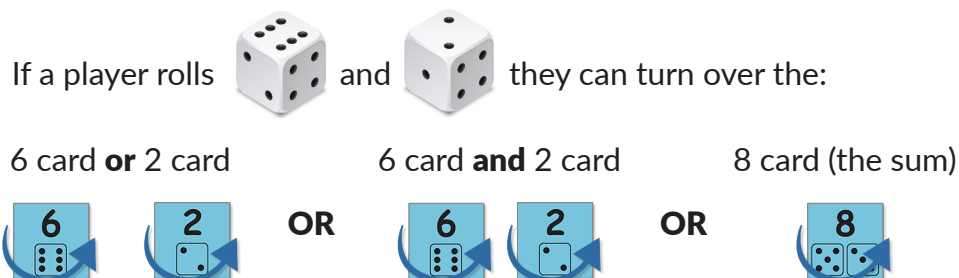
Who has more cards left to turn over?

HOW TO PLAY

1. Give each child a set of 1-12 cards in random order.
2. Ask children to put their cards in order from 1 to 12. See if they can do this independently, and support them as needed.



3. Roll the dice. The player can then turn over cards that match **one** of the rolled numbers, **both** rolled numbers, **or** the **sum** of the two rolled numbers. For example:



4. If the numbers rolled, or their sum, **do not match** any of the face-up cards, pass the dice to the next player.
5. The game ends when all players have turned over all of their cards!

TIPS FOR PLAYING

- Make rolling doubles a “wild card.” When a player rolls a “wild card,” they can choose any card to turn over. See if children choose wisely! Help them choose a number card that would otherwise be hard to roll. This can also speed the game up.
- Use three dice and mix and match them to turn over cards. For example, if a player rolls 2, 3, and 4: add them to turn over the 9 card, **or** turn over the 2 and $(3 + 4 = 7)$ 7 cards.
- You can also play this game with subtraction. After rolling the dice, subtract the smaller number from the bigger number. Turn over the card that represents the difference. For example, if a player rolls 6 and 2, they can subtract $6 - 2 = 4$ and turn over 4. You can also add the zero card, which provides an extra challenge because you need to roll doubles to turn it over.
- If children decide they want to play the game with subtraction, they may ask what happens when you take away a larger number from a smaller number. This would result in a negative number. We don’t want to give the misconception that it’s not possible to subtract a bigger number from a smaller number, so

you might say, "We can't take away 5 from 2 using the numbers we know. But that's something you'll learn about when you're older."

- In addition to the *Count and See* cards, you can play with dot cards or any other cards that you have.

WHAT CHILDREN ARE LEARNING

- Encourage children to "count on" from the larger rolled number. For example, if they roll a 6 and 2, start from 6 and count on: "6...7, 8." Counting on is a skill that helps with learning addition later on.
- Encourage players to talk about the game rules! They might decide that players can keep rolling the dice until they're able to turn over cards (instead of moving on to the next player after each roll).

MATH TOPICS

Number: Counting and Cardinality

VIDEO



Watch Game Video

View the QR code in your smartphone's camera app or QR code reader to watch a video that shows how to play Roll Two 1-12.

Count and See Board Game

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Players 2



Ages 3+



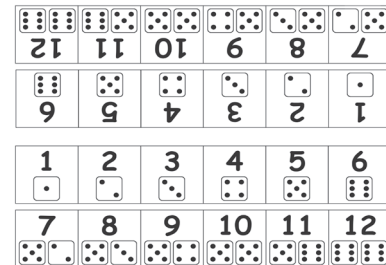
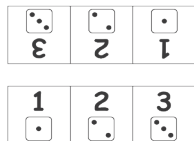
5-10 min

GOAL

To mark all the numbers on your side of the board based on the rolls of the dice.

MATERIALS

Count and See Boards



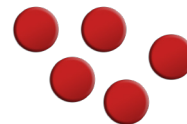
You can make special dice by drawing 1, 2, and 3 dots on a cube



Regular Dice



Tokens



VOCABULARY

Dice

Token

Combine numbers

QUESTIONS

What number(s) do you still need to roll?







How did you decide which number(s) to put tokens on?

HOW TO PLAY

There are three different versions of the *Count and See Board Game*. Use the board and dice combination that are at the right level for your child.

In all versions, the game ends when there are tokens on all the numbers.

1-3 Board







 3	 2	 1
 1	 2	 3

Die with 1-3 Dots



The first player rolls the die and places a token on the number that matches the number they rolled. Then the next player rolls the die and tries to put a token on one of their numbers.

1-6 Board

























 9	 5	 4	 3	 2	 1
 1	 2	 3	 4	 5	 6

Two Dice with 1-3 Dots



The first player rolls the dice and can place tokens on **one** of the rolled numbers, **both** rolled numbers, **or** the **sum** of the two rolled numbers. Then it's the next player's turn.

1-12 Board

 12	 11	 10	 9	 8	 7
 6	 5	 4	 3	 2	 1
 1	 2	 3	 4	 5	 6
 7	 8	 9	 10	 11	 12

Two Dice with 1-6 Dots



The first player rolls the dice and can place tokens on **one** of the rolled numbers, **both** rolled numbers, **or** the **sum** of the two rolled numbers. Then it's the next player's turn.

TIPS FOR PLAYING

- Make rolling doubles a “wild”. When a player rolls a “wild”, they can place a token on any number. See if children choose wisely! Help them choose a number that would otherwise be hard to roll. This can also speed the game up.

- You can also play this game with subtraction. After rolling the dice, subtract the smaller number from the bigger number. Put a token on the number that represents the difference. For example, if a player rolls 6 and 2, they can subtract $6 - 2 = 4$ and put a token on 4. You can also place a zero to the left of the 1, which provides an extra challenge because you need to roll doubles to mark it.

WHAT CHILDREN ARE LEARNING

- Children are recognizing the numbers of dots on the dice and connecting the quantity of dots to the numerals on the board.
- When children combine their dice roll, they are adding two numbers together to make a new number. To combine numbers, children may need to count each dot on both dice. Or, if they roll a 3 and a 2, they might count on from 3 and say "4, 5". Counting on means that instead of starting at 1 and counting all the way up to 5, we count on from 2 or 3.
- Children may also start to notice that some numbers are hard to roll while others come up a lot. Help them think about their game strategy, and where to place tokens based on which numbers are easier to roll.

MATH TOPICS

Number: Counting and Cardinality

VIDEO



Watch Game Video

View the QR code in your smartphone's camera app or QR code reader to watch a video that shows how to play the *Count and See* Board Game.