Dot Card C Players 1-4 Ages 2	olor So + <u>5-10 mi</u>	ort	YOUNG MATHEMATICIANS
CON			
GOAL	into multiple acto		
Sort the dot cards by color	into multiple sets.		
CARDS TO USE			
Scattered Dots	Dice	Ordered Dots	10 Frame
1-2	1-2	1-2	1-2
VOCABULARY	QUESTIO	NS	
Sorting	What do y	ou notice about these	cards?
Same Different	What is the What is dif	e same? ferent?	
Difference			
HOW TO PLAY			
1. Select and shuffle cards			
2. Lay cards face up on a t	able or on the floo	r.	
	•		•
Ask, "What do you notic notice the color, how th many dots there are, or	ce about the cards le dots are arrange something else.	?" Children may d on the cards, how	

- 3. When you're ready, you can begin the game by saying, "Let's sort by color. This card is yellow. This card is also yellow, so I will put them in the same pile. Now it's your turn."
- 4. Take turns picking a card, naming its color, and matching the color to other cards they may see.



5. Once all of the cards are sorted by color, take turns counting how many cards are in each color pile.



- 6. The game ends when each pile has been counted!
- 7. To extend the game, return all of the cards into a larger pile and have children sort the cards by the number of dots on each card (a pile of one-dot cards and a pile of two-dot cards). Then, hand the children the "1" and "2" numeral cards and have them label each pile with its numeral.

WHAT CHILDREN ARE LEARNING

- This game helps children become familiar with the dot cards. Spend time talking with children about the different attributes, or characteristics, they notice about the cards.
- Many young children love to sort and organize collections of objects. This process of sorting, or classification, is an important practice in science and mathematics. Grouping objects and counting how many are in each group are skills that kids will use later when collecting and analyzing data to solve problems.

MATH TOPICS

Data Collection and Analysis

Sorting and Attributes





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 Dot Card Color Sort.



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Can You	Find?		YOUNG MATHEMATICI
Players 1-4	Ages 3+ 5-10) min	
GOAL			
To quickly find a pa	articular card.		
CARDS TO USE			
Start with:			
		· · · · · · · · · · · · · · · · · · ·	
Dice	10 Frame	Ordered	
For later games: se	elect more cards, one set	at a time:	Extra Challenge
0 1 2 3 4 5		$\bigcirc \bigcirc $	
Numerals	Scattered Dots	Circle	Select more cards
0-5	0-5	0-5	6-10
VOCABULARY	QUEST	IONS	
Same	What d	o you notice about t	he cards?
now many.	TIOW Ca	n you ngure out nov	
HOW TO PLAY			
1. Select and shut	ffle the cards.		

2. Say, "Close your eyes." While the child's eyes are closed, place three cards face-up on the table.



3. Then say, "I'm thinking of a number. When I tell you the number, open your eyes and try to quickly find a card with that number of dots. Ready? Can you find a 2?"



4. Once the player correctly identifies the card, push those three cards aside and say, "OK, close your eyes!" Put down three new cards and choose a new number. "Can you find a card with 3 dots?"



- 5. Notice whether children are able to recognize the number of dots immediately or if they need to count the dots.
- 6. Try to play quickly to give children lots of practice recognizing quantities!

TIPS FOR PLAYING

 When playing with multiple children, you can have the children take turns closing their eyes and finding cards, or you can play competitively by having them try to be the first to point to the card you named. If taking turns, you can ask the other player(s) to "check" whether the identified cards really have the number of dots you named.

- If children are having a hard time finding a card that matches, you can model your thinking. For example, you could say, "I counted one, two, three, four. I got four. How did you count?"
- To make this game easier, put down only two cards. To make the game more challenging, add more cards or use cards with larger numbers of dots.
- Dots arranged in circular and scattered arrays are more challenging to subitize. You can use these cards in later games.
- Once children are ready for more of a challenge, they can try the game **More, Less, Same**.

- This game allows children to practice subitizing quickly seeing how many of something. Research suggests that children who are strong at subitizing tend to do better in math.
- Children usually recognize 1-2 dots without needing to count them. But, subitizing has limits. For larger quantities, we may need to cluster or chunk objects into smaller groups in order to subitize. For example, 8 dots are usually too many to subitize as 8, but if the dots are arranged as two groups of 4, and we know that two 4's make 8, we can quickly see 8.

MATH TOPICS

Number: Counting and Cardinality



Watch Game Video

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Match t	he Dots		YOUNG MATHEMATIC
Players 1-4	Ages 3+ 5-10	min	
GOAL			
To match cards wit	h the same number of d	ots when the dots a	re arranged differently.
CARDS TO USE			
Start with:			
Dice 0-5	10 Frame 0-5		
For later games: se	lect more cards, one set	at a time:	Extra Challenge
· · : · · · · ·	··· ··· ··· ···	$\bigcirc \bigcirc $	
Ordered Dots 0-5	Scattered Dots 0-5	Circle 0-5	Select more cards 6-10
VOCABULARY	QUEST	IONS	
Match Pairs	How ca How die	n you figure out whi d you know those w	ch cards match? ere a match?
Same	How are	e those cards the sa	me? How are they different?
HOW TO PLAY			
1. Select and shuf	fle the cards.		

- 2. Place the cards face up so all can see. If 12 cards are too many, remove one or two pairs. You can add more pairs as children are ready.
- 3. Say, "I'm going to try to find two cards that have the same number of dots on them. I think these cards have the same number! Do they match? How do you know?"



- 4. Say, "Now it's your turn. Can you find two cards with the same number of dots on them?"
- 5. The game ends when all of the pairs are matched!

- Some children may count the dots on each card to see if they have the same number. When children count, notice whether they say the correct number order (1, 2, 3, 4...) and whether they point to the dots one-by-one.
- When children are able to count objects one-by-one in the correct number order, they are using one-to-one correspondence. Help children label the last number they count as the total number in the set (e.g., "one, two, three, there are three in all"). This helps them practice cardinality – knowing how many in all.
- As children practice, they may begin to look at the cards and know how many dots there are right away. This is called subitizing – recognizing how many immediately. Subitizing is an important early math skill. You can model subitizing by saying, "I saw 4 dots here, and 1 more dot, and I knew that was 5!"

MATH TOPICS

Number: Counting and Cardinality





Watch Game Video

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- 2. Lay the cards face-up on the table so all can see.
- Hold up one card. Ask, "Can you find a card that is the same as mine?"



4. Wait for children to look through the face-up cards. They can choose one matching card or multiple matching cards.



5. Hold up a new card and ask children to find a card that's the same. Then, if you'd like to introduce an extra challenge, choose one of the following questions:

- "Can you find a card that is more than mine?" Give children plenty of time to look through the cards and identify any card that is more than your card.

- "Can you find a card that is **one** more than mine?" Give children plenty of time to look through the cards and identify a card that is **exactly one more** than your card.

- "Can you find a card that is more than mine?" Give children plenty of time to look through the cards and, once they find a card that is more than yours, ask, "**How many more is it?** How can you figure that out?"

- 6. As children make a choice, you can ask, "Why did you choose that card?" or "How did you figure out which card to choose?" If children make a mistake, you do not have to correct them. As they practice, see if they self-correct.
- 7. Hold up a new card and ask the same question, but asking the child to find a card that is *less* than your card.

TIPS FOR PLAYING

- You can play this game in all different ways! Hold up your fingers and ask children to find a card with the same number of dots as fingers. Say a number and ask children to find a card with that many dots (connecting number names to quantities). Hold up a numeral card and ask children to match the numeral to that quantity of dots (connecting numerals to quantities).
- Rather than correcting children if they are incorrect, you can say: "I got something different. Let's try another one". Or you can model your thinking--for example you could say, "I counted one, two, three, four. I got four. How did you count?"
- As children gain experience, have them take on the adult role!

WHAT CHILDREN ARE LEARNING

- How to talk about numbers and compare quantities.
- Thinking about one more and one less helps children learn the sequence of numbers: 4 is one more than 3; and 2 is one less than 3.
- When children think about how much more and how much less they are developing early skills in addition and subtraction. This is an important step for them to practice before they are introduced to written math like 4-1=3.

MATH TOPICS

Number: Counting and Cardinality



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 More, Less, or the Same.



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3. Hold up a card for three seconds. Then put it face down.



Ask, "How many dots?"

4. Children can call out their response or use their fingers.



5. To extend this activity, ask, "How did you know how many?" Children may respond, "I saw three dots and one dot and knew that was four."

WHAT CHILDREN ARE LEARNING

- Quick Images is a great game to play during transitions or when you have just a few minutes. This game allows children to practice subitizing – quickly seeing how many in a small set. Research suggests that children who are strong at subitizing tend to do better in math.
- Children usually recognize 1-2 dots without needing to count them. But, subitizing has limits. For larger quantities, we may need to cluster or chunk objects into smaller groups in order to subitize. For example, 8 dots are usually too many to subitize as 8, but if the dots are arranged as two groups of 4, and we know that two 4s make 8, we can quickly see 8.
- Dots arranged in circular and scattered arrays are more challenging to subitize.
- Playing this game helps children build a strong visual image of number. As children gain experience, talk about seeing smaller number groups in larger sets. For example, "I saw a group of two dots and a group of three dots and I knew that was five!" Each child might "see" how many in a different way.

MATH TOPICS

Number: Counting and Cardinality





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 Quick Images



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3. Point to the numeral cards and say, "These numbers are hungry!"



Then, point to the pile of face-up cards and say, "The number cards can eat the dot cards in this pile. But, they can only eat the cards that match their number."



4. "Let's look at the top card in this pile. How many dots are there?"



5. "Yes, there are two dots. Let's put this card above the number 2 card to be eaten!"



6. Play continues as children take turns "feeding" the numeral cards. The game ends when all of the cards in the pile have been "eaten!"

Note: You can use plates, baskets, or other containers in this game. Label the containers with the numeral cards and have children sort the dots cards into the correct containers to be "eaten."

TIPS FOR PLAYING

• You could use Hungry Numbers as a transition activity - e.g., give each child one dot card and have them feed it to its matching numeral before leaving the table.

- Children may be able to recognize and say how many dots immediately, especially for smaller numbers under 4. This is a skill called subitizing and it helps form a foundation for basic math skills.
- In this game, children connect the number of dots on the cards to the written numerals that represent those quantities. For example, five dots are arranged on the cards in many ways, but they're all represented by the written numeral "5".

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 Hungry Numbers.



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3. You can start the game by saying, "I'm going to find two cards that add up to five! Let's see. Do these two cards add up to 5?"



Say, "Yes! There are four dots on this card, and one more dot is 5!"

- 4. Say, "Now it's your turn. Can you find two cards that make 5?"
- 5. The game ends when all cards are matched.

TIPS FOR PLAYING

• If children are ready, you can add dot cards and numeral cards greater than 5. You could play Make 6!, Make 7!, Make 8!, Make 9! and Make 10! If you want, you can use three cards to make the game more challenging. Just make sure that all the players are working toward the same goal number.

WHAT CHILDREN ARE LEARNING

- This game focuses on number composition knowing that two smaller numbers make up a larger number. In this game, children are looking for two smaller numbers that together make five.
- It's important for children to recognize that a given quantity can be represented in different ways — with fingers, numerals, dots in different configurations, and more. Having practice playing with number in many forms helps to strengthen this concept.

MATH TOPICS

Number: Counting and Cardinality

Number: Operations



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 Make 5.



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2. Ask, "Which card doesn't belong? Why?"

Give children plenty of time to look through the cards, and accept all answers that they can justify. It may be that the card with three dots doesn't belong because the other cards have two dots.



Or, it could be that the card with two dots in a diagonal line doesn't belong because the dots are in a straight line on the other cards.



- 3. Once the children finish explaining why one card does not belong, say, "Ready for a new set?" Put down three new cards. Ask, "Which one doesn't belong? Why?"
- 4. Continue to play with different cards. Once children are comfortable with cards 0-3, add the 4-5 cards. Once children are strong with 0-5, add the 6+ cards.

TIPS FOR PLAYING

 When children are new to this game, you can start simple by using colors. Put down two cards that are the same color and one card that is a different color and ask, "Which card doesn't belong? Why?" Once children are comfortable playing the game, use different colors and encourage children to notice the dots. Ask, "Do you see anything about the dots on these cards that might be the same or different?"

- How to explain their thinking and talk about math concepts.
- To check whether quantities are the same, you might notice children counting the number of dots on the cards. Or, you might see them immediately know how many without counting. Immediately knowing how many is a skill called subitizing. Subitizing is our ability to quickly recognize quantities. It's important for children to practice both counting and subitizing because they form a foundation for later math skills.
- This game calls children's attention to the details on the cards. We might show three different images for the number 3. They are the same in they are all 3 dots but they may be different in their arrangement. Children may notice that only one card has a grid and the others don't. Or they may notice that two have dots arranged in a line and the other is arranged up and down (vertically). Children also have the opportunity to notice that even though 3 dots may be arranged in many different ways, it's still 3 dots.
- Don't worry if you accidentally put down three cards with nothing in common. Have children explain how all three are different!
- You can use this game with lots of different objects you have in the classroom or at home.

MATH TOPICS

Number: Counting and Cardinality



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 Which One Doesn't Belong.



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JUL IMEM	nory		YOUNG MATHEMATICI
Players 1-2 A	Ages 4+ 5-2	LO min	
GOAL			
To match pairs of card	ls using your memo	ry.	
CARDS TO USE			
Start with:			
1 2 3			• • :
Numeral Cards	Dice	10 Frame	Ordered
1-3	1-3	1-3	1-3
VOCABULARY	QUES	TIONS	
VOCABULARY Pairs Matching	QUES What How o	TIONS helps you remember did you decide which	where the cards are? card to turn over?
VOCABULARY Pairs Matching Same	QUES What How c	TIONS helps you remember lid you decide which	where the cards are? card to turn over?
VOCABULARY Pairs Matching Same Different	QUES What How c	TIONS helps you remember lid you decide which	where the cards are? card to turn over?
VOCABULARY Pairs Matching Same Different HOW TO PLAY	QUES What How c	TIONS helps you remember lid you decide which	where the cards are? card to turn over?
VOCABULARY Pairs Matching Same Different HOW TO PLAY 1. Make sure you hav pairs.	Ve an even number	TIONS helps you remember did you decide which	where the cards are? card to turn over?
VOCABULARY Pairs Matching Same Different HOW TO PLAY 1. Make sure you hav pairs. 2. Shuffle the cards a	QUES What How of ve an even number and lay them face do	TIONS helps you remember did you decide which of cards so you can m	where the cards are? card to turn over?
VOCABULARY Pairs Matching Same Different HOW TO PLAY 1. Make sure you hav pairs. 2. Shuffle the cards a	QUES What How of ve an even number and lay them face do	TIONS helps you remember did you decide which of cards so you can m	where the cards are? card to turn over?
VOCABULARY Pairs Matching Same Different HOW TO PLAY 1. Make sure you hav pairs. 2. Shuffle the cards a	QUES What How of ve an even number and lay them face do	TIONS helps you remember did you decide which of cards so you can m	where the cards are? card to turn over?

3. Children take turns turning over two cards.

If the two cards have the same number, keep the matched pair and go again.



Remind children that pairs that match can look different! They might turn over a 3 card with 3 dots arranged one way and another card with 3 dots arranged a different way--those match! Or children might turn over a numeral 2 card and a card with two dots. Those match too!

4. If the two cards do not match, turn them back over. It's now the next player's turn.



Note: Encourage all players to remember which numbers are on the cards being turned back over!

5. The game ends when all of the cards have been matched!

TIPS FOR PLAYING

- Show children how to flip over their cards some might want to pick the cards up and hold them instead of flipping them over for all to see.
- Say the number out loud after every card flip. For example, "3 dots here! 4 dots here. No match!"
- Young children are learning how to take turns and share materials. Be sure to model the turn-taking process and give children lots of practice taking (and waiting for) their turn.

- Children have to remember the quantities of dots or the numerals on the cards that are turned over. This builds their visual memory for number and their attention skills.
- This game supports children's executive function skills. Children are practicing thinking flexibly, remembering where particular cards can be found (working memory), and taking turns (inhibitory control).

MATH TOPICS

Number: Counting and Cardinality





Watch Game Video

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3. Then say, "We're each going to turn over the top card in our pile. Whoever has the highest number on their card wins this round and gets to keep all of the cards. Ready?"

Each player turns over the top card and puts it in the center for all to see.



4. Ask, "Which card has the highest number? Who gets to keep all of the cards? How can we tell?"



- 5. If two players flip over the same highest number, those players flip over their next top cards. Whoever has the highest number wins all of the cards from both rounds.
- 6. The game ends when one person has all the cards.

WHAT CHILDREN ARE LEARNING

- Comparing cards that have different arrangements of dots on them supports children's understanding of quantity. In other words, five dots can be arranged in many different ways, but it is always five dots.
- Children are learning to identify which of two or more numbers is greatest.

MATH TOPICS

Number: Counting and Cardinality

Number: Operations



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