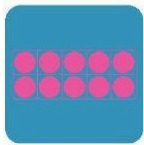


Tiny Polka Dot Instructions

Number-loving Learning Fun!

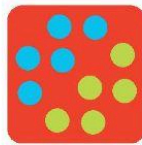
In the Box

66 Tiny Polka Dot cards in six suits, representing numbers from 0 to 10



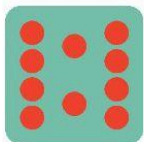
Blue

Dots arranged in a ten frame



Red

Dots in two colors: doubles and doubles plus one



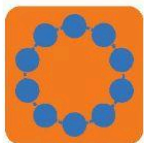
Teal

Dots arranged in a classic dice pattern



Green

Dots in different sizes and arbitrary arrangements



Orange

Dots arranged in a circle



Purple

Numerals from zero to ten

- 8 Rule Cards, with instructions for 16 games
- Guide for Grownups
- Tiny Polka Dot Instructions

Instructions for some of our favorite games are on the rule cards, so you can start playing as quickly as possible. Each rule card describes one game on each side, and includes:

- Recommended age for the game
- The cards to use for the first game you play
- How to set up the game
- How to play
- Ideas for increasing the game's challenge

Once you learn a game, try playing it with different collections of cards. Slowly increase the numbers and colors you play with for more challenge. You can also create variations or invent your own games!

See the Guide for Grownups for more ideas about helping mathematical play be a vibrant part of your child's life.

Find out more about Tiny Polka Dot at tinypolkadot.com

Tiny Polka Dot was created by Daniel Finkel and Katherine Cook of Math for Love, a Seattle based organization devoted to transforming how math is taught and learned.

Find out about our current mathematical and educational projects at www.mathforlove.com



math 4 love

Guide for Grownups

Here are some ideas to keep in mind as you play Tiny Polka Dot games with your child.

1. Learning takes time!

The process of learning and mastering a new skill can be slow and complex. This is not a test. Try not to rush your child. You may find a child makes the same mistake over and over, or enjoys playing a game that seems too easy. As long as they are having fun, trust that your child is learning! Be patient and stay flexible.

2. Think out loud

The best way to help your child is to slow down during your turn, count clearly, and describe what's happening in your head. When you say, "That's a two. I need an eight to make a match. Now where was there an eight...?" you're helping them see how to think.

3. Follow their lead

For each variation you play, let the child show you if it is right for them. Most kids will enjoy starting with a game that is easy for them. It's fun to be successful! If a game becomes too easy, they can move on to a more advanced game. On the other hand, if a game is too hard, the child will likely lose focus or want to stop. That's a sign you need to move to a simpler version.

4. Use your fingers

If you find your child is having a hard time organizing their counting strategies for large numbers of dots, or for the dots in tricky arrangements, show them how to place a finger on the first dot they count so they can keep track of where they started. For young children, demonstrate counting by touching the dots slowly and deliberately while you speak the numbers aloud. You may need to count a card together several times before they count correctly.

5. Help less

It's easy to over-help. Make sure you are letting your child take as active a role in the game as possible. Try making neutral observations and asking them questions. Rather than say "That's a three. You need to find a two to make five," say "You flipped over a three. What do you need next?"

6. Play!

Play is the engine of learning for young children. Winning might be irrelevant to some kids, and games can be played collaboratively. Keep the game light and fun, and have fun yourself!

The Progression of Counting and Arithmetic

We created Tiny Polka Dot to help kids learn foundational ideas in counting and mathematics through play. Developing these skills is more complex than you might expect. In fact, mastering counting and simple arithmetic comprises most of the work children do in math from pre-Kindergarten to second grade.

The progression of math skills in young children develops roughly in the order below, but every child is different. Don't be concerned if your child doesn't seem to know something he or she "should." Tiny Polka Dot was developed to give kids a playful way to practice honing these skills while having fun!

- Number names
- Number order to five
- One to one correspondence — knowing each successive number name corresponds to one more when counting
- Conservation of number — recognizing that objects in different arrangements can still represent the same number
- Number order to ten and beyond
- Subitizing — the ability to recognize the number of objects in a small collection without having to count
- Understanding addition as combining and subtraction as taking away
- Addition to five
- Addition to ten
- Subtraction to five
- Subtraction to ten
- Addition and subtraction to twenty and beyond

Habits of Mind

Beyond specific skills, playing Tiny Polka Dot games encourages the habits of mind kids need to be successful in math.

These habits include:

- Problem solving
- Perseverance
- Finding and using mathematical structure
- Comparing and estimating
- Learning from mistakes
- Mathematical courage and creativity

Again, don't worry about every game having a measurable outcome. When your child plays and has fun, they are laying the foundation for a lifetime of mathematical success.

Match the Dots

1-4 players

Ages 3+

For 1st Game, play with: Teal 0-4 & Blue 0-4

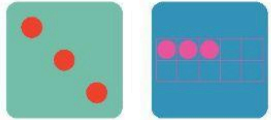
Setup

Deal out all cards face up.

Play

Take turns matching pairs with the same number

For example:



is a match

Game ends when all cards are matched.

Ideas for future games

- Use larger numbers
- Play with four suits instead of two

Dot Memory

1-6 players

Ages 4+

For 1st Game, play with:

Teal 0-3, Blue 0-3, Orange 0-3 & Purple 0-3

Setup

Deal out all cards face down.

Play

Take turns flipping up two cards.

If card numbers match, keep them and go again.

If not, turn them face down and end turn.

Game ends when all cards are matched.

Ideas for future games

- Use larger numbers and only two suits
- Use larger numbers and four suits

Dot Fives

1-6 players

Ages 5+

For 1st Game, play with: Teal 0-5 & Blue 0-5

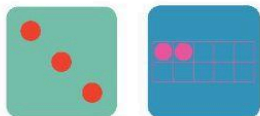
Setup

Deal out all cards face up.

Play

Take turns matching pairs that add to 5.

For example:



is a match

Game ends when all cards are matched.

Ideas for future games

- Play with 0-5 in more colors
- See Dot Tens

Dot Tens

1-6 players

Ages 5+

For 1st Game, play with: Teal 0-10 & Blue 0-10

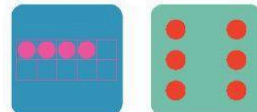
Setup

Deal out all cards face up.

Play

Take turns matching pairs that have 10 dots between them.

For example:



is a match

Game ends when all cards are matched.

Ideas for future games

- Play with 0-10 in more colors

Hungry Numbers

1 – 4 players

Ages 3+

For 1st Game, play with:

Purple 0-5, Teal 0-5 & Blue 0-5

Setup

Arrange the purple numeral cards from 0 to 5.
Mix the other cards together face up.

Play

“Feed” the numerals the dot cards one at a time.
Each numeral only eats cards with that many dots.
E.g., the “2” will eat only cards two dots on them.
Play until all the dot cards have been “eaten.”

Ideas for future games

- Include cards up to 10
- Include more suits

PowerDot

2-6 players

Ages 4+

For 1st Game, play with:

Teal 0-5, Blue 0-5, Orange 0-5 & Purple 0-5

Setup

Mix the cards and split into equal piles.

Play

Everyone turns over the top card in their pile. Whoever has the highest number wins, and keeps all the cards.
If players tie for highest card, put all upturned cards from that round into the middle, and tying players play another round against each other.

Ideas for future games

- Include larger numbers
- Use the entire deck

Dot Five Memory

1-6 players

Ages 5+

For 1st Game, play with: Teal 0-5 & Blue 0-5

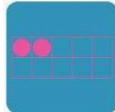
Setup

Deal out all cards face down.

Play

Take turns turning up two cards. If the pair has a sum of 5 dots between them, keep the match and go again. If not, say the sum and turn the cards face down again.

For example:



is a match

Game ends when all cards are matched.

Ideas for future games

- Play with 0-5 in more colors
- See Dot Ten Memory

Dot Ten Memory

1-6 players

Ages 6+

For 1st Game, play with: Teal 0-10 & Blue 0-10

Setup

Deal out all cards face down.

Play

Take turns turning up two cards. If the pair has a sum of 10 dots between them, keep the match and go again. If not, say the sum and turn the cards face down again.

For example:



is a match

Game ends when all cards are matched.

Ideas for future games

- Play with 0-10 in more colors

Polka Loop Puzzle

1+ players

Ages 6+

For 1st Game, play with: Purple 1 - 5

The Puzzle

Arrange the cards in a stack. Deal them out as follows: one card up, next on the bottom, card up, next on the bottom, card up, next on the bottom, etc. until all the cards are dealt.

You have solved the puzzle when the cards come out in order: 1, 2, 3, 4, 5

Ideas for future games

- Play with 3 cards to make the puzzle easier
- Play with up to 10 to make the puzzle harder

Pyramid Puzzle

1+ players

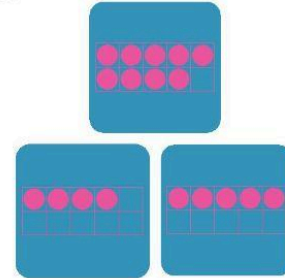
Ages 7+

Orange 0 - 10 & Blue 0 - 10

The Puzzle

Use exactly ten cards to make a pyramid so that each number is the sum of the two below it.

For example:



15s Go Fish

2-5 players

Ages 7+

Play with all the cards

Setup

Deal each player 4 cards. Place the rest of the cards in a pile, face down.

Play

On your turn, do one or more of the following:

1) Ask another player if they have a number. If they have a card of that number, they must give it to you. If not, they tell you to "go fish," and you draw a card from the pile in the center.

2) Place down a set of three cards that sum to 15.

Game is over when the deck runs out. Whoever has the most sets of 15 wins.

21 or Bust

2-6 players

Ages 7+

Play with all the cards

Setup

One player deals one card face down and one card face up to each player.

Play

Each player says "hit" if they want another card face up, or "hold" to stop taking more cards. Players may hit as many times as they like, and once they hold, their turn is over. Once everyone has said "hold," each player reveals their face down card and says the sum of all their cards. Whoever's sum is closest to 21 without going over wins the round.

Whoever wins the most rounds when the deck is used up wins the game.

Thirty-One

2-4 players

Ages 7+

For 1st Game, play with:

Purple 1-5, Red 1-5, Blue 1-5, Teal 1-5 & Orange 1-5

Setup

Deal the 25 cards face up in five rows of five, with the ones on top, followed by the twos, three, fours, and fives.

Play

Players take turns turning over cards from the grid. After you turn over a number, add its value to the running total. For example, if player 1 turns over a 5, they say "5." If player 2 then turns over a 3, they say "8." Player may only turn over face up cards. Face down cards cannot be turned back up. Play continues until one player says "31." That player is the winner.

15 Supreme

1-5 players

Ages 7+

For 1st Game, play with:

Purple 0 - 10 & Red 0 - 10

Setup

Deal all the cards face down.

Play

Take turns turning up cards one by one. If the sum of the cards is ever 15, take them all and end your turn. If the sum goes over 15, turn the cards face down and end your turn. Whoever ends with the most cards wins.

Ideas for future games

- Use more colors

Pyramid Puzzle 2

1+ players

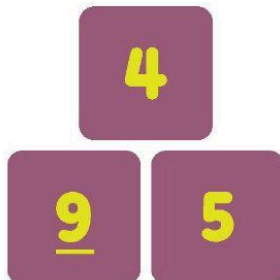
Ages 7+

Purple 1 - 10

The Puzzle

Arrange the ten cards to make a pyramid so that each number is the difference of the two below it.

For example:



PowerDot Pro

2-6 players

Ages 6+

For 1st Game, play with:

Teal 0-5, Blue 0-5, Orange 0-5 & Purple 0-5

Setup

Mix the cards and split into equal piles.

Play

A player says a number (like 2). Everyone turns up that many cards. Whoever has the highest sum wins, and keeps all the cards.

If players tie for highest sum, put all the cards into the middle, and tying players play another round against each other.

Ideas for future games

- Include larger numbers
- Use the entire deck

0

1

2

3

4

5

6

7

8

9

10

