



An After-School Math Club Like No Other!

Bedtime Math Foundation presents Crazy 8s, a free program to help schools, public libraries and 501c3 organizations launch recreational after-school math clubs. We have 24 weeks of activities delivered in three 8-week kits for grades K-2 and 3-5. It's nothing like the competitive clubs that appeal to a select few; with activities like Bouncy Dice Explosion and Neon Geometry, Crazy 8s can appeal to any child. We're making math club the cool thing to do after school!

Our goal with Crazy 8s is nothing short of overhauling our country's culture around math. While many Americans dislike or even fear math, we hope to raise a next generation who loves numbers. Here's how Crazy 8s fulfills that mission:

- ★ It's **collaborative**: The activities get kids **working together**, building together, running and jumping together, so they can **bond over math** in a whole new way.
- ★ It's **hands-on**: Our **lively get-up-and-move activities** explore the math behind kids' favorite things, like playground swings, treasure hunts, card games, puzzles – even secret codes!
- ★ It's **proven**: A study by Johns Hopkins University found Crazy 8s **reduced kids' math anxiety after only 8 weeks in the club**. Many of our teacher coaches have reported that Crazy 8s led to students' increased participation in the classroom.

And the kits really are free! All of founder Laura Overdeck's royalties from the popular Bedtime Math book series are invested back into our nonprofit to help fund the materials.

crazy8sclub.org

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Kit Contents

Bedtime Math provides each club with free kits containing most of the supplies needed to play our games, as well as math-y take-home items for your club members. Coaches will need to provide some school supplies, like paper, scissors, pencils, markers, and masking tape.



Honor Code

All Crazy 8s coaches must submit a kit application, which will be finalized during a brief phone call with one of our Crazy 8s Ambassadors. During this call, we'll give you access to our online Coach's Area, where all of our step-by-step directions are stored along with overview videos, math tips, marketing materials and more. We'll also review our Crazy 8s Honor Code:

- ★ Enroll 12-16 kids of ALL math abilities who volunteer to join a recreational math club;
- ★ Offer each club for kids within grades K-2, 1-3 or 3-5. And yes, you can run separate clubs for multiple groups;
- ★ Schedule each Crazy 8s season for 1 full hour weekly over 8 consecutive weeks, understanding that school holidays and weather delays may impact the schedule;
- ★ Reserve a large, open space in a public location, like a school, library, or community room;
- ★ Donate supplies to the children as directed. This is part of our charitable mission to encourage kids to play with math at home and to share it with friends and family;
- ★ Prepare for every meeting by reviewing the lesson plans and organizing the materials in advance, and don't forget to bring your enthusiasm!
- ★ Provide us with feedback at the end of each season via our online survey.

To apply for a kit, visit crazy8sclub.org



Weekly Summary

Season I

Overall:

Bedtime Math's Crazy 8s club is not your usual math club. Kids of all math abilities will make mischief and memories with activities like Neon Geometry, Bouncy Dice Explosion, Toilet Paper Olympics, Spy Training and more. You'll get to take home some cool prizes, too!

Weekly Sessions:

Neon Geometry: It's a geometric glow party! Create mystical repeating patterns and cool 3D shapes with glowsticks then flick off the lights to see it shine.

Bouncy Dice Explosion: Your big chance to throw things because you're supposed to. Work as a team to roll the winning number on a giant Bingo board then face-off against your opponent in Radical Bingo!

Crazy 8s Race: Play a new board game: roll dice to travel around a figure 8 and zoom forward when you land on a magic GO number. See who makes it to 8 x 8 first!

Spy Training: See if you have what it takes to be a spy. You'll break different codes for clues to unlock the hidden spy gear!

Crazy Card Club: Crazy 8s isn't just the name of our club; it's also a famous card game! Learn how to play it and other fun games using a deck of cards you get to keep.

Daring Darts: Supersize the fun in this game of floor darts! Once we learn how to keep score, we'll play a few rounds before our traditional game takes some twists and turns.

Funny Money: We'll bet money you'll love this one! Have fun comparing coins, buying prizes, and trying your best not to bust the budget.

Toilet Paper Olympics: Guess you never knew sports and toilet paper could go together, huh? Put your Olympian skills to the test in the shot put, long jump, and relay race events.



Neon Geometry

Grades K-2

The Big Idea

This week you're making geometric shapes using glowsticks. First, you'll build triangles and quadrilaterals in different sizes. Then you'll lay out sticks to make mystical repeating patterns on the floor!

Supplies

In your kit:

- ★ Glowsticks: 150
- ★ Styrofoam balls: 1 bag

You provide:

- ★ Nothing this week!

Key Prep

- ★ To save club time, you can unwrap the glowstick tubes in advance of the meeting, but don't crack the sticks until right before you begin the session to preserve as much glow as possible. We've provided extra glowsticks in case some are duds.

Room Set-up

- ★ You'll need a room that can get fairly dark with the lights off. If you're hosting the club in a space that can't be darkened, don't crack the sticks! Give uncracked sticks to the kids at the end of the session so they can continue Neon Geometry at home in a dark room or outside at night.

What's the Math?

- ★ 2-D geometric shapes
- ★ Pattern recognition
- ★ Counting

Help kids Master the Math behind this session. Link also posted in your Coach's Area:

<https://crazy8s.blob.core.windows.net/crazy8s-materials/F-23-S1/Master%20the%20Math%20K-2%20Neon%20Geometry.pdf>

Reminder

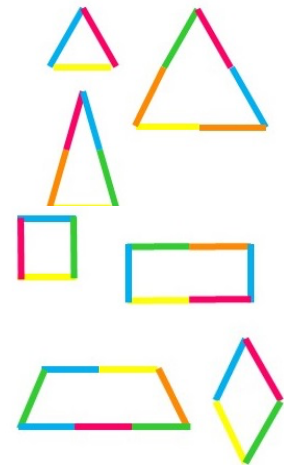
We've found that it's good to give kids time to figure out the answers on their own, rather than jumping in and "saving" them. It's more fun for them to wrangle with challenges, and it builds confidence. We'll also be introducing kids to new vocabulary that they may not absorb at first, but they'll make the connection in the classroom.

Kickoff

"What do you call a shape with 3 straight sides?" (Answer: triangle.) "Can you name some other shapes? Which ones have 4 sides?" (Answer: squares and rectangles – also, parallelograms and trapezoids, if they know them!) "How about 5 or 6 sides?" (Answer: pentagons and hexagons. "Today we're going to use glowsticks to make mathematical shapes that glow!")

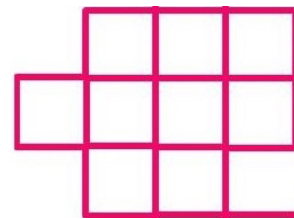
Introducing...the Glow Stick (15 minutes)

1. Hand out 8 glowsticks to each kid. Explain to the kids they shouldn't bend the sticks too far or they'll crack and leak!
2. Invite the kids to make any kind of triangle. Model different examples of triangles for the group – some have 3 equal sides, and some have no equal sides!
 ? "How many kinds of triangles can we come up with?"
3. Flick off the lights briefly to show off the shapes!
4. Now invite the kids to make 4-sided shapes, like squares, rectangles, trapezoids, or rhombuses (diamonds).
 ? "How many sizes and kinds of 4-sided shapes did we make? (Discuss. Talk about length and width and number of sticks as you compare shapes.)"

**Hit the Floor (15 minutes)**

"Flat shapes with straight sides like the ones we just made are called polygons. 'Poly' means 'many' and 'gon' means 'angled.' Let's cover the floor with repeating polygons. Can you figure out which shapes fit together with no gaps or overlaps?"

1. Let the kids experiment to see what shapes fit together.
2. If needed, guide them to discover that triangles, squares (or any rhombuses) and hexagons (a honeycomb shape) are the only regular polygons that work.
3. Have the whole group arrange the glowsticks to cover the floor with a big lattice of squares.
4. Flick off the lights to see it glow!
5. Now the kids clear the floor of glowsticks and arrange them in a new lattice of equilateral triangles. You can turn the lights back on while they work, then do the reveal, or leave them off.
 ? "How many triangles did you make to create your glowing math pattern?" (Discuss. Watch how kids count – tiptoeing works!)
 ? Once they've started, ask: "What size triangles are you counting?" (Discuss. Help kids consider bigger triangles!)





Bouncy Dice Explosion

Grades 3-5

The Big Idea

Your big chance to throw things because you're supposed to. Work as a team to roll the winning number on a giant Bingo board then face-off against your opponent in Radical Bingo.

Supplies

In your kit:

- ★ Bingo chips: 50
- ★ Bouncy rubber dice: 32
- ★ Giant Bingo numbers: 1 packet
- ★ Radical Bingo sheets: 8

You provide:

- ★ Masking tape
- ★ Paper: 1/2 sheet per kid
- ★ Stickers (optional): 6 per kid, any size.
If you can't find stickers, kids can mark their scores with pencils or crayons.
- ★ Writing surface: whiteboard or large sheet of paper

Key Prep

- ★ Open the packet of Radical Bingo sheets. Find the side marked **3 DICE** Radical Bingo. Using that sheet as a guide, pull the 25 giant Bingo numbers and Free Space from the Bingo Numbers packet.
- ★ Organize 1 half-sheet of paper and 6 stickers per kid. If you can't find stickers, kids can mark their scores with pencils or crayons.

Room Set-up

- ★ You'll need open space, at least a 6 x 6-foot rectangle, to toss the dice.
- ★ You can tape the large Bingo numbers to the floor ahead of time if you have a 9 x 9-foot open space in addition to the 6 x 6-foot open space mentioned above.

What's the Math?

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|--|-------------------------------------|
| ★ Operations: addition, multiplication | ★ Simple combinatorials |
| ★ Order of operations | ★ Simple probability (as fractions) |
| ★ Strategic thinking | |

Help kids Master the Math behind this session. Link also posted in your Coach's Area:

<https://crazy8s.blob.core.windows.net/crazy8s-materials/F-23-S1/Master%20the%20Math%203-5%20Bouncy%20Dice%20Explosion.pdf>

Kickoff

"Dice don't really roll, do they? Since they're cubes, with straight lines and angled corners, they bounce and tumble instead of rolling like a ball. Today we have some really bouncy dice to toss!"

Going Airborne (10-15 minutes)

"First let's see what dice look like."

1. Ask kids to sit in a circle. Hand 1 die to each kid.
2. Ask kids to look at the sides and edges on the die.
 - ? "What's the smallest number of dots on one side? The largest?"
 - ? "What do you notice about the numbers on opposite sides of the dice?" (Discuss. **Party**

Fun Fact: See if they notice that opposite sides of dice always add to 7!)
3. Ask the kids to toss the dice into the air towards the center of the circle.
4. Once the dice stop bouncing, ask the kids to find one die and carefully pick it up to count the number of dots on the face-up side.
5. Kids with the same number on the face of their die stand together in columns to make a human bar chart.
 - ? "How many dice in total did we toss in the air?"
6. Count the kids in each column to find out how many times each number was rolled. Explain that this is the frequency of each number in the set of dice tossed in the air.
 - ? "Which number showed up the most often in our set?"
 - ? "What fraction can we make with these numbers?" (Discuss. Kids can make a fraction with the number of dice that showed up most often out of total number of dice. For example, '4 out of 16 dice (4/16ths) rolled the number 3.' See if the kids can simplify this fraction. In this example, 4/16 simplifies to 1/4.)
 - ? "Which number showed up the least?" (Discuss. Create another fraction.)
 - ? "What's the smallest total number of dots we could have rolled as a group?" (Discuss. The lowest number on each die is 1, so 1 x number of kids in your group is the least number we could have rolled as a group.)
 - ? "What's the highest total?" (Discuss. The highest number on each die is 6, so 6 x number of kids in your group.)

Math Challenge (optional)

- ? "How often should each number show up?" (Discuss. Then explain probability helps us predict how often something will happen after many repetitions. Each of the 6 sides of a die has an equal chance of facing up, so the probability that any given number will show up is 1 in 6 (or 1/6). Each number (1, 2, etc.) should show on about 1/6 of the dice on the floor.)
- ? Calculate the answer to the above question by asking the kids to divide the number of dice on the floor by 6! If they need a hint: remind them that $6=3 \times 2$, so they can divide the number of dice first by 2, then by 3.