

# Random Math Circle

## PATHWAYS

#60 Probability Theory & Stochastic Processes

#62 Statistics

Sciences Applications

Family Math Circle ~~~ January 2024

Pathways name our math inspirations using Mathematics Subject Classification. Mathematicians around the world label their work with library codes from MSC, <https://msc2020.org/> Let us help students feel happy familiarity with each subject area!

Family Math Circle is an informal learning space where participants make advanced mathematics accessible to everyone in kind ways.



Photo by Diacritica on Wikipedia

## Roots and Wings

Make models to ground your math. Make connections to advance in math.

Make and find random number generators to compare random vs. deterministic events. Explore distributions of random numbers in probability and statistics. Make and play games that use RNGs.



## Words With Math Friends

Tell friends and family all about your math creations. Use these terms + "math" to find images, videos, and articles on the web.

- Random and deterministic events
- Random number generator (RNG)
- Probability, distribution
- Frequency, frequent and rare outcomes
- Bias

Add children's own words to the Research Journal. Collect and use those personal terms along with the standard terms.

## Interesting Choices

Mathematicians do many different things. What kind of math person will you be today?

For your RNGs, choose values and their frequencies. Are you making your RNG to have a particular distribution, or making some RNG first and then investigating what distribution it has? Choose to design fair or unfair games to notice different properties of randomness.

These are starter choices. Children will come up with more ideas. Add them to the Research Journal.

## Toolbox

Physical (gray=optional): Paper, colored pencils, scissors, tape or glue, counters, chips, beans, coins, dice, playing cards.

Virtual:

Lava Lamps RNGs <https://youtu.be/1cUUfMeOijg>

Random functions experiments

<https://www.desmos.com/calculator/cwscdppk3p>

<https://naturalmath.com/circles/>



Extra activities, videos, math connections, books, and other resources for math circle leaders.

Photo: encryption lava lamps at Cloudflare




  
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~ Words ~ Examples ~ Questions ~ Problems ~ Stories ~ Conjectures ~ Models ~ Art ~ Formulas ~ Graphs ~

**►►► Research Journal ◄◄◄**



**Natural Math**