

# Math/CS Chatter

Summer 2023 — Volume 3

## BUILDING TOGETHER The Rhombiglobe Rises

This is the third issue of the *Math/CS Chatter*—the alumni newsletter of the Department of Mathematics and Computer Science at Dickinson College.

In this department, we like to build things together. We are constantly building our knowledge, building our

skills, building our friendships, and building our careers. And of course, building the rhombiglobe.

The Rhombiglobe was a unique sculpture and art installation designed by mathematician Glenn Whitney, founder of The Museum of Math (MoMath), who

visited campus in October 2022 to help us build the sculpture as a team.

Consisting of 270 rods, 540 caps, and 92 cable ties, the final sculpture was over three meters in diameter and took over one corner of the science library for the second half of the fall semester.



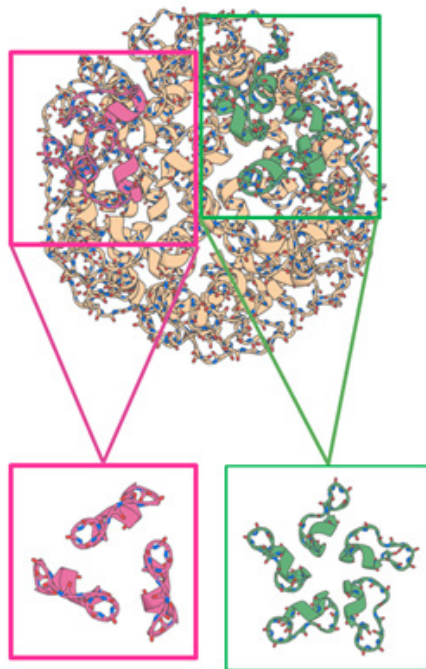


## BUILDING CAREERS

### Off-Campus Summer Research

A number of students added new dimensions to their research careers, working on summer projects with faculty or mentors at other institutions and organizations. Some of them include:

- **George Carson ('24):** Internship at the Naval Research Laboratory in Washington, D.C., in the field of solar radio astronomy.
- **John Chu ('24):** University of Washington—"Protein design using generative models."
- **Trang Dang ('22):** Pre-doctoral research associate at the Federal Reserve Bank of San Francisco.
- **Harry Do ('24):** Research assistantship at Columbia University's Business School (CBS) in NYC, before heading to study abroad at Oxford University this year.
- **Linh Hoang ('26):** University of Maryland—"Combinatorics, Algorithms, and AI for Real Problems (CAAR)."
- **Maisa Maliha ('25):** Working at Carnegie Mellon University's supercomputing center under an NIH project called the Human Biomolecular Atlas Program.
- **Hailie Mitchell ('24):** Carnegie Mellon—"Efficient Bug Finding in Robotic Deep Learning."
- **Emily Shambaugh ('24):** Ursinus College—"Motivated Proof of Integer Partition Identities."



John Chu's summer research in the Baker lab at University of Washington involved the creation of new software techniques for designing proteins.



## BUILDING OUR TEAM

### New Faculty

We were delighted to welcome **William Goble** as our new Lecturer in Computer Science. Professor Goble is returning to Dickinson in this permanent position after previously joining the department as a visiting faculty member. His interests include data science and artificial intelligence. And with an undergraduate degree in philosophy, he will be contributing some deep thinking to the social, legal, and ethical thread in our computer science curriculum.



## **BUILDING THE ACADEMY**

### **Faculty Research**

Selected highlights from faculty activities this year include:

**Professor Grant Braught** is helping to shape the national computer science curriculum, serving on a council of liberal arts CS representatives and publishing “Computer Science Curricular Guidelines: A New Liberal Arts Perspective.”

**Professor Dick Forrester** contributed three chapters to the 3rd edition of the Encyclopedia of Optimization, including “Linearization Strategies for Binary Quadratic and Higher-Order Polynomial Programs.”

**Professor Jennifer Schaefer** published a paper on fixed-point group conjugacy classes, continuing a collaboration of over 10 years with colleagues she originally met at the Institute for Computational and Experimental Research in Mathematics.

**Professor Jeff Forrester** received a \$100,000 Integrated Research-Education Grant from the Charles E. Kaufman Foundation, working with biology professor Mike Roberts. The grant involves substantial research opportunities for students and is titled “Reprogramming Acute Myeloid Leukemia Cells Toward Cell Cycle Arrest and Death.”

**Professor Lorelei Koss** published the paper “Cantor and connected Julia sets of the parameterized Dixon elliptic functions”—coauthored with Alex Nash ('22), who is now pursuing graduate study in mathematics in Finland.

**Professor John MacCormick** published “I Unintentionally Created a Biased AI Algorithm 25 Years Ago—Tech Companies Are Still Making the Same Mistake” in *The Conversation*.

**Professor Naderi Dehkordi** extended his work in data analytics, publishing “Time series forecasting based on a novel ensemble-based network and variational mode decomposition.”

**Professor Holley Friedlander** published “Twisted Weyl group multiple Dirichlet series over the rational function field” in the *Journal of Number Theory*.

**Professor Farhan Siddiqui** continued her research into 5G computer networks, publishing the paper “Link-Discovery Extension to NS-3’s Terahertz Communication Module.”

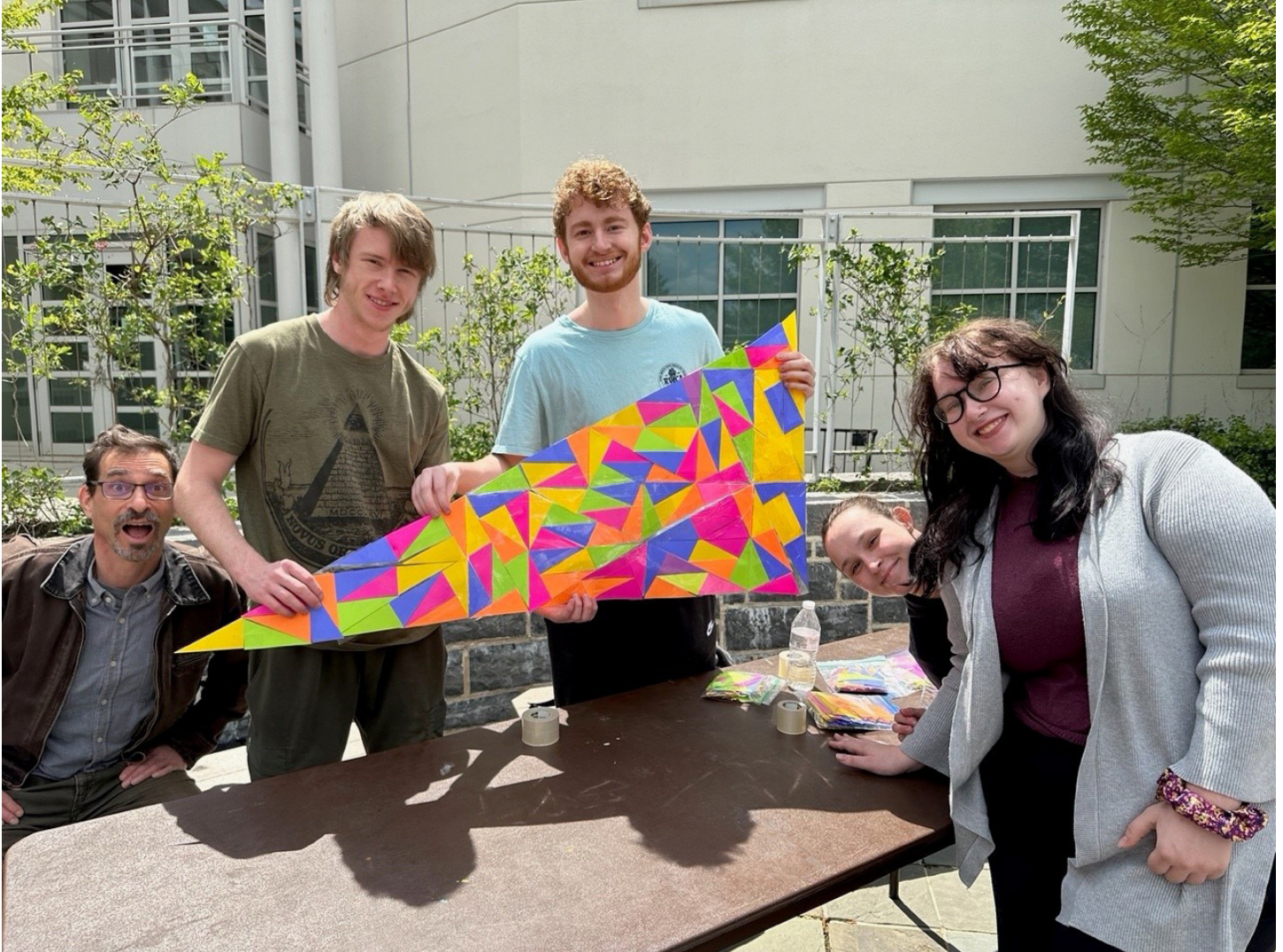
**Professor Dave Richeson** continues to write columns for the popular online science magazine *Quanta*, and he starred in one of their “explainer” videos (filmed in Denny Hall) on the four color theorem.



## **BUILDING TOGETHER AGAIN**

# **The Mathematics of Tiling**

Mathematician Alyssa Crans visited us in April for some more building together. This time we were assembling tiles that can cover the whole plane aperiodically! Here was our first group construction, an example of Conway's pinwheel tiling.



## **BUILDING EXPERIENCE**

# **The Seniors of Old Bellaire**

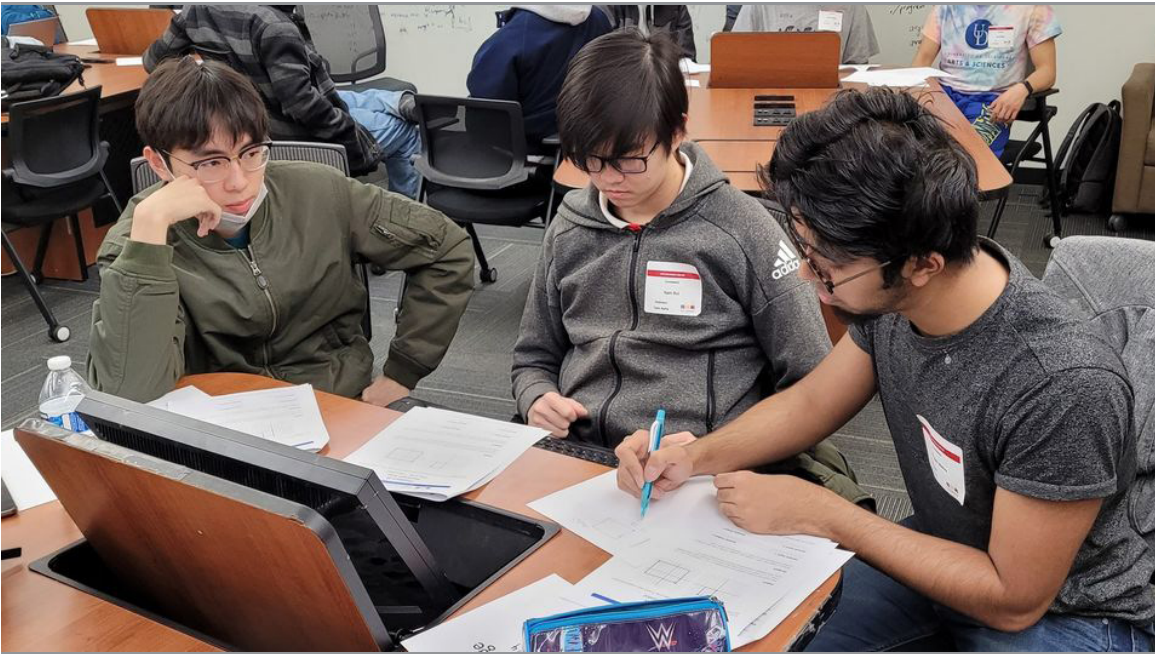
Our indefatigable academic department coordinator, **Tonya Miller**, was inducted into a very special group known as the Seniors of Old Bellaire. This honorable society recognizes Dickinson employees who have served the college for 25 years. Thanks to Tonya for her sterling work in keeping everything in the department running like clockwork—especially this year as she reaches an impressive milestone in her service. Tonya joins Professors Barry Tesman and Grant Braught, who are already members of this illustrious organization.



## **BUILDING SKILLS**

# **Dickinson's Programming Team**

**Nam Bui ('25), Pranav Mishra ('25), and Quan Nguyen ('25)**—all sophomores—competed in the Mid-Atlantic Region of the International Collegiate Programming Contest (ICPC). Competing in Division II of the contest, the Dickinson team solved four problems and placed eighth out of 42 teams in the division, defeating teams from other institutions ranging from Virginia Tech to Swarthmore College.



## **BUILDING COMMUNITY**

# **Alumni in the News**

Please send us your news for inclusion next year (contact details are at the end of the newsletter). Here are some highlights reported by alumni last year.

- **Heidi Connelly (Lawrence) ('06)** is the Azure Sales Leader for Microsoft's DoD business.
- **Marsha Moroh ('67)** retired from a distinguished career in academic computer science, having chaired the computer science department at CUNY Staten Island and later acting as a founding faculty member and dean at California State University Monterey Bay—and these days continues her contributions to the world of tech as a mentor for Young Leaders Forum: STEM for the Stars.
- **Max Rios ('21)** is working with Google's education team on their originality reporter.
- **Lina Vu ('09)** leads an analytics team at Vanguard.
- **Mackenzie Stricklin ('16)** hit her five-year anniversary with Vanguard, now working as a Software Engineering Chapter Lead, a role that combines hands-on coding and people management—and she is getting back into karate, having studied martial arts with Professor Dick Forrester at Dickinson many years earlier.
- **David Yetter ('79)** continues his mathematical research and teaching, most recently promoted to University Distinguished Professor (the highest faculty honor available!) at Kansas State University. He also participated in the Mathematical Sciences Research Institute's session on Higher Categories and Categorification as a Research Professor in 2020, and was recently able to attend the reunion conference of that session.
- **Patricia Collins ('71)** is retired from a career that included two decades at Hewlett-Packard followed by 10 years of software engineering teaching and research at Carnegie Mellon. These days she pursues writing projects such as reflections on travel and food, and she is actively engaged as a Dickinson alum, particularly with the Admissions Volunteer Network (AVN) and an alum writers group.



# **BUILDING SUCCESS**

## **2023 Departmental Prizes and Awards**

### **THE JANE HILL PRIZE IN COMPUTER SCIENCE**

*Awarded to that member of the freshman class who excels in computer science*

Linh Khanh Hoang ('26)

### **THE WILLIAM W. LANDIS MEMORIAL PRIZE IN MATHEMATICS**

*Endowed by George G. Landis '20. Awarded to a member of the freshman class*

Aaron Shin ('26)

### **THE HENRY P. CANNON MEMORIAL PRIZE IN MATHEMATICS**

*Endowed by the trustees. Awarded to a member of the sophomore class who excels in mathematics*

Allison Smith ('25)

### **THE FORREST E. CRAVER MEMORIAL PRIZE IN MATHEMATICS**

*Awarded to a member of the junior class*

Dzung Dinh ('24)

### **THE LANCE E. KOHLHAAS MEMORIAL PRIZE IN MATHEMATICS**

*Awarded to a graduating mathematics major who has demonstrated excellence in that field and shows promise in an actuarial or mathematics career. Endowed by the friends and family of Lance E. Kohlhaas, class of 1986*

Zimeng Liu ('23)

### **THE RICHARD HOWLAND PRIZE IN MATHEMATICS AND COMPUTER SCIENCE**

*Awarded to a senior for excellence in mathematics or computer science*

Leah Goldberg ('23)

### **THE CAROLINE HATTON CLARK MATHEMATICS SCHOLARSHIP**

*Awarded for outstanding achievement in mathematics*

Megan Triplett ('25)

### **THE RICHARD HOWLAND MEMORIAL SCHOLARSHIP**

*Endowed through gifts and a bequest from the estate of Kenneth Howland in memory of his son, Richard Howland, former faculty member at Dickinson College*

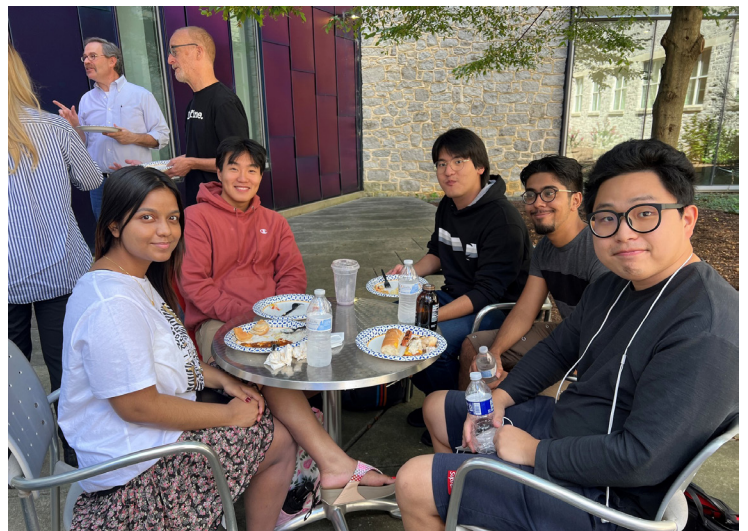
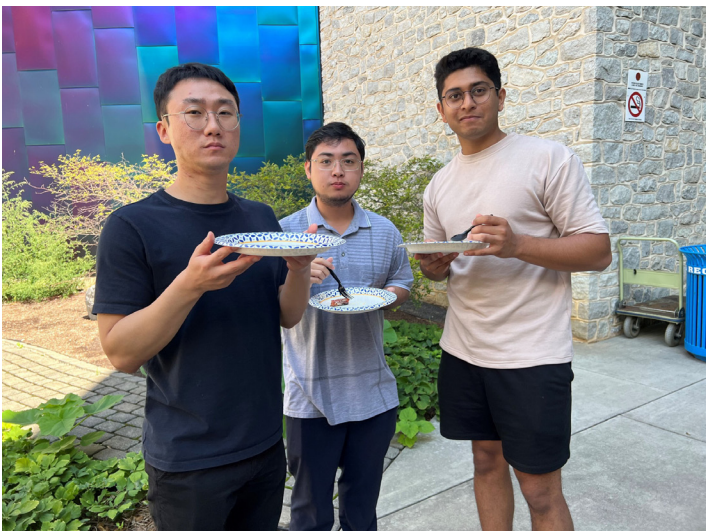
Hailie Mitchell ('24)





# **BUILDING MEMORIES**

## **Photos from the 2022–23 academic year**





# **BUILDING MEMORIES**

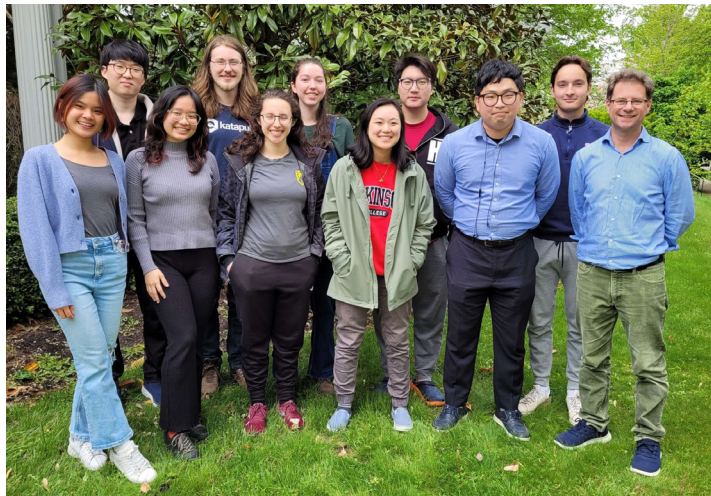
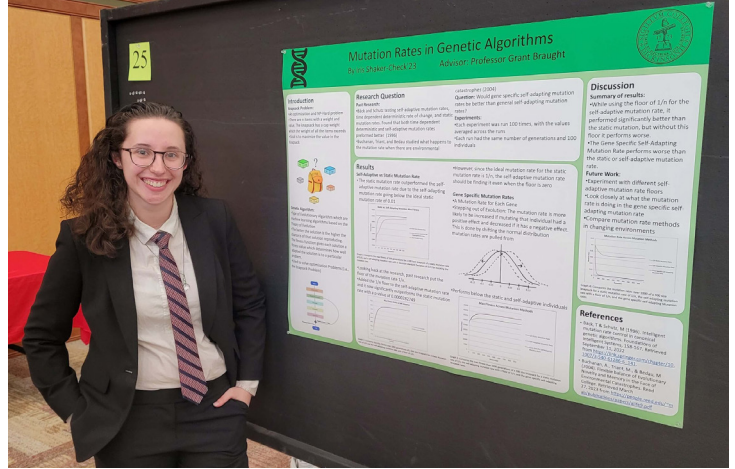
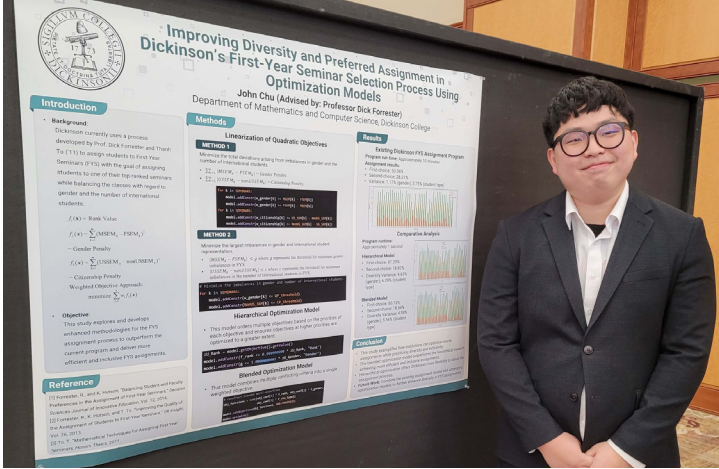
## **Photos from the 2022–23 academic year**





# BUILDING MEMORIES

## Photos from the 2022–23 academic year

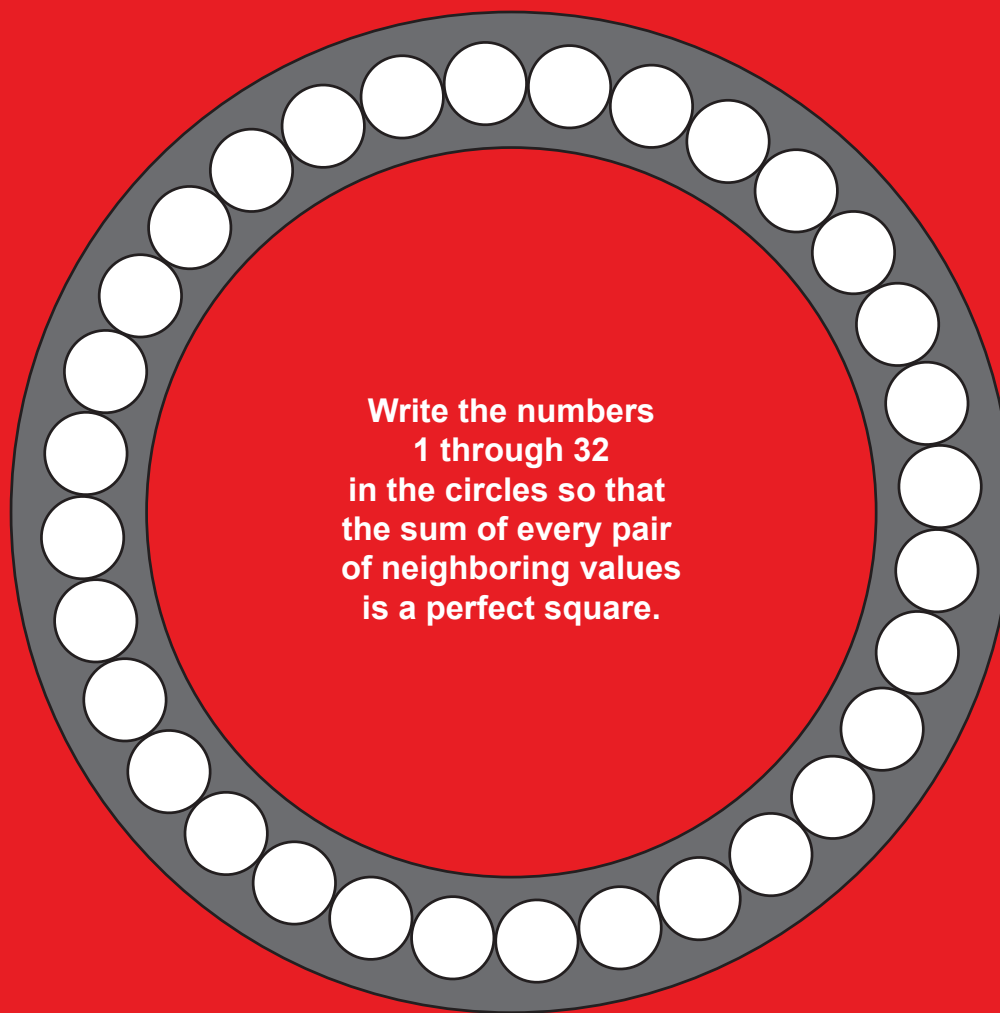




# BUILDING BRAIN CELLS

## Two Puzzling Sequences

Write the numbers 1 through 17 in the circles so that the sum of every pair of neighboring values is a perfect square.



Write the numbers 1 through 32 in the circles so that the sum of every pair of neighboring values is a perfect square.

Answers:  
Line of 17: 16, 9, 7, 2, 14, 11, 5, 4, 12, 13, 3, 6, 10, 15, 1, 8, 17  
Circle of 32: 1, 8, 28, 21, 4, 32, 17, 19, 30, 6, 3, 13, 12, 24, 25, 11, 5, 31, 18, 7, 29, 20, 16, 9, 27, 22, 14, 2, 23, 26, 10, 15

## BUILDING CONNECTIONS

### Let Us Know What's Happening

Please keep in touch! Contact John MacCormick (computer science, [jmac@dickinson.edu](mailto:jmac@dickinson.edu)) or Dave Richeson (mathematics, [richesod@dickinson.edu](mailto:richesod@dickinson.edu)) with any news, or just to say hi. We love to hear from you.