



# Why Choose Math?

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# RICE UNIVERSITY SCHOOL MATHEMATICS PROJECT



# Katherine Johnson





# Why I Chose Mathematics

- My background
- My education
- My mentors



# What is mathematics?



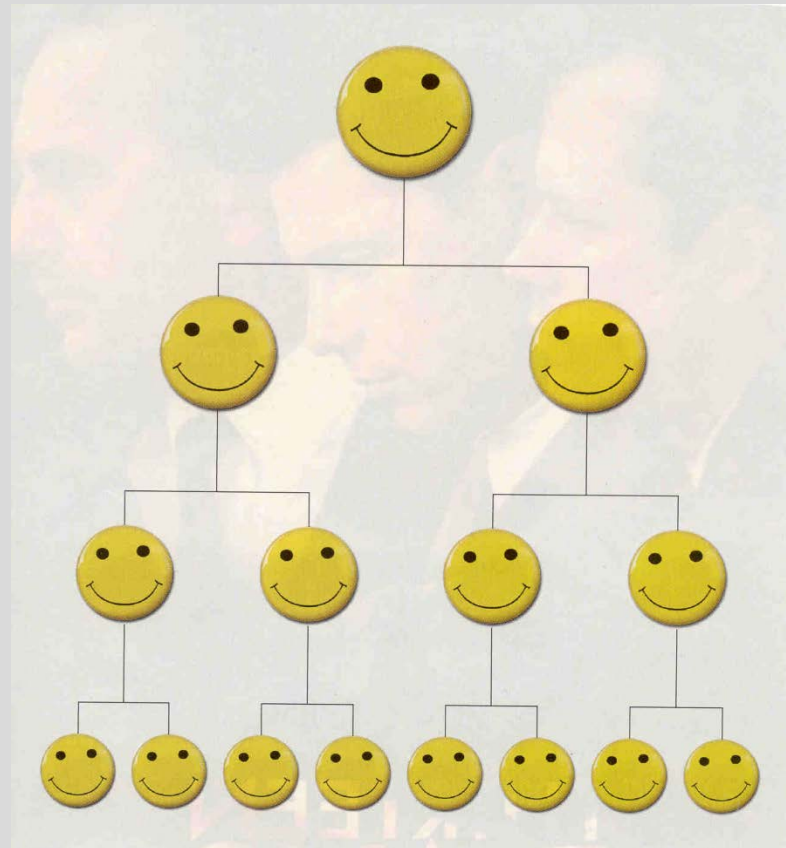
# What is mathematics?

Mathematics is discovering patterns and relations and expressing them symbolically.





What is the mathematical function that describes the pattern below?





# Careers that Use Math

[Actuary](#) \$158,240/yr

[Air Traffic Controller](#) \$161,650/yr

[Animator](#) \$99,130/yr

[Architect](#) \$122,640/yr

[Astronaut](#) \$93,000/yr

[Attorney](#) \$166,400/yr

[Biologist](#) \$100,580/yr

[Biostatistician](#) \$117,210/yr

[Budget Analyst](#) \$100,880/yr

[Cartographer](#) \$90,410/yr

[Chemical Engineer](#) \$132,980/yr

[Chemist](#) \$114,880/yr

[Climatologist](#) \$127,250/yr

[College Professor](#) \$128,330/yr

[Computational Biologist](#) \$100,580/yr

[Computer Scientist](#) \$155,420/yr

[Cost Estimator](#) \$95,190/yr

[Cryptanalyst](#) \$112,780/yr

[Economist](#) \$153,210/yr

[Electrical Engineer](#) \$126,810/yr

[Epidemiologist](#) \$92,610/yr

[Foreign Exchange Trader](#) \$139,517/yr

[Forensic Analyst](#) \$84,260/yr

[Mathematical Biophysicist](#) \$138,820/yr

[Mathematical Physicist](#) \$165,750/yr

[Mathematician](#) \$140,500/yr

[Mechanical Engineer](#) \$117,550/yr

[National Security Analyst](#) \$105,581/yr

[Nuclear Engineer](#) \$140,140/yr

[Operations Research Analyst](#) \$119,140/yr

[Petroleum Engineer](#) \$150,310/yr

[Physician](#) \$166,400/yr

[Political Scientist](#) \$151,360/yr

[Psychometrician](#) \$200,000/yr

[Purchasing Agent](#) \$101,480/yr

[Quant. Financial Market Analyst](#) \$139,350/yr

[Statistician](#) \$117,210/yr

[Stockbroker](#) \$118,640/yr

[Technical Writer](#) \$100,020/yr

[Urban Planner](#) \$94,800/yr





Mathematician is considered the ***Best*** Job  
of All Jobs.

The top 3 jobs on the list were:

1. Mathematician
2. Actuary
3. Statistician

*Wall Street Journal*



# First Recorded Female Mathematician Hypatia

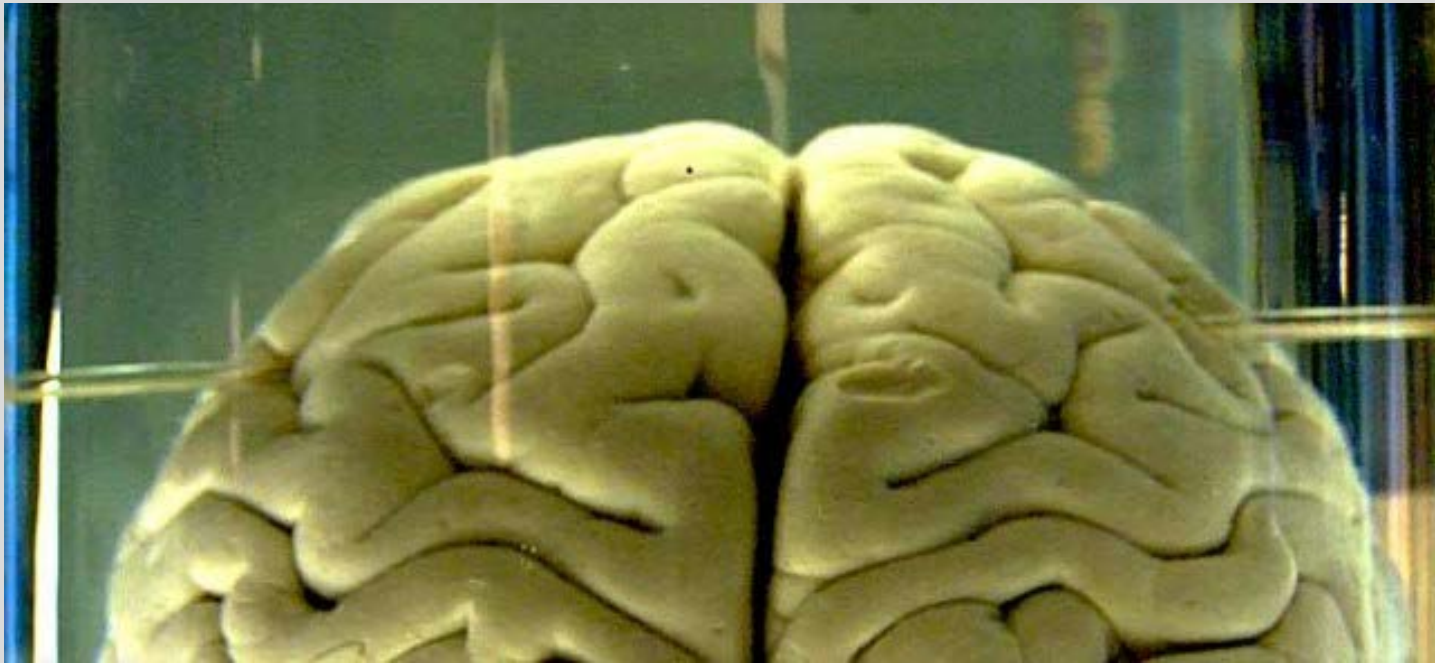




# Why Choose Math?



# Math Makes You Smarter





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# Math helps you learn:

- how to solve the hard challenges in your life that no one has solved before.
- to recognize mistakes in thinking and errors in arguments—it helps you recognize when people are lying to you or trying to cheat you.
- how to handle data.

Math gives you the important tools  
you need in your life.





## Who is lying?

Joanna tells lies on Fridays, Saturdays, and Sundays. She tells the truth on all other days. Anne tells lies on Tuesdays, Wednesdays, and Thursdays. She tells the truth on all other days. If they both say “I lied yesterday,” then what day is it today?



What is the only number with the same number of letters as its actual value.



## Facts

- U.S. Hispanics or African Americans earn only **4%** of the bachelors' degrees in mathematics and fewer than **2%** of the Ph. D. degrees.
- White males receive **3 out of 4** Ph. D. degrees awarded to U.S. citizens.



## The Math Pipeline has a huge dropout rate.

- From 9<sup>th</sup> grade through the Ph.D., the half-life of students is 1 year.
- Beginning with approximately 3.2 million students entering high school, we lose 50% each year until only a few hundred attain the Ph.D.



The goal for *all* students should be  
to take mathematics courses  
*each year*  
through the 12<sup>th</sup> grade.



## Mathematics in the *Fast Track*

- Pre-AP Algebra I in 8<sup>th</sup> grade
- Pre-AP Geometry in 9<sup>th</sup> grade
- Pre-AP Algebra II in 10<sup>th</sup> grade
- AP Pre-Calculus in 11<sup>th</sup> grade
- AP Calculus in 12<sup>th</sup> grade (AB or BC)
- AP Statistics concurrently with  
Pre-AP Pre-Calculus or with AP Calculus, if  
desired





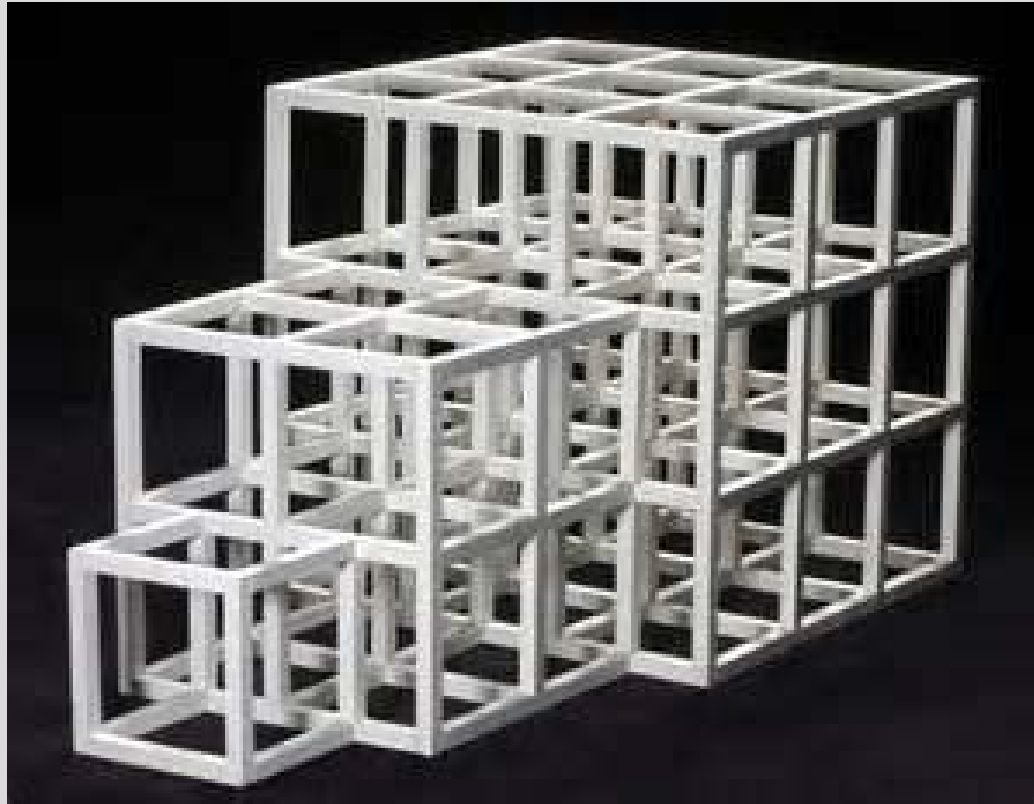
# How to Succeed in Math

- Work hard.
- Be open-minded.
- Understand why – don't just memorize.
- Never give up.
- Learn to read your math textbook.
- Talk with your teacher.
- Look for the beauty in mathematics.

*adapted from  
WeUseMath.org*















# Structure – “One, Two, Three”





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# RICE UNIVERSITY

## SCHOOL MATHEMATICS PROJECT





Will *You* Choose Math?



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