



# STEM

By: Krista D. Schmidt

## Abstract

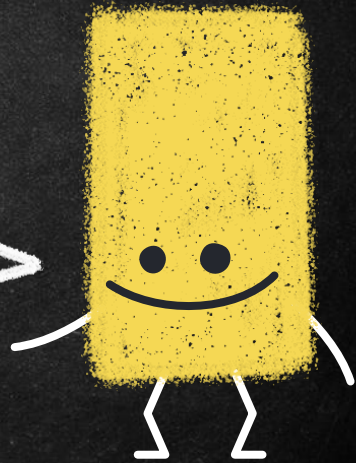
This presentation provides a broad overview of the idea of STEM – what it is and what it means – and a summary of STEM diversity through recent statistics in the United States as they relate to jobs, higher education, and diversity in STEM fields.

Schmidt, K.D. (2021, March 24). *STEM* [Keynote address]. Branching into Stem: Expanding Retention and Improving Diversity in STEM Librarianship, sponsored by REMCo and STEM-LINC, Virtual.

Archived version from NC DOCKS available at: <http://libres.uncg.edu/ir/wcu/listing.aspx?styp=ti&id=37210>.

# STEM

WITH KRISTA  
(STEM LIBRARIAN AT WESTERN  
CAROLINA UNIVERSITY)



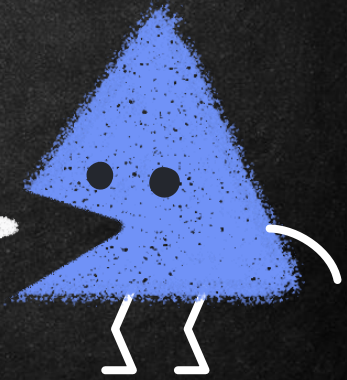
# STEM

Science

Technology

Engineering

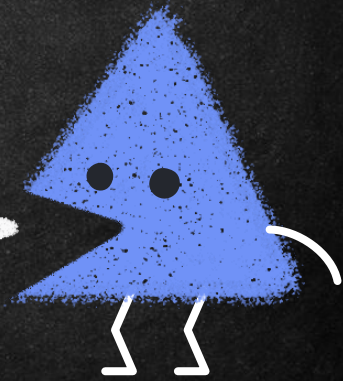
Mathematics





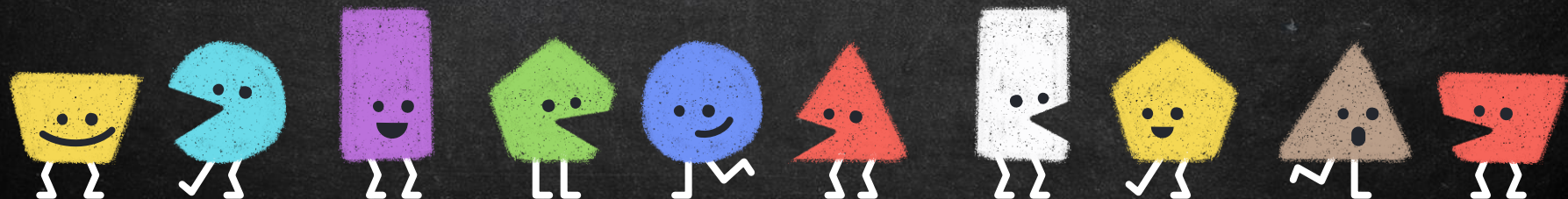
# STEM COINED IN 2001

But...it's not new.  
See SMET or METS



# BUT WHAT IS IT?

NO ONE AGREES!





EXCEPT...

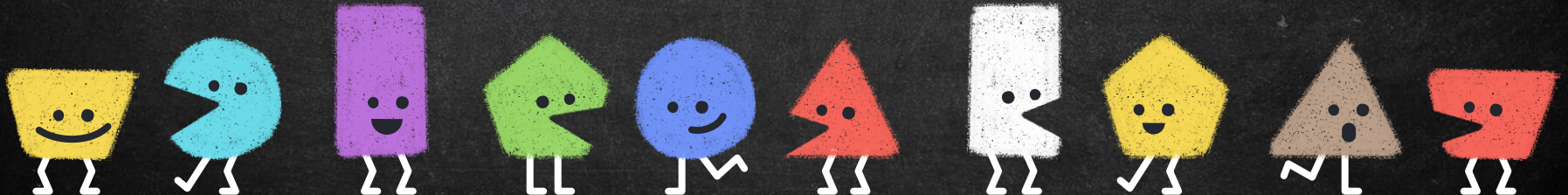
CORE:

**S**CIENCE = PHYSICAL & LIFE SCIENCES: BIOLOGY, CHEMISTRY, PHYSICS, GEOLOGY, ENVIRONMENTAL SCIENCE, ASTRONOMY. ETC.

**T**ECHNOLOGY = COMPUTER SCIENCE

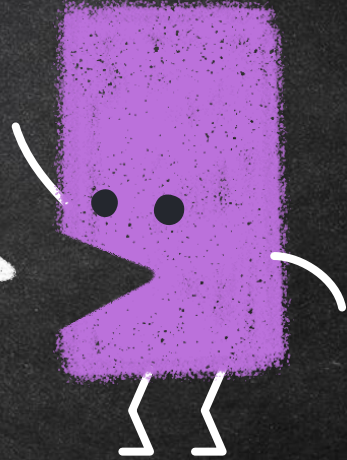
**E**NGINEERING = ALL TYPES OF ENGINEERING

**M**ATHEMATICS = BASIC AND APPLIED MATHEMATICS



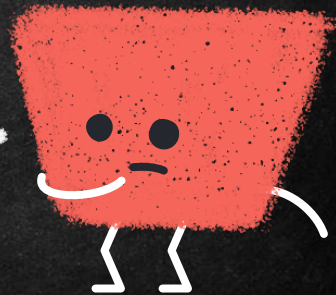
Beyond that:  
Social Sciences  
Behavioral Sciences  
Medicine

*But not always*





# STEM OCCUPATIONS: A BRIEF OVERVIEW





# STEM OCCUPATIONS: A BLS SNAPSHOT

## Current Employment

2019

**9.96** million STEM  
occupations

**152.8** million non-STEM  
occupations

**162.8** million all  
occupations

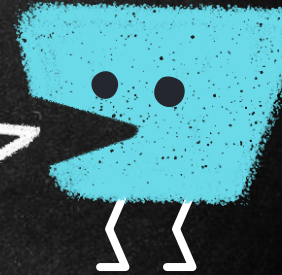
## Projected change 2019-2029

**+8%** STEM

**+3.4%** Non-STEM

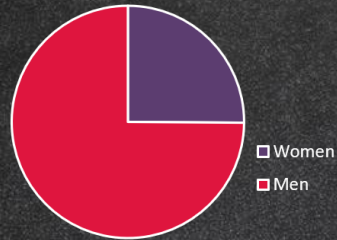
**+3.7%** All  
Occupations

BLS Table 1.11, 2020

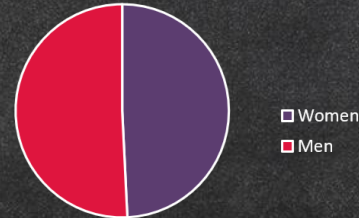


# STEM WORKERS: CURRENT NUMBERS BY SEX.

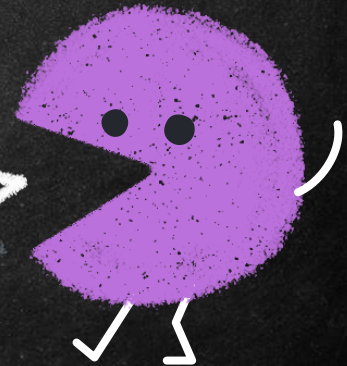
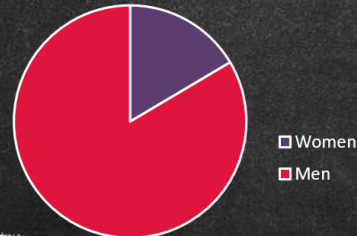
Computer and Mathematical Occupation by Sex. 2020.



Life, Physical, and Social Science Occupations by Sex. 2020



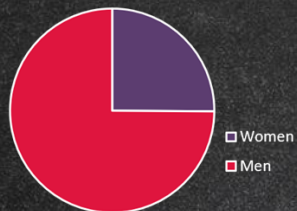
Architecture and Engineering Occupations by Sex. 2020



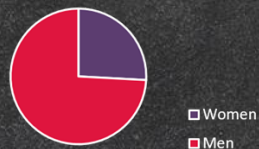


# STEM WORKERS: COMPARISON 2020 & 2010

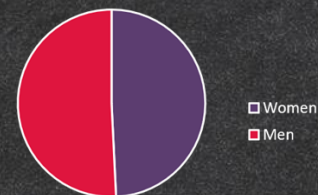
Computer and Mathematical Occupation by  
Sex. 2020.



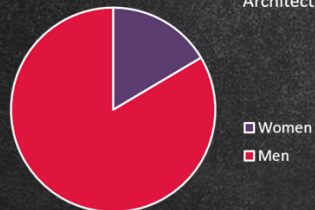
Computer and Mathematical  
Occupations by Sex. 2010



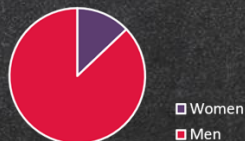
Life, Physical, and Social Science Occupations by  
Sex. 2020



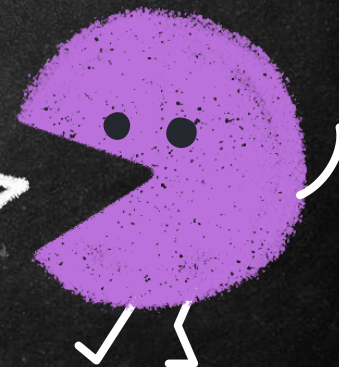
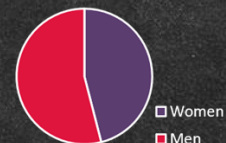
Architecture and Engineering Occupations by  
Sex. 2020



Architecture and Engineering Occupations by  
Sex. 2010

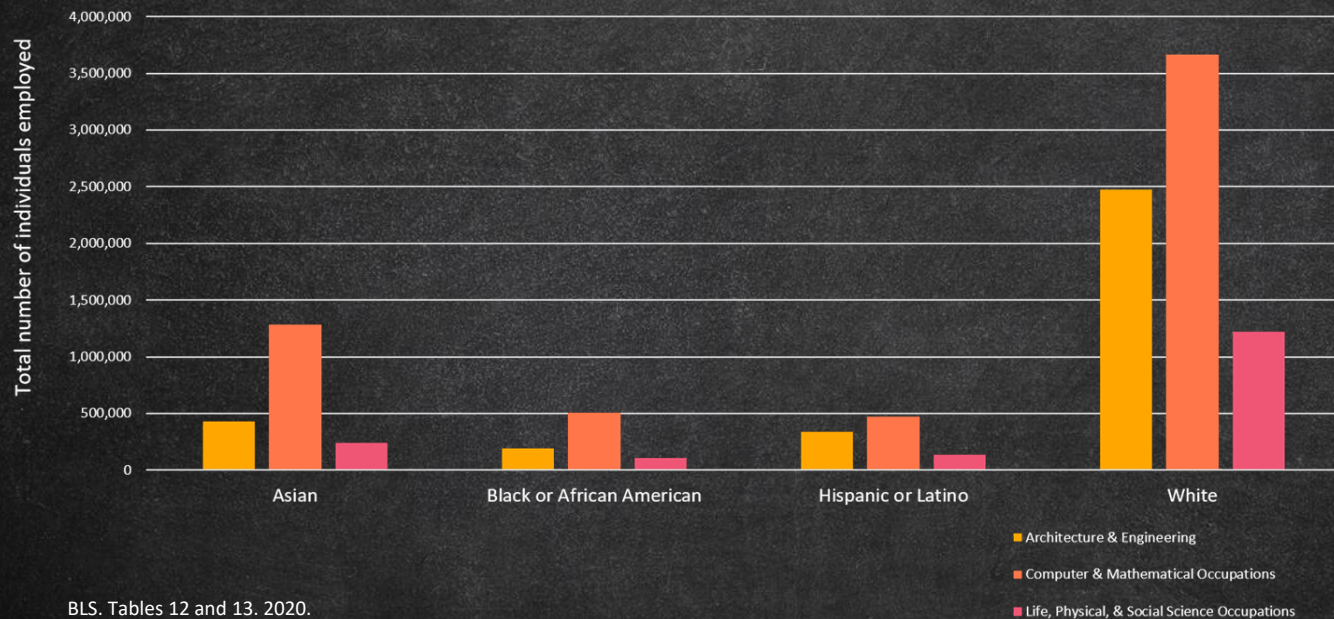


Life, Physical, and Social Science  
Occupations by Sex. 2010.



# STEM WORKERS: BY RACE & ETHNICITY. 2020

Selected STEM Occupations. Employment by Race & Ethnicity. 2020



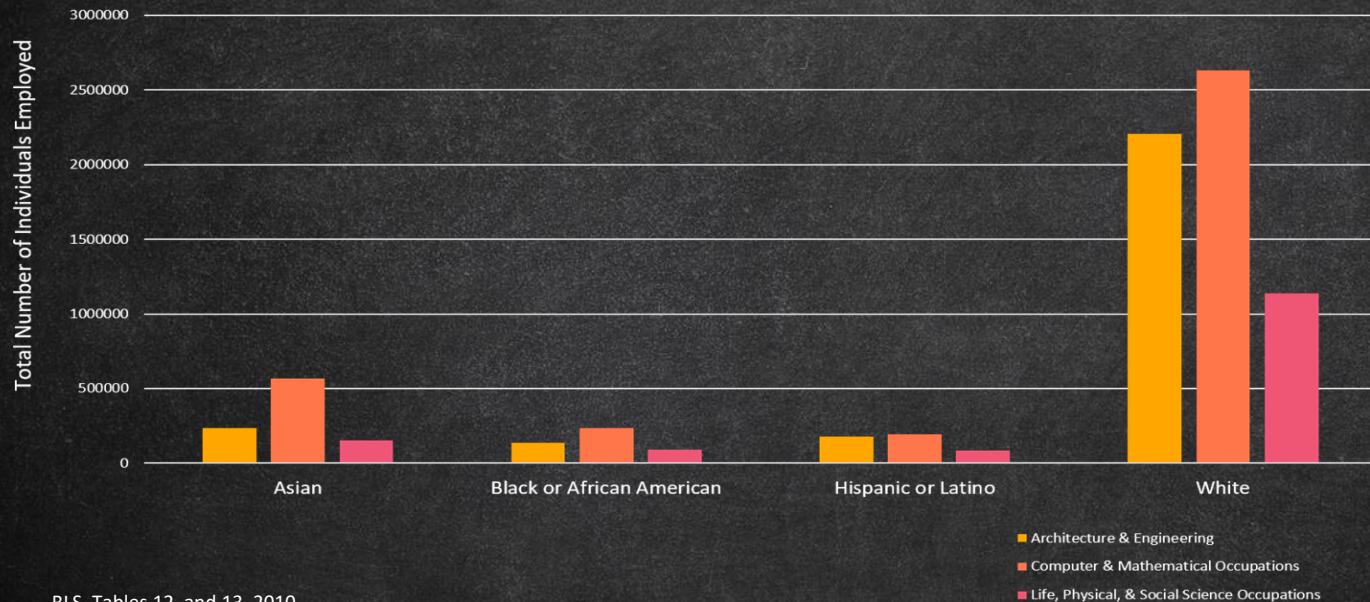
BLS. Tables 12 and 13. 2020.





# STEM WORKERS: BY RACE & ETHNICITY. 2010


Selected STEM Occupations. Employment by Race & Ethnicity. 2010



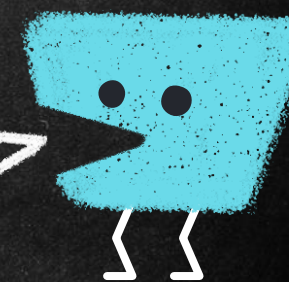
BLS. Tables 12. and 13. 2010.



# STEM OCCUPATIONAL TAKEAWAYS



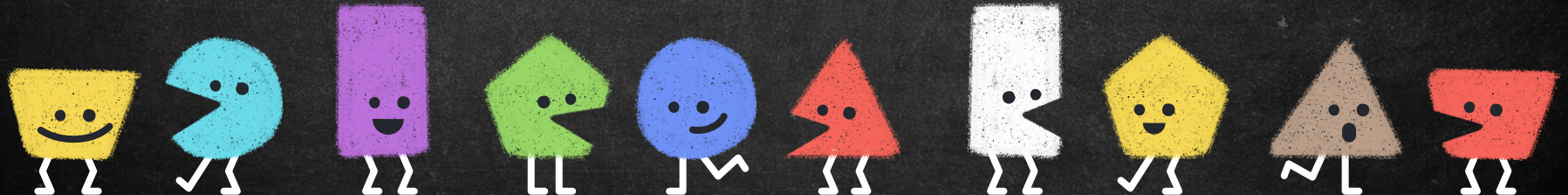
STEM occupations that require postsecondary degrees are growing. Demand is going to climb.



No significant progress in diversity in sex/gender and race or ethnicity. Wide variability exists in STEM disciplines but all have large disparities. Will this improve significantly? When?



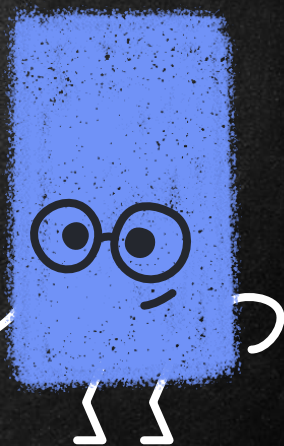
LET'S TALK STEM EDUCATION



# STEM EDUCATION: A NCES SNAPSHOT

OVERALL DEGREES CONFERRED (2018–2019) FOR  
BACHELOR, MASTER, AND DOCTORAL DEGREES  
(US).

BACHELOR:	2,012,854
MASTER:	833,706
DOCTORAL:	187,568

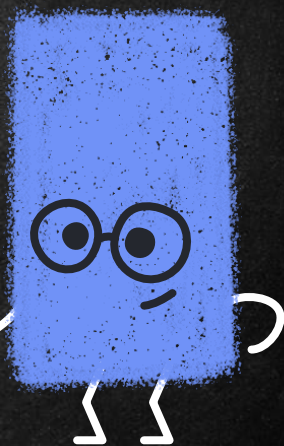




# STEM EDUCATION: A NCES SNAPSHOT

OVERALL DEGREES CONFERRED (2018–2019) FOR  
BACHELOR, MASTER, AND DOCTORAL DEGREES  
(US).

BACHELOR:	2,012,854	STEM = 20.5%
MASTER:	833,706	STEM = 16.6%
DOCTORAL:	187,568	STEM = 15.9%



# HIGHER EDUCATION DEGREES BY SEX. ALL DISCIPLINES: 2018–2019

57.4%

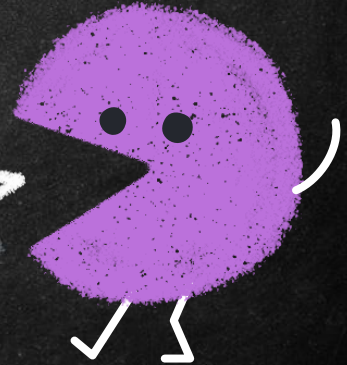
*Bachelor's Degree*  
Percent of total graduates that  
are women.

60.9%

*Master's Degree*  
Percent of total graduates that  
are women.

54.3%

*Doctoral Degree*  
Percent of total graduates that  
are women.





# STEM HIGHER EDUCATION DEGREES BY SEX: 2019– 2018

**36.3%**

*Bachelor's Degree  
Percent of total STEM  
graduates that are women.*

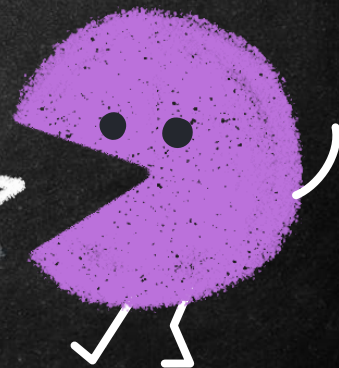
**34.8%**

*Master's Degree  
Percent of total STEM  
graduates that are women.*

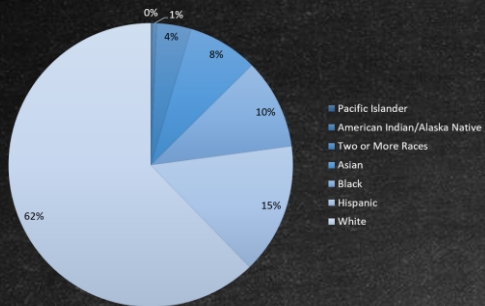
**34.0%**

*Doctoral Degree  
Percent of total STEM  
graduates that are women.*

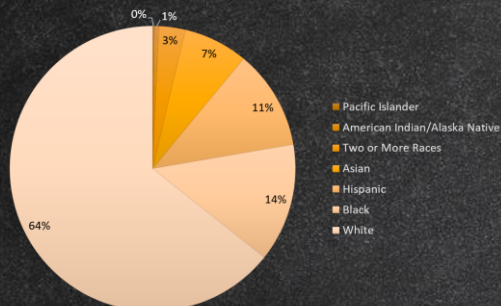
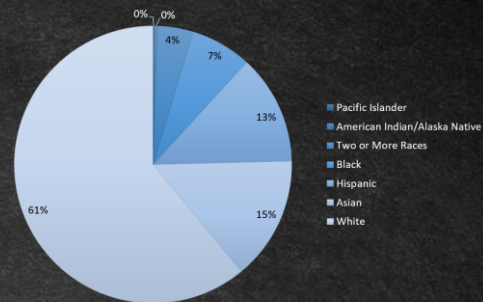
NCES. Table 318.45.  
2020



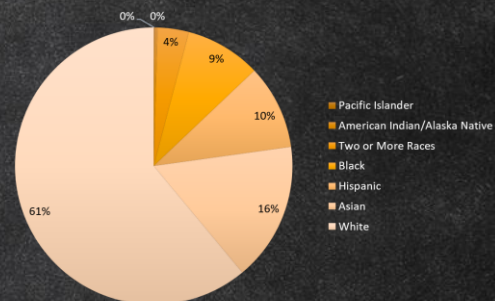
ALL DISCIPLINES



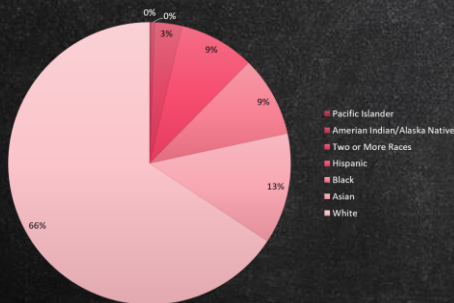
## BACHELOR'S DEGREES 2018-2019 BY RACE AND ETHNICITY



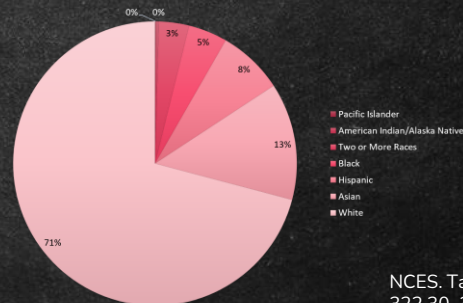
## MASTER'S DEGREES 2018-2019 BY RACE AND ETHNICITY



STEM Disciplines

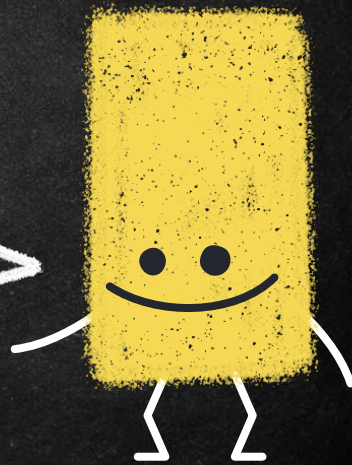
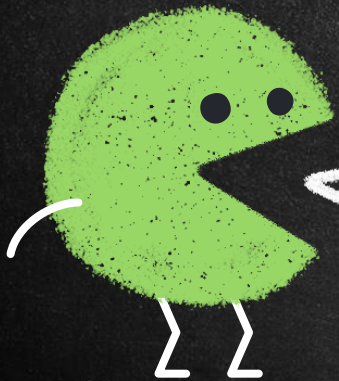


## DOCTORAL DEGREES 2018-2019 BY RACE AND ETHNICITY





# FINAL THOUGHTS



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