

From Insight to Impact:

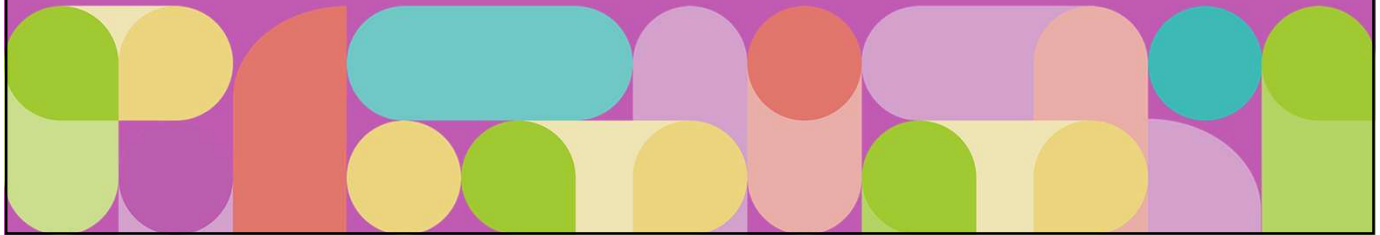
Transforming CTE with Career-Connected Learning

Art Maxwell

Territory Manager
YouScience

Christie Palladino

Biomedical Science Teacher, ACCTC
2027 South Carolina Teacher of the Year



1



-
- 01** Intros

 - 02** Career Learning in the Biomedical Sciences

 - 03** How Christie met Ivey

 - 04** Career Exploration

 - 05** Career Application

 - 06** Career Navigation

 - 07** Questions?

2

Session Objectives

Can we:

Articulate specific ways in which a national career initiative can and has been applied for:

- recruitment,
- instruction, and
- college and career readiness?



3

3

Career Learning in the Biomedical Sciences

ENGAGING CONTENT



HIGH DEMAND



The
GOOD!

INTRO CURRICULA



ACCESSIBILITY



4

Career Learning in the Biomedical Sciences



The
BAD!



5

Career Learning in the Biomedical Sciences

DOCTORS



NURSES

The
BAD!



6

Career Learning in the Biomedical Sciences



Clinical Laboratory Science

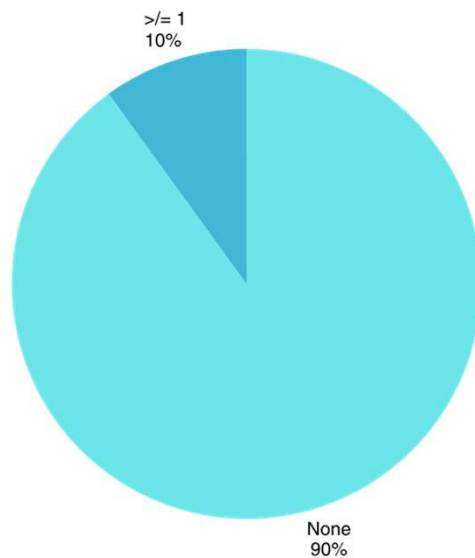


The
BAD!

7

Career Learning in the Biomedical Sciences

Prior Wet Lab Experience in
Biomedical Science 1st Years

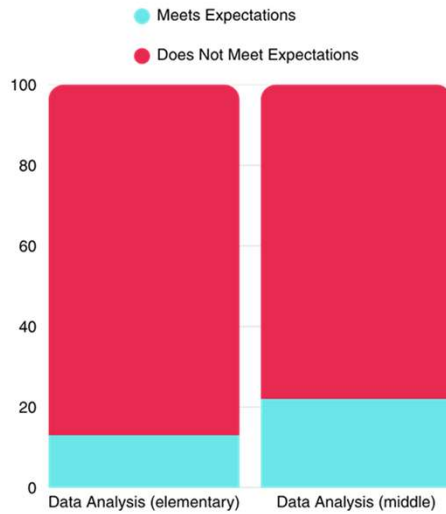


The
BAD!

8

Career Learning in the Biomedical Sciences

Mastery of Data Analysis Standard, via State Assessment



The UGLY!

How Ivey Met Christie



you science brightpath
Brightpath is a comprehensive, platform designed to help students find their **why**, their **path**, and their **purpose**.

- Education Connections**
- Find best fit schools
 - Explore majors
 - Build a college plan

- Aptitude & Career Discovery**
- View aptitudes
 - Describe yourself
 - Discover careers

- Work-Based Experiences**
- View work-based learning
 - Connect with employers
 - Track student hours

- Education & Career Plan**
- Pick classes
 - Build a resume
 - Create a plan

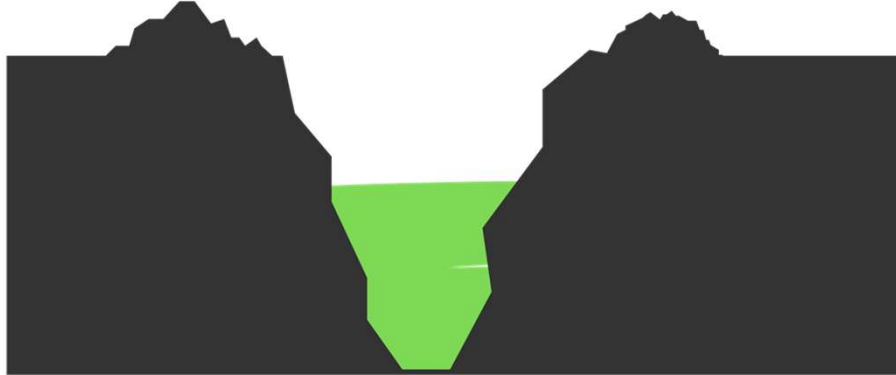
- Career Connections**
- Connect with employers
 - Get real world experience
 - View best-fit jobs

- Industry Certifications**
- Access certifications
 - Certify skills
 - Manage exams

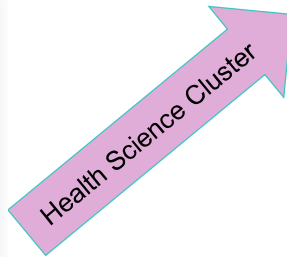
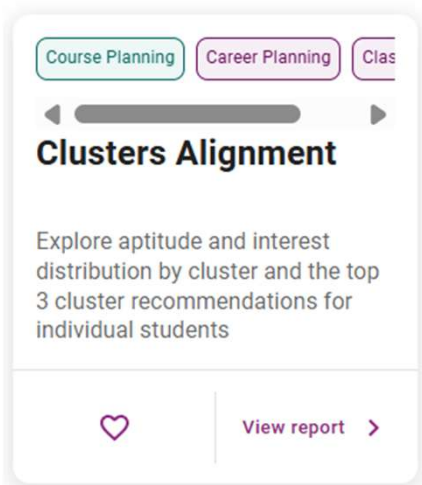
- Insights & Analytics**
- View and export reports
 - Results summaries
 - Program evaluation

Application Area 1: Data Driven Recruitment

2021-2022 Cohort: 10/20 Slots Filled



Data Driven Recruitment: ACCTC Health Science Night



Targeted invitation
(email)



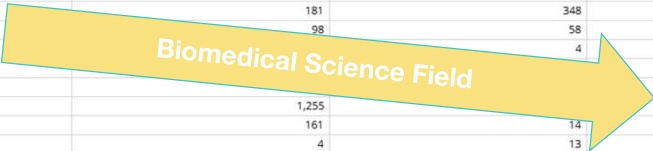
Data Driven Recruitment: ACCTC Health Science Night

Targeted invitation

Summary: Career Fits

Careers recommended to at least one student based on aptitude, interest, or overall

Career Name	Aptitude Fits	Interest Fits	Overall Fits	Aptitude to Interest Ratio
Biological Technicians	34	2	5	14.53
Biologists	7	97	13	0.02
Biostatisticians	11	128	17	0.01
Cardiovascular Technologists and Technicians	123	8	43	18.24
Child, Family, and School Social Workers	97	133	252	0.69
Chiropractors	120	42	69	3.15
Clinical and Counseling Psychologists	8	136	54	0.02
Clinical Data Managers	36	17	25	2.63
Clinical Nurse Specialists	16	166	56	0.06
Clinical Research Coordinators	118	106	196	1.12
Community Health Workers	181	348	702	0.43
Coroners	98	58	35	1.77
Critical Care Nurses		4	9	1.50
Cytogenetic Technologists			57	33.57
Cytotechnologists			45	14.76
Dental Assistants	1,255		119	48.59
Dental Hygienists	161	14	116	15.65
Dental Laboratory Technicians	4	13	34	0.56
Dentists, General	10	16	5	0.60
Dermatologists	27	26	17	0.95
Diagnostic Medical Sonographers	42	10	12	4.07



Data Driven Recruitment: ACCTC Health Science Night

Targeted invitation (email)

Top Careers For Students

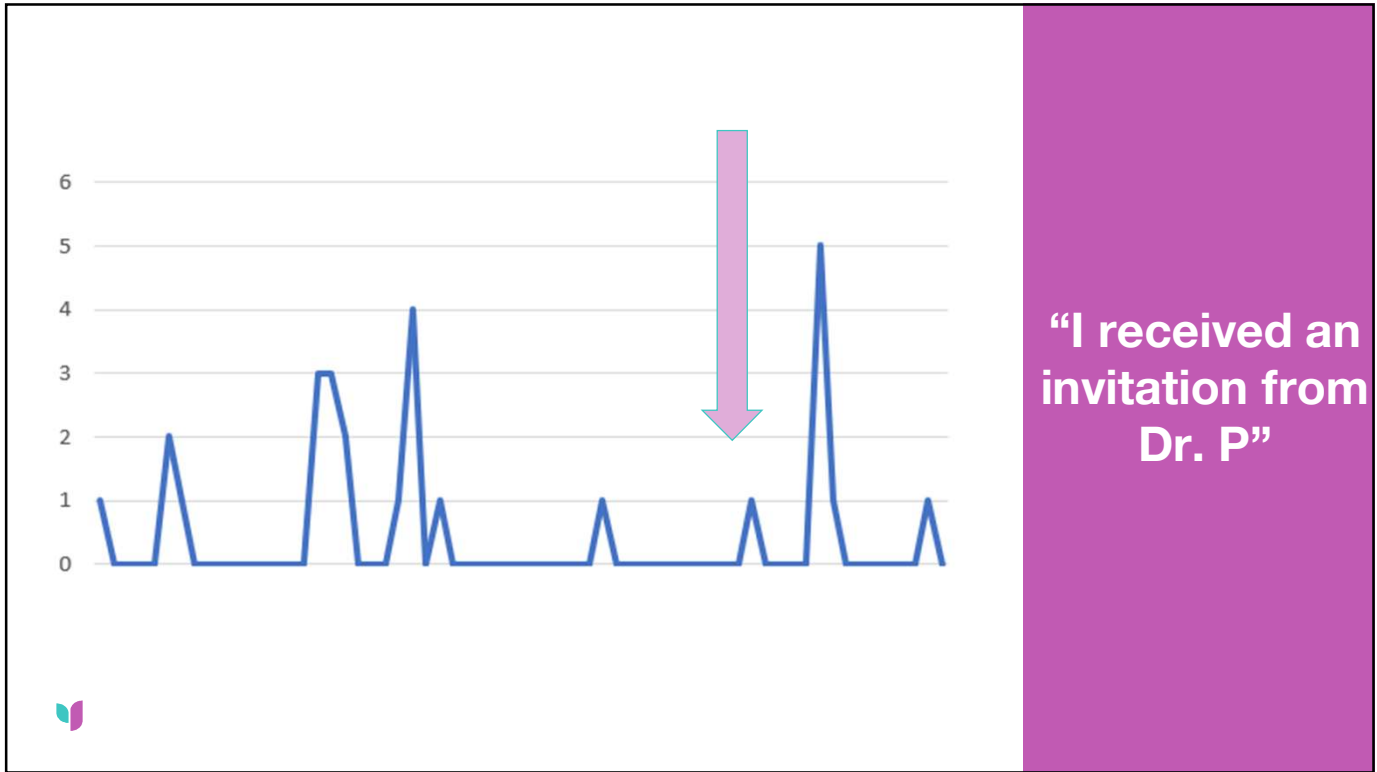
Top 10 career recommendations for each student based on their aptitudes, interests, or overall

Email	First Name	Last Name	Cluster	Career	Aptitude Fit	Interest Fit	Overall Fit	Grad Year
			Healthcare & Human Services	Cytogenetic Technologists	Strong	Weak	Good	2029
			Healthcare & Human Services	Cytogenetic Technologists	Good	Strong	Strong	2028
			Healthcare & Human Services	Cytogenetic Technologists	Strong	Weak	Strong	2028
			Healthcare & Human Services	Cytogenetic Technologists	Good	Good	Strong	2027
			Healthcare & Human Services	Cytogenetic Technologists	Strong	Fair	Strong	2026
			Healthcare & Human Services	Cytogenetic Technologists	Strong	Weak	Good	2026
			Healthcare & Human Services	Cytogenetic Technologists	Strong	Weak	Good	2027
			Healthcare & Human Services	Cytogenetic Technologists	Good	Good	Strong	2027
			Healthcare & Human Services	Cytogenetic Technologists	Strong	Fair	Strong	2028
			Healthcare & Human Services	Cytogenetic Technologists	Strong	Weak	Good	2026
			Healthcare & Human Services	Cytogenetic Technologists	Strong	Good	Strong	2026
			Healthcare & Human Services	Cytogenetic Technologists	Strong	Weak	Good	2026
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			Healthcare & Human Services	Cytogenetic Technologists	Strong	Weak	Good	2026
			Healthcare & Human Services	Cytogenetic Technologists	Strong	Weak	Good	2026
			Healthcare & Human Services	Cytogenetic Technologists	Strong	Good	Strong	2026
			Healthcare & Human Services	Cytogenetic Technologists	Strong	Weak	Good	2026

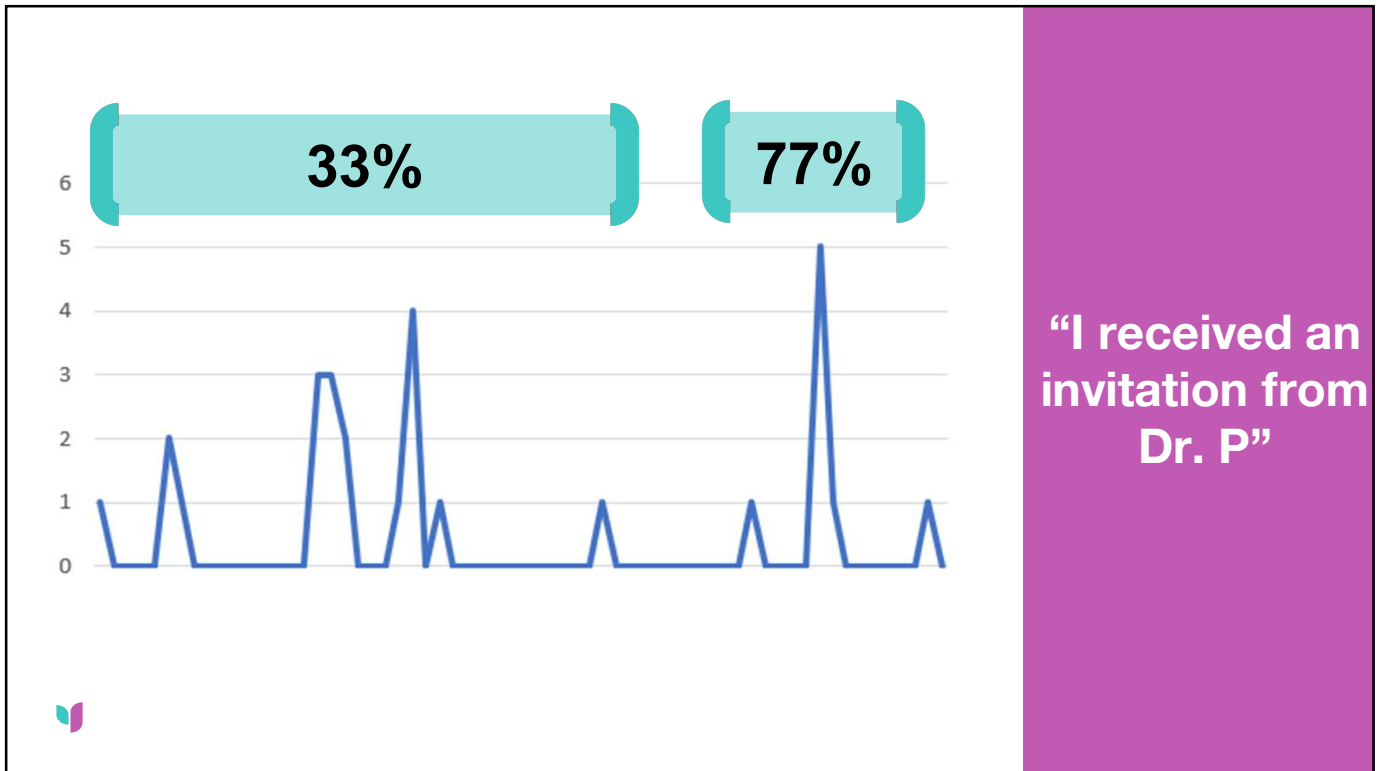
130 Students with aptitude and/or interest fits to Cytogenetic Technologies!

Personalized invitation (email)





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17



18

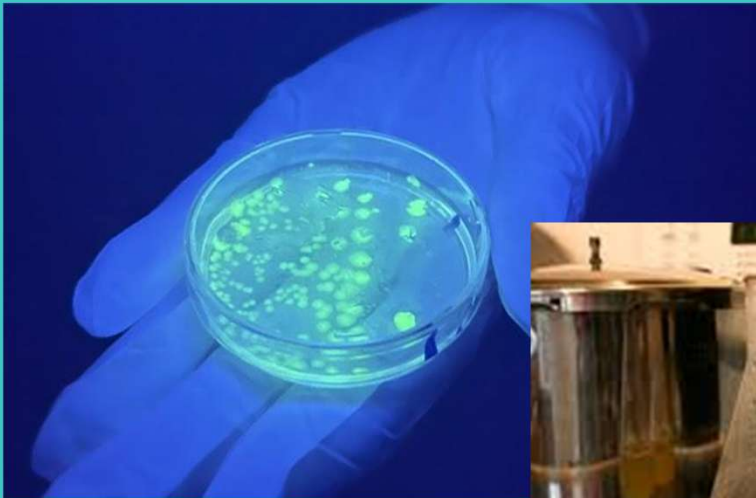
Application Area 2: Data Driven Instruction



Janiya's
Story

19

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Formerly, a
Bleach Story

20

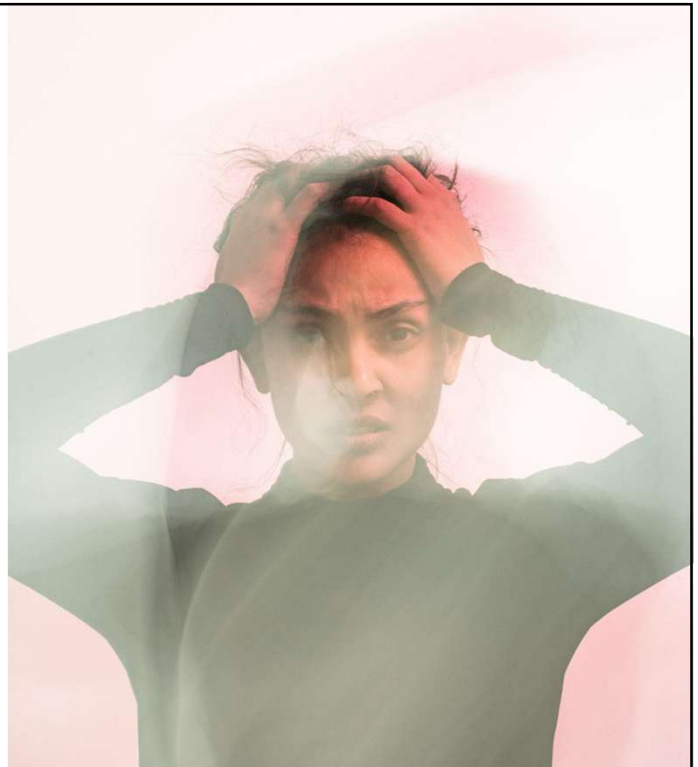
20

How much bleach would you need to make 1,000 mL of a 1:10 bleach solution

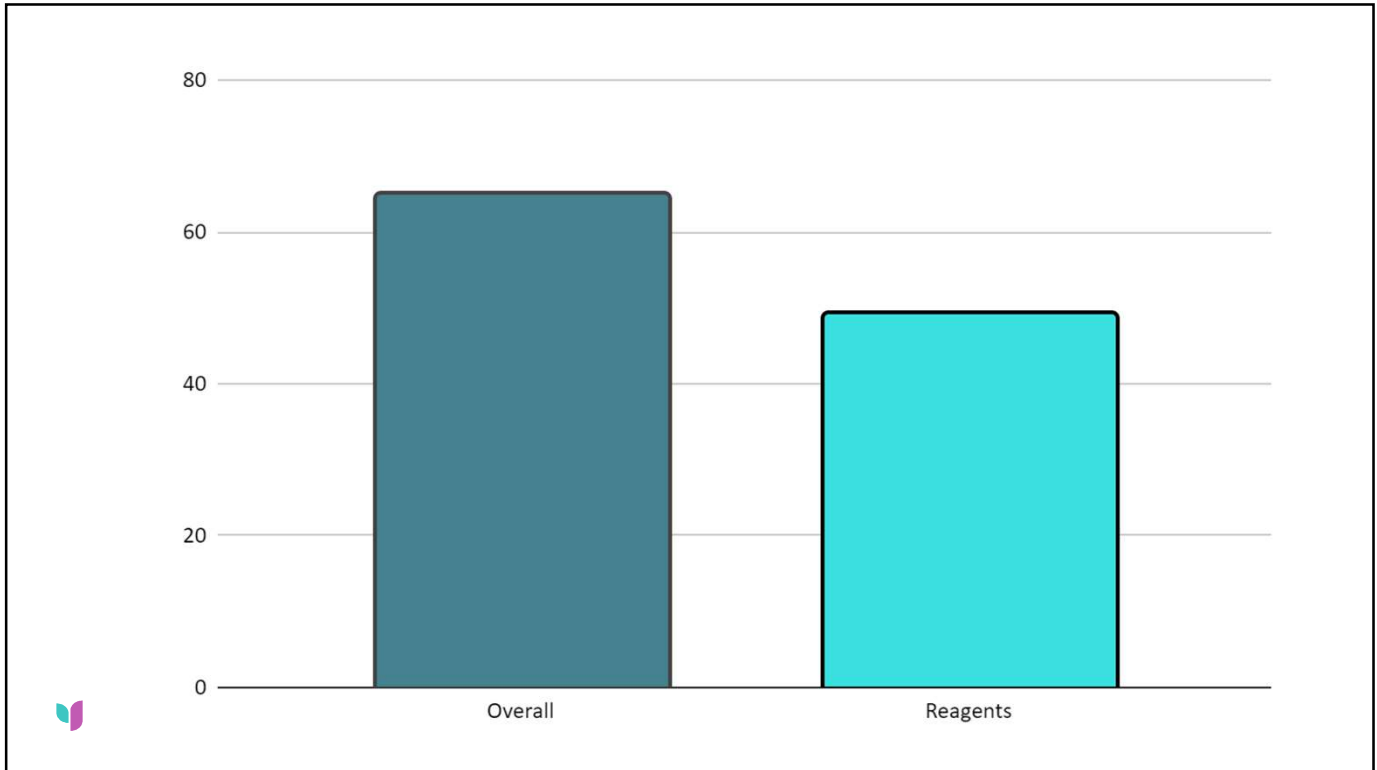


21

How much bleach would you need to make 1,000 mL of a 1:10 bleach solution?

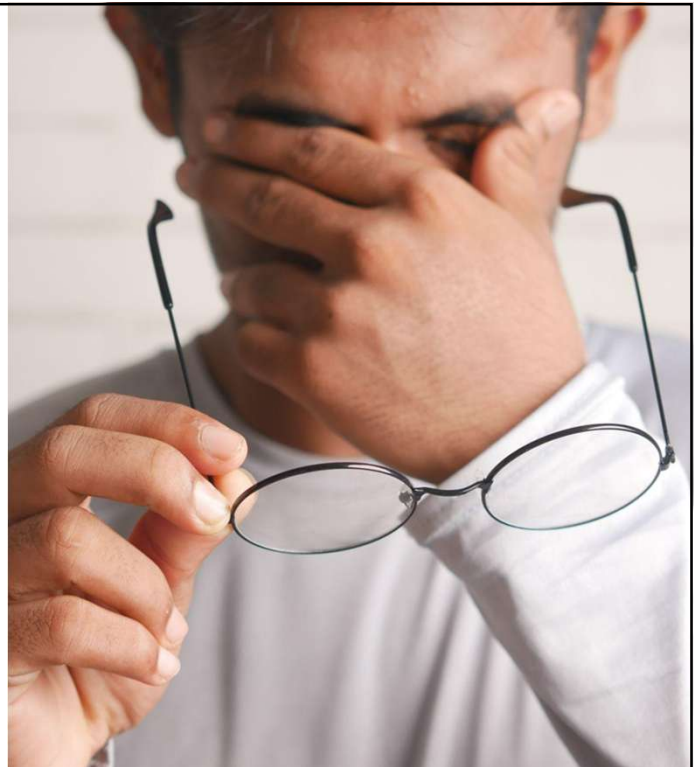


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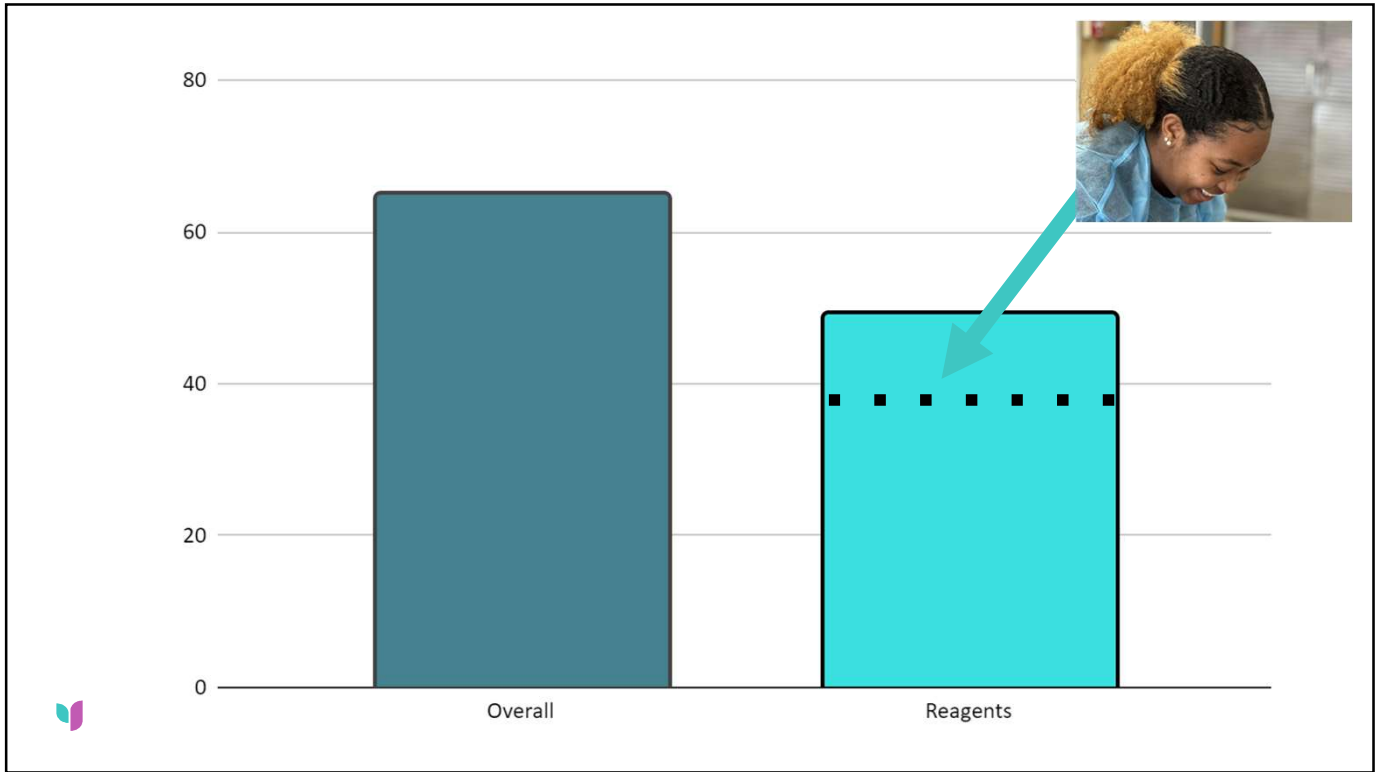


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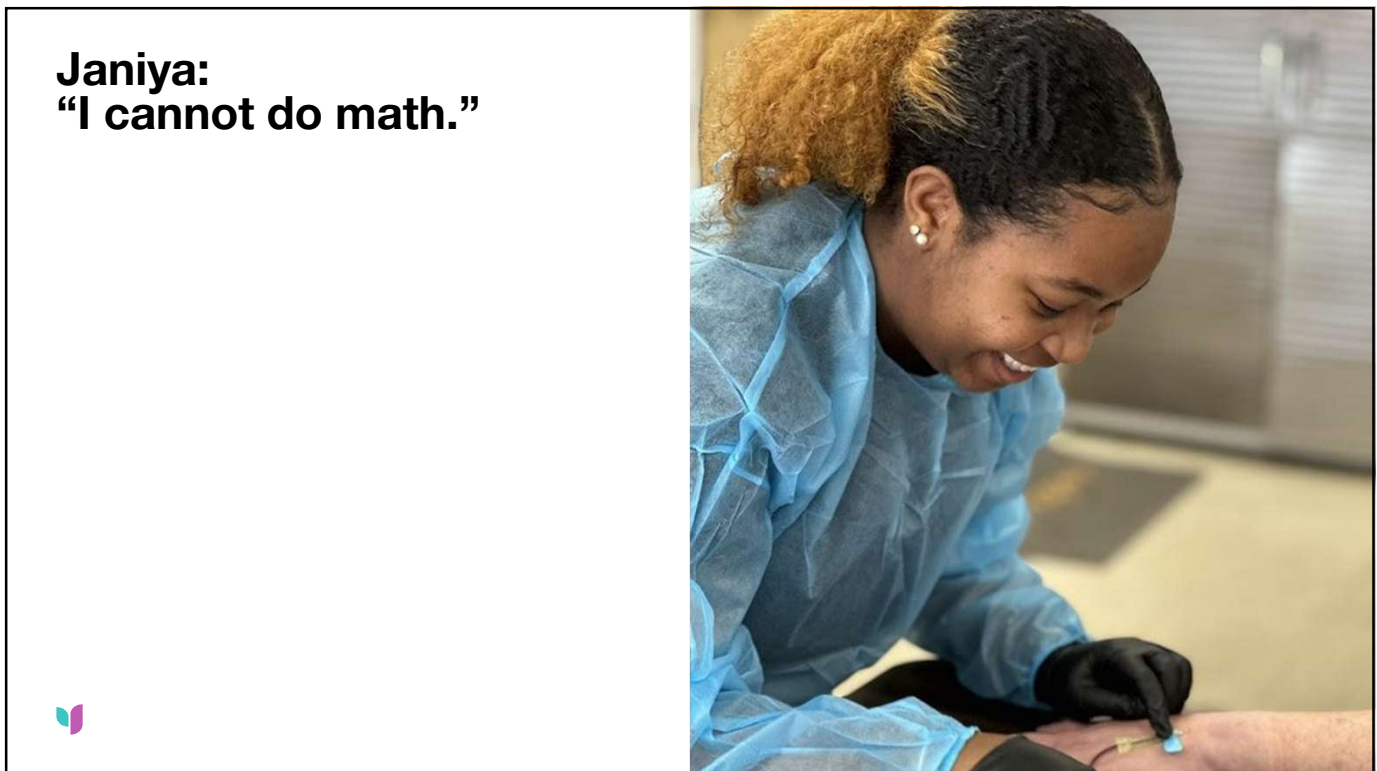
How much bleach would you need to make 1,000 mL of a 1:10 bleach solution?



24



25



26

Janiya:
“I cannot do math.”

Janiya’s mom:
“Please push her.”
“Don’t let her give up.”



27

My teaching...

$$\frac{1}{10} = \frac{x}{1000}$$

$$10x = 1000$$

$$x = 100 \text{ mL of bleach}$$



28

My teaching...

$$\frac{1}{10} = \frac{x}{1000}$$

$$10x = 1000$$

$x = 100$ mL of bleach



Dr. P

Numerical Detective:

“Fascinated with numbers”

“Translate information into numbers in order to process information quickly”

29

My teaching...

$$\frac{1}{10} = \frac{x}{1000}$$

$$10x = 1000$$

$x = 100$ mL of bleach



Dr. P

Sequential Thinker:

“Quickly organize a lot of information simultaneously in their heads while listening and talking”

30

Most students' response...

$$\frac{1}{10} = \frac{x}{1000}$$

$$10x = 1000$$

$x = 100$ mL of bleach

Why are they
equal to one
another?



31

31

Most students' response...

$$\frac{1}{10} = \frac{x}{1000}$$

$$10x = 1000$$

$x = 100$ mL of bleach

I don't get it.....



32

32

Most students' response...

$$\frac{1}{10} = \frac{x}{1000}$$

$$10x = 1000$$

$x = 100$ mL of bleach

How did you get rid of the 10?



33

33

~~$$\frac{1}{10} = \frac{x}{1000}$$

$$10x = 1000$$~~

$x = 100$ mL of bleach



34

Janiya:
“I cannot do math.”



Numerical Checker

“Good at applying existing formulas they use on a regular basis. They are most comfortable using formulas that they have repeatedly applied and have little interest in the theory or process behind the development of formulas.”



35

Janiya:
“I learn by practice,
practice, practice.”



36

Janiya's Plan:

Repetition:

- This or That Bellringers
 - Slow increase in rigor
 - As frequently as desired
- Formative lab prep assessments




37

Janiya's Plan:

Repetition:

- This or That Bellringers
 - Slow increase in rigor
 - As frequently as desired
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FLASK

% mass/vol

% concentration = $\frac{\text{parts of solute}}{100 \text{ parts soln}}$

ex. 10% salt solution = $\frac{10 \text{ g salt}}{100 \text{ mL soln}}$

How many g of salt do I need to make 200 mL of a 25% salt solution?

$\frac{25 \text{ g}}{100 \text{ mL}} = \frac{x \text{ g}}{200 \text{ mL}}$

$100x = 5000$

$x = 50 \text{ g of salt}$

Today's Gel

VOLUME needed: 40 mL

CONCENTRATION needed: 2%

$\frac{2}{100} = \frac{x}{40}$

$\frac{100x}{100} = \frac{80}{100} = 0.8$

MASS of agarose = 0.8g

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What Their Core Talents Told Me



Numerical Detective

“Fascinated by trends in numbers and generally enjoy number games as well as puzzles. Their unique ability allows them to translate information into numbers in order to process information quickly.”



Numerical Checker

“Good at applying existing formulas they use on a regular basis. They are most comfortable using formulas that they have repeatedly applied and have little interest in the theory or process behind the development of formulas.”



Numerical Predictor

“May relax by solving number games or puzzles, but they aren't likely to devote excessive time to them. They may enjoy uncovering a pattern when they know one is present, but won't devote excessive effort without a clearly defined goal.”



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39

What Their Core Talents Told Me



1

Numerical Detective

“Fascinated by trends in numbers and generally enjoy number games as well as puzzles. Their unique ability allows them to translate information into numbers in order to process information quickly.”



8

Numerical Checker

“Good at applying existing formulas they use on a regular basis. They are most comfortable using formulas that they have repeatedly applied and have little interest in the theory or process behind the development of formulas.”



4

Numerical Predictor

“May relax by solving number games or puzzles, but they aren't likely to devote excessive time to them. They may enjoy uncovering a pattern when they know one is present, but won't devote excessive effort without a clearly defined goal.”



40

40

Student	Lab Reagents Standard % Correct	Total % Correct	Percent Change (pre-test to final)
Janiya	53.85	72.77	+40.02
Student 2	61.54	72.07	+14.28
Student 3	84.62	81.23	+37.50
Student 4	92.31	91.55	+50.00
Student 5	46.15	72.07	+99.96
Student 6	69.23	66.44	+800.26
Student 7	100	87.32	+44.45
Student 8	46.15	53.75	+49.98
Student 9	92.31	91.55	0
Student 10	92.31	88.03	+20.01
Student 11	46.15	70.31	+49.98
Student 12	100	88.73	+128.05
Student 13	46.15	58.21	+200.10
Student 14	76.92	80.63	+24.99
Student 15	84.62	71.72	+37.50
Mean	72.82	76.43	+106.47

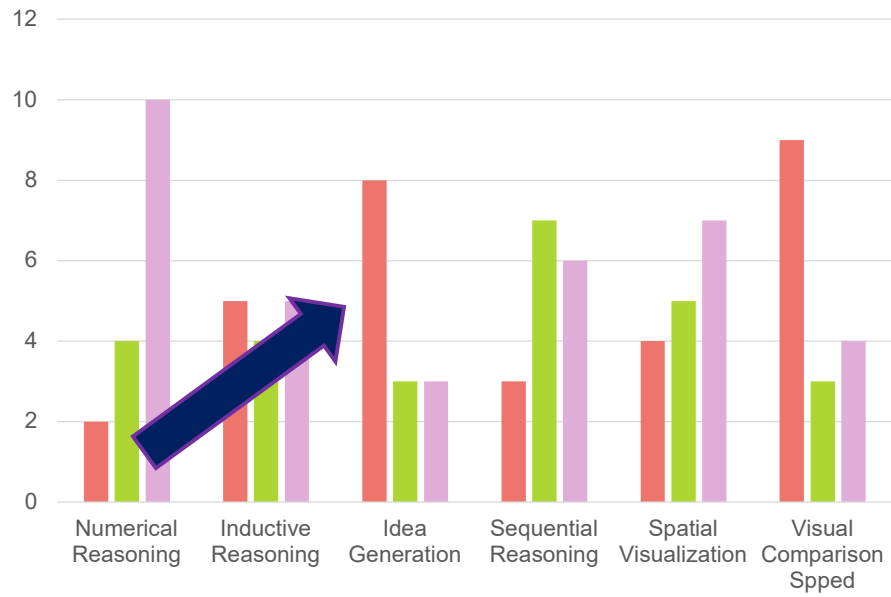
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Application Area 3: Data Driven College and Career Readiness



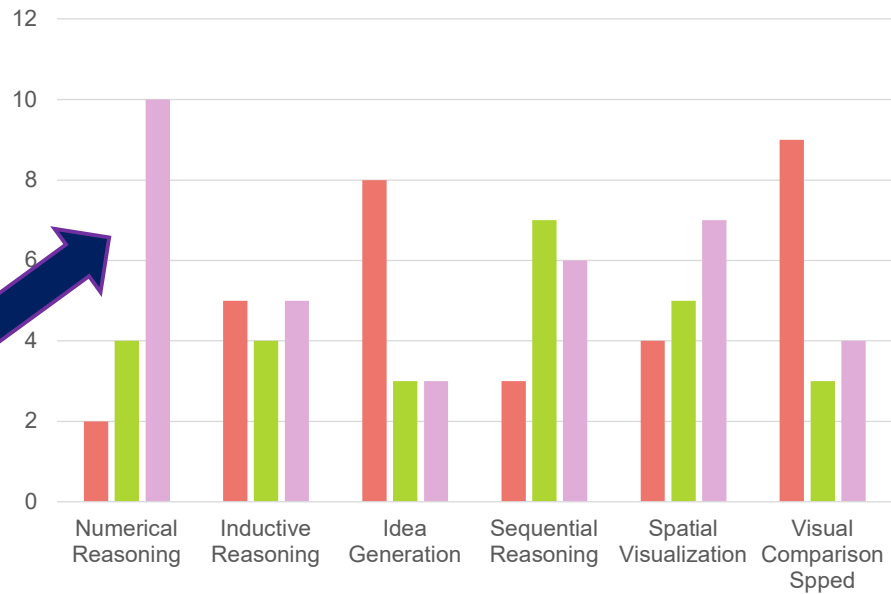
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Aptitude Patterns



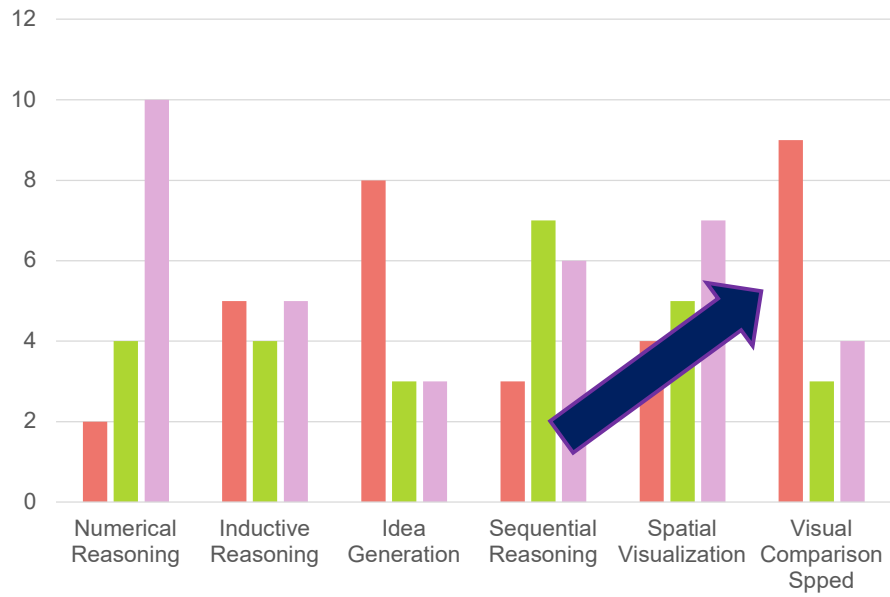
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Aptitude Patterns



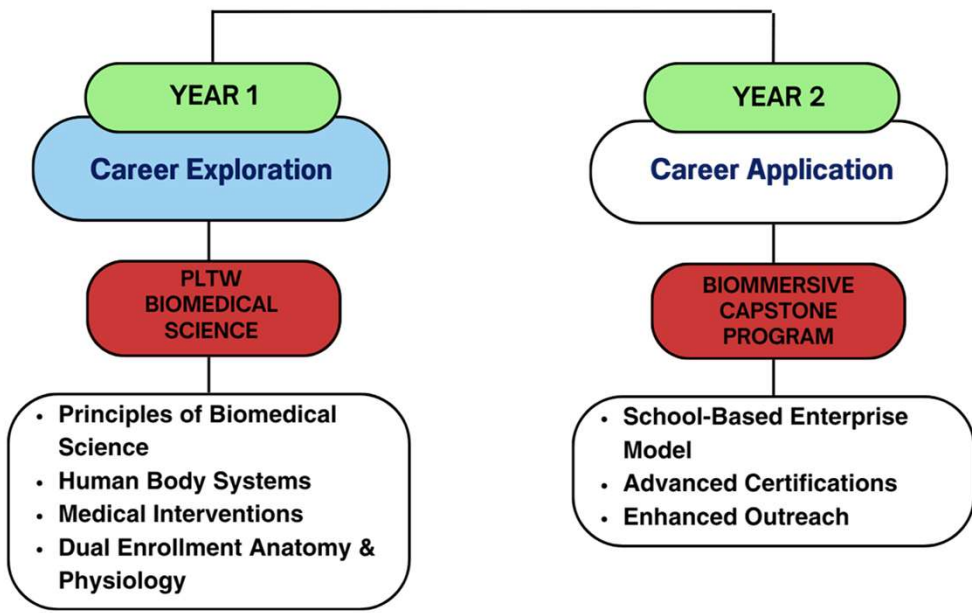
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Aptitude Patterns



45

ACCTIC Biomedical Science Program



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Model

Application Process:

- Students complete online application with brief (200 word) personal statement
- **Self- and teacher-rated performance review**
 - **Growth and development plan with measurable goals**
- **BIOCAP application project**
- Academic requirements:
 - **Successful completion of PLTW PBS, HBS, MI and Dual Enrollment Anatomy & Physiology**
 - **YouScience Biotechnology Certification**



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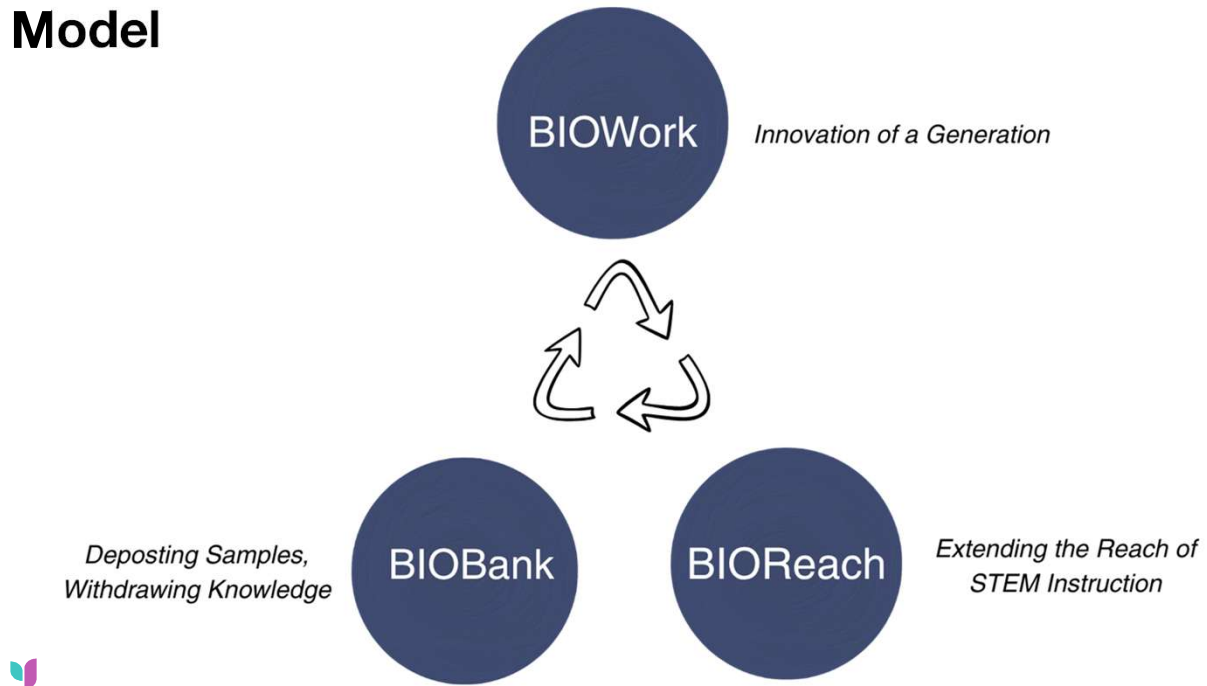
Mission

Students in the Bioimmersive Capstone Program execute academic- and industry-recognized standards to manage a student-based service enterprise, obtain advanced certification in the life sciences, and complete intramural and/or extramural work-based learning experiences.



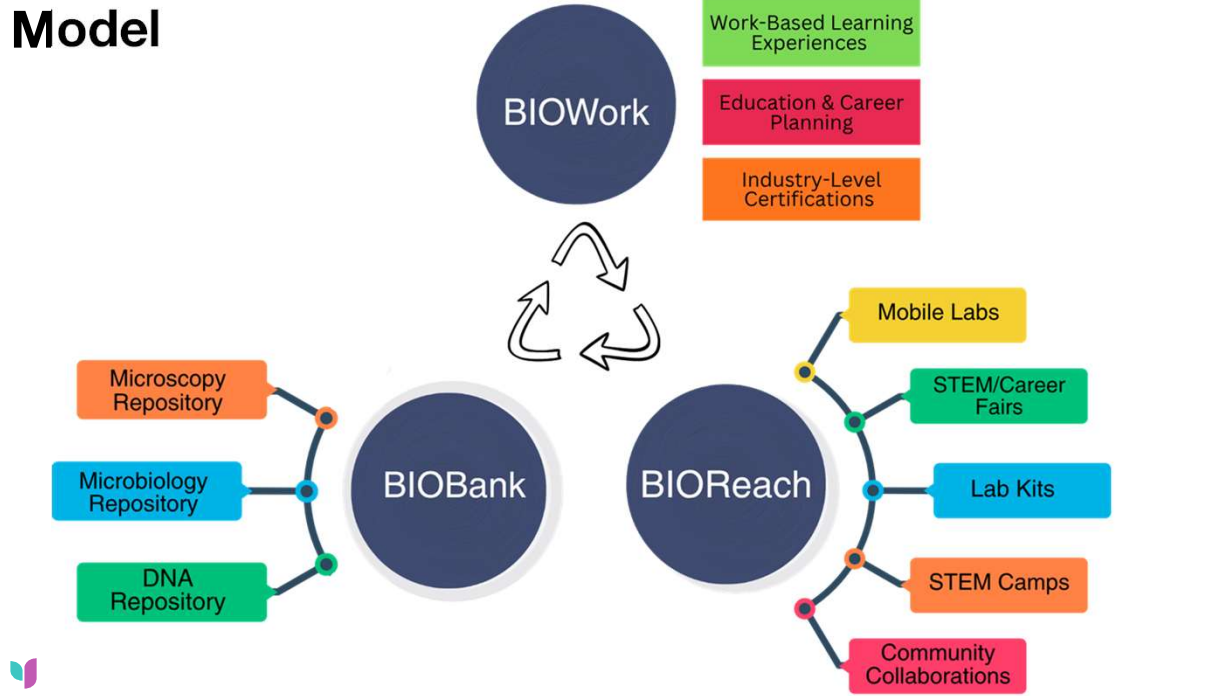
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Model

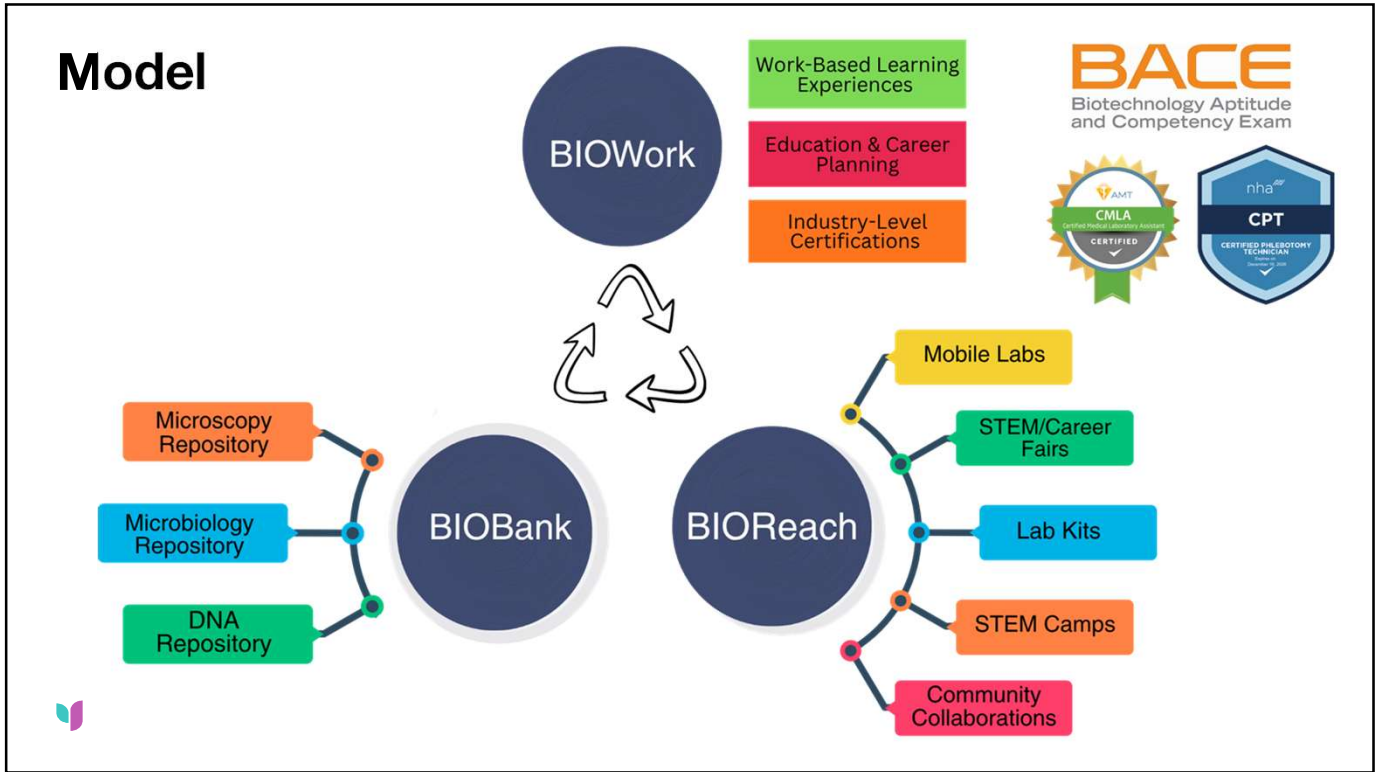


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Model



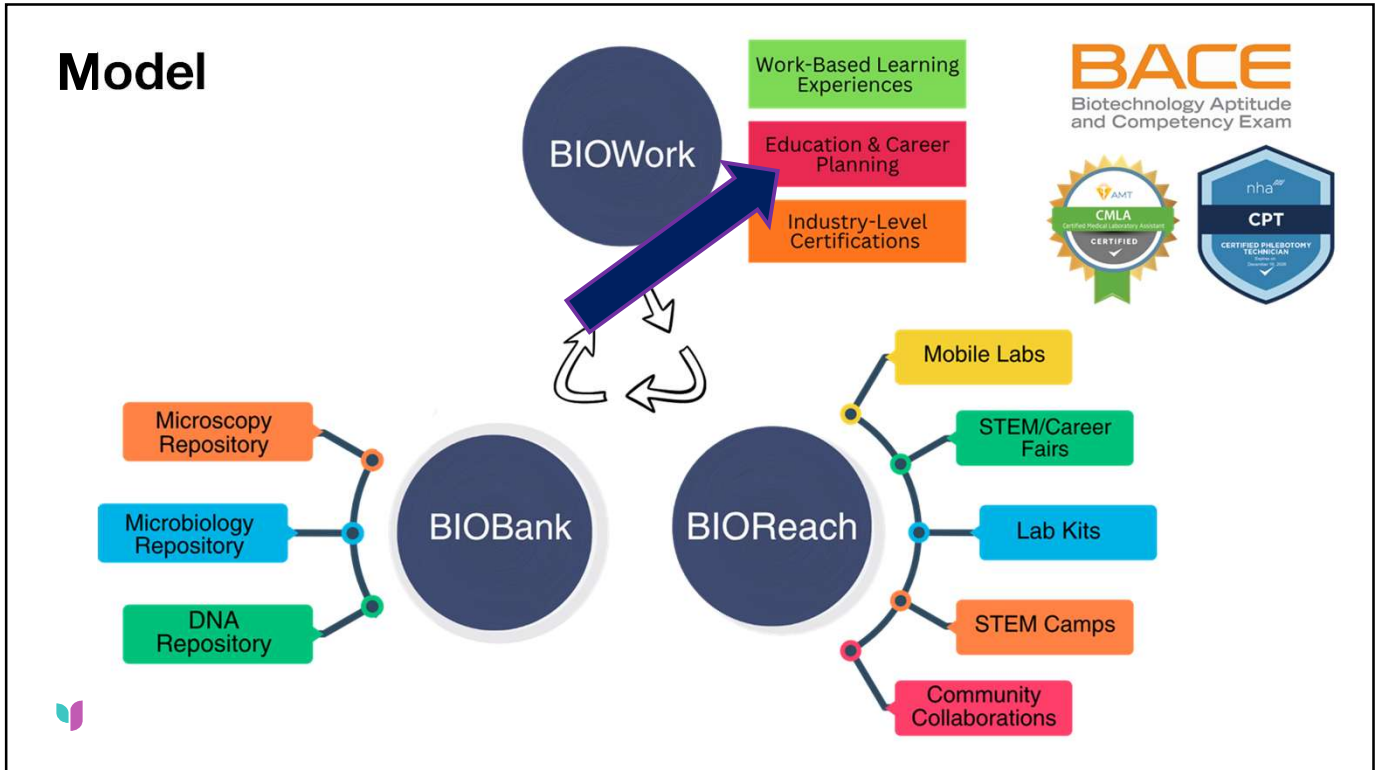
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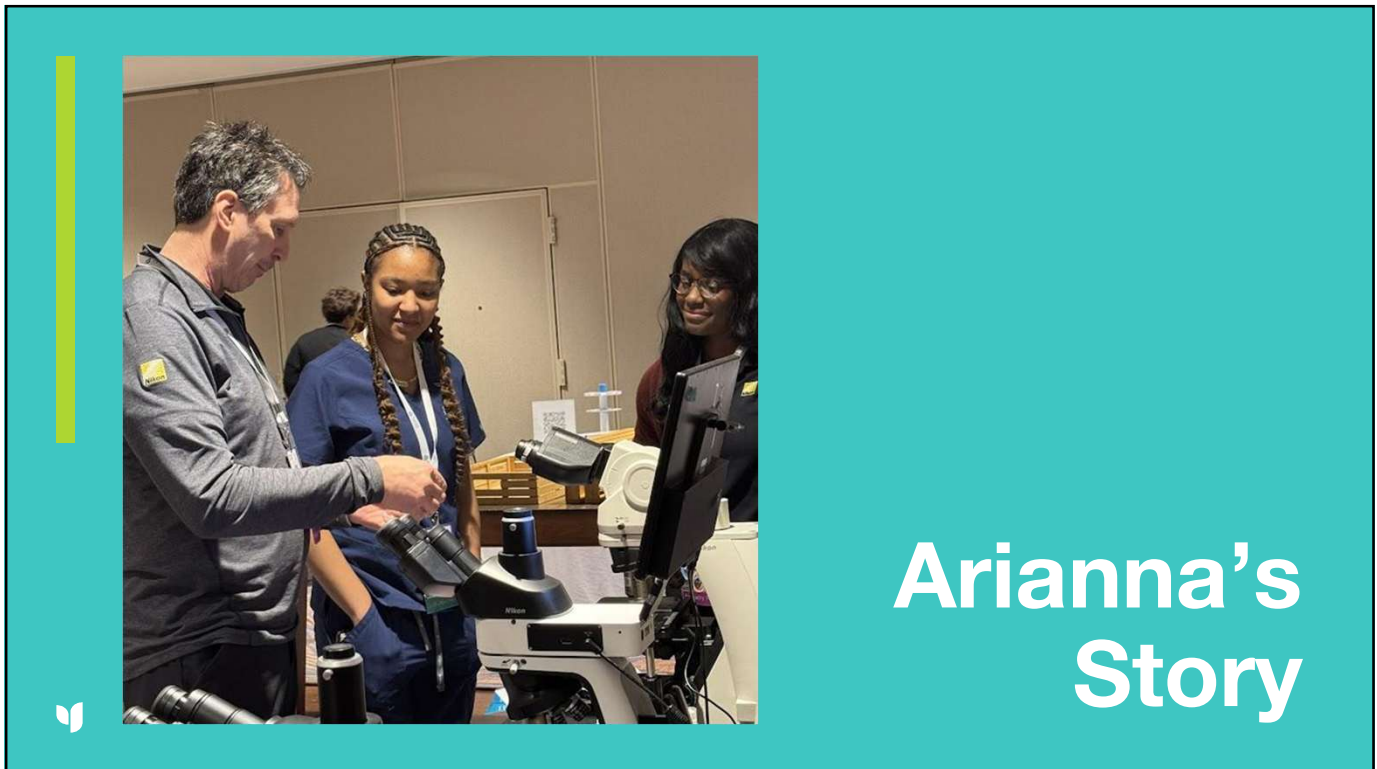
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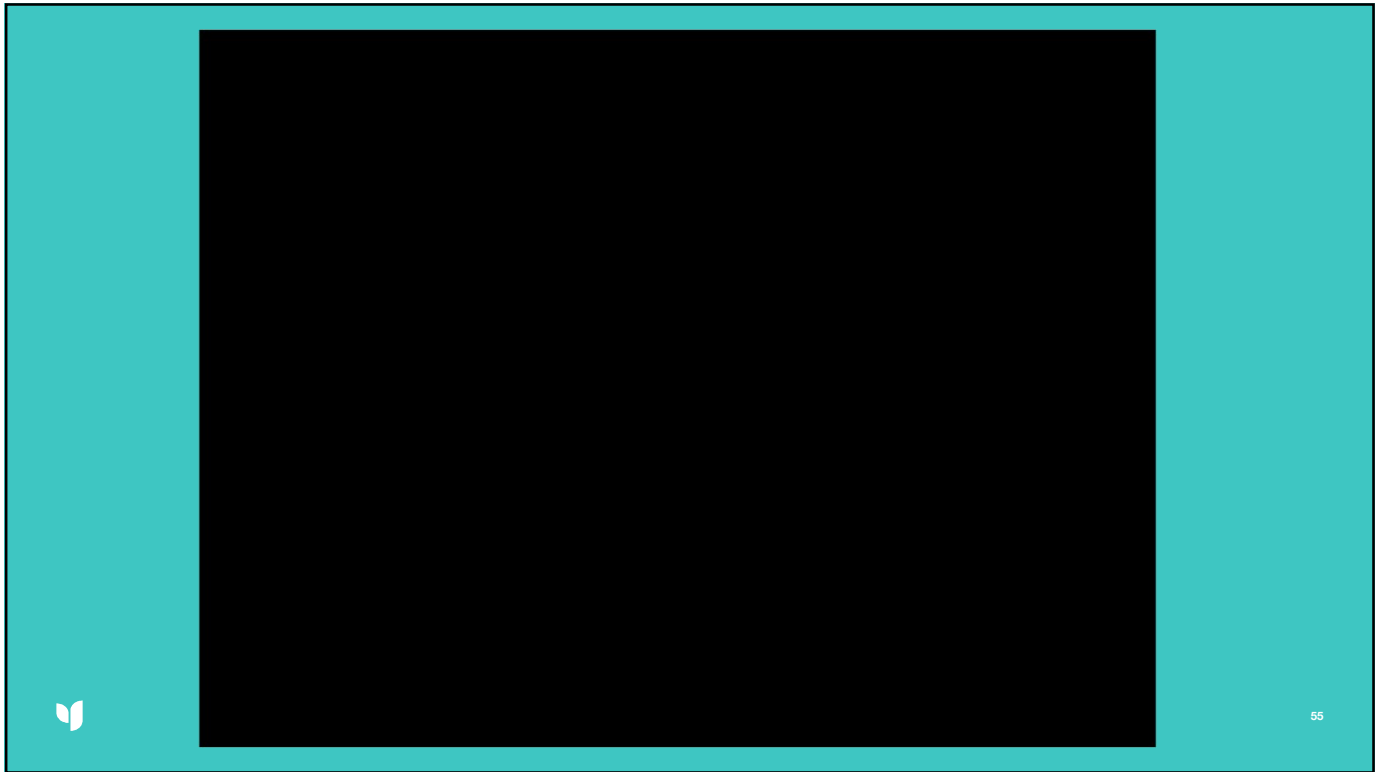
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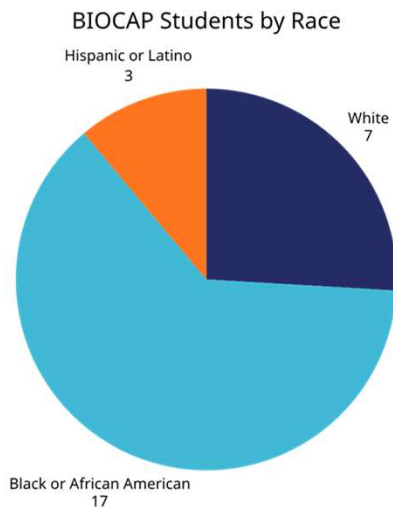


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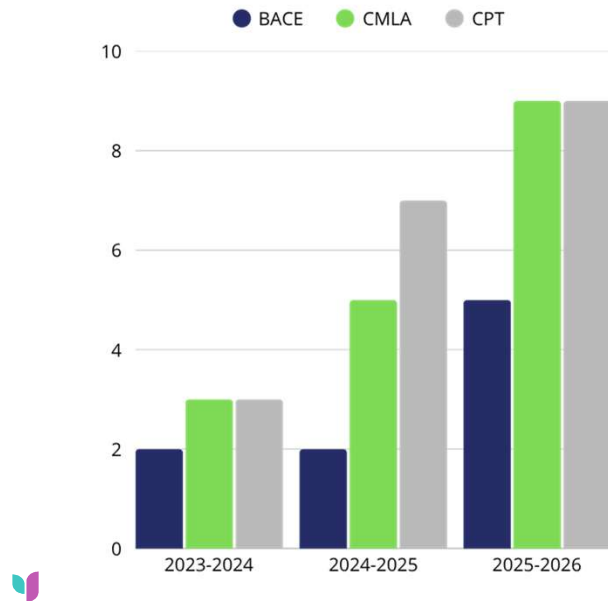
Successes



Our program serves a diverse population of students.

56

Successes



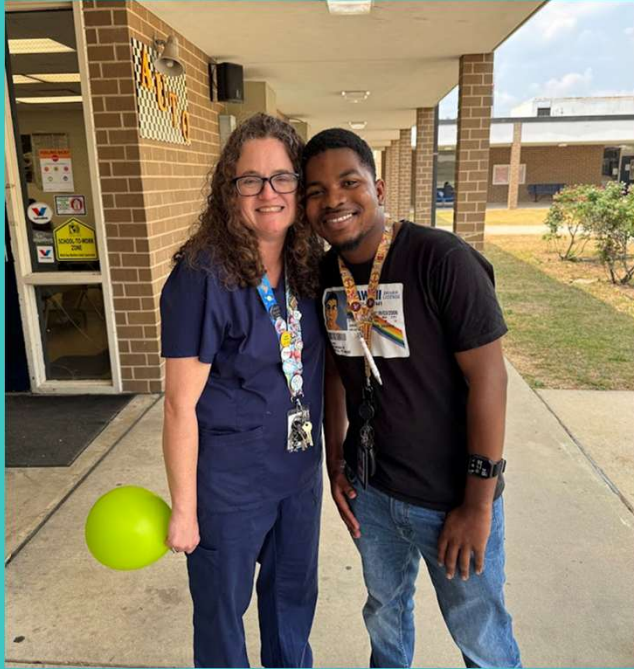
Our cohorts have grown consistently over the life of the program.

57

Successes

- . 19 certified phlebotomists
- . 17 certified medical laboratory assistants
- . 5 certified biotechnician assistants

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Kamani's Story

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Good Aptitude Fit ■ ■ ■ ■ ■




Medical and Clinical Laboratory Technician

Education investment	2+
Projected openings	> 68K
Average salary	41k

♥

Weak Aptitude Fit ■ ■ ■ ■ ■

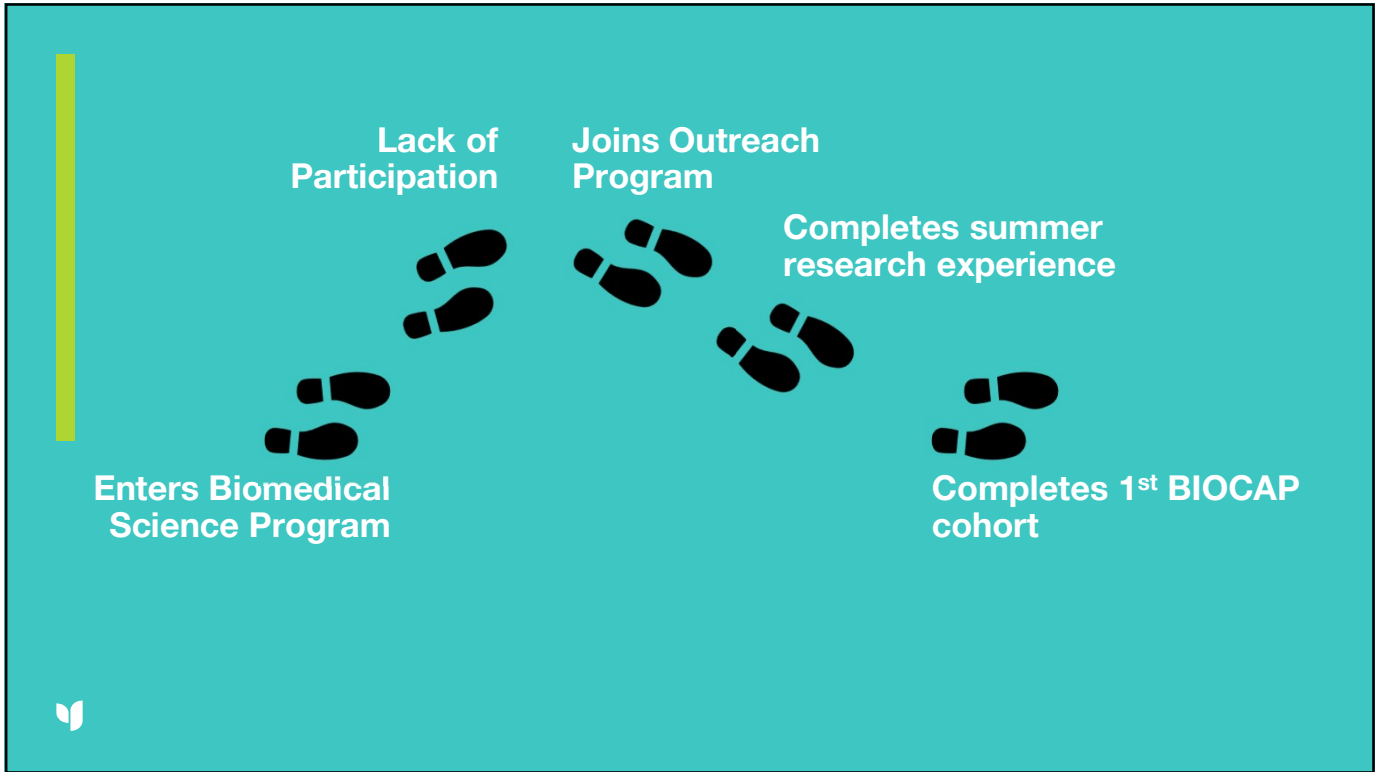


Family and General Physician

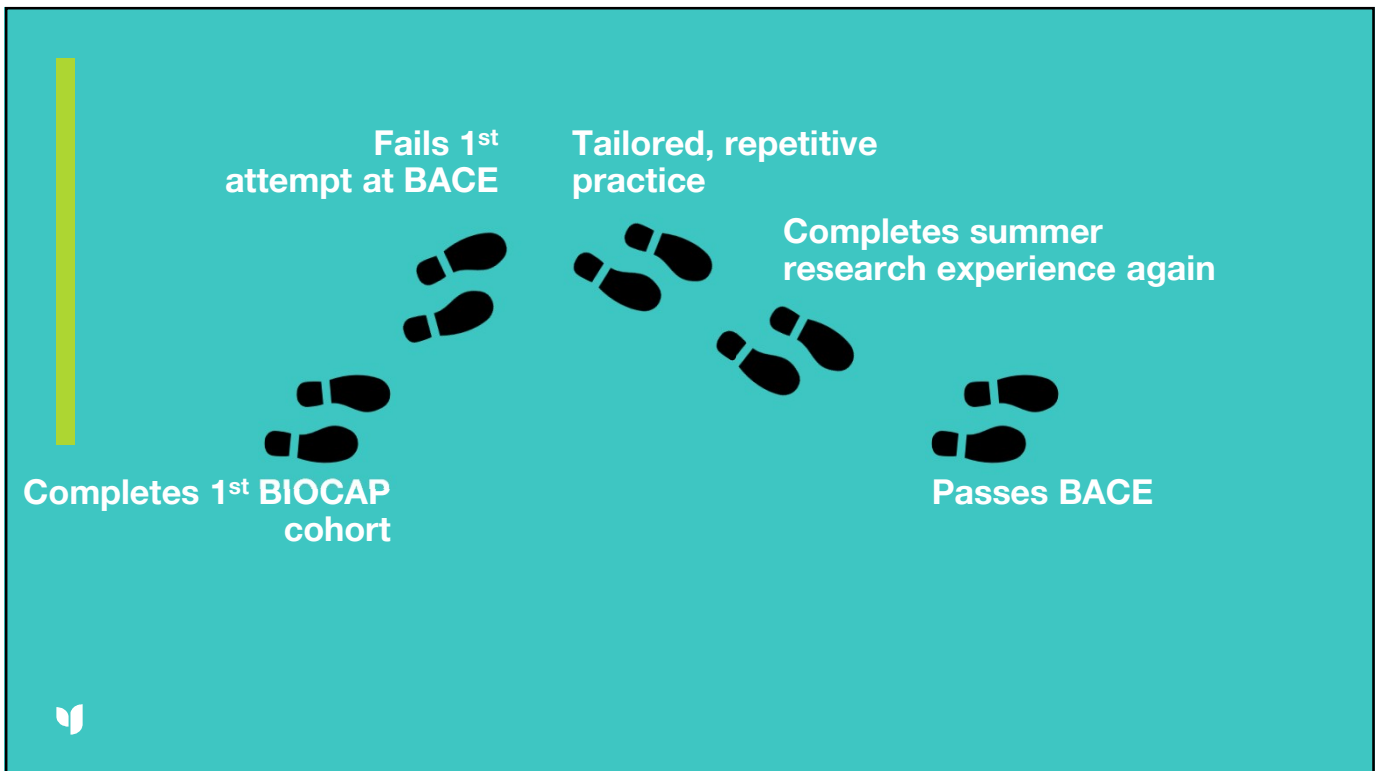
Education investment	7+
Projected openings	> 3.3K
Average salary	224k

♥

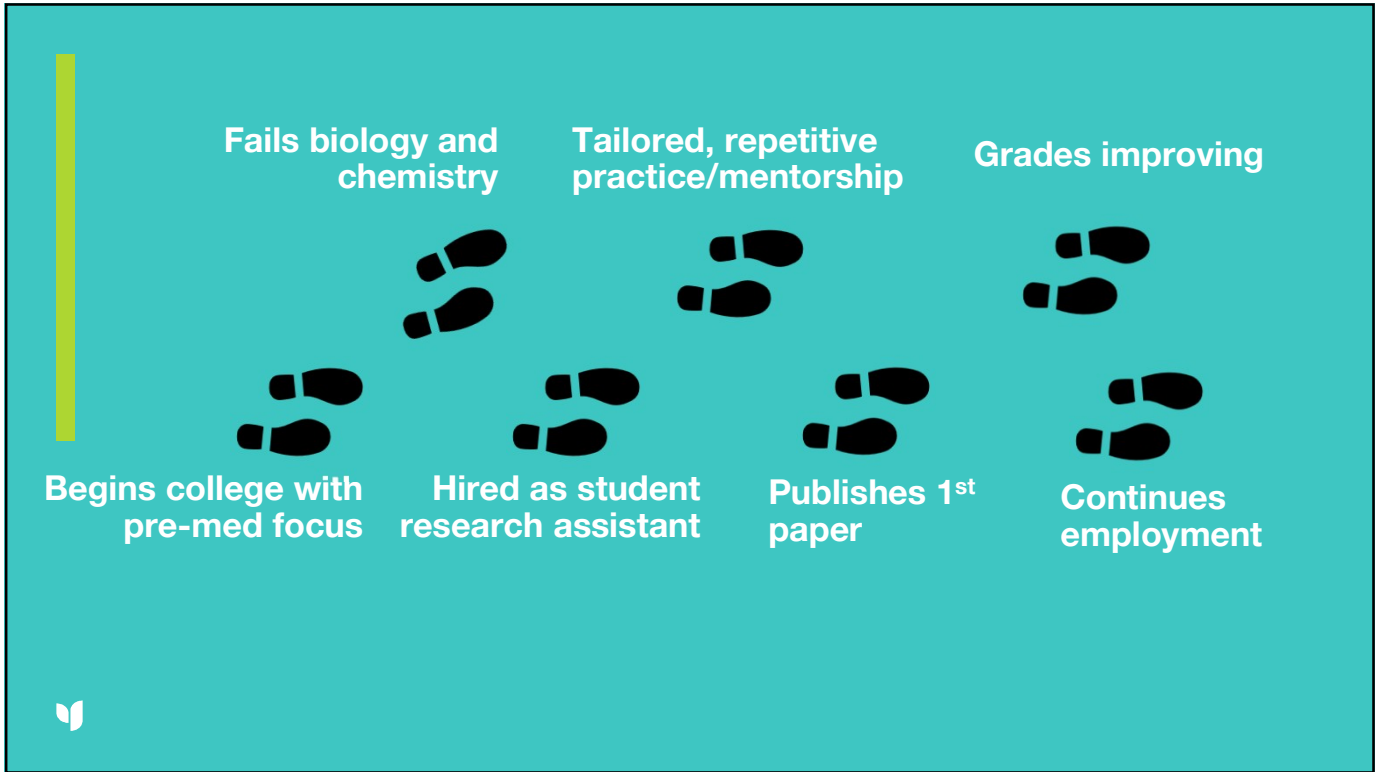
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So, what's next?



Follow us on Social Media
@ACCTCBiomed



Check out our website!



Contact us
cpalladino@acpsd.net

Let's Collaborate!

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So, what's next?



**Stop by our
Booth**



**Play the
Brain Games!**



**Schedule a
Demo**



Try an exam in the Certification Lab!

