



# CAREER READINESS: EPIDEMIOLOGY



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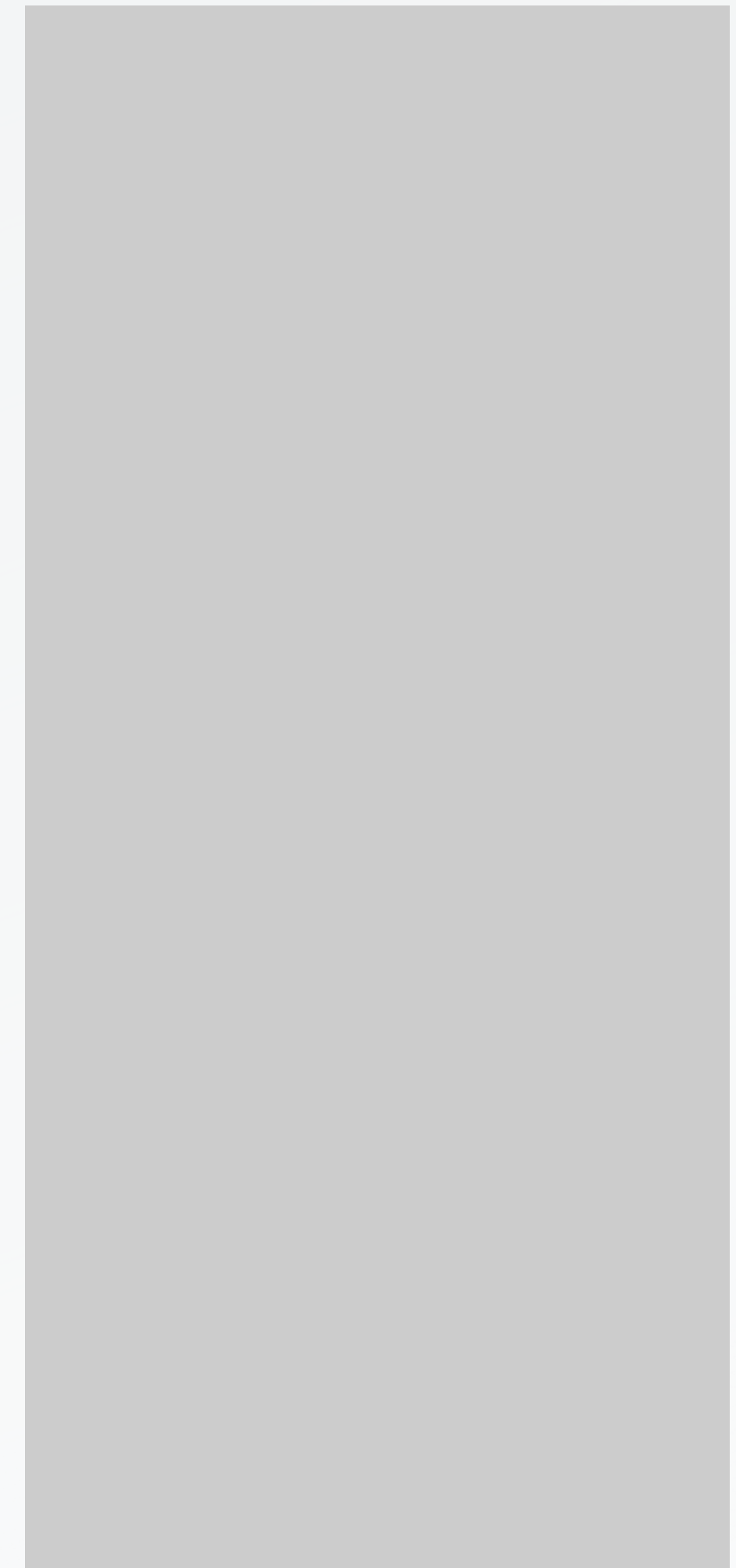
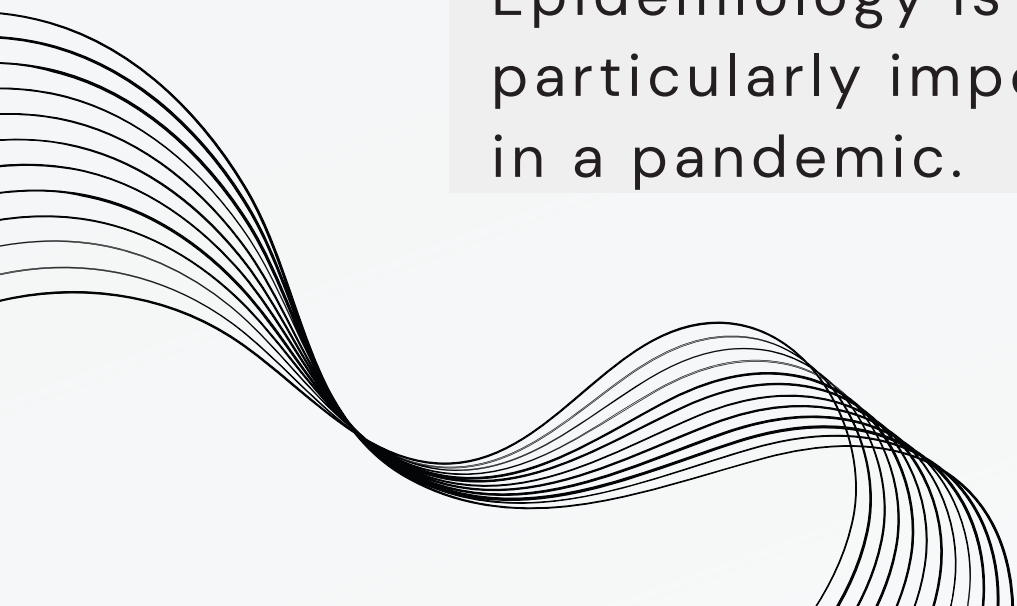
WOODBIDGE, VA



# WHAT IS EPIDEMIOLOGY?

Epidemiologists study the causes of diseases and how they are spread to find a method of stopping or containing them.

Team ApeX has chosen epidemiology for our career readiness project because while epidemiology is not an engineering field, they engineer solutions to problems. Epidemiology is a rapidly growing field that has been particularly important to us as kids who have grown up in a pandemic.



# THE DESIGN PROCESS IN EPIDEMIOLOGY

01

## DESCRIBE THE PROBLEM

Make observations to determine where the disease is impacting people, when it's happening, and who is vulnerable

02

## MAKE A HYPOTHESIS

Why are some people vulnerable to this disease and others are not?

03

## ANALYZE RELATIONSHIPS

Try to make connections between how and when a person is exposed and their disease outcome

04

## JUDGE WHAT YOU SEE

Are there any casual observations you can make about the relationships you see?

05

## MAKE A DECISION

Decide what to do to prevent or control the spread of disease or decrease the impact it has on people

06

## EVALUATE THE STRATEGY

Did your strategy work? If not, go to the beginning and try again.

# THE DESIGN PROCESS IN VEX ROBOTICS

01

02

03

04

05

06

**IDENTIFY THE CHALLENGE AND SET GOALS**

Work to understand the game, what the goals are, and what you need to do to complete the challenge

**BRAINSTORM AND DIAGRAM**

Gather data and create ideas that you believe will help you meet your goals and complete the challenge

**CHOOSE A SOLUTION AND MAKE A PLAN**

Objectively evaluate each idea and choose a solution

**BUILD AND PROGRAM**

Build and code your robot based on the solution you chose

**TEST THE SOLUTION**

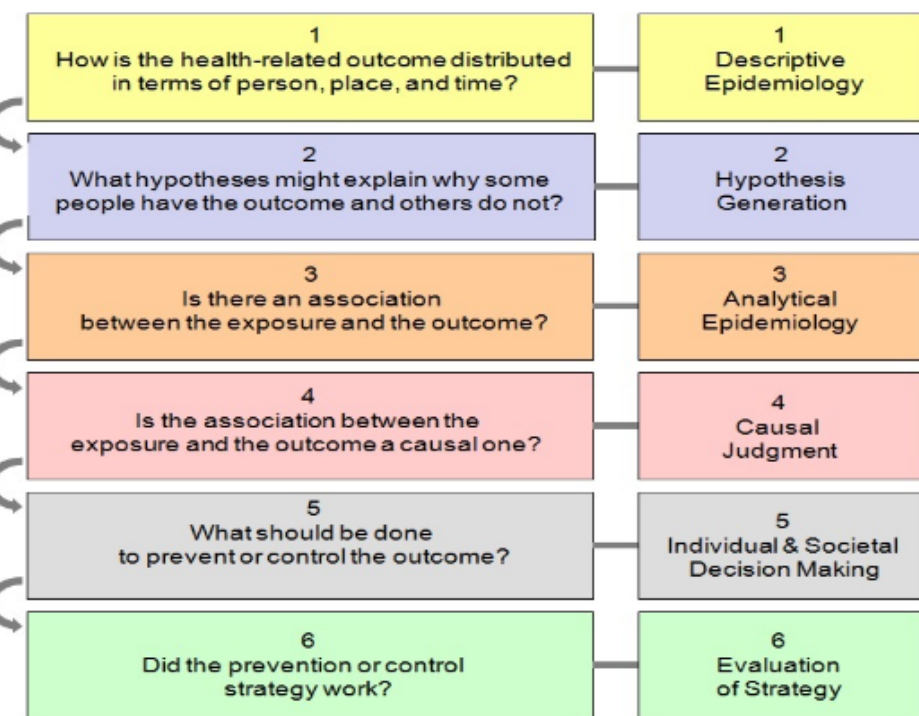
See what works, what doesn't, and what can be improved

**REPEAT THE DESIGN PROCESS**

Did your solution work? If not, go to the beginning and try again.

# DESIGN PROCESS COMPARISON

## Epidemiology



- Similarities between the design processes include:
- They are both used to find a solution to a problem.
- They both include identifying the problem, coming up with a possible solution, and testing it.
- They both repeat if the solution did not work.

- Differences between the design processes include:
- The epidemiology process involves more research, while the VRC process involves more building
- In VRC, you are building an object, but in epidemiology, you come up with a plan to fight the disease.

## VEX Robotics



Image from REC Foundation – <https://vrc-kb.recf.org/hc/en-us/articles/9628278280215-VRC-Engineering-Design-Process>

Image from Epidemiology Education Movement – <https://www.epiedmovement.org/BM3.html>

# VEX ROBOTICS HELPS BUILD THESE SKILLS THAT ARE CRITICAL FOR EPIDEMIOLOGISTS... COULD A CAREER IN EPIDEMIOLOGY BE YOUR FUTURE?

## PROBLEM SOLVING

In VEX, we build problem solving skills by identifying and fixing issues with our robot and making changes to improve on our performance in tournaments.

## COMMUNICATION

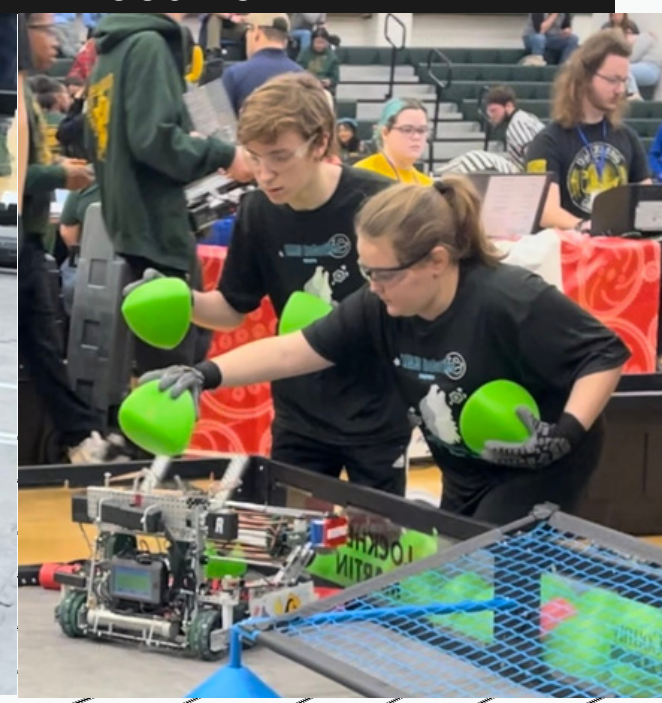
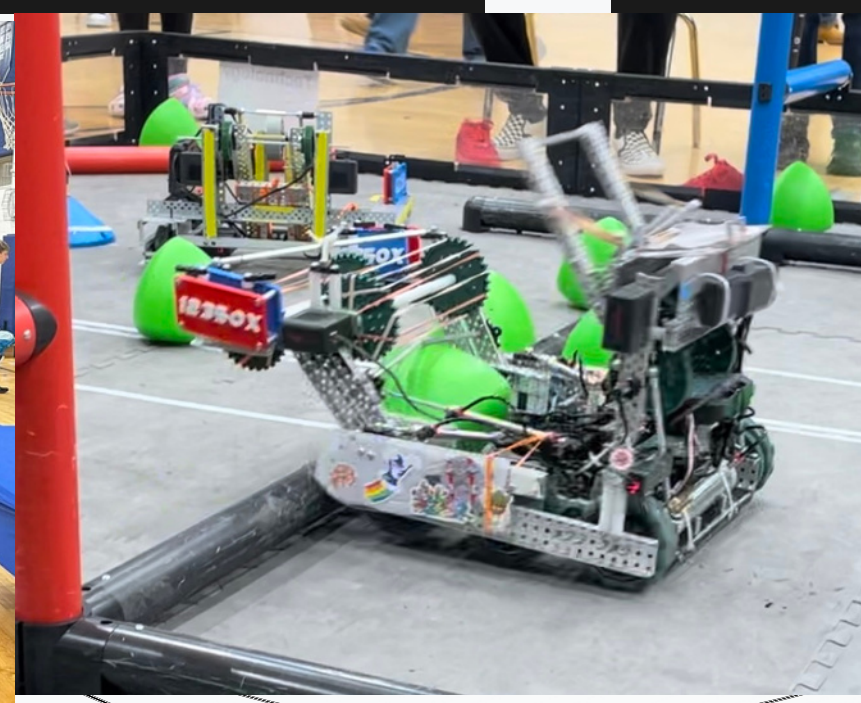
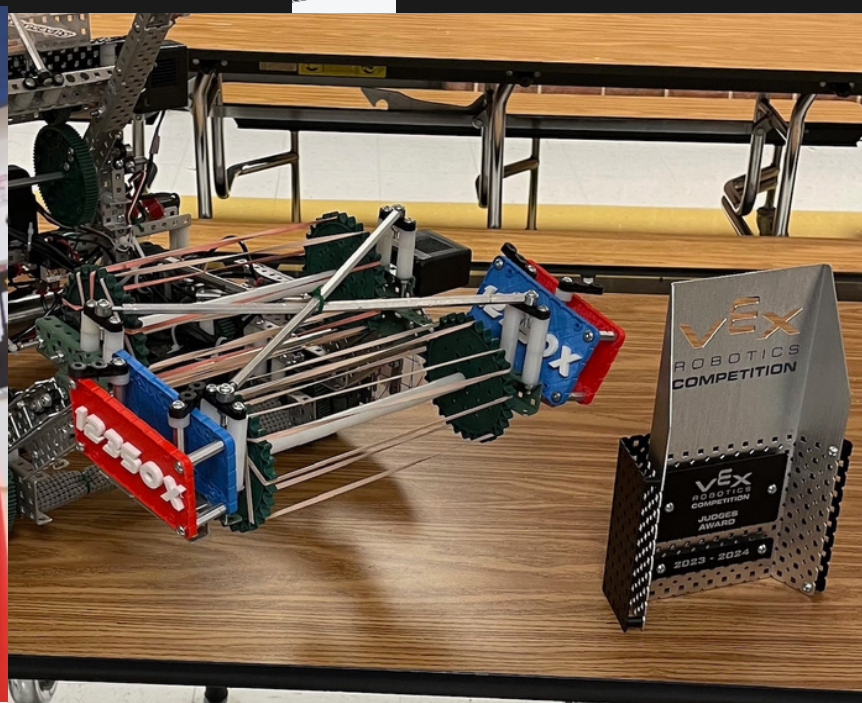
In VEX, we learn to communicate our ideas clearly with others through working with our teammates, creating our notebook, and doing our interviews with the judges.

## COLLABORATION

In VEX, we practice collaboration by working together with our teammates and alliance partners to have success.

## MATH, STATISTICS, AND DATA ANALYSIS

In VEX, we grow our skills in math, statistics, and data analysis by writing our program and seeing what happens, which is analyzing data, and then making changes based on the results..



# CITATIONS

"Occupational Outlook Handbook: Epidemiologists," *US Bureau of Labor Statistics*, <https://www.bls.gov/ooh/life-physical-and-social-science/epidemiologists>

"Epidemiologist: Duties, Salary, and How to Become One," *Coursera*, <https://www.coursera.org/articles/epidemiologist>

"A Public Health Career in Epidemiology," *The George Washington University Milken Institute of Public Health*, <https://onlinepublichealth.gwu.edu/careers/epidemiology/>

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