

Compound Probability → Overlapping Inequities → Multiple Challenges Faced by Communities

Big Idea

Compound probability examines the likelihood of two or more events happening together. In real life, many communities face **overlapping inequities**—for example, families may experience both housing insecurity and limited access to healthcare. When multiple challenges combine, their effects **multiply**, creating deeper barriers to opportunity. Understanding how these intersections work helps us **analyze data, identify patterns of inequity, and design fair, inclusive solutions** that meet real needs.

Math + Equity Example

In a community of 1,000 families:

Challenge	Probability	Overlap (×)	Combined Probability
Lack of affordable housing	0.30	×	
Lack of healthcare access	0.20	=	0.06 (6%)

That means about **60 families** face both challenges at the same time. Compound probability helps leaders and advocates understand how issues are **connected**, so they can design policies that address the **whole picture**, not just one part of the problem.

Equity Connections

Families rarely experience challenges in isolation. Economic hardship, health inequities, underfunded schools, and environmental risks often overlap, creating cycles that are difficult to break. By examining these connections through data, students and community leaders can see how **equity solutions require coordination**—between schools, health systems, and housing programs—to create meaningful, lasting change. This approach turns mathematics into a **tool for advocacy and empowerment**.

Data Reflection

Instructions:

Circle or underline the word that stands out to you most:

connection | coordination | opportunity | equity | empowerment

Share Your Thinking

The word I picked is: _____

I picked this word because:

Reflection:

How does this word connect to what we are learning about overlapping challenges and coordinated solutions?

Student Equity Reflections

1. How does compound probability help us understand when challenges overlap?

2. How many families in the example face both housing and healthcare challenges?
Show your work.

3. What are some examples of overlapping challenges in your community?

4. Why is it important for leaders and communities to study overlapping inequities?
