

# Foundations of Data Equity



project for equity  
in data science

**Data is Objective**

**Data is Not Objective**







## What is Bias?

Systematic error introduced into sampling or testing by selecting or encouraging one outcome or answer over others.

**Knowingly. Unknowingly.**  
**Intentional. Accidental.**  
**Usually a combination.**

Schools are awash in data of various forms:

Student access, participation, and completion data

Student survey data

Funding data

Spending data

Often these data are gathered, analyzed, and presented in static reports and interactive dashboards.

Need actual tools on how to **embed equity into this data, its analysis and communication** for continuous improvements to promote student success and achievement.

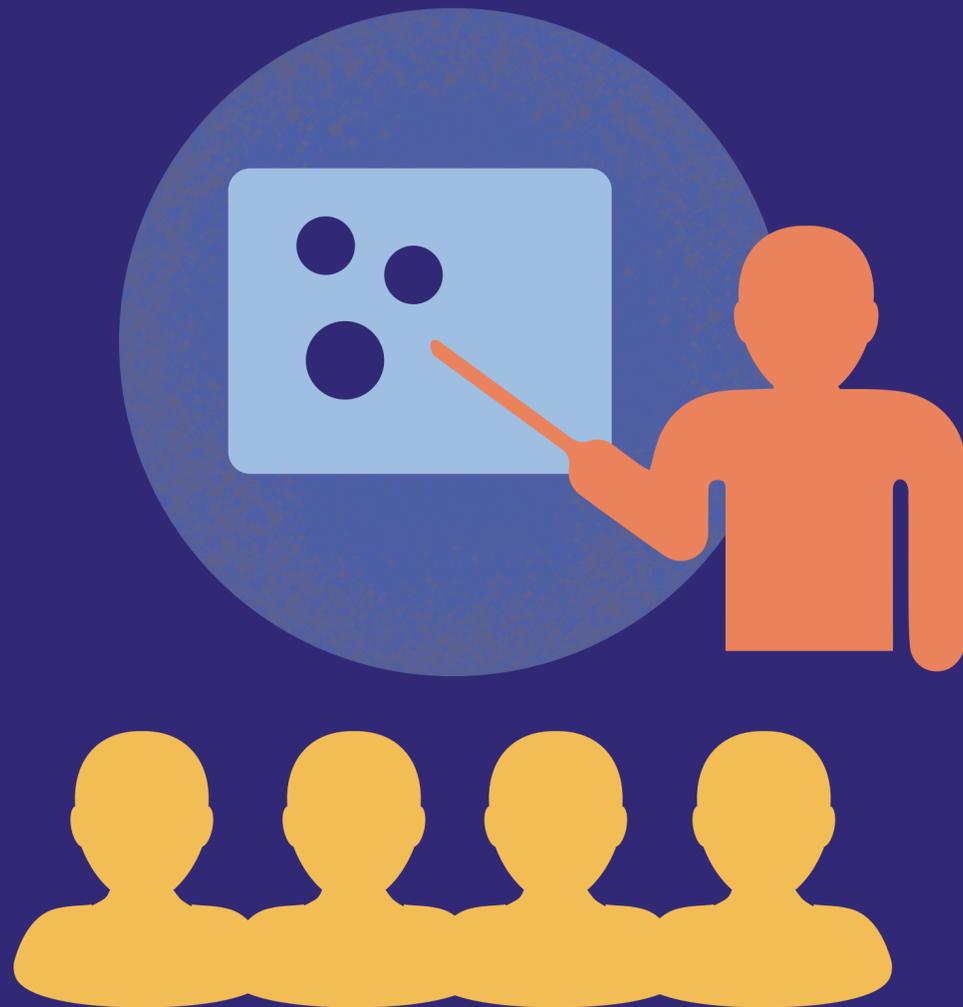
# What is the average size classroom?



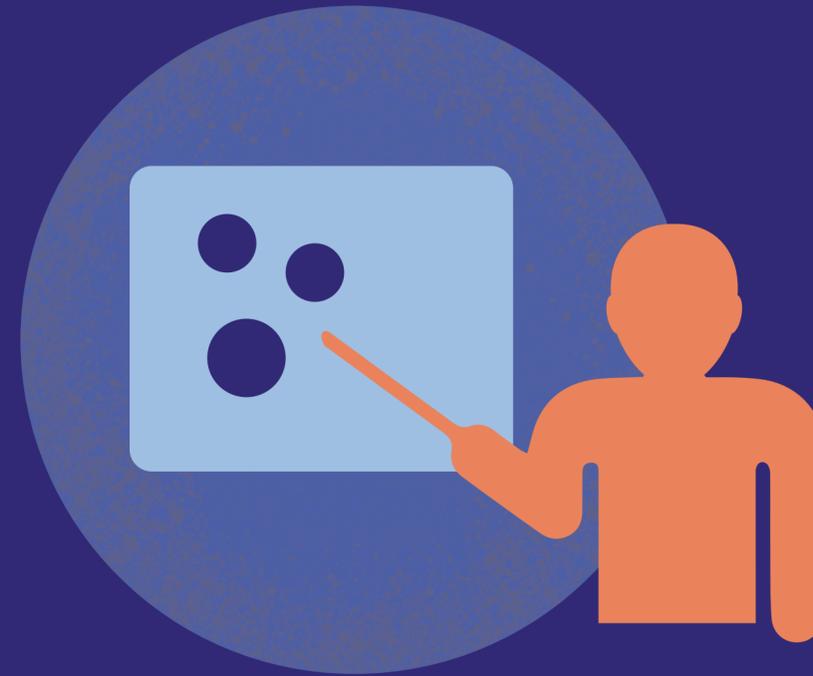
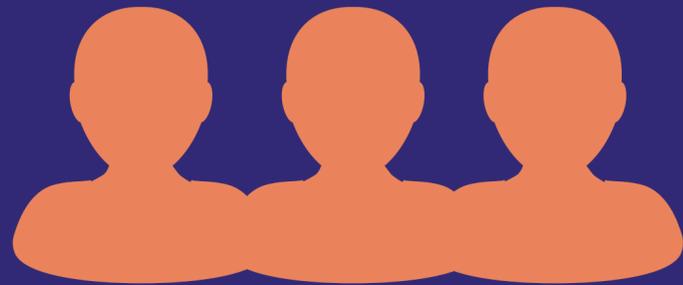
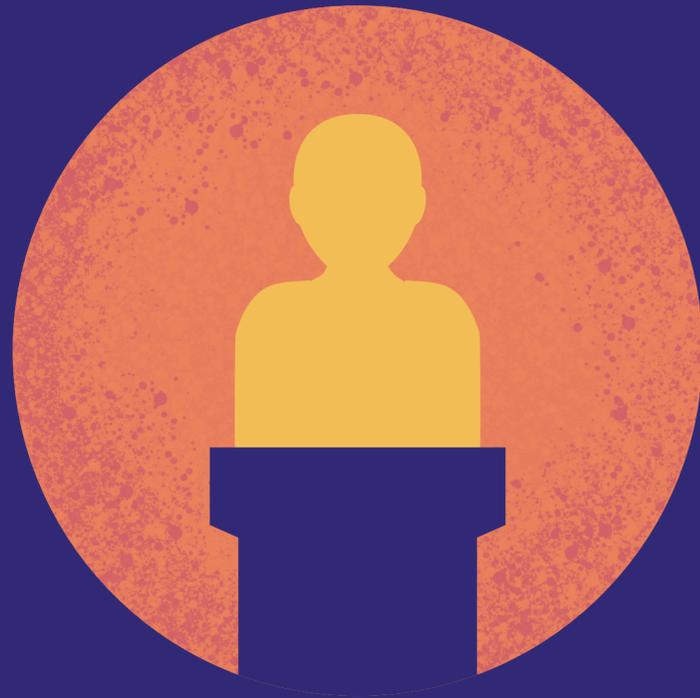
**The average classroom is 3 students per class.**



**The average classroom is 4 students per class.**



**Both are correct.**

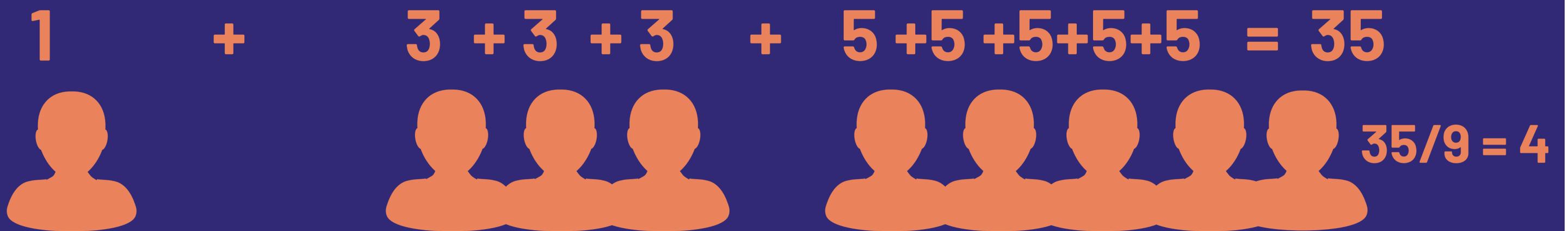


## Teacher Perspective

$$1 + 3 + 5 = 9$$


The diagram illustrates the teacher's perspective of a math problem. It features three yellow silhouettes of a person holding a pointer. The first silhouette is positioned under the number '1', the second under '3', and the third under '5'. The numbers are arranged in a sequence: 1, +, 3, +, 5, =, 9. To the right of the third silhouette, the equation  $9/3 = 3$  is written.

## Student Perspective

$$1 + 3 + 3 + 3 + 5 + 5 + 5 + 5 + 5 = 35$$


The diagram illustrates the student's perspective of the same math problem. It features orange silhouettes of a person's head and shoulders. The first silhouette is under the number '1'. The second, third, and fourth silhouettes are under the numbers '3', '+3', and '+3' respectively. The fifth, sixth, seventh, eighth, and ninth silhouettes are under the numbers '5', '+5', '+5', '+5', and '+5' respectively. The numbers are arranged in a sequence: 1, +, 3, +3, +3, +, 5, +5, +5, +5, +5, =, 35. To the right of the ninth silhouette, the equation  $35/9 = 4$  is written.

**Let's think about how to  
apply this.**

**What is the most salient difference between  
these two answers?**

**The Data Equity Framework addresses equity issues systematically in each step of a data project. Some form of these steps is universal to all types of data projects.**



Funding



Motivation



Project  
Design



Data Collection  
& Sourcing



Analysis



Interpretation

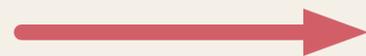


Communication  
& Distribution

**The *order* of steps reflects the typical data project process, but you can address them in any order.**



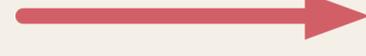
Funding



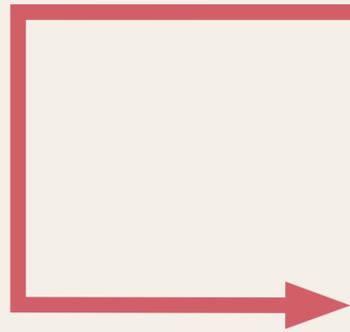
Motivation



Project Design



Data Collection & Sourcing



Analysis



Interpretation



Communication & Distribution

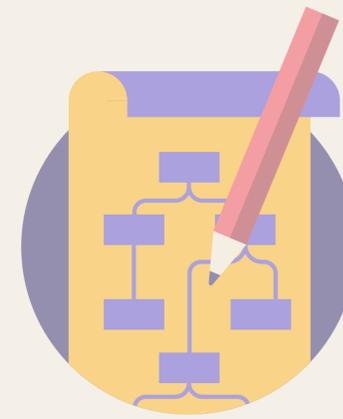
**Even if you can only address some of the steps in your project, it is still worth doing.**



Funding



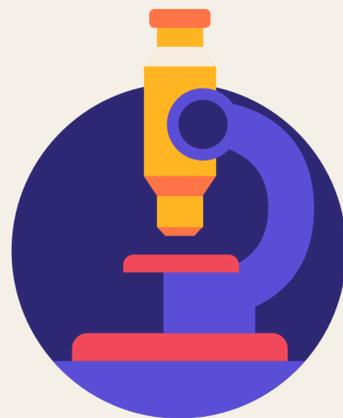
Motivation



Project  
Design



Data Collection  
& Sourcing



Analysis



Interpretation



Communication  
& Distribution

**What you do in each step of the Data Equity Framework will have equity *impacts* and *interactions* in other steps and your project as a whole.**

**The Data Equity Framework works *holistically* and *individually*.**



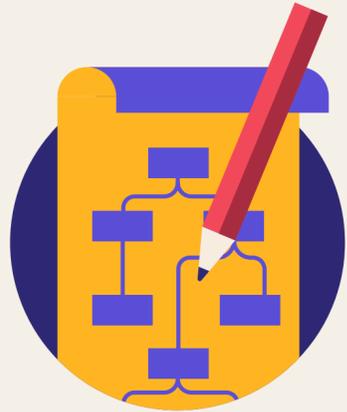
# Data Framework Overview:



Funding



Motivation



Project Design



Data Collection & Sourcing



Analysis



Interpretation



Communication & Distribution



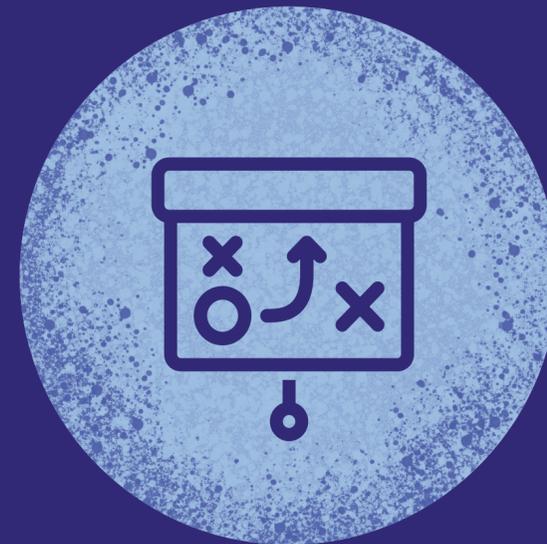
# Step 3: Project Design

# Project Design is the phase where the WHY becomes the HOW.

Critical step in data equity.



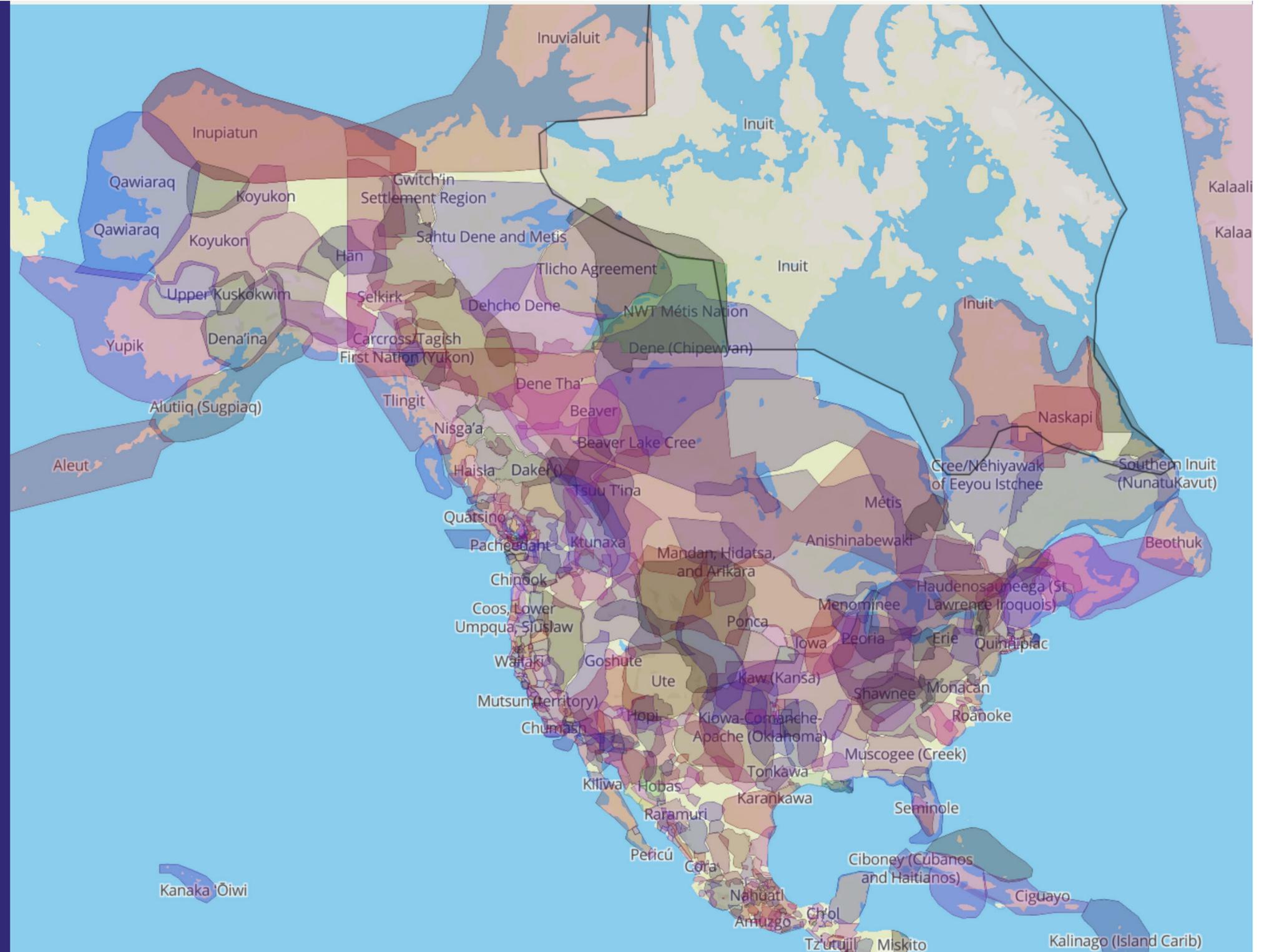
**WHY**



**HOW**

**Project Design is about  
conceiving it as good as it  
can be. Later steps are about  
keeping it from getting as bad  
as it could get.**

**'Geographical  
Sample Area'**  
based on whose  
geography?



## **The Perspective Microscope:**

**A way to brainstorm different general structures for your data project.**

**The 'general structure' of your project is:**

- **Who is asking the questions?**
- **What are the questions?**
- **Where are you looking for answers?**

# Motivation: How well is Syrian Refugee Resettlement going?

## Project Stakeholders:

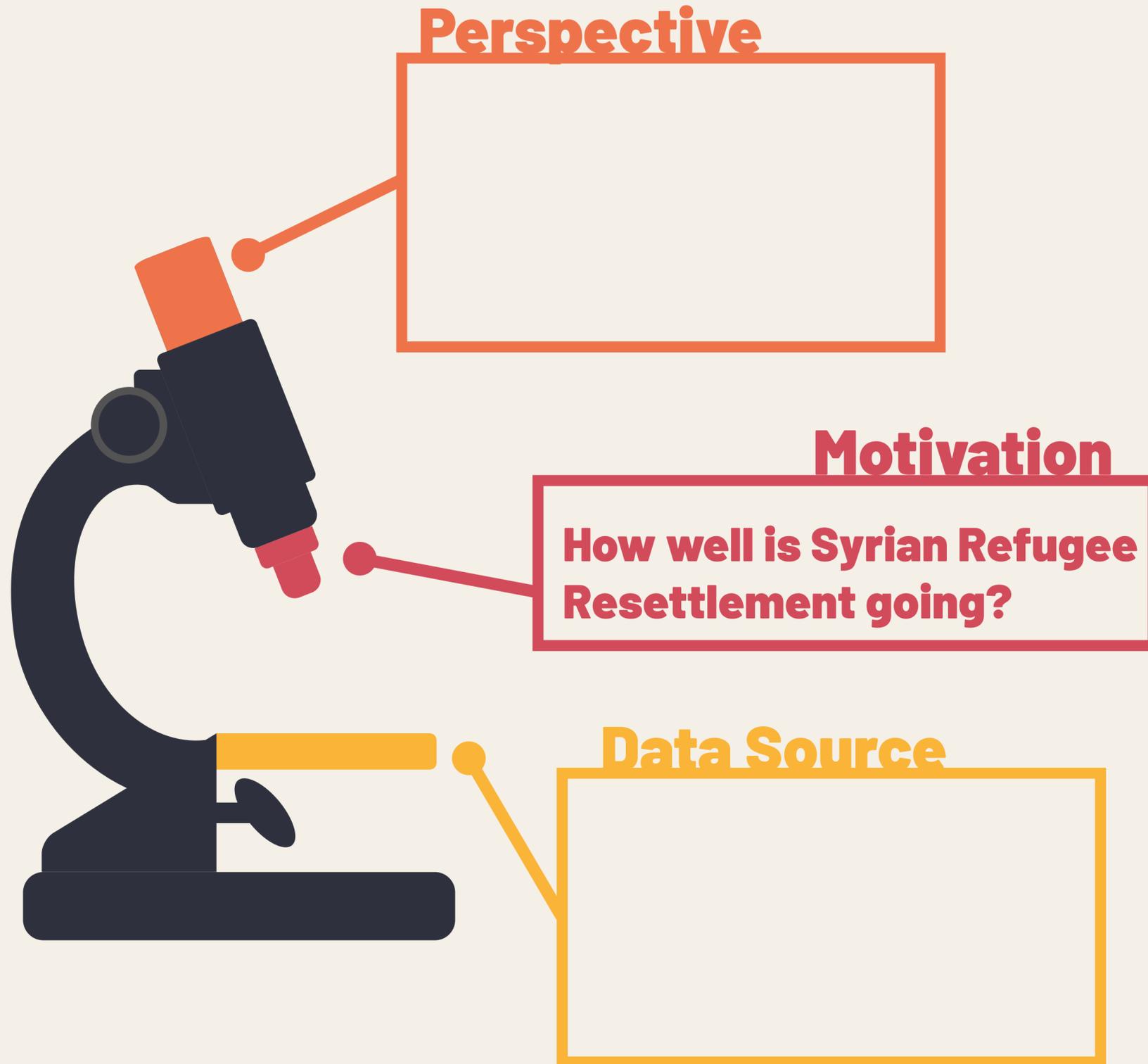




**Perspective - whose point of view are we asking from?**

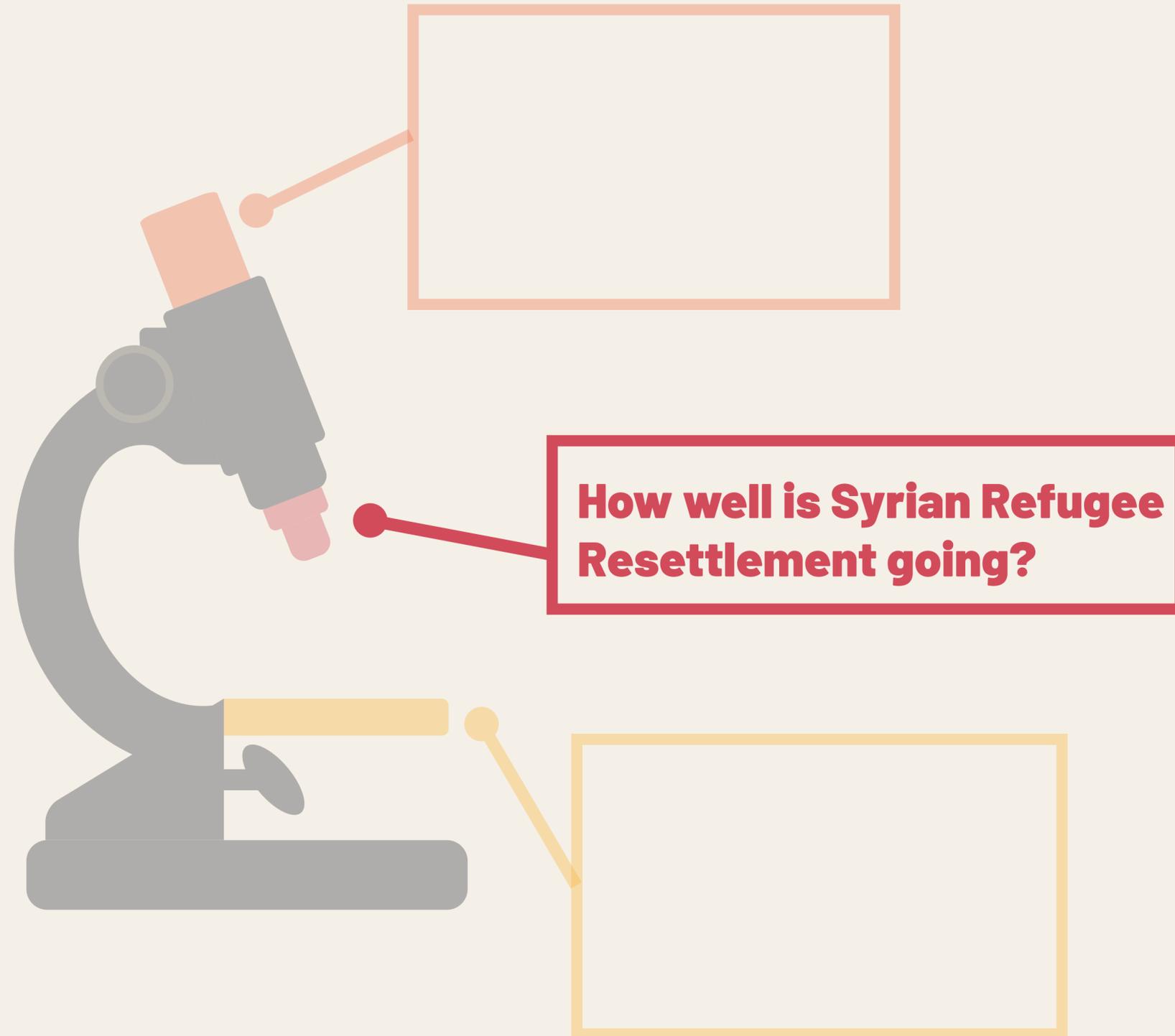
**Motivation Question - what do we want to know?**

**Data Source - where might we find some answers?**



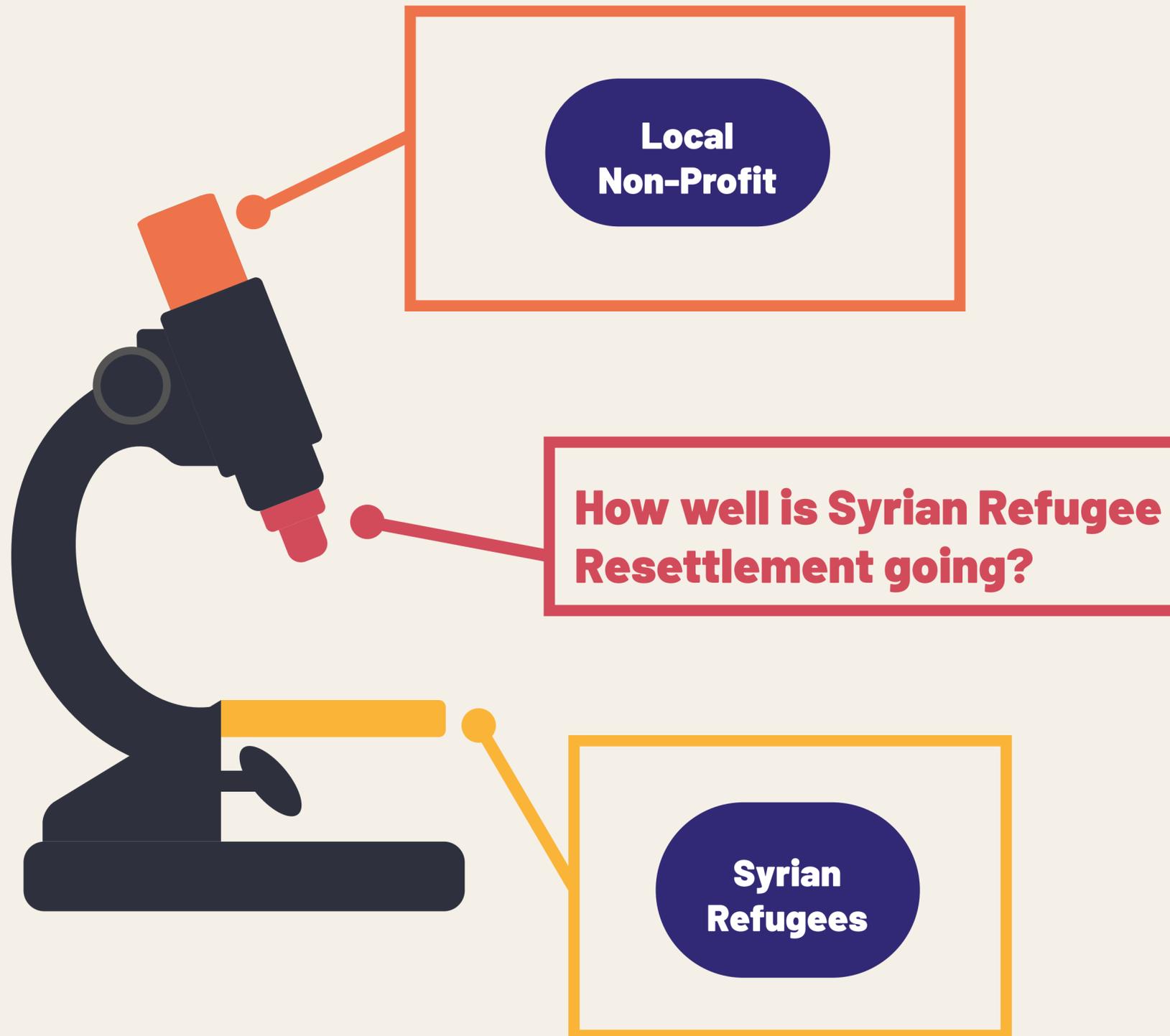
# Who should we put in the boxes?





**This is *not* a research question. It's the general motivation.**

**What *specific* questions might emerge based on who is in which box?**



## “Conventional”

Questions that might emerge from this setup:

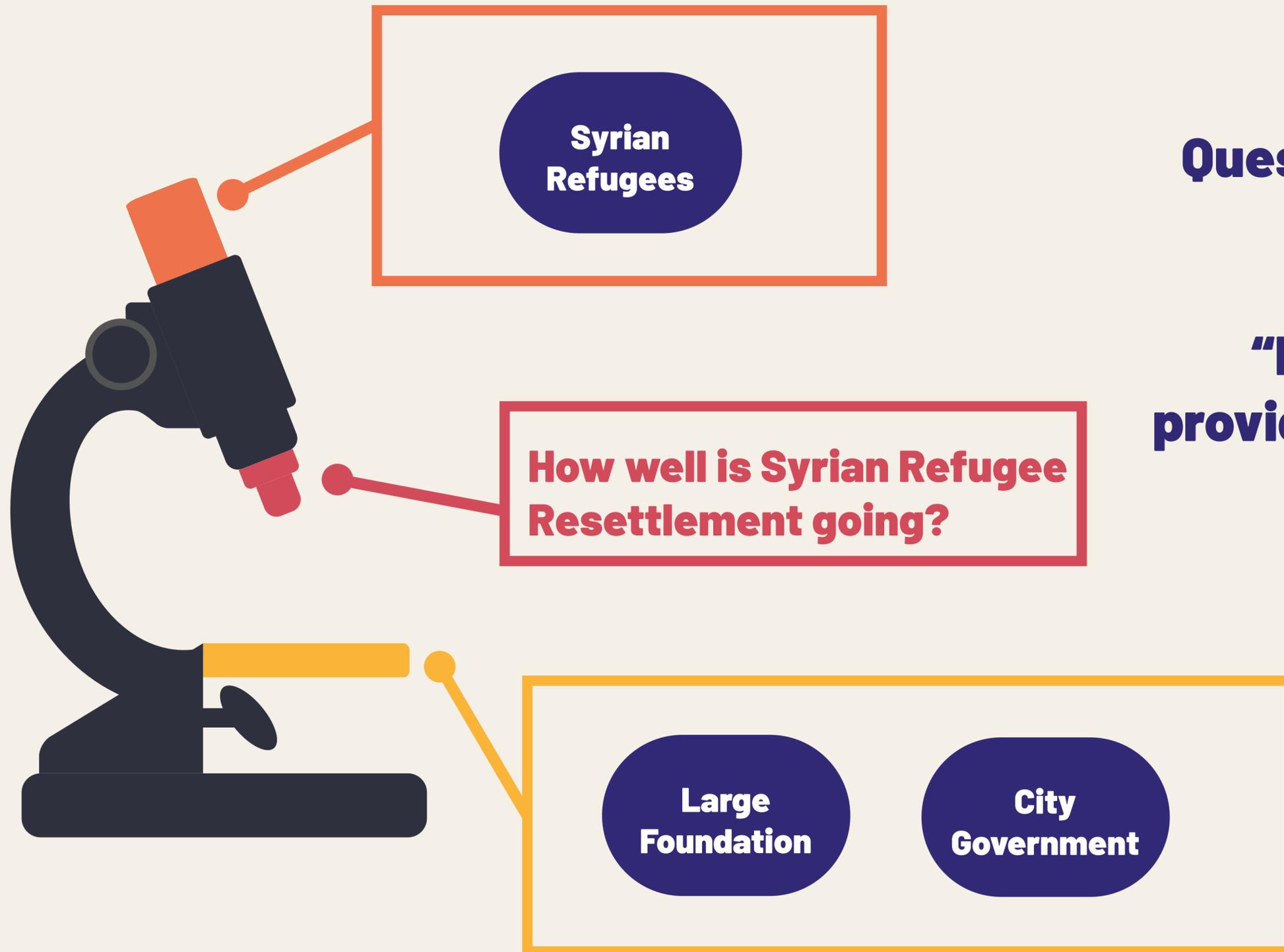
“Do the **refugees** have jobs?”

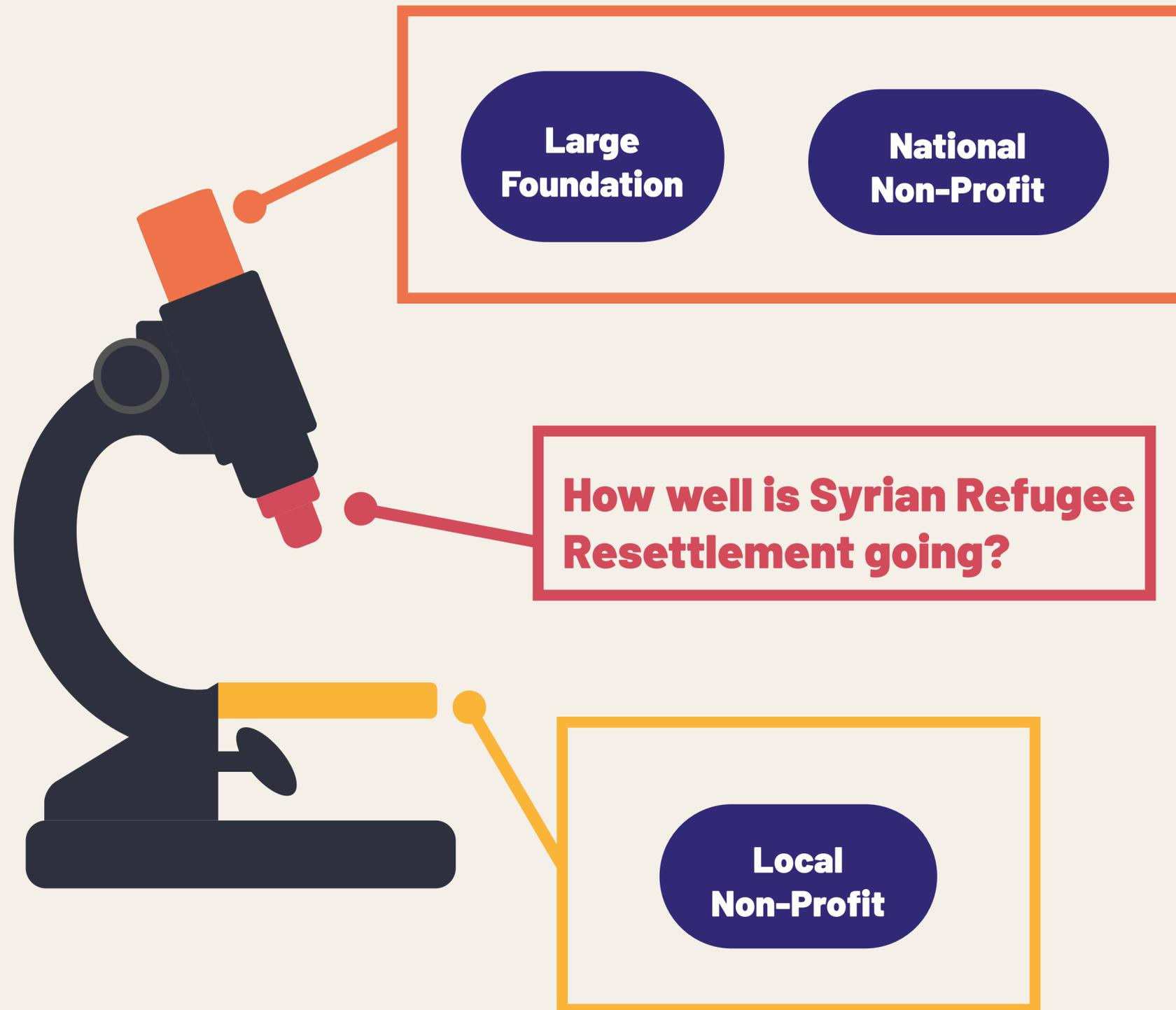
“Are **refugee children** benefiting from **our** afterschool programs?”

# “Study Up”

Questions that might emerge from this setup:

“Is the **city government** providing support in a language **we can read?**”





# “Effectiveness of Funding Distribution and Support Services”

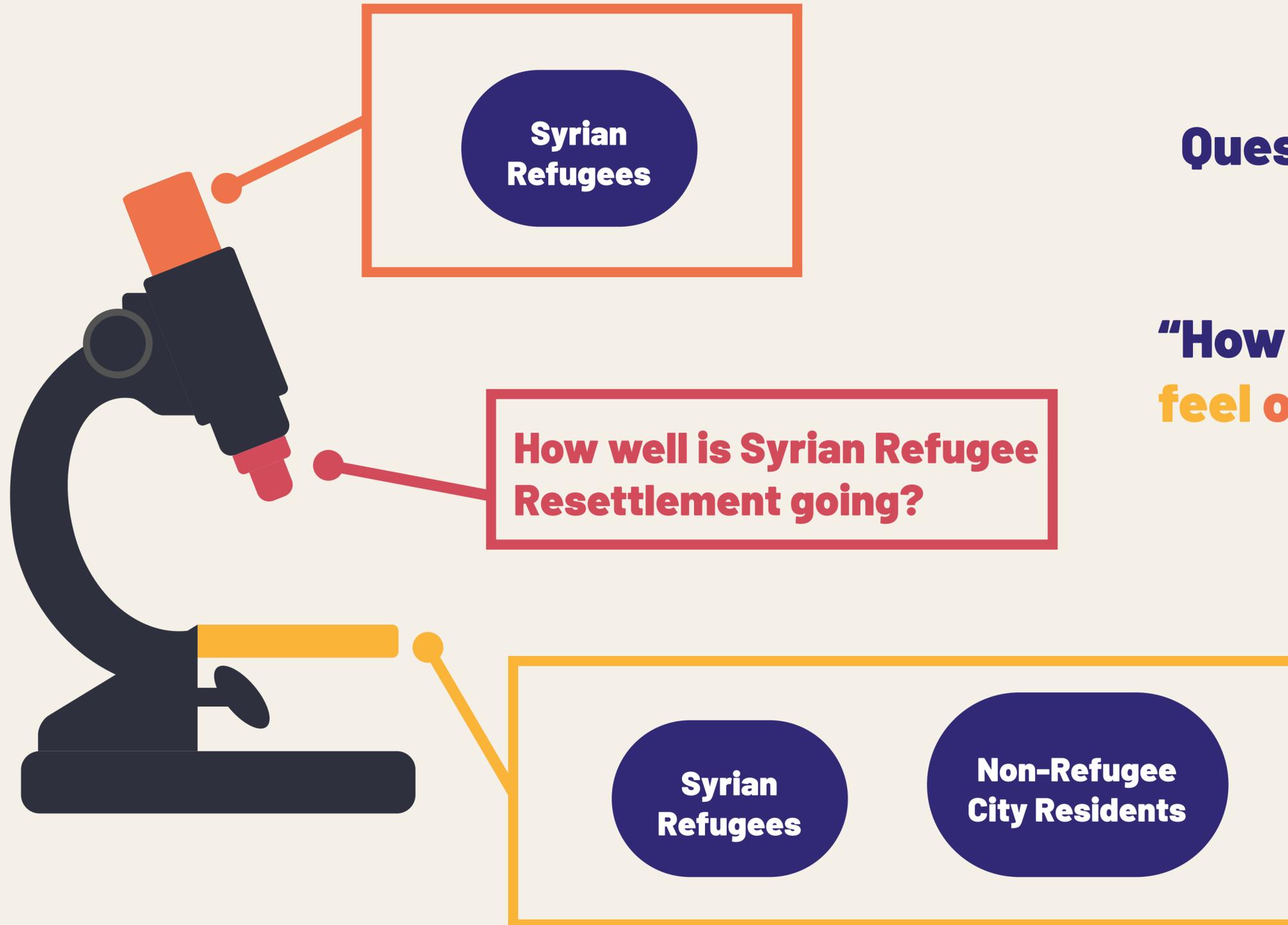
Questions that might emerge from this setup:

“How effectively are **they** spending the funding **we’ve** supplied to support the Syrian Refugees?”

# "Self-Study"

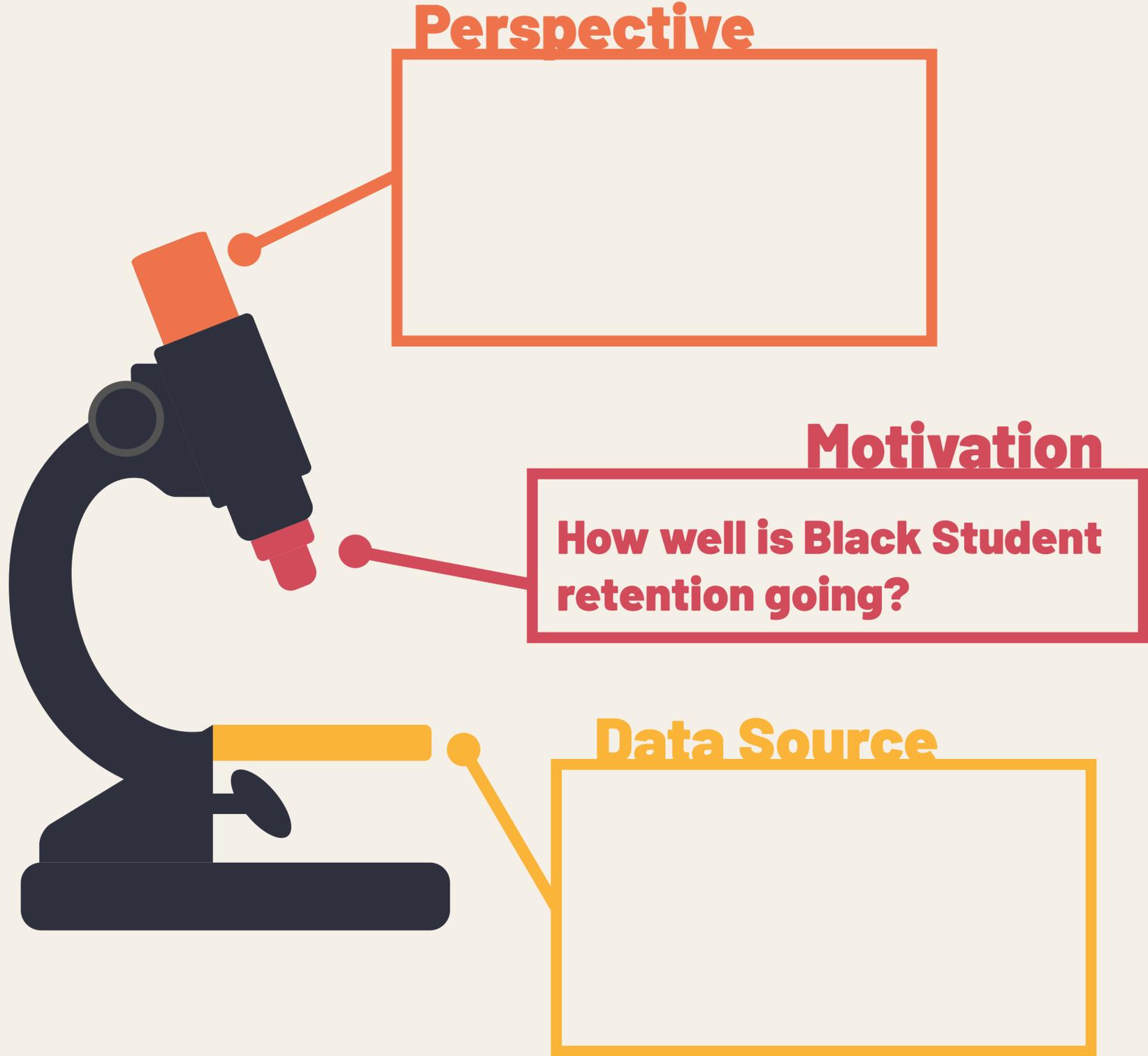
Questions that might emerge from this setup:

"How socially integrated do we feel our children are and do our neighbors agree?"

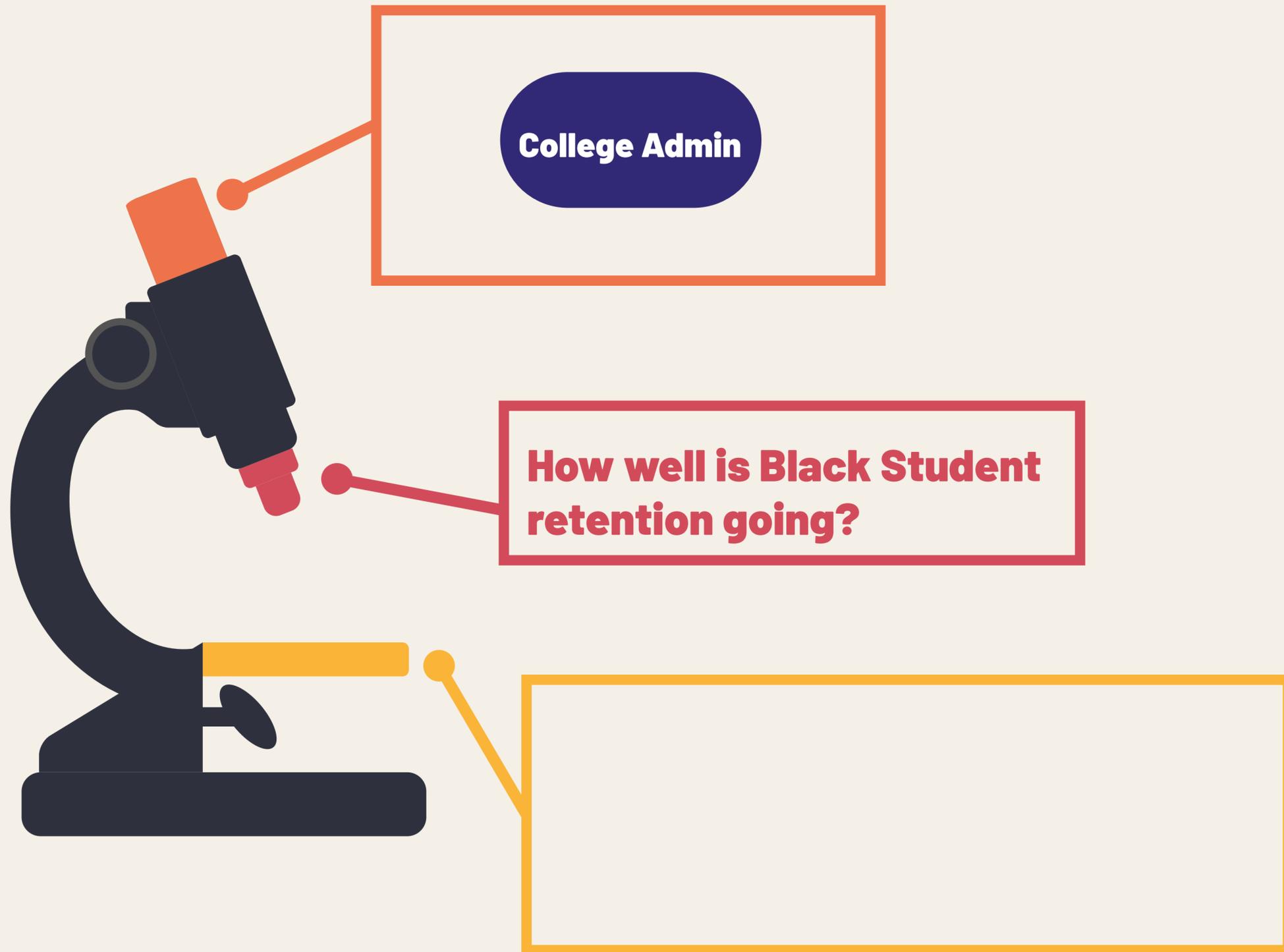


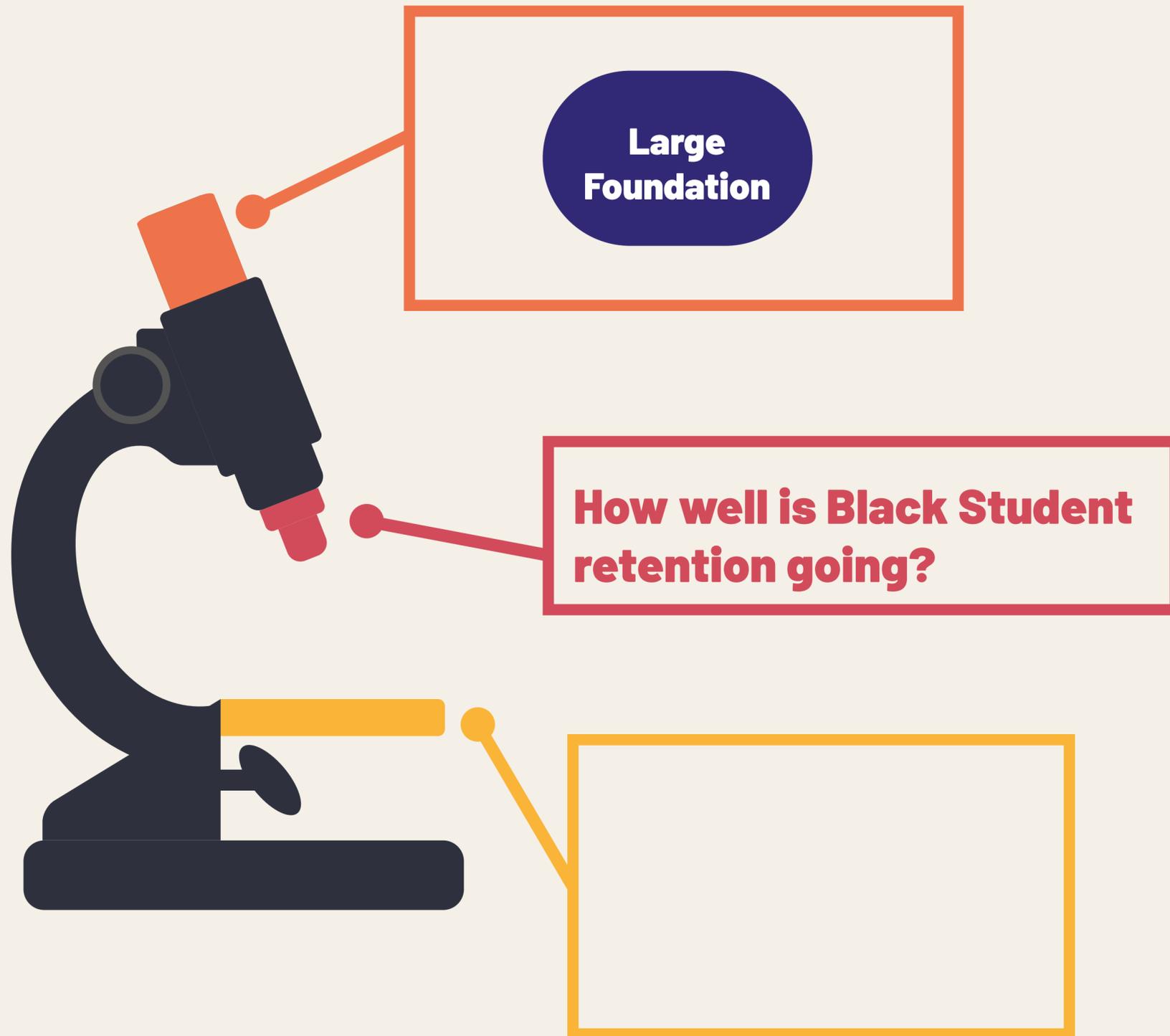
**“How well is Black  
Student retention going?”**

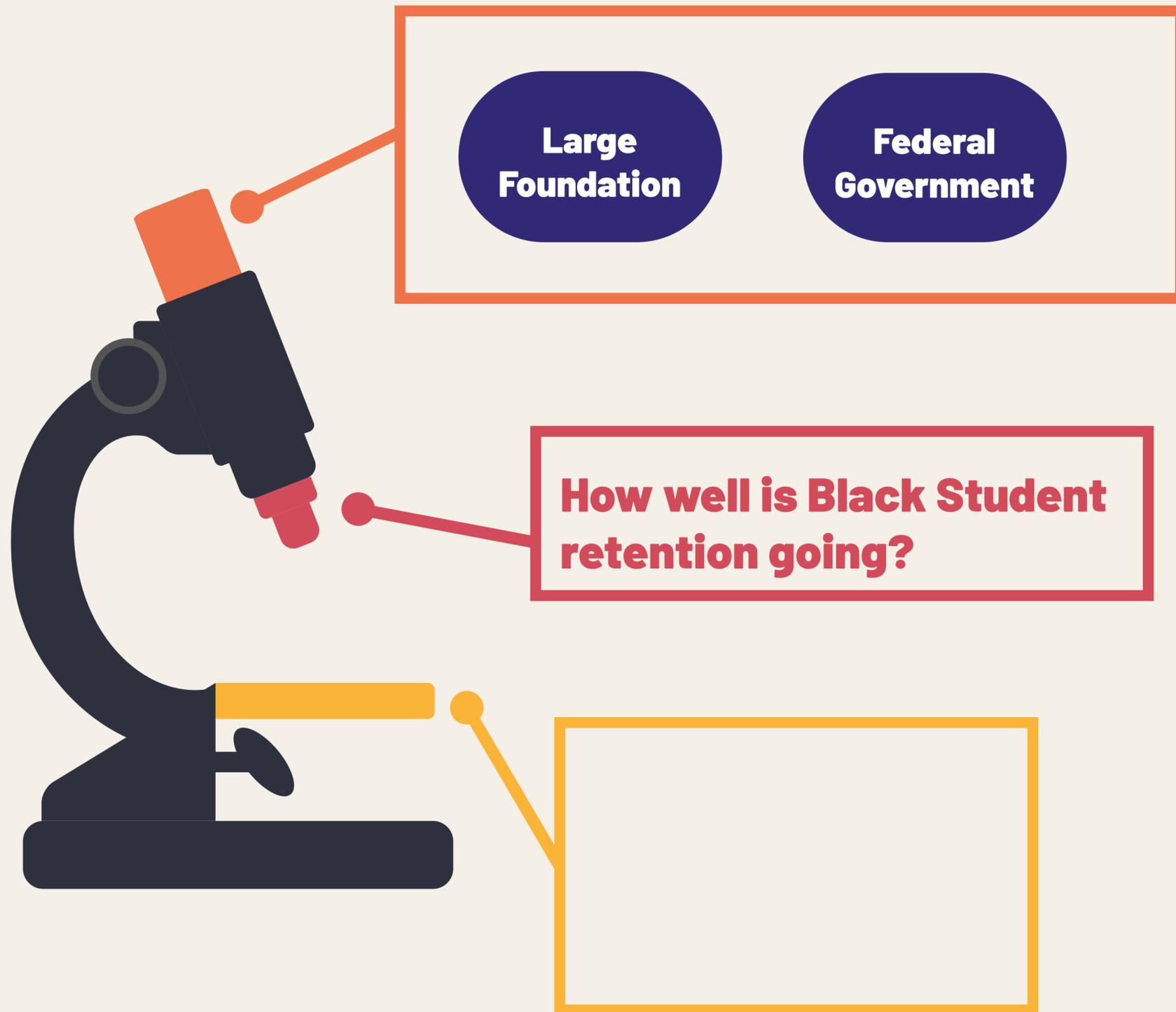
# Who should we put in the boxes?

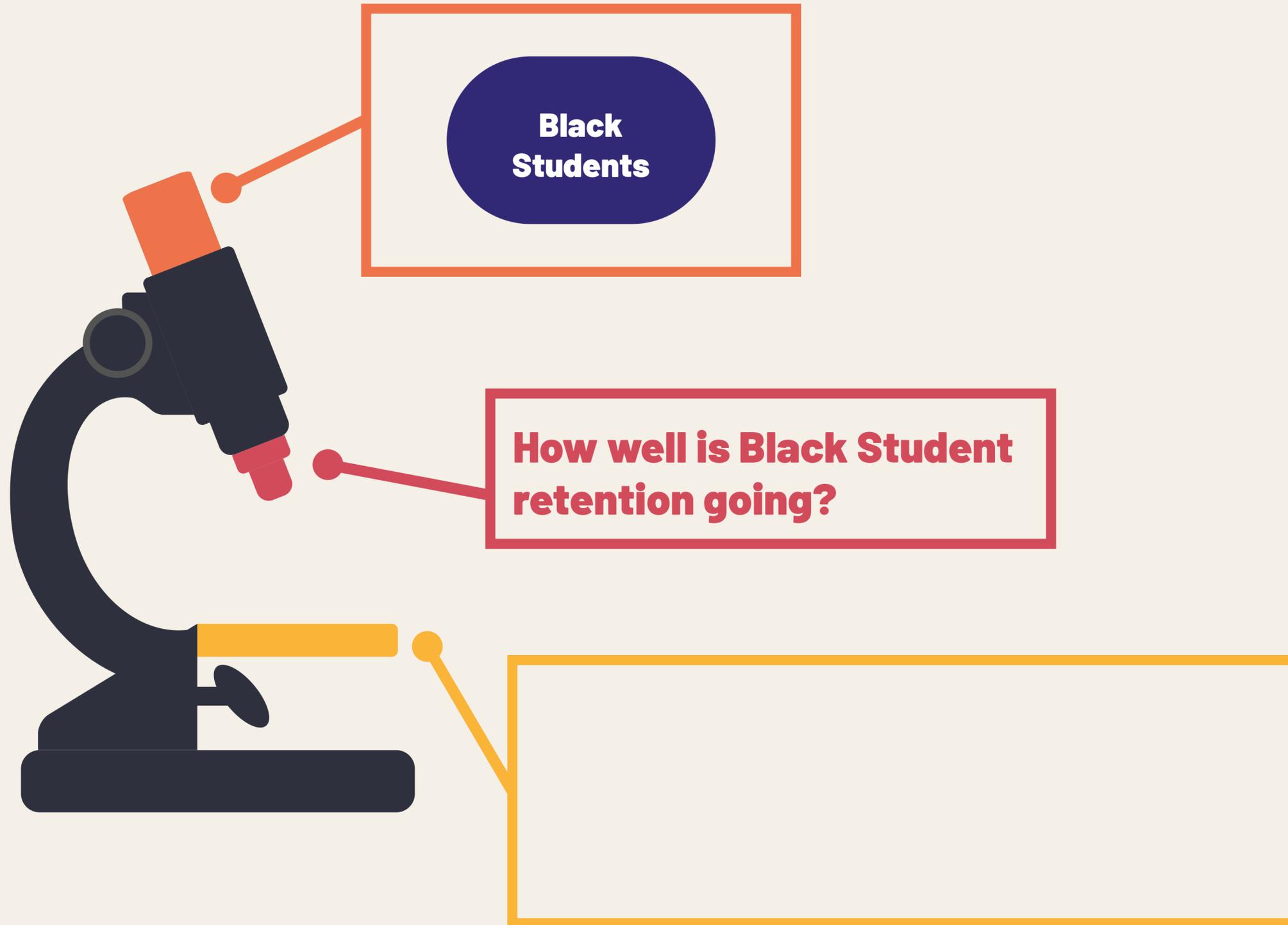


- School Admin
- Black Students
- Non-Black Students
- Federal Government
- Local Business
- State Government
- Large Foundation









**Once you **Blue Sky** all the possible structures and questions, it's time to define your research question(s).**



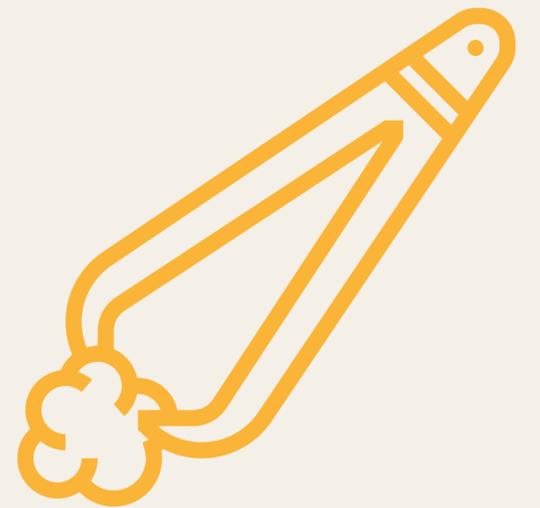
First, expand your perspective  
as much as possible to  
discover all the

things you want  
to know.

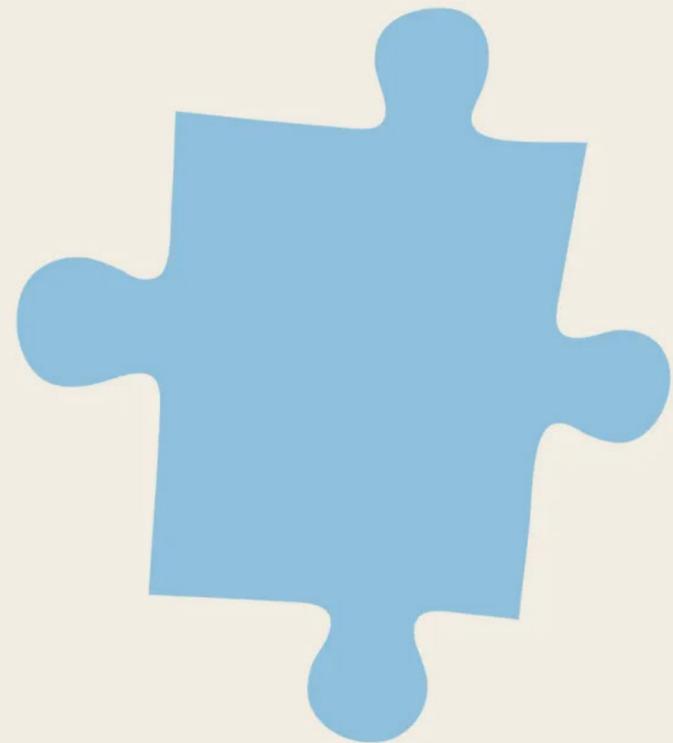
**AS BROAD AS POSSIBLE**

**AS SPECIFIC AS POSSIBLE**

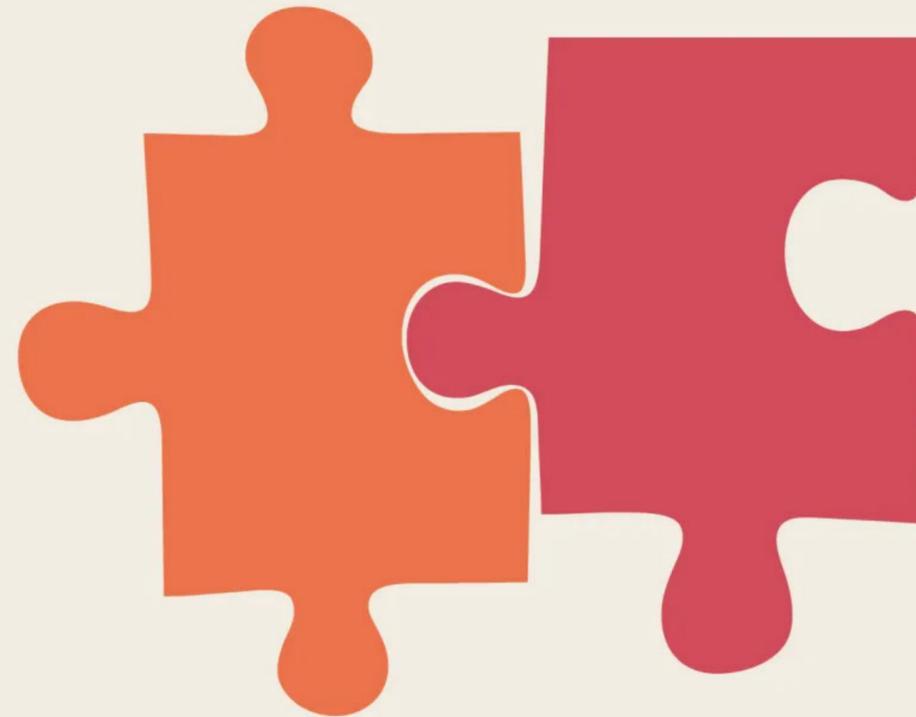
Then, refine your  
questions to reflect  
exactly what you  
want to know.



*Original Research Question: "How can we keep Hispanic boys from being expelled from our schools at a higher rate than non-Hispanic boys?"*



**Hispanic Boys**



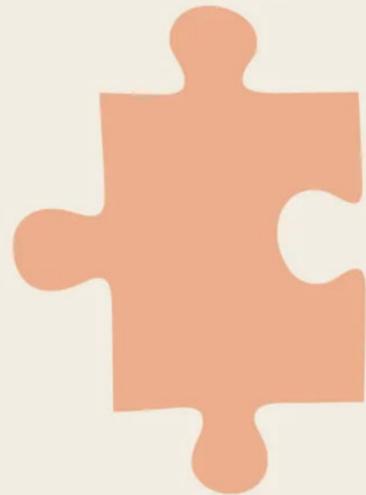
**Highschool  
Program**

**Non-Hispanic  
Boys**

**Which piece  
should change?**

*Revised Research Questions: "What processes in our school are most strongly related with pushing out Hispanic boys?" & "What school characteristics are most strongly related with creating environments that encourage Hispanic boys to fulfill preexisting their desires to remain in school?"*

**Old  
Highschool  
Program**



**New  
Highschool  
Program**



**Non-Hispanic  
Boys**

**Hispanic  
Boys**

# Data Equity Framework



Funding



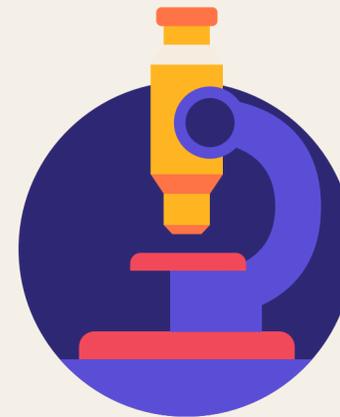
Motivation



Project  
Design



Data Collection  
& Sourcing



Analysis



Interpretation



Communication  
& Distribution

**Thank you.**

**[weallcount.com](http://weallcount.com)**

**Heather Krause, PStat**

**[support@weallcount.com](mailto:support@weallcount.com)**

**[@datassist](#)**



# **Join us for the January Session**

## **January 21, 2021**

**How to collect and analyze demographics with equity.**

**How to make sense out of your data.**

**How to tell stories with data equity that people can actually use.**