

## What is Inquiry-based Mathematical Learning?

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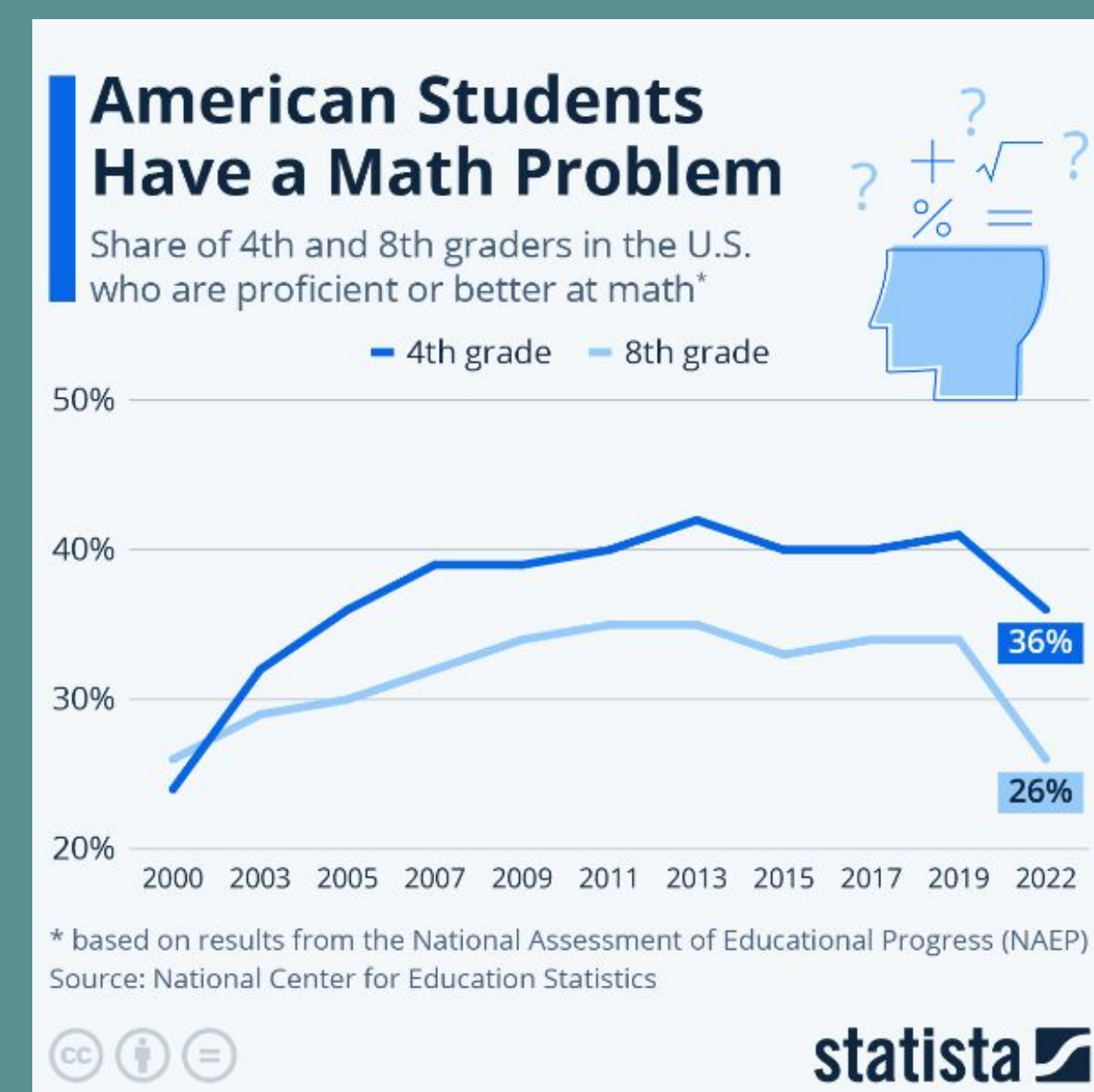
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## Suzanne Killian Mathematics Education

### Background

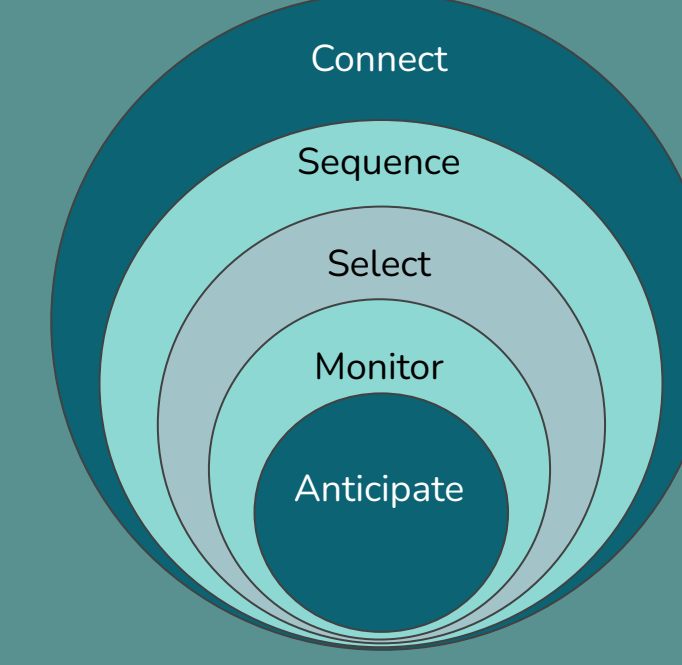
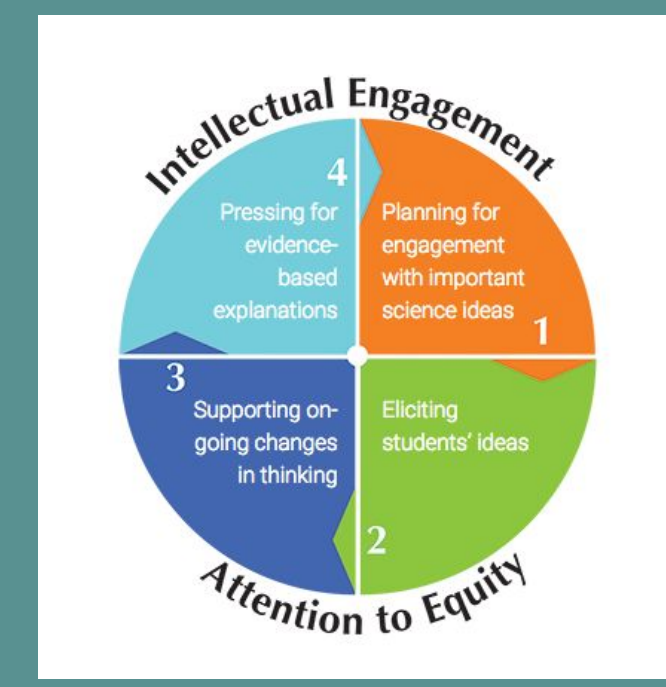
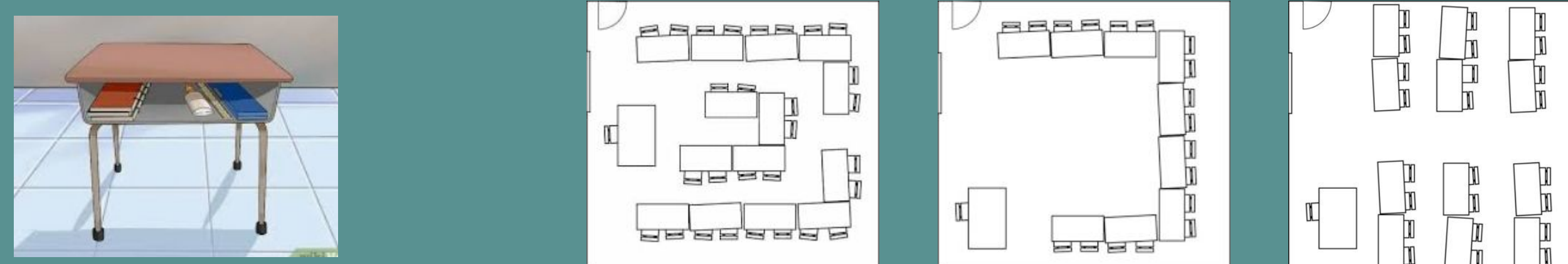
- No Child Left Behind Act left a ripple effect that has damaged student learning.
- Technology has created lots of distractions and provides easy access to math answers.
- Students have become great at getting good grades, but developed horrible math habits.
- The Pandemic has taken many tolls on education.
- Teacher-directed classrooms at all levels of math are losing their effectiveness and need to be updated.
- When teachers change their teacher-centered classrooms to inquiry-based classrooms they may provide a more effective learning environment for all levels of mathematics.



**Math Proficiency**  
 United States: 37%  
 Washington State: 50%  
 (Public School Review, 2023)

### Introduction

- What is inquiry-based mathematical learning?
- How does it work in the classroom?
- How does it relate to the 5 Practices?
- How can teachers balance their love for mathematics with the love for their students?



### Lesson Plans

### Results

- Students were engaged for the whole lesson.
- The classroom was a lot easier to manage.
- Meaningful math discussions happened.
- Students grew confidence in math.
- More students shared their work.

### Discussion

*The teacher is responsible for creating an intellectual environment where serious mathematical thinking is the norm (Beto, 2004).*

*When serious mathematical thinking happens it creates an engineer of learning environments in which students actively grapple with mathematical problems and construct their own understandings (Smith, M. S., & Stein, M. K., 2018).*

*When math greats are presented to students as born geniuses, it puts students into a fixed mindset; whereas when math geniuses are presented as people who loved and devoted themselves to math, it conveys a growth mindset to students. (Boaler, 2015; Dweck, 2008)*

*Students should be free to come to understand mathematics in ways that are respectful of their agency as human beings. It requires that teachers provide students with the time, space, tools, and challenges to grow in their understanding of mathematics (Bleiler-Baxter 2022).*

### Conclusion

- Balancing their love for mathematics with their love for their students will create a classroom that promotes mindful mathematical learning.
- When teachers take the time to learn about what inquiry-based learning is, how it works in the classroom, how it relates to the 5 Practices, and how to balance their love for mathematics with their love for their students they will provide an effective learning environment at all levels of mathematics.

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