TEXAS LESSON STUDY
Research. Reflect. Refine.

Educator Newsletter 2.2
February 2019

TXLS Mission

This inquiry-based, job-embedded professional development allows teachers to work collaboratively to develop, teach, and assess research-based lessons.

TEA aims to reach 10 percent of all Texas teachers by 2023, but the potential for impact includes every student in Texas.

TXLS Vision

To boost innovation in instructional design, improve teacher effectiveness, share best practices, improve student outcomes, and provide a platform to demonstrate mastery within the teaching profession

Letter from the Editors:

Fellow Educators,

We have several exciting updates to share this winter, including new ways in which teachers, schools, and districts can grow the Lesson Study community in Texas. Firstly, we have launched a second online course available for free to all Texas educators, described below.

Secondly, there is a new hub for Texas Lesson Study participation, which can be accessed at www.texasgateway.org/lesson-study. This page features information on TXLS within the TEA Strategic Plan, educator testimonials, and four access points to start TXLS and/or keep it going strong on your campus.

Thirdly, our newsletters this year are highlighting actionable instructional strategies, published TXLS lessons that use them, and evidence of their efficacy. Page two of this newsletter details the benefits of and strategies for discovery learning. See our previous **October 2018 Educator Newsletter** for strategies in Socratic mathematics. Let us know about the exciting and reflective practices developed by your TXLS group to be featured in the next newsletter.

In January, Texas Education Commissioner Mike Morath highlighted strong instructional leadership in his **address to the Texas Association of School Administrators**. He spoke highly of several districts, campuses, and individual teachers and leaders. He was "thankful for the opportunity to see your experts, your masters of the craft applying their trade . . . pouring love and skills into our kids, driving towards outcomes . . . [and] supporting and loving them in every way that we can." As your champions, we know intimately that the dedication and care of classroom teachers are significant components of instructional leadership. As always, we are here to support and applaud all that you offer to the 5.4 million students of Texas.

Here's to a spectacular spring semester!

On your team and in your corner,

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Taking Ownership of Texas Lesson Study

Bring Lesson Study straight to your classroom by learning how to facilitate the Lesson Study process. The Lesson Study process described in the Facilitator Training Course is proven to promote professional collaboration, build instructional expertise, and grow teacher leadership capacity.

Facilitator Training Course: Eight CPE Credits	Gateway Development and Lesson Submission Course: Two CPE Credits
- Learn the Lesson Study process - Download all materials necessary to facilitate a cycle on any campus	- Learn how to upload content for publication consideration

1 Examine & Identify
2 Review & Plan
3 Teach & Observe
4 Reflect & Revise
5 Share & Network

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Each issue will highlight strong instructional strategies designed by Texas Lesson Study groups.

Issue 2.2 Discovery Learning

TXLS group 105, fall 2017 participants from Slaton High School, researched an instructional solution to resolve common errors in Algebra I exponential calculations. Through an exploration of adolescent brain development, they concluded that guided discovery, rather than direct teaching, would be a more effective approach. This is aligned to inquiry-based learning, learning by doing, and 21st century learning.

Students were prepped for the lesson through peer discussion on the definition of exponents. After an opportunity to practice the skill, students were tasked with developing their own rules to approach exponential calculations. Teachers also planned ahead for common misconceptions, a key element of the Lesson Study process. However, rather than addressing these misconceptions directly, the teachers requested that students assess the effectiveness of one anothers' rules. This process of discovery allowed students to both self-select and discuss why and how rules were correct or incorrect, leading to an average 40 percent increase in mastery on this skill.
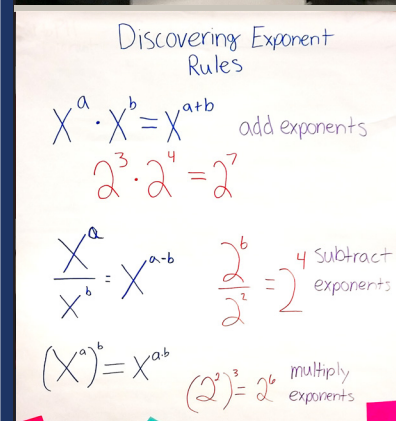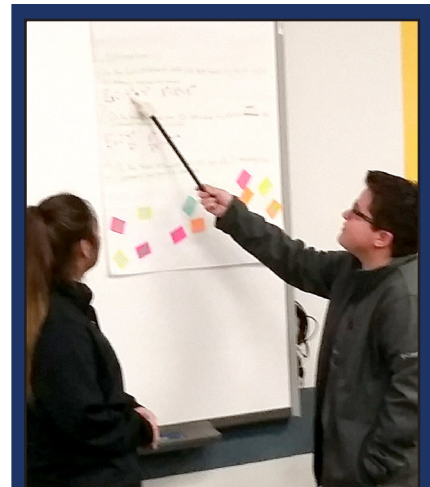
The benefits of guided discovery learning:

- *Generate learner curiosity*
- *Build learner confidence in background knowledge*
- *Allow self-paced learning*
- *Develop peer-to-peer trust*
- *Develop abstract skills applicable to a wider range of concepts*

Additional applications of discovery learning:

- *Create a method to solve a group of problems*
- *Form a hypothesis to explain an observed outcome*
- *Find the rule that explains verb tenses*

Check out the **full lesson**, teaching videos, research summary, and more on the **Texas Gateway**.

Discovering Exponent Rules

$$X^a \cdot X^b = X^{a+b} \quad \text{add exponents}$$
$$2^3 \cdot 2^4 = 2^7$$
$$\frac{X^a}{X^b} = X^{a-b} \qquad \frac{2^6}{2^2} = 2^4 \quad \text{subtract exponents}$$
$$(X^a)^b = X^{a\cdot b} \qquad (2^2)^3 = 2^6 \quad \text{multiply exponents}$$

TXLS Driving Student Achievement

TEA conducted an analysis of students that participated in Lesson Study and their STAAR performance on the TEKS addressed by TXLS lessons. Preliminary findings show that there are statistically significant positive differences between 2017-2018 TXLS students and non-TXLS students of the same teacher in previous years. In short, we believe TXLS is positively impacting student achievement in addition to teacher efficacy.

> *"The more we had to rely on ourselves, the more we had to understand what we were talking about."*
>
> *"I enjoyed getting to hear my peers' explanation to better understand from a student's point of view.""*
>
> *—Algebra I students at Slaton High School*

SLATON ISD
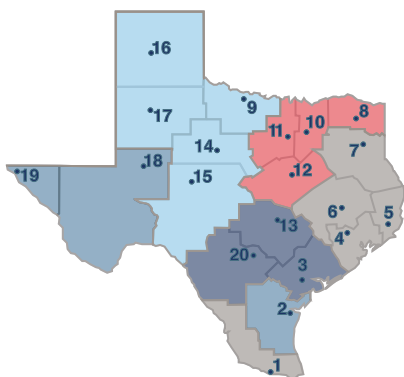
SLATON HIGH SCHOOL

Students relied on themselves and their peers, with guiding questions from the teacher, to discover the three main rules for combining exponential expressions.

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