



EDUCATION & TRAINING CURRICULUM PILOT

The Science of Learning

July 19, 2022 | Virtual



Agenda

02

2 MINUTES
Objectives

8 MINUTES
The Grecian Urn

30 MINUTES
The Science of Learning

10 MINUTES
Break

15 MINUTES
Unit Review

45 MINUTES
**Lesson Internalization
and Practice**

5 MINUTES
Debrief and Close



Objectives

03

In this session, you will:

- **Read and reflect on the science of learning article from Deans for Impact and its implications for instruction**
- **Identify and discuss underlying skills and essential questions taught throughout Unit 4**
- **Apply an internalization process for planning and delivering instruction of E&T curriculum materials**
- **Teach sample sections of the lesson plan to prepare for lesson delivery and student responses**

Quick Read: The Grecian Urn

04

Read and Chat

- Read the first few paragraphs of “Is your lesson a Grecian Urn?”

Stop at the paragraph that begins with “To illustrate this, Wiggins and McTighe...”

- After reading, answer these question in the chat:
 1. What are your immediate reflections on this text?
 2. Why might your students benefit from understanding the idea conveyed in this article?



<https://www.cultofpedagogy.com/grecian-urn-lesson/>



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05

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Rationale for The Science of Learning

To ground teaching in principles of how the brain works to guide instructional decisions.

...and it is interesting!

Deans for Impact

07

- **Breakout Room 1 will read and discuss**
 - 1) How do students understand new ideas?
 - 2) How do students learn and retain new information?
- **Breakout Room 2 will read and discuss**
 - 3) How do students solve problems?
 - 4) How does learning transfer to new situations in or outside of the classroom?
- **Breakout Room 3 will read and discuss**
 - 5) What motivates students to learn?
 - 6) What are common misconceptions about how students think and learn?



The Science of Learning

https://deansforimpact.org/wp-content/uploads/2016/12/The_Science_of_Learning.pdf

In small group:

10 minutes – Independently read sections of the article, note in your facilitation guide:

- **What resonates with you?**
- **What surprises you?**
- **What do you imagine students might struggle with?**

10 minutes – Discuss as a group: your two assigned questions

8 minutes – Share out as a whole group



The Science of Learning

https://deansforimpact.org/wp-content/uploads/2016/12/The_Science_of_Learning.pdf

Five Principles for Teaching based on the Science of Learning

Principle 1

Attending

Learning requires attending to the most important content

Principle 2

Prior Knowledge

Learning builds on prior knowledge.

Principle 3

Avoiding Overload

Too much information at once can interfere with learning.

Principle 4

Cognitive Engagement

Learning requires cognitive engagement and should be effortful.

Principle 5

Practice with Feedback

Practice and feedback are essential to move ideas permanently into long-term memory.



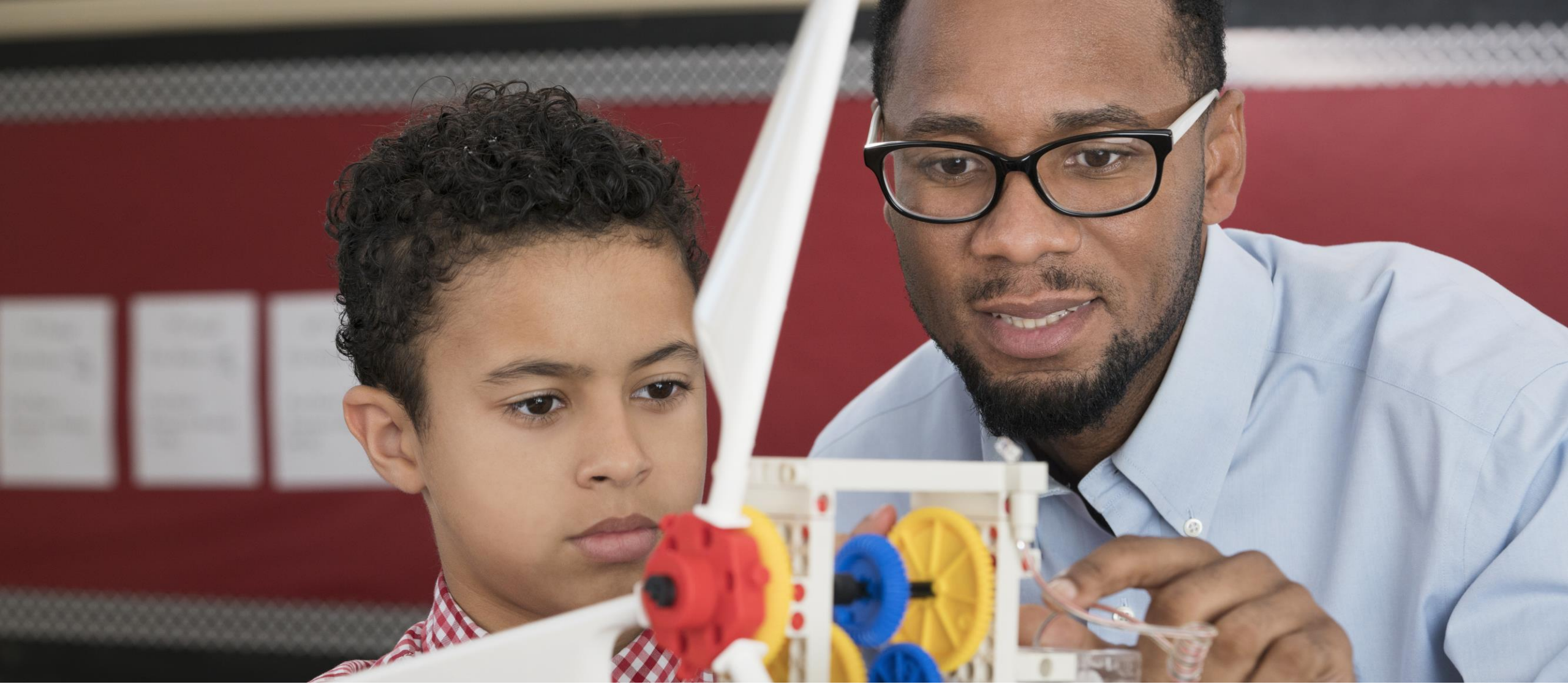
Why Science of Learning?

To ground teaching in clear, simple principles of how the brain works to guide instructional decisions



Break





Unit Review and Lesson Practice



Objectives

013

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Unit Overview: Unit 4 The Science of Learning

014

5 mins: Scope & Sequence Review

- Review the Scope & Sequence for Unit 4
- Consider the following questions:
 - How are the lessons sequenced?
 - What skills are taught throughout the unit?
 - What TEKS or lesson objectives might be difficult to teach or difficult for students to master?

5 mins: Chat Discussion



[Find curriculum resources here!](#)



Unit Takeaways

- Starts with the Simple Memory Model
- Outlines 5 key principles including:
 - Principle 1:**
Learning requires attending to the most important content.
 - Principle 2:**
Learning builds on prior knowledge.
 - Principle 3:**
Too much information at once can interfere with learning.
 - Principle 4:**
Learning requires cognitive engagement and should be effortful.
 - Principle 5:**
Practice and feedback are essential to move ideas permanently into long-term memory.



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Individual Lesson Rehearsal

In groups of 3, each person will select one of the three lessons below.
Each group member should be internalizing and practicing a different lesson.

Teacher 1: 4.01 Simple Memory Model (pg. 3-6 Environment and Attention)

Teacher 2: 4.01 Simple Memory Model (pg. 7-8 Working Memory and Learning)

Teacher 3: 4.03 Attending to the most important content (pg. 5 Think Aloud and Think-Pair-Share)

(Use the Student Guide for Think-Aloud and Student Think-Pair-Share)

Lesson Practice Cycle

018

- **Lesson Group Icebreaker (3 min)**
- **Independent Internalization (15 min)**
- **Lesson Practice Breakout Groups (18 min)**
 - **Practice (4 min)**
 - **Feedback (2 min)**
 - **Repeat for each group member**
- **Reflection (5 min)**

Each group member will select a separate lesson segment to internalize and execute.

Teacher 1: 4.01 Simple Memory Model (pg. 3-6 Environment and Attention)

Teacher 2: 4.01 Simple Memory Model (pg. 7-8 Working Memory and Learning)

Teacher 3: 4.03 Attending to the most important content (pg. 5 Think Aloud and Think-Pair-Share)

(Use the Student Guide for Think-Aloud and Student Think-Pair-Share)

Considerations for Independent Lesson Internalization

020

1. Review the **Slide Deck** to understand the structure and flow of the lesson.
2. Review the **Student Guide Answer Key** to see the lesson from the student perspective.
3. Review the **Lesson Plan** for sample teacher scripting, timing breakdown, etc.
4. Prepare to present it to your group as if you were teaching.

Role Play Success Criteria

Teachers...	Students...
<ul style="list-style-type: none">• Authentically assume the teacher role• Use clear and direct language (does not narrate “and this is what I’ll do next”)• Use the materials when prepping and teaching• Identify students to respond to specific questions	<ul style="list-style-type: none">• Answer teacher questions as a student would• Track with the teacher (follow along with the lesson, PowerPoint, or student guide)• Remain engaged by discussing and collaborating on the practice materials• Surface potential student misconceptions• Provide meaningful feedback after the practice



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022

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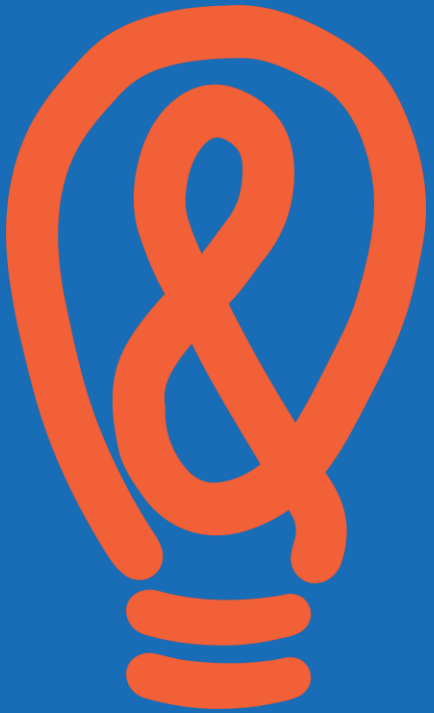
Lesson Practice Cycle

024

- **Lesson Group Icebreaker (3 min)**
- **Independent Internalization (15 min)**
- **Lesson Practice Breakout Groups (3x)**
 - **Practice (4 min)**
 - **Feedback (2 min)**
 - **Repeat for each group member**
- **Reflection (5 min)**

Use the following questions (found in your participant guide) to independently record reflections on the activity.

- **How will your experience in this lesson practice inform your approach to preparing and executing the content of these lessons in your own school context?**
- **What misconceptions might students have when engaging in this lesson? How might you address these misconceptions?**



Practicing sections of the lesson plan in a role play helps experience the lesson as both a teacher and a student.

This is a time to identify difficult concepts, potential student misconceptions, and areas to adapt the lesson materials to fit your style and context.



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027

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this session!**