

Creating 5E Lessons

Robyn Hilger, Catherine Vaughn
Published by *K20 Center*

This work is licensed under a Creative Commons CC BY-SA 4.0 License

Time Frame 4 hours

Essential Question(s)

How can I structure an authentic lesson from beginning to end?

Summary

The Creating 5E Lessons PD focuses on familiarizing participants with the 5E instructional model. The goal of the session is to immerse participants in an authentic 5E activity with an emphasis on each element of the 5E model. Participants will identify and describe the components of a 5E lesson and explain how the 5E instructional model supports the Authenticity framework. "Authenticity, It's Not Just a Fairytale" is a pre-requisite activity.

Learning Goals

- Participants will be able to identify and describe the components of a 5E lesson.
- Participants will be able to distinguish how the 5E instructional model supports authentic learning.
- Participants will be able to demonstrate ability to use the 5E model by modifying or creating a content lesson.

Attachments

- 5E Lesson Framework Reading—Creating 5E Lessons.pdf
- Authentic Lesson Reflection Tool—Creating 5E Lessons.pdf
- Authenticity Framework Reading—Creating 5E Lessons.pdf
- ELA Card Sort—Creating 5E Lessons.docx
- ELA Card Sort—Creating 5E Lessons.pdf
- Frayer Model—Creating 5E Lessons.docx
- Frayer Model—Creating 5E Lessons.pdf
- How Am I Feeling What Am I Thinking—Creating 5E Lessons.pdf
- I Notice, I Wonder—Creating 5E Lessons.docx
- I Notice, I Wonder—Creating 5E Lessons.pdf
- Instructional Strategy Notes—Creating 5E Lessons.docx
- Instructional Strategy Notes—Creating 5E Lessons.pdf
- LEARN Resources Handout—Creating 5E Lessons.docx
- LEARN Resources Handout—Creating 5E Lessons.pdf
- Math Card Sort—Creating 5E Lessons.docx
- Math Card Sort—Creating 5E Lessons.pdf
- Presentation Slides—Creating 5E Lessons.pptx
- Science Card Sort—Creating 5E Lessons.docx
- Science Card Sort—Creating 5E Lessons.pdf
- Social Studies Card Sort—Creating 5E Lessons.docx
- Social Studies Card Sort—Creating 5E Lessons.pdf
- Triangle Square Circle—Creating 5E Lessons.docx
- Triangle Square Circle—Creating 5E Lessons.pdf
- Unicorn Card Sort—Creating 5E Lessons.docx
- Unicorn Card Sort—Creating 5E Lessons.pdf

Materials

- Creating 5E Lessons presentation slides (attached)
- How Am I Feeling? What Am I Thinking? handout (attached; one per participant)
- I Notice, I Wonder handout (attached; one per participant)
- 5E Lesson Framework handout (attached; one per participant)
- 5E & Authenticity Rubric handout (attached; one per participant)
- 5E Lesson Organizer handout (attached; one per participant)
- Card Sorts (ELA, Math, Science, Social Studies, Unicorns) (attached; one per group)
- Authentic Lesson Reflection Tool handout (attached; one per participant)
- Authenticity Framework Reading handout (attached; one per participant)
- Frayer Model handout (attached; one per group)
- Triangle-Square-Circle handout (attached; one per participant)
- Instructional Strategy Notes handout (attached; one per participant)
- Large sticky posters
- Markers
- Highlighters
- Pens
- Index cards

Introduction

Presenter's Note: Authenticity

This activity follows the Authenticity, It's Not Just a Fairytale activity. Participants should be familiar with the Authenticity Framework before being introduced to the 5E Instructional Model. The following introduction allows time in the session to refresh participants on authenticity using the following Introduction.

Go to **slide 2**. Introduce the topic for the day and yourself. Go to **slide 3**. Share the learning objectives with the participants.

Go to **slide 4**. Give participants the **How Am I Feeling? What Am I Thinking? handout**. Invite participants to engage in the How Am I Feeling? What Am I Thinking? strategy by posing the following prompts: "Write a statement that represents how you feel about lesson planning" or "Write a thought, reaction, or comment that you have had about authenticity since our last session." Participants should choose one of these prompts and write a response.

Technology Option: Padlet

If you would like participants to interact with an instructional technology tool during this activity, you can pose these prompts to them on a site like Padlet. You will first need to set up a free Padlet account, which allows you three Padlets. Once you have an account, create your first Padlet. The shelf format is recommended so that you can create one column that says "How Am I Feeling? Post a gif that represents how you feel about lesson planning" and another column that says "What Am I Thinking? Post a thought, reaction, or comment that you have had about authenticity since our last session." Also include instructions for the participants that read "To add a post, select the pink '+' button in the lower right corner. To include a gif, click the magnifying glass on your post." Create a bit.ly or tinyurl link and a QR code for the Padlet you create, and insert both on slide four. Instruct participants to access Padlet via the link or via the QR Code. Invite participants to respond to one of the prompts.

Go to **slide 5**. Remind participants of the components of Authenticity they encountered during the last session: Construction of Knowledge, Disciplined Inquiry (Meaningful Questioning & Substantive Conversation), Real-World Connections, and Student-Centered Learning. Provide participants with the **Authenticity Framework Reading handout** as a reference.

Go to **slide 6.** Hand out and reintroduce the **Authentic Lesson Reflection Tool**.

Go to **slide 7**. Group participants by content. Give each group a **Frayer Model handout**. Assign each content group their component of Authenticity (ELA: Construction of Knowledge, Math: Disciplined Inquiry - Meaningful Questioning, Science: Disciplined Inquiry - Substantive Conversation, Social Studies: Real-World Connections, Unicorns: Student-Centered Learning). Instruct participants to use the Authentic Lesson Reflection Tool and the Authenticity Framework Reading to come up with a definition, characteristics, examples in the classroom, and non-examples in the classroom of their group's component.

Go to **slide 8**. Instruct each group to come up with a Chant It, Sing It, Rap It based on their Frayer Model. Provide groups with 5 minutes of work time, and then have each group present.

Presenter's Note: Timing

If you are concerned about timing, skip the Chant It, Sing It, Rap It in favor of having each group do a brief share out of their Frayer Model.

Go to **slide 9**. Introduce participants to the Essential Question: How can I structure an authentic lesson from beginning to end?

Engage

Go to **slide 10**. Tell participants they are going to be immersed in a PD that follows the 5E instructional model format. The markers on the slides will cue them when they are moving into the next E.

Go to **slide 11**. Have participants show you a Fist-to-Five over the following prompt: How familiar are you (on a scale of 1-5, with 1 being unfamiliar and 5 being very familiar) with the 5E instructional model?

Explore

Presenter Note: Card Sort

The Card Sort will require preparation prior to the beginning of the activity. You will need to cut out and bag the cards for each content group.

Go to **slide 13**. Participants should still be in their content groups. Invite participants to complete the Card Sort containing a lesson snapshot from their content. Ask participants to first arrange the E cards (bold) into the 5Es, then place the purpose of each E (italicized) next to the Es, and then, based on their experience as lesson planners, put the lesson snapshot activities in order. Allow time for the participants to discuss why they're formatting the lessons the way they are. Have participants leave their Card Sort intact as they engage in the upcoming activities. They will revisit it later in the session.

Participant Questions

Participants who do not have much experience with the 5E Instructional Model may struggle and ask you many questions during this Card Sort activity. This disequilibrium is a part of the experience, so encourage participants to give this activity their best try even if they don't have formal knowledge of the 5Es yet. A more formal learning experience about the 5Es will follow the Card Sort, and then participants will have an opportunity to edit their card sort using what they learn.

Go to **slide 14**. Hand out the **5E Lesson Framework Reading handout**. Participants will read the 5E Lesson Framework Reading using the Why-Lighting strategy, keeping in mind the following questions as they read: What is this E? What could it look like in the classroom? Invite participants to highlight parts of the text they deem important to their understanding of 5E and write in the margins why they highlighted that section.

Go to **slide 15**. Regroup participants by having them number off 1-5. Give each group an E to create a T-Chart over (1 = Engage, 2 = Explore, 3 = Explain, 4 = Extend, 5 = Evaluate). On the left side of the T-Chart, participants will answer "What is this E?" On the right side of the T-Chart, participants will answer "What could this E look like in the classroom?"

After completing the T-Charts, participants will Carousel by rotating through the other groups' T-Charts and adding to both sides of the T-Charts. Once each group has been to each poster, groups can go back to their seats in content groups.

Go to **slide 16**. Give participants the **I Notice, I Wonder handout**. To wrap up the discussion on the connections between the Es and what they look like in the classroom, invite participants to write an "I Notice" statement, an "I Wonder" statement, or both an "I Notice" and an "I Wonder" statement.

Technology Option: Padlet

If you would like participants to interact with an instructional technology tool during this activity, you can pose these prompts to them on a site like Padlet. Create a new Padlet. The shelf format is recommended so that you can create one column that says "I Notice..." and another column that says "I Wonder..." Also include instructions for the participants that read "To post, select the '+' beneath the column you want to post a statement for." Create a bit.ly or tinyurl link and a QR code for the Padlet you create, and insert both on slide sixteen. Have participants access the “I Notice, I Wonder” Padlet via the link or the QR code. They may post an “I Notice,” an “I Wonder,” or both.

Segue into the Explain with a discussion on: “How does the 5E instructional model support Authenticity?” (e.g., how does Explore before Explain support the construction of knowledge?)

Explain

Go to **slide 18**. Have participants return to groups of content teams if they did not already do so. Invite participants to revisit their Card Sort and make any changes necessary based on what they learned in the Explore. If applicable, allow time for the groups to discuss why they are making changes.

Go to **slide 19**. Guide participants through a tour of the LEARN repository. Go to **slide 20**. Allow participants to find the lesson they were given for the Card Sort to see how it is formatted (ELA: Sweet and Savory Writing, Math: Are We Golden?, Science: Water We Going To Do?, Social Studies: Resistance and Rebellion, Unicorns: Are the Odds in Your Favor?).

Go to **slide 21**. Hand out the **5E & Authenticity Rubric**. Invite participants to evaluate the LEARN lesson of their choice and identify components of Authenticity in that lesson. Have them refer back to the Authentic Teaching Reflection Tool for a resource on the components of Authenticity if necessary.

Extend

Presenter Note: Prior Preparation

A few days before the activity, ask participants to identify a lesson of theirs that they would like to modify and bring any materials related to planning for that lesson to the session.

Go to **slide 23**. Participants have hopefully identified their own content lesson to modify and brought their planning materials with them. Give participants a brief work time to identify areas of the lesson they can structure into the 5Es and where they are supporting Authenticity in the lesson. To scaffold this activity, you may provide participants with notecards to write their lesson activities on in order to manipulate them easily into a working order. Remind participants that it is okay if they don't completely modify the lesson in this work time, as this carries over into work that can be done between this session and the next time you meet with them.

Evaluate

Go to **slide 25.** Hand out and have participants complete the **Triangle-Square-Circle handout**. They will write three important points from the session next to the triangle, write anything from the session that squares with their thinking next to the square, and write anything that is still circling in their mind or they still have questions about next to the circle.

Go to **slide 26**. Revisit the Fist-to-Five strategy that was used in the Engage, asking participants if their familiarity with the 5E instructional model has changed. They will show you a Fist-to-Five over the following prompt: How familiar are you now (on a scale of 1-5, with 1 being unfamiliar and 5 being very familiar) with the 5E instructional model?

Go to **slide 27**. Give participants the **Instructional Strategy Notes handout**. Allow the participants time to complete their LEARN Strategy Reflection on the Instructional Strategy Notes handout. Participants will reflect on how the strategy was used in the activity and consider how they might use the strategy in their classroom.

Go to **slide 28**. Give participants time to jot down the Resources listed on the slide. Remind them they have several resources to rely on as they continue to modify their content lesson or even begin to create new 5E lessons (i.e., 5E Videos, 5E Lesson Framework Reading, etc.).

Follow-up Activities

In preparation for a next session, ask participants to come with their modified lesson that is structured in the 5E instructional model format and supports the elements of Authenticity. If they have had a chance to teach it, allow them to share their experience with the group. If participants are overwhelmed by the idea of modifying their own lesson or creating a 5E lesson, you could encourage them to select a 5E lesson from LEARN to teach and then leave a comment on the LEARN website about their experience teaching it.

Resources

- Bybee, R. W., Taylor, J. A., Gardner, A., Van Scotter, P., Powell, J. C., Westbrook, A., & Landes, N. (2006). The BSCS 5E instructional model: Origins and effectiveness. Colorado Springs, CO: BSCS, 5, 88-98.
- Cardak, O., Dikmenli, M., & Saritas, O. (2008). Effect of 5E instructional model in student success in primary school 6th year circulatory system topic. Asia-Pacific Forum on Science Learning and Teaching, 9(2) 10.
- K20 Center. (2017). Using the 5E Lesson Model.
- K20 Center. (October 8, 2019). 5E Model [video files]. https://www.youtube.com/watch?v=efaqxzyR6EM&list=PL-aUhEQeaZXICXKCWAO98QrSGJKrFpsZz
- K20 Center. (n.d.). Are the odds in your favor? Lessons. https://learn.k20center.ou.edu/lesson/f1ad9a48ef031d73438691061d00334e
- K20 Center. (n.d.). Are we golden? Lessons. https://learn.k20center.ou.edu/lesson/59169e1415dae6976ef2d0d6f102218c
- K20 Center. (n.d.). Authenticity, it's not just a fairytale. Activities. https://learn.k20center.ou.edu/pd/1c2bb46ffdf0fed14bcbaaaf49081016
- K20 Center. (n.d.). Card sort. Strategies. https://learn.k20center.ou.edu/strategy/d9908066f654727934df7bf4f506976b
- K20 Center. (n.d.). Chant it, sing it, rap it. Strategies. https://learn.k20center.ou.edu/strategy/d9908066f654727934df7bf4f5066ebf
- K20 Center. (n.d.). Fist-to-five. Strategies. https://learn.k20center.ou.edu/strategy/7b4de59085f566aa097814b8c0003b4a
- K20 Center. (n.d.). Frayer model. Strategies. https://learn.k20center.ou.edu/strategy/d9908066f654727934df7bf4f505d709
- K20 Center. (n.d.). Gallery walk/carousel. Strategies. https://learn.k20center.ou.edu/strategy/d9908066f654727934df7bf4f505a54d
- K20 Center. (n.d.) How am I feeling? What am I thinking? Strategies. https://learn.k20center.ou.edu/strategy/fc74060730ea745c8c4f356aa200edfb
- K20 Center. (n.d.). I notice, I wonder. Strategies. https://learn.k20center.ou.edu/strategy/d9908066f654727934df7bf4f507d1a7
- K20 Center. (n.d.). Resistance and rebellion. Lessons. https://learn.k20center.ou.edu/lesson/64f2b35101a470dda36d4442190187b3
- K20 Center. (n.d.). Sweet and savory writing. Lessons. https://learn.k20center.ou.edu/lesson/d9908066f654727934df7bf4f503b201
- K20 Center. (n.d.). T-chart. Strategies. https://learn.k20center.ou.edu/strategy/816ff8a793dedf6ff5046224f8035a79
- K20 Center. (n.d.). Triange-square-circle. Strategies. https://learn.k20center.ou.edu/strategy/6f19b778b73e4c339d1a7d9653006816
- K20 Center. (n.d.). Water we going to do? Lessons. https://learn.k20center.ou.edu/lesson/0f22aab19f1881985cc638b033029e85
- K20 Center. (n.d.). Why-lighting. Strategies. https://learn.k20center.ou.edu/strategy/d9908066f654727934df7bf4f505e7d5
- Padlet. (n.d.). https://padlet.com/
- Wilson, C. D., Taylor, J. A., Kowalski, S. M., & Carlson, J. (2010). The relative effects and equity of inquiry-based and commonplace science teaching on students' knowledge, reasoning, and argumentation. Journal of Research in Science Teaching, 47(3), 276-301.

Resources

From the K20 Center's research brief on "Using the 5E Lesson Model" (2017):

"[The 5E instructional model] allows students and teachers to use and build on prior knowledge and experience, explore activities to construct meaning, participate in discussion and articulation of ideas, and to continually assess their understanding of a concept" (Bybee, R, et. al. 2006). "Drawing from Dewey's reflective thinking, Piaget's theory of cognitive development, and elements of social constructivism, the 5E lesson model supplies teachers with a lesson design strategy that organizes the elements of authenticity and sequences them together into a complete learning cycle" (Cardak, O., Dikmenli, M., & Saritas, O. 2008). "When comparing students in a 5E learning environment to a traditional learning environment, students experienced greater learning gains. These gains persisted for long-term concept retention and were consistent across gender, ethnicity, and SES" (Wilson, C. D., Taylor, J. A., Kowalski, S. M., & Carlson, J. 2010).