

Experience Science

Dive In to *Experience Science* Teacher Toolkit

Grades K-5

Your Resources

Smart Track Wonder what you should do throughout the school year as you learn and implement *Experience Science*? Use this Smart Track tool!

Listen and Look For Tool What does an *Experience Science* classroom look and sound like? Use this self-monitoring tool to guide your implementation.

PLC Topics and Guidance Want to continue your learning with your own colleagues? Use these monthly suggestions for PLC topics to learn more together.

Question Stems What questions can help students develop evidence-based explanations? Use these question stems as scaffolds for student explanations when they are completing their Anchoring Phenomenon Activity.

Notes Keep some of your own personal notes from what you learned or want to try from your Implementation Essentials session.



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Use this visual as you continue your *Experience Science* learning journey.

DIVE IN! (LEVEL 2)

Experience Science

- ☐ I plan hands-on science lessons that fit into my schedule.
- ☐ I integrate science learning into my larger school day.
- ☐ I use scientific phenomena to motivate and contextualize student learning.
- ☐ I use the Listen and Look For tool to plan and reflect.

SAVVAS realize

- ☐ I explore and use the digital resources.
- ☐ I customize my lessons and assessments.
- ☐ I use and share playlists of the content I want to use.
- ☐ I incorporate digital activities regularly in my classroom.

my SAVVAS Training

- ☐ I visit My Savvas Training on a regular basis to learn more about the program.
- ☐ I revisit the asynchronous course as needed to refresh my knowledge.
- ☐ I use the Chat/Support feature to seek assistance from a Certified Training Specialist.

Explore (Level 1)

Experience Science

- ☐ I became familiar with the program's structure and materials.
- ☐ I learned how the program is structured around phenomena.
- ☐ I learned assessment and differentiation options.

SAVVAS realize

- ☐ I registered and created classes.
- ☐ I visited the Getting Started tab.
- ☐ I explored the Table of Contents.
- ☐ I incorporated some digital resources.

my SAVVAS Training

- ☐ I registered to view training materials.
- ☐ I visited the asynchronous course.
- ☐ I attended a Chat/Support session.



Experience Science

Listen and Look For Tool

This tool is designed to help teachers, students, and administrators establish and implement a shared vision for teaching and learning with *Experience Science*.

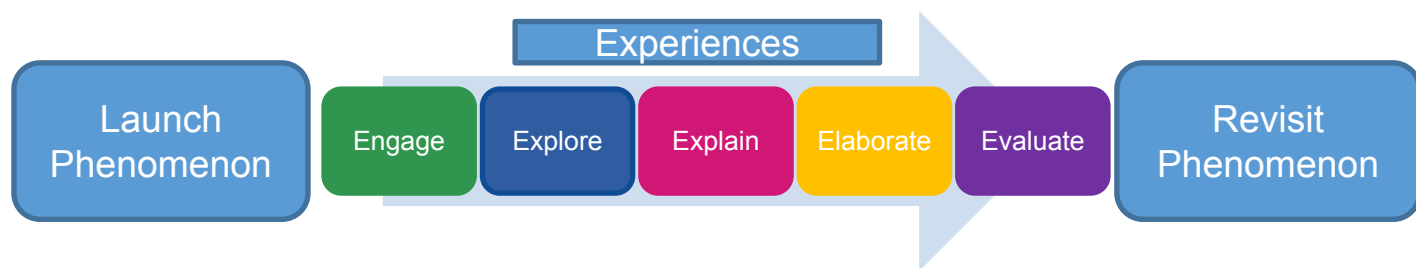
Here you will find the key parts of the learning experience, organized into the **5E framework**. Each part:

- Lists *Experience Science* **activities**;
- Lists observable **teacher actions**;
- Indicates the concrete and observable **student actions**; and
- Aligns student actions to **NGSS Science & Engineering Practices**.

We hope you use this tool for **formative purposes** to support ongoing implementation efforts and inform professional learning.

We invite you to **make this tool your own**, using it along with district- and school-specific goals, noting which routines and practices align to your goals and therefore become the focus of your *Experience Science* implementation.

We know that implementation of any new program takes time. Honor that time by using this tool to **set and monitor implementation goals**, rather than looking to expertly facilitate *Experience Science* on day one. In support of progress monitoring, we also encourage you to gather evidence of student actions and related delivery practices to illustrate progress over time and to provide fellow educators with supportive examples.



Topic Launch and Engage

Activities	Teacher Actions	Student Actions
□ School to Home Letter □ Anchoring Phenomenon Launch □ Anchoring Phenomenon Video □ Anchoring Phenomenon Activity □ Anchor Chart (3-5) □ Vocabulary Preview Activity □ Vocabulary Song (K-2) □ Vocabulary Game □ Everyday Phenomenon Launch □ Everyday Phenomenon Activity □ MLL Support	□ Introduces questions, phenomena, or problems □ Elicits students' background knowledge □ Fosters connections to previous learning □ Shares learning goals □ Invites students to share their thinking and make conjectures □ Encourages students to pose questions of their own to be investigated □ Introduces vocabulary and uses necessary MLL supports □ Formatively assessing what students already know and can do	□ Shows curiosity and expresses wonderings or questions □ Shares ideas, observations, predictions, questions □ Reflects by asking questions like, "What do I already know?" "What do I need to find out?", "What can I contribute?", or "How can this problem be solved?" (SEP 1) □ Creates initial models (SEP 2) □ Expresses background knowledge of the content and phenomena

Teaching Tips:

- Focus on eliciting rather than correcting ideas.
- Ask yourself "What knowledge can be built upon" rather than "What knowledge is lacking?"
- Conduct most activities in whole group so that collective background and ideas are built.
- Foster discussion using open-ended prompts and student-student talk moves.
- Create a Phenomenon board or KWL. Return to it periodically to see what students are learning.
- Use the Vocabulary Song or Anchor Chart during ELA time for practice.



Explore

Activities	Teacher Actions	Student Actions
❑ Before the Stations ❑ Hands-On Science Station (with rubric) ❑ Hands-On Engineering Station ❑ Literacy Station ❑ 3-Dimensional Differentiated Instruction ❑ MLL Support ❑ Revisit Everyday Phenomenon ❑ Exit Ticket	❑ Introduces problems for investigation ❑ Communicates safety procedures ❑ Previews reading selections with students ❑ Observes and listens to students as they work ❑ Facilitates student interactions when needed to help keep focus ❑ Encourages student-to-student talk ❑ Asks probing questions to help students make sense of their experiences and redirect them when necessary ❑ Provides vocabulary support ❑ Addresses and responds to misconceptions ❑ Provides time for students to tinker, productively struggle, and learn from mistakes ❑ Supports students in the engineering design process ❑ Personalizes instruction with Differentiated Instruction and MLL strategies as needed	❑ Plans and conducts investigations (SEP 3) ❑ Uses safe lab practices ❑ Observe, record, analyze, and explain data (SEP 4) ❑ Revises hypotheses and refines explanations through discussion (SEP 6/7) ❑ Tries multiple approaches to solving problems and discusses with other students (SEP 6/7) ❑ Creates, iterates, and optimizes models (SEP 2) ❑ Compares the tradeoffs of different ideas and explanations (SEP 7) ❑ Reads and comprehends informational texts ❑ Uses vocabulary in context

Teaching Tips:

- ❑ Consider starting the year by having all students work in groups doing the same station at the same time.
- ❑ Provide science notebooks that students can use to record lab observations, sketches, data, and findings.
- ❑ Use guided support suggestions sparingly, and only with students who need more help.
- ❑ Have students complete the hands-on activity together but fill out the activity sheets individually.
- ❑ Use heterogeneous grouping.
- ❑ Make a plan for using the Topic Readers sometime over the course of the Topic.

Explain

Activities	Teacher Actions	Student Actions
❑ Sense-Making Activity ❑ Key Ideas Presentation ❑ Class Discussion ❑ Key Ideas Video ❑ Exit Ticket	❑ Asks students to explain ideas and vocabulary in their own words ❑ Asks for supporting evidence and clarification ❑ Provides just-in-time definitions, explanations, and information ❑ Builds from student explanations ❑ Facilitates sense-making conversations ❑ Encourages students to respond and add to the claims and explanations of others ❑ Provides time for students to compare and revise their ideas with others ❑ Challenges student ideas with evidence ❑ Facilitates consensus-building conversations among students ❑ Uses science talk moves during discussion in service of collective scientific goals	❑ Offers models, explanations, answers, or draft solutions to others for critique ❑ Listens critically to explanations of others and provides feedback (SEP 7) ❑ Draws conclusions and explanations consistent with evidence (SEP 7) ❑ Records ideas and findings using diagrams, explanations, and data (SEP 4) ❑ Revises ideas, models, and explanations as necessary from new evidence ❑ Draws upon learned knowledge to ask questions, make decisions, design investigations, or construct solutions ❑ Critiques models, explanations, or arguments using reasoning and evidence (SEP 7) ❑ Connects new and previous understandings ❑ Communicates information and knowledge to others using words, diagrams, and data (SEP 8)

Teaching Tips:

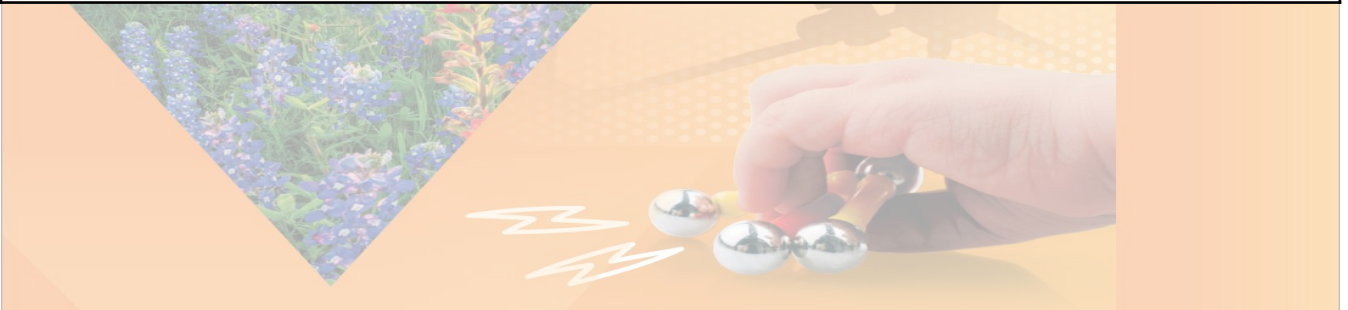
- ❑ Formatively assess student understanding through observation and discussion, and adjust instruction accordingly.
- ❑ Use the Address Misconceptions guidance in the wrap-around support to support sense-making and the revision of thinking.
- ❑ Create and display a chart titled “Science Talk” to remind students how to communicate effectively as they discuss ideas and come to consensus.

Elaborate

Activities	Teacher Actions	Student Actions
❑ STEAM Art Activity ❑ STEAM Math Activity ❑ STEAM Engineering Activity ❑ STEAM Technology Activity ❑ WalkSTEM Activity ❑ Career Connection ❑ Envision Math Visual Learning Animation	❑ Asks for supporting evidence and clarification ❑ Encourages students to respond and add to the claims and explanations of others ❑ Encourages students to use new vocabulary, practices, and concepts in new contexts ❑ Observes and listens to students as they work ❑ Probes student thinking to make deeper connections ❑ Empowers students to ask and investigate their own questions ❑ Encourages students to notice what's around them ❑ Asks open-ended questions to students about the world and its phenomena around them ❑ Assesses student participation with a rubric	❑ Offers models, explanations, or answers about phenomena they observe (SEP 6) ❑ Listens critically to explanations of others and provides feedback (SEP 7) ❑ Draws conclusions and explanations consistent with evidence (SEP 6) ❑ Records ideas and findings using diagrams, explanations, and data (SEP 4) ❑ Uses and applies new vocabulary, definitions, explanations, and formal scientific language in slightly different contexts ❑ Draws upon learned knowledge to ask questions, make decisions, design investigations, or construct solutions ❑ Connects new and previous understandings ❑ Communicates information and knowledge to others using words, diagrams, and data (SEP 8) ❑ Uses safe lab practices

Teaching Tips:

- ❑ Use the WalkSTEM guidance on Realize to plan your WalkSTEM strategically.
- ❑ Conduct the STEAM Activities in small groups like a lab.
- ❑ Invite a local scientist of the indicated career specialty to talk to the class about their work.
- ❑ Use the stopping points during the Envision Learning Animations to facilitate sense-making discussion.



Evaluate and Topic Wrap-Up

Activities	Teacher Actions	Student Actions
☐ Quiz ☐ Exit Ticket ☐ Revisit Anchoring Phenomenon ☐ MLL Support ☐ Reteach Activity ☐ Vocabulary Game ☐ Spiraling Content Activity ☐ Performance-Based Assessment ☐ Topic Test ☐ Topic Test Remediation ☐ Topic Reader Activity ☐ Science Story Comic	☐ Asks questions to elicit explanation, such as, “Why ...?”, “How...?”, “What’s your evidence?”, and “What if...?” ☐ Takes observational notes as students demonstrate understanding of the TEKS ☐ Uses multiple assessments to gather a comprehensive picture of student understanding ☐ Provides opportunities for student self-reflection ☐ Facilitates consensus-building conversations around explanations for phenomena ☐ Supports sense-making conversations ☐ Asks students to answer questions posed in launch ☐ Elicits changing in thinking/understanding ☐ Assigns remediation to students who need additional support ☐ Uses ELPS Targeted Support as needed	☐ Provides feedback to others (SEP 7) ☐ Compares current thinking with former thinking and adjusts as necessary SEP 6) ☐ Ask further questions about a phenomenon or concept that could lead to further investigation (SEP 1) ☐ Demonstrates understanding of NGSS ☐ Uses observations, evidence, and validated knowledge to answer open-ended questions (SEP 6) ☐ Provides scientific explanations for phenomena (SEP 6) ☐ Answers questions and revises and refines ideas posed during launch

Teaching Tips:

- ☐ Create an observation checklist to record observations about what students know and can do during Performance-Based Assessments.
- ☐ Return to the Phenomenon bulletin board or KWL chart to make revisions and changes to thinking based on what students learned.
- ☐ Use the Topic Readers during ELA time to conduct reading groups or whole-class discussion about nonfiction text.

PLC Topics and Guidance for Continued Learning

With your PLC or other grade-level colleagues, use the suggestions below to continue your professional learning.

Month 1

Examine the SEPs and CCC Preview prior to Topic 1 in your Teacher Guide. Think about how you could use this resource. Some teachers like to start the school year with this explicit instruction around the SEPs and CCCs, while other prefer to use them as needed as they come to these SEPs and CCC during instruction. Create a plan for using these in your classroom and budgeting time for their instruction. If you will be using them throughout the school year, find the SEPs and CCC content that covers the SEPs and CCCs from your current Topic. Review the slide presentation together with your grade-level colleagues and make additional notes you'd like to incorporate.

Month 2

Watch a Teacher Background Video together with your grade-level colleagues prior to beginning a new topic. (You can find the videos on Savvas Realize® in the Topic Launch folder.) Discuss the following questions together:
How can we make connections to what students already know or have learned in the previous topic?
How can we support this science content during math and ELA time?
Are there other common misconceptions we have heard from students?

Month 3

Reflect on the student discourse in your classroom. Discuss what you are doing in your classroom to 1) Engage students in the thinking of other students; 2) Ensure that all students' ideas are heard and considered; and 3) Take up and build on your students' thinking when they provide answers. Come up with three question prompts that you would like to start using to support these three goals. Write each one on an index card. Role play with a partner, where you take turns playing the teacher and student. The "teacher" should form a question using the prompt on one of the index cards. The "student" should provide an answer. Instead of evaluating the question as right or wrong, the "teacher" takes up that answer and asks further questions about it to other students.

Month 4

Bring a few samples of student work that show the progression in their explanations around your current Anchoring Phenomenon (Topic-level phenomenon). What learning opportunities do you think contributed to the increasing sophistication of their explanation? What support do they still need to continue to develop those explanations? Are there any misconceptions? Choose one or two additional activities to assign that you think would support their work further.

Month 5

Ask a colleague to use the Listen and Look For tool to observe you teach a lesson (and vice versa). Debrief together using these guiding questions:

- Consider one of the activities you taught. Which of the Teacher Actions did you incorporate? What Student Actions did you and your colleague observe?
- How could your instruction have better supported the student actions?

Set a goal to begin using one of the activities from the Listen and Look For tool that you aren't already using. Use each other as accountability partners by checking in about your respective goals in two weeks.

Month 6

Come prepared to discuss the most recent Hands On station activity you have conducted. Bring 3 pieces of student work that reflect a variety of thinking. Together, discuss how each one

- reflects evidence of the SEPs listed for the activity (Keep your analysis focused on evidence of what students *can* do rather than what they *can't* do); and
- supports student understanding about the Anchoring or Everyday Phenomenon.

Discuss the implications for teaching based on your collaborative analysis. Commit to one goal you will focus on in your classroom for hands-on activity.

Month 7

Plan an upcoming WalkSTEM together with your grade-level colleagues. Using the reference document on Savvas Realize® in the Elaborate phase of select lessons, go through the five steps together and record your plan. Plan how you will assess student participation using the rubric at the end. Will you assess individual students? How? Will you assess students at the group level? How? Will students present findings, or will you complete the rubric during the walk? How long will you spend on your WalkSTEM?

Month 8

Bring a variety of student work from three different types of assessments you've used throughout the year. Each student sample should be from the same Topic.

- What does each type reveal about student learning?
- What does it hide?
- Thinking about your upcoming school year, would you make any changes to the combination of assessments you choose to use?
- Are there any that are not adding enough?
- Are there any you would like to add that you're not already using? Are you using data from your formative assessments?

Together, create an assessment plan for the upcoming school year. Identify which assessments you will regularly use, how you will collect and organize data from those assessments, and how you will use the data to inform your instruction.

Question Stems

Use these question stems* to facilitate conversations and documentation around your Anchoring Phenomenon Launch, as well as Revisit the Anchoring Phenomenon opportunities.

Phase	Question Stems
Claim/ Question/ Problem	• _____ causes _____ • _____ is the reason for _____ • How does _____ work? • Why does _____ happen?
Evidence	• From the _____ activity, evidence to support the claim/question is _____. • One piece of evidence to support this claim/question is _____ from the _____ activity. • In the data... • This claim is evidenced by... • According to the data collected during the investigation... • According to the observations collected during the investigation...
Reasoning/ Solution	• This is important because _____. • This evidence shows that _____. • This evidence suggests that _____. • This evidence confirms that _____. • Based on the evidence, it can be concluded that ... because ... • The most logical conclusion that can be drawn from this evidence is that because... • These facts work together to build a case that... because...

*Figure 10_CER sentence starters. Accessed June 20, 2024.
<https://static.nsta.org/connections/highschool/202007CERSentenceStarters.pdf>.

Notes

[illegible]