Lesson-Planning Guide

Gain Understanding of the Standards

- ❏ Review the mission associated with the bundle to gain an understanding of how the scope will relate to other scopes within the bundle.
- ❏ Review the Standards Alignment Chart, Evidence Statements, and DCI Progressions for an overview of three-dimensional learning (core ideas, practices, and crosscutting concepts) featured in this scope.
    - ❏ If additional content support is needed, review the Teacher Background element in the **Home** section.
- ❏ Review the Performance Expectations to know what students should be capable of by the end of the scope.

Planning Instruction

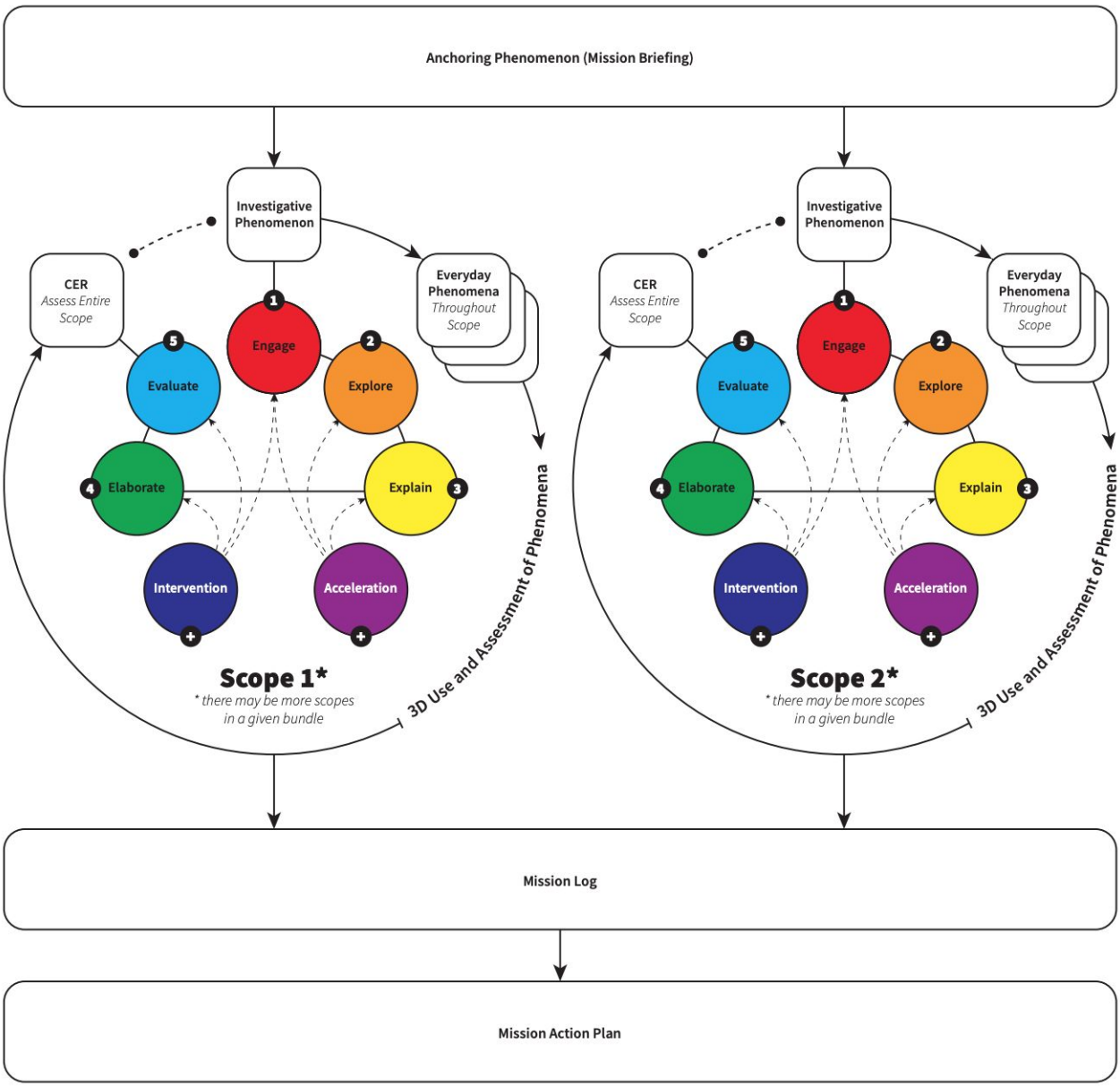
Review your scope and sequence to establish how much time is available to teach the content of this scope. If you do not have a required time line, feel free to use ours for each scope.

- ❏ Review the Investigative Phenomena, Student Wondering of Phenomena, and Graphic Organizer from the **Engage** section to determine how the scope will be introduced and how students will organize what they learn as they progress through the scope. Think about everyday phenomena that your students will be familiar with so that they can be included and referenced during instruction. If the Student Wondering of Phenomena does not address your students' interests, have them generate one of their own. Add these pieces to your calendar.
- ❏ Review the Accessing Prior Knowledge activity. This activity will help you uncover any preconceptions or misconceptions that your students may have around the content of the scope. Those misconceptions are not to be corrected or addressed at this time, but make note of them so they can be addressed and corrected as the students progress through the scope.
- ❏ Review the Hook activity to determine how you will engage students. Add desired **Engage** pieces to your calendar.
- ❏ Review the **Explore** elements to determine how students will interact with the three dimensions to help explain the Student Wondering of Phenomena. Add the desired pieces to your calendar. As you review the **Explore** pieces, be sure to review the **Explain** elements, as they are meant to be used together to determine what resources you will use to support student learning as they move through the **Explore**. Add the desired pieces to your calendar.
- ❏ Review the Connections with ELA and Math to think further about where connections can be made with other content areas and how ELA and math standards can be met through science. Depending on how much time is available in your scope and sequence, determine which **Elaborate** pieces can be incorporated after the Explore-Explain cycle and before students are evaluated.
- ❏ Review the assessments available in the **Evaluate** section to determine how your students will be assessed on the content. Be sure that all misconceptions uncovered in the APK are addressed. Now is also the time to make sure students can correctly answer the Student Wondering of Phenomena, since it is directly tied to the CER in the **Evaluate** section. Add the desired assessments to your calendar.
- ❏ Review the available **Intervention** and **Acceleration** activities to determine how students will be supported or challenged based on their assessment performance. Add the desired pieces to your calendar.
- ❏ Review the scope and sequence again to make sure the elements that are being implemented fit within the time allotted for the scope.
- ❏ Review the materials needed for the elements that were chosen, and be sure you have access to the items and quantities required. A self-calculating materials list can be found in the **Home** section.

STEMscopes NGSS 3D
Curriculum Organization

Each grade level in STEMscopes NGSS 3D is organized into four to six bundles. These bundles contain multiple 5E + IA scopes that together inform an overarching mission and Action Plan. The mission provides applications of science to real-world problems, which students solve through their understanding and application of the bundle's anchoring phenomena. Students explore the science concepts, three dimensions, and importance of anchoring phenomena through the bundle's scopes and their Investigative Phenomena.

The cycle below continues through all the scopes in a bundle. Once all the scopes are covered, the students will be ready to complete their Mission Action Plan.



Use this document to help you quickly see how the bundles and scopes work together to create a cohesive story line.

Fourth Grade Bundles Snapshot

The Fourth Grade Storyline is organized into four bundles:

- Organism Structures and Behavior
- Changes Over Time to Earth's Surface and Resources
- Using Energy Transformations
- Communicating Using Wave Energy

Bundle	Summary	PEs	Scopes
1	**Bundle** Organism Structures and Behavior **Anchoring Phenomena** How can we group organisms by their best sense receptors and describe how those sense receptors help the animals survive? **Unit Mission Goal** The students' mission is to design a zoo that is organized by animals with the best sense receptors and to describe how having those sense receptors helps animals survive. In addition, students will design a scavenger hunt for students who go on field trips to the zoo. **Suggested Pacing** 4 weeks	**4-LS1-1,** **4-LS1-2**	**Plant and Animal Parts** **Sense Receptors**
2	**Bundle** Changes over Time to Earth's Surface and Resources **Anchoring Phenomena** What types of changes to Earth's surface have occurred over time, and why? **Unit Mission Goal** The students' mission is to create an ad to attract new workers to a coal-mining project. **Suggested Pacing** 12 weeks	**4-ESS1-1,** **4-ESS2-1,** **4-ESS2-2,** **4-ESS3-1,** **4-ESS3-2**	**Rock Patterns** **Changing Land** **Plate Tectonics** **Renewable and Nonrenewable Resources** **Natural Processes**

Bundle	Summary	PEs	Scopes
3	**Bundle** Using Energy Transformations **Anchoring Phenomena** Why is a collision dangerous to our ship, and how can we warn the crew? **Unit Mission Goal** The students' mission is to develop an electrical warning system to alert astronauts on a spaceship of potential asteroid collisions. **Suggested Pacing** 9 weeks	**4-PS3-1,** **4-PS3-2,** **4-PS3-3,** **4-PS3-4**	**Energy Transfer and Electric Currents** **Transfer of Energy in Collision** **Energy and Speed** **Using Stored Energy**
4	**Bundle** Communicating Using Wave Energy **Anchoring Phenomena** What system using light or sound to communicate could reach people over a distance? **Unit Mission Goal** The students' mission is to create an emergency signaling system and show how it interacts with the eye or ear. **Suggested Pacing** 9 weeks	**4-PS4-1,** **4-PS4-2,** **4-PS4-3**	**Motion of Waves** **Wavelength and Amplitude** **Light Reflection** **Information Technologies**