

## SEPUP *Issues and Science*: 2nd Edition to 3rd Edition Revised NGSS General Updates

Internal analysis of 2nd edition (2e) and how well it supported the NGSS - looking at each SEP, CCC, DCI, and PE. <https://sepuplhs.org/ngss.html>. This analysis was the base for 3rd edition (3e).

### What's New, in general

- Total of 17 units
- Of those 17 units, 14 were developed from 2nd edition units, 3 are brand new
- NGSS: All Science and Engineering Practices (SEPs), Crosscutting Concepts (CCCs), Disciplinary Core Ideas (DCIs), and Performance Expectations (PEs) of the NGSS are incorporated across the 17 units
- Includes three-dimensional assessments based on the Performance Expectations - embedded within the Analysis items
- Learning Pathways were developed for each unit, which show a sequence of activities that includes appropriate DCIs, SEPs, and CCCs that ends with a PE assessment. <https://sepuplhs.org/pathways2.html>
- Intentionally developed for unit sequence flexibility
- Scoring Guides

### Student Book (SB)

- In the 14 units that are built from 2e units, some of the activities are very similar to 2e (just updated to align with NGSS) and some are completely new
- All activities designed to embed and align to the the NGSS
- Each unit has an average of 15 activities
- The unit opener vignette relates to the image on the cover of the SB
- Bullets on the unit opener introduce the anchoring phenomenon of the unit and unit issue
- Every unit starts at Activity 1
- The Challenge is now a Guiding Question
- Various analysis items throughout the unit are indicated as “Revisit the issue” to specifically and clearly connect their learning back to the issue periodically
- Each unit ends with a Unit Summary
- Appendices in the back that include:
  - Science and Engineering; Nature of Science
  - Science Safety
  - Science Skills
  - International System of Units
  - Literacy Strategies
  - Media Literacy
  - Crosscutting Concepts
- Glossary in the back

## Teacher Edition (TE)

- New layout
- Begins with a Quick Start to orient teachers to the materials and resources and Planning for First Time Users
- Activity layout has been updated with these sections:
  - **NGSS Connections** - explains what students will be doing through the lens of the NGSS
  - **NGSS Correlations** - identifies what PEs, DCIs, SEPs, and CCC are embedded within the activity as well as any Common Core State Standards
  - **Investigative Phenomena and Sensemaking** - identifies the investigative phenomena in an activity and opportunities students have for sensemaking
  - **What Students Do** - quick description of what students are doing in the activity
  - **Materials and Advance Prep** (same in 2e) - lists all materials and any advance prep needed for an activity
  - **Teaching Summary** (same in 2e) - Outlines the detailed Teaching Steps for quick reference
  - **Teaching Steps** (similar to 2e) - broken down into Get Started, Do the Activity, and Build Understanding; walks the teacher through the activity; includes NGSS specific language now
  - **Strategies for Teaching Diverse Learners** - suggestions for differentiating instruction and assessment within an activity
  - **Sample Response to Analysis** (same in 2e) - sample responses to all analysis items with Level 4 Responses to assessment items
  - **Revisit the Guiding Question** - wraps up the activity by revisiting the guiding question they started with
  - **Vocabulary, Background information, and Reference** (same in 2e) now come at the end of the activity instead of the beginning
  - **Student Sheets and Visual Aids** are still at the end of the activity, but those that were in the Teacher Resources (TR) are now actual Student Sheets or Visual Aids in the activity for which they go with
  - **Sample Student Responses to Student Sheets** are now found after the blank student sheets instead of embedded within the Teaching Steps
- Unit Specific Resources at the back of each TE:
  - **NGSS Overview** - lists the PEs assessed, description by activity, and the 3 dimensions within each activity -
  - **Phenomena, Driving Questions, and SEPUP Storyline Overview** - identifies the unit issue, anchoring phenomenon for the unit, the investigative phenomena, driving questions, guiding questions and storyline for the unit
  - **NGSS Correlations** - breaks down the elements of the SEPs, CCCs, and DCIs and identifies in what activities they are found
  - **Unit Overview** (similar to 2e) - includes the unit issue and anchoring phenomenon too
  - **Materials Provided and Not Provided in the Kit** (similar to 2e) - also includes activity number where each piece of equipment can be found

- **Solution Preparation** (same as 2e) - prep directions for select solutions that can be made if something runs out
- **Sensemaking and Literacy Strategies** - includes a list of strategies by activity
- **Opportunities for Eliciting and Addressing Students' Ideas** - identifies locations and content addressed
- **Assessment Blueprints** (similar to 2e) - breaks down the embedded analysis items by activity and scoring guide used as well as where the PE assessments are
- **Scoring Guides** - scoring guides used within activities of a unit are included in the back
- **Item Bank** (same as 2e) - questions revised to complement the unit and NGSS
- **Item Bank NGSS Correlations** - table that lists the activity numbers and NGSS that are supported with each question
- Bullets and indentations make the Teaching Steps easier to follow
- NGSS terminology added to the Teaching Summary and Teaching Steps
- Support for student sensemaking built into the Teaching Steps
- The first activity makes explicit connections to the unit issue and anchoring phenomenon
- Various steps throughout the activities introduce setting up and revisiting a Driving Questions Board
- Icons in the margin direct teachers to corresponding sections of the Teacher Resources (TR) for additional information
- Some analysis items have dots by them to indicate where one can formatively assess students' proficiency with the 3 dimensions (SEPs, CCCs, DCIs)
- ALL Student Sheets and Visual Aids are now within the activities they go to and have sample student responses - no more going to the TR for literacy and science skill sheets

### Teacher Resources (TR)

- Complete redesign
- The first ½ is broken into 5 components:
  - **Issue-Oriented Approach** - includes defining issues, using issues to drive student learning, and evidence and trade-offs
  - **Curriculum Design for NGSS** - includes 3-D design, learning pathways, unit design, and recommended unit sequences
  - **Active Student Learning** - includes equity for all, engaging in the practices of scientists and engineers, and engineering design
  - **Comprehensive Teacher Support** - includes differentiated instruction, literacy, literacy strategies, student sensemaking and strategies, and integrating engineering design
  - **Assessment** - includes the SEPUP assessment system, assessment and learning pathways, using the SEPUP scoring guides, assessment and grading, and teacher tips from the field
- The second ½ is broken into resources:
  - **Overview Tables** - includes all the Unit Overviews and all the Phenomena, Driving Questions, and Storyline Overviews for each unit
  - **NGSS and Common Core** - includes all the NGSS Overviews and Correlation tables for each unit

- **Assessment Tools** - includes all the Scoring Guides, Assessment Blueprints for each unit, exemplars, etc.
- **Embedded Student Support Sheets** - includes a copy of all the SB Appendices, Group Interactions sheets, and copies of various strategies should they want to be used in additional activities
- **Additional Unit Support** - includes various supports such as classroom management tips, substitute teacher suggestions, facilitation tips, master glossary, information for parents, etc.
- “Talks” to the TE via icons in the TE that direct the teacher where to go for more information
- Scoring Guides - 9 variables aligned to the SEPs, all can be found in the TR, those used in a unit can be found at the back of that unit; 5 score levels (0-4), a 4 is now complete and correct (no above and beyond anymore); updated to include when to use it and what to look for for each one

### **NEW Ancillaries**

- Remote Learning Activity (RLA) packets for select activities - developed specifically for the remote learner in mind and embed various strategies into the packets so SEPUP units can be more easily implemented in a distance learning setting
- Portal simulations - digital simulations developed from card sets and a few select additional activities to assist with remote learning or when a digital simulation is preferred over the physical equipment
- Hands On @ Home - individually packaged equipment pouches for select activities within a unit so students can access some materials in a distance learning setting