twig Science



Science made for the Next Generation

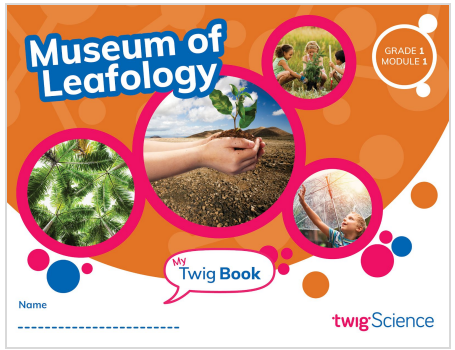
Twig Science was built from the ground up for the NGSS by award-winning STEM education specialists.

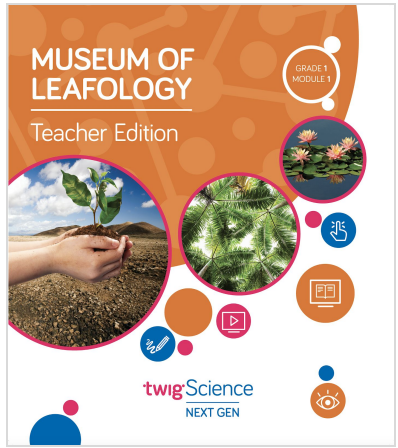
Reviewing our program, you'll find:

- A clear conceptual flow across the program, clearly set out in the program NGSS Framework Alignment
- Modules that bundle different scientific disciplines including engineering and environmental principles and concepts (as defined by the CDE), aligned 1:1 with the segments of the NGSS Topic Arrangements
- Phenomena and investigative problems at the heart of each module, with Grade Scope and Sequence tables that show how the dimensions flow and build in sophistication across each grade
- Module Contents that tell the story of how students apply the three dimensions in a module, with Driving Questions that scaffold their learning journey
- Three-dimensional lessons and assessments that clearly outline the dimensions applied.

This is why we score so highly on NGSS-based rubrics such as NextGen TIME Paper screen evaluation.

This rubric has been completed at a program level, and is designed to highlight where you can find evidence for the Designed for NGSS: Foundations Rubric in whatever module you choose to evaluate. The rubric includes citations to the printed Teachers Edition and Twig Book (Student Edition).





Designed for the NGSS: Foundations	High Quality 5	Medium Quality 3	Low Quality 1
F1. Presence of Phenomena/Problem. The materials include phenomena/problems that have the ***potential*** to drive students learning toward the targeted learning goals in the following ways: • phenomena/problems in the materials are to be relevant to students; • explanations for phenomena connect to the three dimensions; • solutions to problems connect to the three dimensions.	The materials include phenomena/problems that have strong *potential* to drive student learning toward the targeted learning goals.	The materials include phenomena/problems that have some *potential* to drive student learning toward the targeted learning goals.	The materials include phenomena/problems that have limited *potential* to drive student learning toward the targeted learning goals.
F2. Presence of Three Dimensions. The materials include opportunities for students to develop and use the three dimensions, such that: • the DCIs, SEPs, and CCCs are present and have the potential to support student learning toward the targeted learning goals for each dimension; • when engineering design is a learning focus, it is integrated with other appropriate dimensions (i.e., engineering is not isolated).	The materials consistently provide opportunities for students to develop and use the three dimensions.	The materials occasionally provide opportunities for students to develop and use the three dimensions.	The materials rarely provide opportunities for students to use the three dimensions.
F3. Presence of Logical Sequence. Materials demonstrate appropriate sequencing of three dimensions when: • they include a targeted set of DCIs, SEPs, and CCCs within a sequence; • the sequence is clear and logical across the DCIs; • the SEPs and CCCs are potentially sufficient and appropriate for students to figure out the phenomena or problems.	The materials consistently exhibit a clear, logical, and appropriate sequence across the three dimensions.	The materials occasionally exhibit a clear, logical, and appropriate sequence across the three dimensions.	The materials rarely exhibit a clear, logical, and appropriate sequence across the three dimensions.

Designed for NGSS: Foundations Rubric

Analyze Evidence

Directions:

1. Review the Designed for NGSS: Foundations Rubric.
2. Reflect on the evidence (or lack of evidence) that you and your team gathered and represented.
3. Record strengths and limitations for each criterion based on your evidence. Cite specific examples.

Strengths	
F1. Presence of Phenomena /Problems	
Every module in Twig Science has an overarching Module Phenomenon or Investigative Problem that drives student learning.	 Grade 3 Module 1 Module Phenomenon

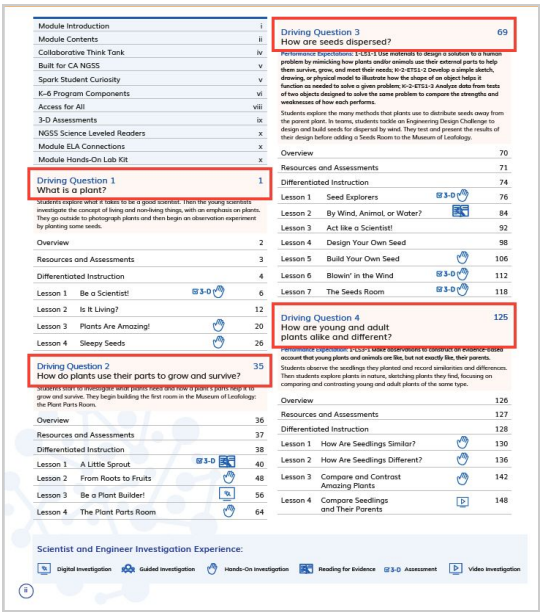
Each module is built around an engaging storyline that places the phenomena and problems in real-world contexts. For example, in Grade 1 Module 1, students curate their own Museum of Leafology to explore why some plants are different and others are the same. In Grade 3 Module 1, they make sense of how objects are pushed or pulled by designing their own Ultimate Playground. While in Grade 5 Module 2, students go undercover at Yellowstone National Park to figure out how matter and energy move through an ecosystem. At the start of each module, students are shown a movie-style trailer video, which captivates their imagination for the challenge ahead.

Grade 1 Module 1 Museum of Leafology Trailer video

Grade 3 Module 1 The Ultimate Playground Trailer video

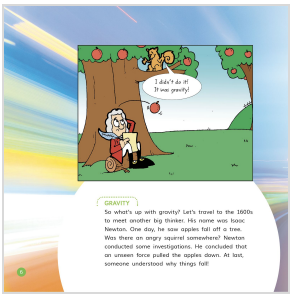
Grade 5 Module 2 Yellowstone: Uncovered Trailer video

Every module is broken down into chapters called Driving Questions, which students complete in a sequence. These are identified at the start of every Teacher Edition in the **Module Contents (TE pp.ii–iii)**. The phenomena and problems that students investigate in each DQ scaffolds their acquisition of the DCIs, SEPs, and CCCs that are required to master the Module Phenomenon or Investigative Problem.



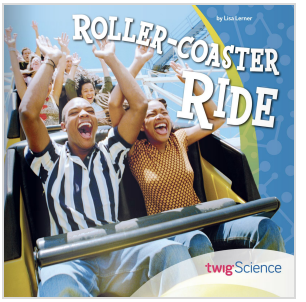
Module Contents TE pp.ii–iii

In addition, each module is complemented with a magazine-style **Leveled Reader** (available in four levels, plus Spanish) that provides additional exposure to relevant phenomena/problems, as well as interviews with scientists and engineers from diverse backgrounds. Packed with stunning images, cartoons, and jokes, they are designed to appeal to students from a diverse range of learning abilities.

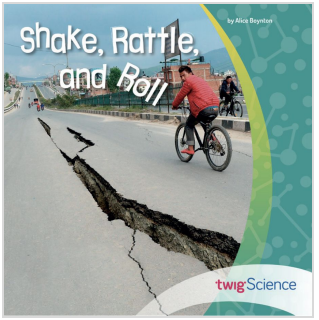


***Roller-Coaster Ride* (Grade 3 Module 1 Leveled Reader p.6)**

***Our Leafy Friends* (Grade 1 Module 1 Leveled Reader Cover)**

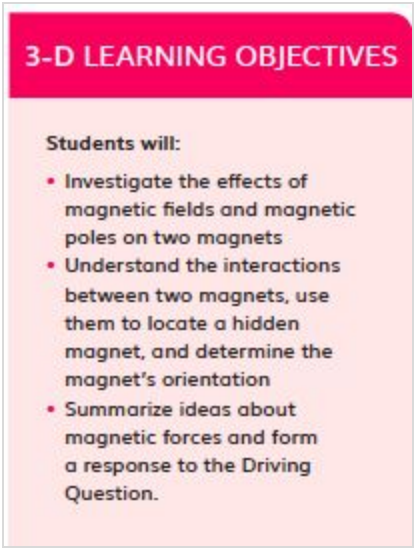
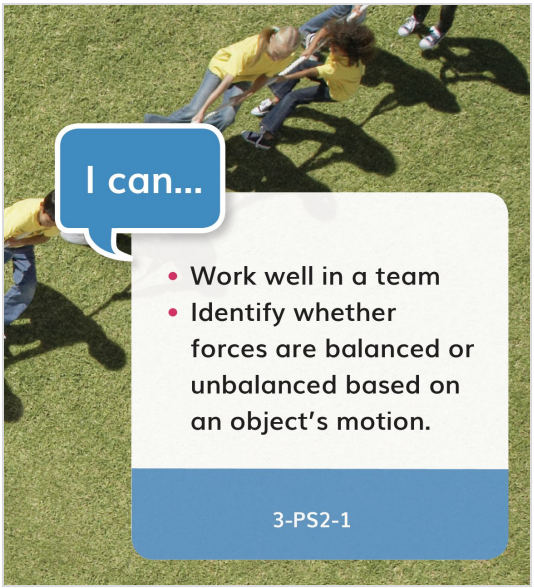


Roller-Coaster Ride (Grade 3 Module 1 Leveled Reader Cover)

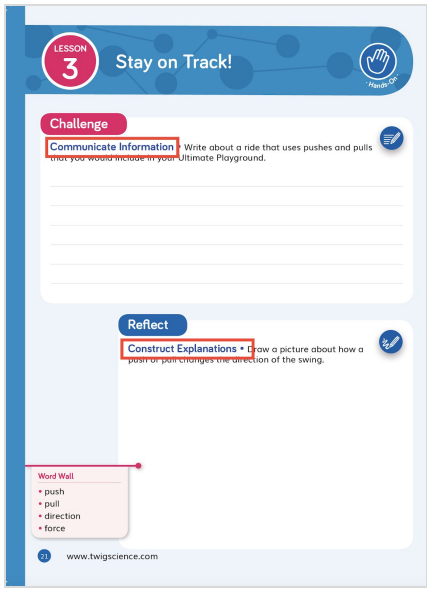


Shake, Rattle, and Roll (Grade 4 Module 4 Leveled Reader Cover)

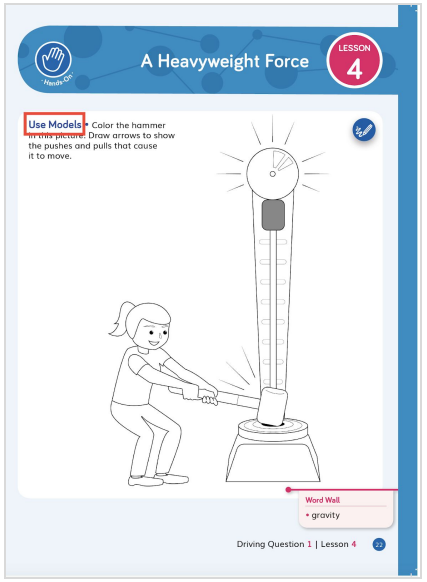
Where Are the Bees? (Grade 2 Module 4 Leveled Reader p. 14)

F2. Presence of Three Dimensions	
Students are supported to use the three dimensions with increasing sophistication to make sense of the Module Phenomenon, answer the Driving Questions, and complete the learning activities. Every DCI, SEP, and CCC that is addressed in each lesson is clearly identified in the Teacher Edition at the start of the lesson, as are the **3-D Learning Objectives**.	 **Grade 3 Module 1 DQ4L4 3-D Learning Objectives TE p. 222**
In the Student Edition (called the Twig Book , the **"I can" statements** for each Driving Question explain the three dimensions in student-friendly language. Across each full grade, the class creates their own Science Tools poster, which tracks when students first use a SEP and when they later apply it to different contexts. By the time they have completed the last module in the grade, students will have used the SEPs explicitly many times. This metacognitive activity helps students think about the practices they are using and how they help them make sense of phenomena and solve problems.	 **Grade 3 Module 1 DQ2 "I can... statements" TB p. 37**

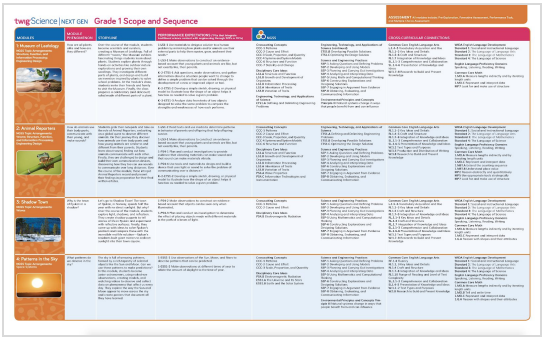
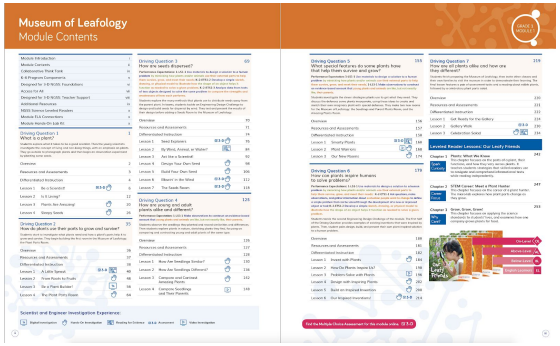
The SEPs the students use in each learning activity are labeled at point of use in the Student Edition (called the **Twig Book**), in grade-appropriate language.



Grade 3 Module 1 DQ1L3 Labeled SEPs TB p. 21



Grade 3 Module 1 DQ1L4 Labeled SEPs TB p. 22

F3. Presence of Logical Sequence	
The front cover of every Teacher Edition contains the **NGSS Framework Alignment.** It sets out a clear and logical sequence for the Performance Expectations across the Twig Science K–6 modules. It also illustrates how the 29 K–6 modules align directly to the NGSS Topic Arrangements.	 NGSS Framework Alignment
The cover also contains the grade-specific **Scope and Sequence**, which clearly identifies the sequence of the modules, as well as the three dimensions that each module targets. Cross-curricular connections are also included.	 Grade 1 Scope and Sequence (TE Inside Cover)
The **Module Contents** of each Teacher Edition (pp.ii–iii) clearly identifies which Performance Expectations are addressed in each Driving Question, and how the three dimensions build on each other.	 Grade 1 Module 1 Module Contents

The **Performance Expectation Progressions table** in the back cover of every Teacher Edition highlights prior experience of the three dimensions in earlier grades, as well as future exposure in later grades.

Grade 1 Module 1 Performance Expectation Progressions table

An Overview of every Driving Question provided in the Teacher Edition briefly explains how the student experience of the three dimensions progresses across the lessons of that Driving Question.

In addition, every lesson starts with an Overview that adds detail for how the three dimensions build across the five sections of each lesson.

Spark: An engaging "hook" activity, which motivates students for the investigations ahead.
Investigate: Students think like scientists and design like engineers, through hands-on, digital, video, and informational text Investigations.
Report: Students articulate what they've learned today, citing evidence and their use of the three dimensions.
Connect: Students make connections to the Driving Questions and Module Investigative Problem, while building knowledge of CCCs and SEPs.
Reflect: Students use different means to think about what they have learned so far and how they can use their new understandings to better figure out phenomena/problems.

Grade 4 Module 4 DQ2L5 Lesson Overview TE p. 80