

# Amplify Science

## Patterns of Earth and Sky Deconstructing Unit Phenomena

New York City Public Schools  
July 2019  
Presented by Your Name



# Workshop goals

By the end of this workshop, you will be able to:

- Deconstruct unit phenomena to understand how it gives students access to NYSSLS.
- Articulate the alignment between the Progress Build and the assessment system.
- Plan opportunities to engage students in academic discourse.
- Plan unit pacing with a focus on supporting key connections throughout the unit.



# Patterns of Earth and Sky

## Plan for the day



- Welcome and reflection
- Unpacking unit phenomena
- Meaningful student discourse
- Unit preview
- Planning and connecting to unit phenomena
- Closing

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# Norms: Establishing a culture of learners

**Take risks:** Ask any questions, provide any answers.

**Participate:** Share your thinking, participate in discussion and reflection.

**Be fully present:** Unplug and immerse yourself in the moment.

**Physical needs:** Stand up, get water, take breaks.

# New York State P-12 Science Standards Development, Adoption, and Implementation

**Phase I**  
Raise Awareness & Build Capacity

**Phase II**  
Transition & Implementation

**Phase III**  
Implementation & Sustainability

Ongoing curriculum & professional development

Instruction aligned to NYS P12  
Science Learning Standards begins...

...September 2019  
for Grades P-3 and 6

...September 2020  
for Grades 4 and 7

...September 2021  
for Grades 5 and 8

September 2022  
Continue Phase III transition toward full  
implementation of the NYS 9-12 Science  
Learning Standards at the local level

2016

2017

2018

2019-20

2021

2022-24

December 2016 adoption  
of NYS P-12 Science  
Learning Standards.

Standards Become  
Effective July 1, 2017

March 2018  
NYS P-12 Science  
Roadmap  
Released

**June 2020**  
Last administration  
of Grade 4 science  
test aligned to the  
1996 Standards

**June 2021**  
No Grade 4 science test; these  
students will take new science  
test in grade 5 in 2022  
Last administration of Grade 8  
science test aligned to the 1996  
Standards

**June 2022**  
First administration  
of new Elementary  
Grade 5 and  
Intermediate  
Grade 8 science  
tests

**June 2023**  
First  
administration  
Biology, and Earth  
and Space Science  
Regents Exams

**June 2024**  
First administration  
Chemistry and  
Physics Regents  
Exams

State Level Science Assessment Development & Implementation

# Planning your year

## Overview: Amplify Science K-5 Course Structure



PRIMARILY LIFE SCIENCE



PRIMARILY PHYSICAL SCIENCE



PRIMARILY EARTH SCIENCE

All units have 22 lessons except Grade 5: The Earth System, which has 26 lessons.

	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	Minutes per lesson
K	Needs of Plants and Animals			Pushes and Pulls			Sunlight and Weather			45	
1	Animal and Plant Defenses			Light and Sound			Spinning Earth			45	
2	Plant and Animal Relationships			Properties of Materials			Changing Landforms			60	
3	Balancing Forces		Inheritance and Traits		Environments and Survival		Weather and Climate		60		
4	Energy Conversions		Vision and Light		Earth's Features		Waves, Energy and Information		60		
5	Patterns of Earth and Sky		Modeling Matter		The Earth System (26 lessons)		Ecosystem Restoration		60		

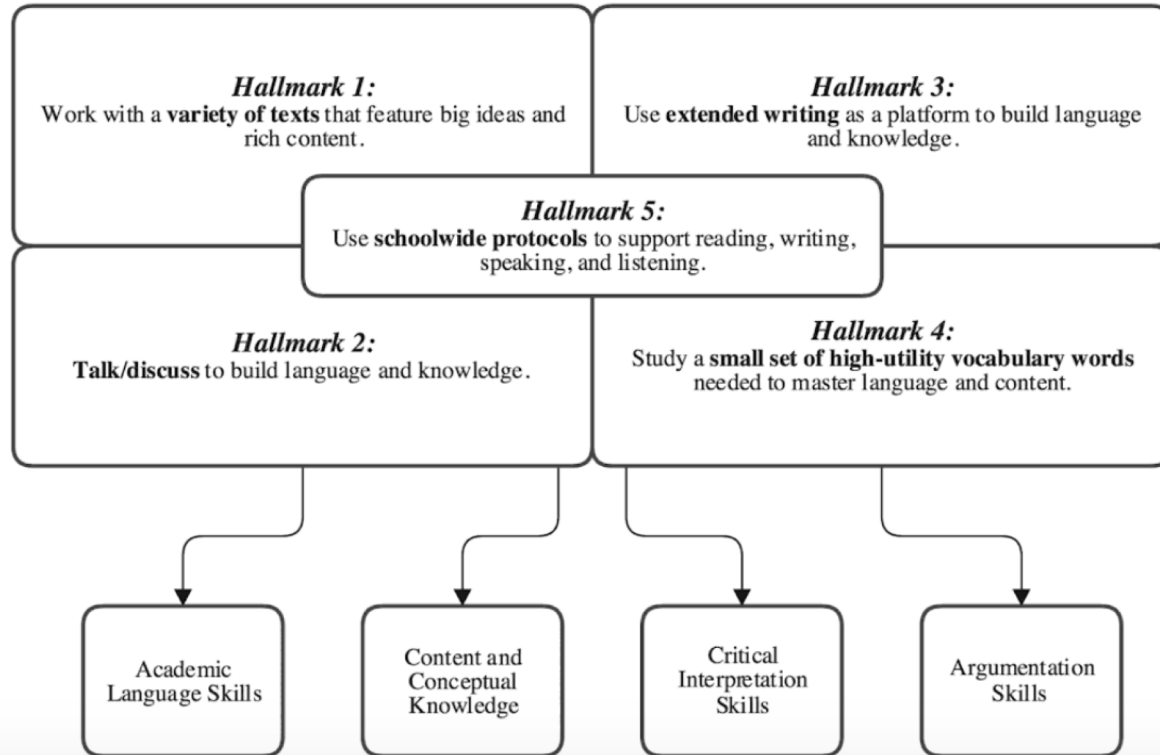
## NYC Middle School Unit Pacing Calendars and Unit Guides

Sept.			Oct.			Nov.			Dec.			Jan.			Feb.			Mar.			Apr.			May			Jun.											
9/9	9/16	9/23	9/30	10/7	10/14	10/21	10/28	11/4	11/11	11/18	11/25	12/2	12/9	12/16	12/30	1/6	1/13	1/20	1/27	2/3	2/10	2/24	3/2	3/9	3/16	3/23	3/30	4/6	4/20	4/27	5/4	5/11	5/18	5/25	6/1	6/8	6/15	6/22
																																						
Launch Unit: Harnessing Human Energy			Thermal Energy			Populations and Resources			Matter and Energy in Ecosystems			Weather Patterns			Ocean, Atmosphere, and Climate			Earth's Changing Climate																				
																																						
Launch Unit: Microbiome			Metabolism			Phase Change			Chemical Reactions			Plate Motion			Engineering Internship: Plate Motion			Rock Transformations			Engineering Internship: Earth's Changing Climate																	
																																						
Launch Unit: Geology on Mars			Earth, Moon, and Sun			Force and Motion			Engineering Internship: Force and Motion			Magnetic Fields			Light Waves			Traits and Reproduction			Natural Selection			Evolutionary History														



# Advanced literacies

## Strengthening the instructional core



# Danielson framework

- Domain 1: Planning and Preparation
  - 1a. Demonstrating Knowledge of Content and Pedagogy
  - 1e. Designing Coherent Instruction
- Domain 3: Instruction
  - 3b. Using Questioning and Discussion Techniques
  - 3c. Engaging Students in Learning
  - 3e. Using Assessments in Instruction

# Amplify Science: What's new for 2019-2020



Lesson 1.4: Sedimentary Rock Formation Activity 2

Name: \_\_\_\_\_ Date: \_\_\_\_\_

**Rock Observations**

1. With a partner, observe your rock sample.
2. Draw your rock sample and label the features you observe.

Turn to page 12, Rock Observations, in your notebooks.

You will draw your rock sample in the box on this page.

12

**Teacher action:**  
At the top of that column, draw just the outline of a rectangle. (Leave enough room to insert a medium-bright rectangle between the dark and bright rectangles in a later lesson.) Label the outlined rectangle "bright." Point to the label and read it aloud.

**Ask students:**  
What is the difference between dark and completely dark?

**Students may respond:**  
In completely dark places, you cannot see anything. In dark places, you can still see some things.

Classroom Slides



AmplifyScience

Name: \_\_\_\_\_ Date: \_\_\_\_\_

**Soil Profile Test**

**Part 1: Conducting the Soil Profile Test**

1. On the line below, write the name of the soil you will test.
2. Add 2-3 cm of soil to your container.
3. Add a pinch of alum.
4. Fill the container with water, leaving 1 cm empty at the top.
5. Put the lid on the container.
6. Shake the container for 5 seconds.
7. Place the container on a flat surface.
8. In the box below, draw and label your prediction of what you will observe in the container after several minutes have passed.

Soil \_\_\_\_\_

**Ecosystem Restoration:**  
Matter and Energy in a Rain Forest

Flexension Compilation

Ecosystem Restoration—Soil Profile Test  
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Hands-on  
Flexensions

Printable Resources

- Colección de hojas para copiar
- Cuaderno de investigación
- Multi-Language Glossary
- NGSS Information for Parents and Guardians
- Materiales impresos (8.5" x 11")
- Materiales impresos (11" x 17")

**Video Quema de papel:  
preguntas de discusión**

- ¿Qué le sucedió al papel cuando se quemó?
- ¿Qué piensas que les sucedieron a los átomos del papel cuando el papel se quemó?

Spanish Digital  
Teacher's Guide

# Patterns of Earth and Sky

## Plan for the day



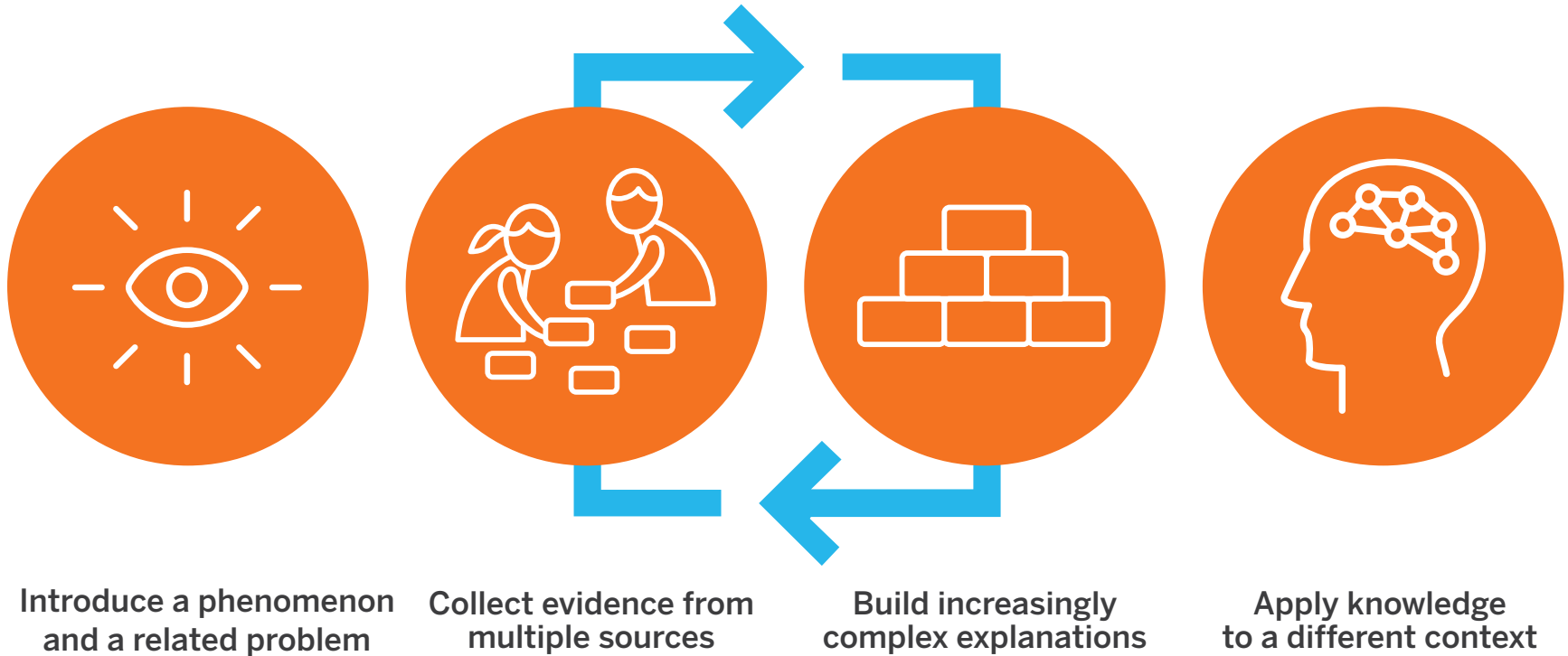
- Welcome and reflection
- **Unpacking unit phenomena**
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# Unpacking Unit phenomena

The purpose of this section is to help you:

- Understand how the three dimensions of the NYSSLS/NGSS comprise Performance Expectations.
- Analyze three dimensions of the unit and describe how they support students in figuring out unit phenomenon.
- Visualize the relationship between the unit phenomenon, Progress Build, and embedded assessment opportunities.

# Amplify Science approach



# Creating a visual story of the unit

Part 1: Access materials

Part 2: Organize cards

Part 3: Annotate your visual

Part 4: Share out





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# Meaningful student discourse

The purpose of this section is to help you:

- Understand academic language and academic discourse.
- Leverage discourse routines to engage ALL students in academic discourse.
- Obtain peer feedback to inform implementation in your classroom.

# Meaningful student discourse



# Patterns of Earth and Sky

The background of the slide is a dark blue night sky. Several constellations are depicted as white lines connecting white dots of varying sizes. In the foreground, there are dark silhouettes of rolling hills and several evergreen trees of different sizes. The overall aesthetic is clean and educational.

## Chapter 1: Why don't we see a lot of stars in the daytime?

[JUMP DOWN TO CHAPTER OVERVIEW](#)

### Lesson 1.1:

Pre-Unit Assessment

### Lesson 1.2:

Earth and Stars in  
Space

### Lesson 1.3:

How Big Is Big? How  
Far Is Far?

### Lesson 1.4:

Distances to the  
Stars

### Lesson 1.5:

Investigating Size  
and Distance

### Lesson 1.6:

The Brightness of  
Starlight

### Lesson 1.7:

Explaining When We  
See Stars

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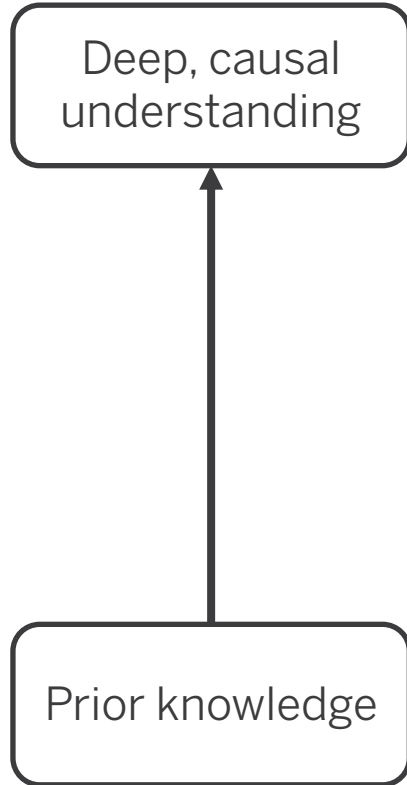
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### Lesson 1.7:

Explaining When We See Stars

# Patterns of Earth and Sky Progress Build



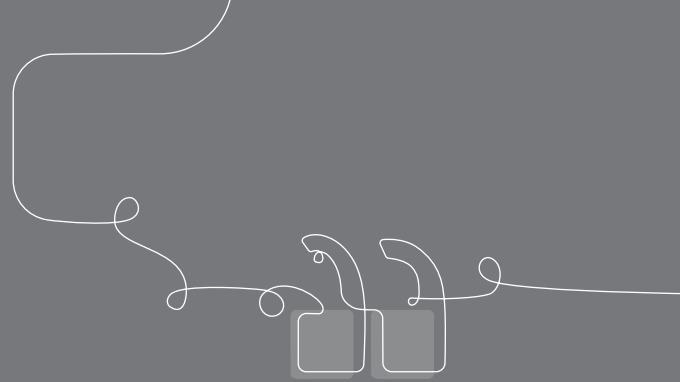
As Earth orbits the sun, the stars we see change throughout the year.

As Earth spins, what we see in the sky changes throughout the day.

The sun looks bigger and brighter than all other stars because it is much closer to Earth.

# Planning Ahead

What is one strategy that you will implement to engage ALL students in academic discourse?



# Lunch Break







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# Unit preview: Phenomenon and Progress Builds

The purpose of this section is to help you:

- Understand the phenomena and focal Performance Expectations of the next Unit in the Amplify Science scope and sequence.



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# Connecting to unit phenomena

The purpose of this section is to help you:

- Plan unit pacing with a focus on supporting key connections throughout the unit and promoting academic discourse.

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