

Unit 2 - The Story of Life: Fossils, Features, and Changing Homes

Pacing Guide using Mystery Science

*Informational writing standards are now being covered in science. Please use [these resources](#) to address the informational writing standards. These lessons can be incorporated at any point during the unit.

Unit & Lesson #	Focus	Standards Addressed	Day	Overview	Writing Activities	Additional Activities
Life Cycles Anchor Phenomenon: Saguaro Cycles	Life Cycles	3-LS1-1	1	The anchor phenomenon for this unit is based around bats that fly around at night, sticking their heads into cactus flowers. The unit is focused specifically on saguaro cacti; however, some of the images were selected due to their quality and clarity, despite the fact that they show flowers from other types of cacti. During the introduction, students generate observations and questions about the phenomenon and create a list of possible explanations for the phenomenon. Students will gather clues during and after each lesson in	See-Think-Wonder Chart Spotting Cycles	

					this unit to help them improve their understanding and explanations. It is important to encourage students to recognize that even if they don't know the perfect answer yet, they are going to learn a lot throughout the unit and will have an opportunity to revisit the phenomenon over time.		
Life Cycles Lesson 1 How is your life like an alligator's life?	Animal Life Cycles	3-LS1-1	2	In this session, students explore animal life cycles by thinking about their birthday buddies—all the animals that were born on the exact same day as they were born—and what happens to those birthday buddies over the course of their lives.	In this session, students explore animal life cycles by thinking about their birthday buddies—all the animals that were born on the exact same day as they were born—and what happens to those birthday buddies over the course of their lives.		Extension Video - Amazing Life Cycle of a Monarch Butterfly Extension Video - Frog Life Cycle
			3	In the hands-on activity, Birthday Buddies Timeline, students develop a model to compare the life stories of different animals. Using this model,			

			students discover that although the lives of animals can be very different, they all have in common birth, growth, reproduction, and death. Wrap-up slides & teacher-led discussion.			
				4	Anchor Connection Students wonder: How can we affect an animal's life cycle? Students learn: Bats go through life cycles, too. For animals to go through the growth phase of their life cycle, they have to eat. The bats are eating when they stick their heads in the flowers.	<u>Science Journal</u> Entry to answer anchor connection question.
				5	<u>Lesson 1</u> <u>Assessment</u> Extensions include: Readings, activities, and videos.	
Life Cycles Lesson	Environmental	3-LS4-4		6	In this session,	

2 What's the best way to get rid of mosquitoes?	Change & Engineering	3-5-ETS1-2		students investigate mosquito life cycles and habitats and discover the role of mosquitoes in carrying diseases such as malaria.		
			7	In part 1 of this activity, Bug Off!, students evaluate the merits of different solutions for getting rid of mosquitoes at various locations in a town.	<u>Bug Off: The Backyard</u> <u>Bug Off: The Picnic Area</u> <u>Bug Off: The Playground</u>	
			8	In part 2 of this activity, students design a solution to help the town deal with an abundance of mosquitoes resulting from a very rainy summer. Wrap-up slides & teacher-led discussion.	<u>The Problem Solver's Sheet</u>	
			9	Anchor Connection Students wonder: What do animals do at different times of year? Students learn: A bat's life cycle may last many years,	<u>Science Journal Entry to answer anchor connection question.</u>	

			but they also go through daily cycles of resting and being awake. Bats are nocturnal.				
			10	<u>Lesson 2 Assessment</u> Extensions include: Readings, activities, and videos			
			11	In this session, students learn how and why flowers are pollinated.			Online Book: <u>What is Pollination?</u>
			12	In the hands-on activity, Make a Flower, students make flower models out of paper and bee models out of pipe cleaners. Students fly their bees from flower to flower and observe what happens to the flower's pollen during this process. Teacher-led discussion			Review of Lesson (<u>Google Form</u>)
			13	Anchor Connection Students wonder: Why do plants grow flowers?		<u>Science Journal</u> Entry to answer anchor connection question.	
					3-LS1-1		
				Pollination & Plant Reproduction			
Life Cycles Lesson 3				Why do plants grow flowers?			

Life Cycle Lesson 5 Why are there so many different kinds of flowers?			Students learn: Saguaro flowers turn into saguaro fruit. This cycle repeats every year.			
			18	<u>Lesson 4 Assessment</u> Extensions include: Readings, activities, and videos.		
			19	In this session, students discover that while there is great diversity among flowering plants, they all share similar life cycles. They all start from seeds, grow, and eventually reproduce through the process of pollination.		BrainPop Jr. - <u>Parts of a Plant</u>
			20	In the hands-on activity, Future Flowers, students observe and predict how changes to the pollinators affect plant reproduction, which affects the life cycles of those plants. Wrap-up slides &		BrainPop Jr. - <u>Plant Life Cycle</u>

			teacher-led discussion.			
			Anchor Connection Students learn: The bats pollinate the cacti and help them progress through their life cycle.		Science Journal Entry to answer anchor connection question.	
			<u>Lesson 5 Assessment</u> Extensions include: Readings and activities.	22		
Life Cycles Unit Assessment			<u>Life Cycles Unit Assessment</u>	23		
Life Cycles Performance Task Why are some Saguaros so tiny?	Life Cycles	3-LS1-1	In this performance task, students will observe and describe saguaros at various stages of their life cycles. After a review of the unit, students will gather observations of saguaros from Saguaro National Park. They will use those observations, along with the observations they gathered over the course of the unit about the relationship	24	<u>Saguaro Life Cycle</u>	

				between saguaros and bats, to predict how bats and saguaros interact with one another.			
Fossils & Changing Environments Anchor Phenomenon Watery Cave	Fossil Evidence & Habitat Change	3-LS4-1	25	The anchor phenomenon for this unit is a water-filled cave that contains footprints, fossils, and ancient fire pits. How can these things be found deep underwater? During the introduction, students generate observations and questions about the phenomenon and create an initial conceptual model to explain how and why they think this is happening. Students will gather clues during and after each lesson in this unit to help them improve their explanations. It is important to encourage students to recognize that even if they don't know the perfect answer yet, they are going to learn a	See-Think-Wonder Chart Watery Cave		

				lot throughout the unit and will have an opportunity to change or add to their first explanation.			
Fossils & Changing Environments Lesson 1 Where can you find whales in a desert?	Habitats, Fossils, & Environments Over Time	3-LS4-1	26	In this lesson, students explore the idea that the rock under our feet sometimes contains fossils, and investigate how these fossils reveal changes in habitat through time.			
			27	In the activity, Fossil Dig, students use paper to create a model fossil dig. They identify traits of fossils to determine what the habitat looked like when these organisms were alive. Then they use this information to figure out where some Mystery Fossils belong in their fossil dig. Wrap-up & teacher-led discussion.	<u>Fossil Dig Worksheet</u>	BrainPop Jr. Video & Activities (<u>Fossils</u>)	
			28	Anchor Connection Students wonder:	<u>Science Journal</u> Entry to answer anchor connection		

			How do we know what extinct animals looked like? Students learn: The cave was not always full of water. There was a time in the distant past when animals could have gone into and out of the cave without swimming.	question.	
		29	<u>Lesson 1 Assessment</u> Extensions include: Readings, activities and videos.		
		30	In this lesson, students analyze data from dinosaur fossils in order to provide evidence about the appearance and behavior of those dinosaurs when they were living.		
		31	In the activity, Dinosaur Detectives, students compare the traits of dinosaur fossils with the traits of modern animals in order to help a	<u>Dinosaur Decisions</u>	Extension Video: How to Find a Dinosaur Book on Epic: National Geographic Readers: Dinosaurs
Fossils & Changing Environments Lesson 2 How do we know what dinosaurs looked like?	Fossil Evidence & Dinosaurs	3-LS4-1			

				paleoartist draw a dinosaur as accurately as possible. Wrap-up & teacher-led discussion.			
			32	Anchor Connection Students wonder: How do we know how extinct animals moved? Students learn: The skull in the cave likely belonged to an animal that ate plants and other animals, and the animal likely had furry skin.		Science Journal Entry to answer anchor connection question.	
			33	<u>Lesson 2 Assessment</u> Extensions include: Mini-lessons and activities			
			34	In this lesson, students will learn about how fossil dinosaur tracks reveal how quickly a dinosaur was running.			
Fossils & Changing Environments Lesson 3: Can you outrun a dinosaur?	Fossil Evidence, Trace Fossils, & Animal Behavior	3-LS4-1	35	In the activity, Outrunning CeeLo,		Extension Article: Fossils and	

			students figure out if they could have won a race with a dinosaur that was just their size. To determine the winner, students will compare the length of their running steps with the dinosaur's steps. Teacher-led discussion.			<u>Dinosaurs</u>
			Anchor Connection Students learn: The footprints were likely formed by an animal walking in the cave when it was wet but not full of water.	36		<u>Science Journal</u> Entry to answer anchor connection question.
			<u>Lesson 3 Assessment</u> Extensions include: Readings, activities, and discussions	37		
Fossils & Changing Environments Unit Assessment			<u>Fossils & Changing Environments Unit Assessment</u>	38		
Fossils & Changing Environments Performance Task	Fossil Evidence & Habitat Change	3-LS4-1		39		<u>My Watery Cave Story</u> Watery Cave Tours

How are you a part of the watery cave's story?				the watery cave in a writing task. You have the choice of having students write a narrative text, an informational text, or an opinion text. This performance task can be completed at any point in the unit after Mystery 4, "What kinds of animals might there be in the future?" Review each of the options below, and select the one that best suits your needs. Note that this performance task does not include a typical step-by-step walkthrough, so that teachers have more control over the level of depth they go into with their students.	<u>What Do You Think?</u>	
Benchmark #2			40	LPS Benchmark #2 (Given via LinkIt!)		