

Ecology Interactions Unit

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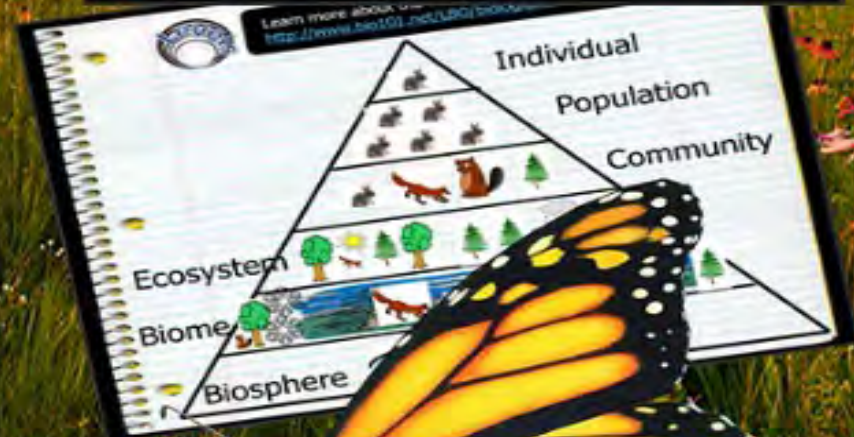
- Food Web: A complex network of many interconnected food chains and feeding interactions.



— Rain (the hydrosphere) falls from the atmosphere. These drop land on lithosphere (earth) and form streams and rivers that provide drinking water for plants and animals in the (biosphere)



- Name the spheres?
- Warm water currents move up the Gulf Stream toward Europe?



30 Lessons



Interactive Slideshows

- Name the correct type of camouflage for the picture? (Can only use each once 7-10)

Concealing Coloration, Disruptive Coloration, Disguise, or Mimicry

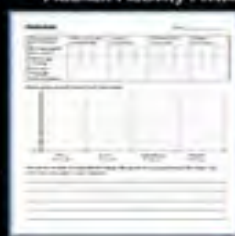


There are four types of camouflage

Concealing Coloration
Disruptive Coloration
Disguise
Mimicry



- Habitat Activity Available Sheet



Topic
Supporting Details
Concluding

Maintaining biodiversity is important to our very survival. Biodiversity helps maintain the valuable and life sustaining systems on our planet. Clean air, clean water, food security, and pest control are all provided by a healthy biodiversity. When species are removed from an ecosystem, the stability of the entire ecosystem can be threatened. It is important to remember that we are a part of our ecosystem, and our actions can affect it.

- Match the animal to its habitat.



- Ecosystem: The relationships of populations with each other and their environment.



- Match the organism to its niche.



Breaks down waste / returns nutrients to soil



I make sugar through photosynthesis
-Start of the food chain

I maintain Balance in the ecosystem

or Set-up

Would the temperature of the atmosphere change the atmospheric temp?



The atmosphere cooled.
The Ecosphere got cooler

Heat was Transferred / Air was warmed over the

- Video Link! (Optional) Plantation Forestry vs. Native Regeneration Forestry (Tasmania)
 - Pay attention each side of the story.
 - Which is better to maintain biodiversity?
 - http://www.youtube.com/watch?v=vpIUH8A_wE



With Follow Along Work Bundles



68 Pages

Activities, Assessments, Games, and more all built-in



This is an organism with unique DNA and cells.



• Importance of biodiversity

- Generation of soils and maintenance of soil quality
- Maintenance of air quality.



• Activity! Relative Abundance

Please record the following information in your journal 7 x 7

Species	# of that Species	Observed by	Total	Species	# Obs	Relative Abundance %
★	1	+	1		1	100
☾	1	+	2		2	50
✳	1	+	3		3	33
?	1	+	4		4	25
✕	1	+	5		5	20

• Which is a density independent and which is density dependent limiting factor?



• Mimicry: Animals that use mimicry are imposters.

- They mimic the characteristics of unappetizing animals.



SlideSpark Science



MIDDLE - LEVEL EDUCATIONAL RESOURCES

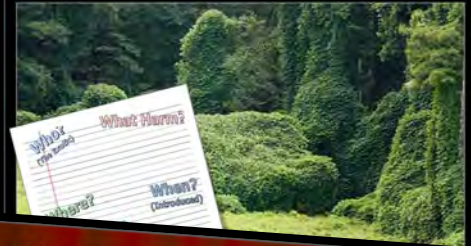
Interactive slideshows provide the roadmap for an amazing learning experience for students in grades 5-9. A Detailed set of work bundles chronologically follow the digital learning, providing a clear and intuitive roadmap to understanding. As the teacher or student advances through a slideshow, exciting hands-on activities, fantastic visuals, fill-in notes, review opportunities, video links, assessments, and much more are strategically placed throughout. Interactive learning unfolds step by step and supported by the work bundle to reach all types of learners. Everything you need to run to an amazing learning experience is provided in this one-of-a-kind science curriculum.

Each unit in the curriculum is designed to help teachers deliver the best possible learning experience for their students. Our interactive science slideshows are filled with questions and answers, important fill-in notes, hands-on activities, projects, games, built-in quizzes, and end of the unit assessment pieces. Students follow along with a work bundle that documents the entire learning experience for a fantastic review and assessment piece.

- Symbiosis: A long-term relationship between two or more different species.



- Kudzu: Grows really fast and is difficult to control.



- Mutualism: Both organism's benefit.



- Brown tree snake: Has killed off many native birds in Hawaii which never had snakes before they were introduced.

Invasive or noninvasive?



- Dispersive mutualisms: One species receives food in exchange for moving the pollen or seeds of its partner.



Part 3 Lesson 3 worksheet

Coevolution: the evolution of two or more species, each _____ to changes in the other.

These ecological relationships include:

- Predator/prey and parasite/host
- Competitive species
- Mutualistic species

Mutualism: Both organisms _____

Types of mutualisms

Trophic mutualisms: Both species help _____ each other.

- usually nutrient related.

Cleaning symbiosis: One species gets _____ and shelter, the other has _____ removed.

Defensive mutualisms: One species _____ the other and gets some _____ in return.

Dispersive mutualisms: One species receives _____ in exchange for moving the _____ or seeds of its partner.

Describe each type of mutualism next to the pictures. Give me some details if you can.

Red Slide Notes: Help students record important information in a fun and easy-to-understand way. Designed red-colored slides contain a few pieces of crucial information that students must record into their work bundle to complete the notes. Students will use these important notes throughout the work bundle.

The set-up of the slideshows are designed to make learning fun and interactive for students. With a mix of questions and answers, teachers can use these slides to get their students thinking and actively participating in their education. Plus, the answers are always revealed on the next slide, providing students with immediate feedback and helping teachers assess their understanding.

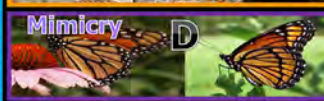
- Match the type of camouflage to the correct animal.

- Concealing Coloration
- Disruptive Coloration
- Disguise
- Mimicry



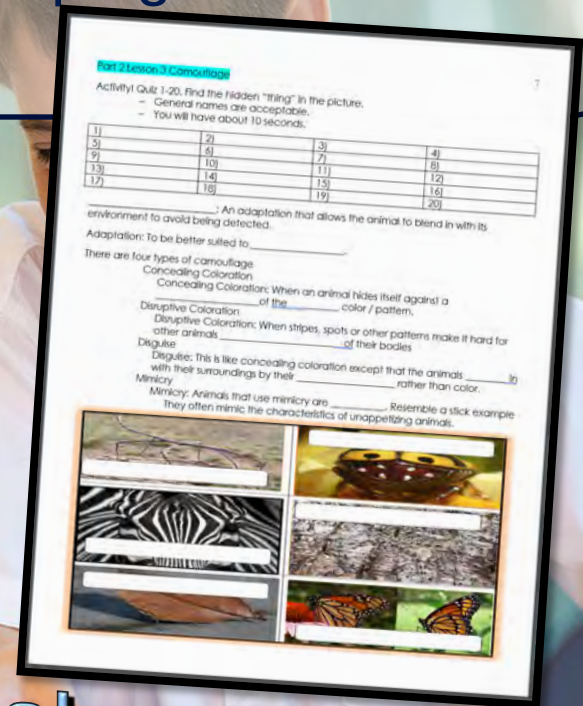
- Match the type of camouflage to the correct animal.

- Concealing Coloration
- Disruptive Coloration
- Disguise
- Mimicry



Next Slide

slideshow supports
Work Bundle



Lesson Planning

Daily lessons space exciting hands-on activities, red slide notes, video and academic links, projects, simulations, readings, built-in quizzes, and review opportunities throughout the slideshows. A typical day may have many different learning styles being targeted. Daily lesson planning becomes advancing through the slideshow roadmap the night before. Each lesson is roughly 50 minutes, but sometimes things can speed up or slow down. The best strategy is just to go at your classes own pace. The work bundle chronologically follows the interactive slideshow and you can always spend extra time assessing the quality of the writing within. If you don't quite finish a lesson, you can always pick it up the next day where you left off. The only real trick in timing is not starting a larger activity if you don't have the available time to complete. The slideshows have been designed to be a low stress, go at your classes own pace experience. Most activities are designed to be cost effective, using general materials that can be gathered from your local stores.

Lessons chronologically follow a single work bundle



Each science unit includes a single printable work bundle that stays with students from start to finish. Just print and distribute on day one—no daily handouts needed. The bundle follows the unit chronologically and includes everything: fill-in notes, diagrams, quizzes, lab activities, with follow up questions and much more. It's used daily, supports the end-of-unit quiz game, and is handed in for an additional assessment. Answer keys, some writable .pdf versions, and digital versions are also included for flexible classroom use..

PART 2: ANIMALS IN THE ENVIRONMENT

Species diversity is the number of different species in a community. It is a measure of the amount of a species. Can be color, density, abundance. The amount of each species.

Species richness is the number of different species in a community. It is a measure of the amount of a species. Can be color, density, abundance. The amount of each species.

Species evenness is the relative abundance of each species in a community. It is a measure of the amount of a species. Can be color, density, abundance. The amount of each species.

Species diversity is the number of different species in a community. It is a measure of the amount of a species. Can be color, density, abundance. The amount of each species.

Organisms need energy to survive. Energy from the sun flows into and through this system. This energy drives our world and the organisms in it. Energy is lost "not destroyed" when it changes form. Flows not to cold.

Ecological systems are organized within each other. The effects on one system will affect them all. All systems are interconnected.

All organisms are in a constant state of change over time with the environment. Some organisms will change with another and will develop special interactions. Others with the nonliving world.

Matter and energy cycle through the living and nonliving world. Organisms rely on this matter and energy cycling to survive.

Animals are interconnected in a complex web of life. Changes on one part of the web will affect other parts of the web and the stability of the entire ecosystem.

Ecosystems have a way to balance changes so that up and down fluctuations are part of the natural balance of the whole.

Measurement of the amount of a species. Can be color, density, abundance. The amount of each species.

Species richness is the number of different species in a community. It is a measure of the amount of a species. Can be color, density, abundance. The amount of each species.

Species evenness is the relative abundance of each species in a community. It is a measure of the amount of a species. Can be color, density, abundance. The amount of each species.

Species diversity is the number of different species in a community. It is a measure of the amount of a species. Can be color, density, abundance. The amount of each species.

Graph your findings below. The graph must sum to 1 or 100.

Species richness is the number of different species in a community. It is a measure of the amount of a species. Can be color, density, abundance. The amount of each species.

Species evenness is the relative abundance of each species in a community. It is a measure of the amount of a species. Can be color, density, abundance. The amount of each species.

Species diversity is the number of different species in a community. It is a measure of the amount of a species. Can be color, density, abundance. The amount of each species.

Alternative "Lecover or other" Relative Abundance

Species	# of that Species	Divided by	Total	Equals	X 100	= Relative Abundance %
+	1	1	5	0.2	20	20
+	1	1	5	0.2	20	20
+	1	1	5	0.2	20	20
+	1	1	5	0.2	20	20
+	1	1	5	0.2	20	20
+	1	1	5	0.2	20	20
+	1	1	5	0.2	20	20
+	1	1	5	0.2	20	20
+	1	1	5	0.2	20	20
+	1	1	5	0.2	20	20

What's the species diversity?

Species richness is the number of different species in a community. It is a measure of the amount of a species. Can be color, density, abundance. The amount of each species.

Species evenness is the relative abundance of each species in a community. It is a measure of the amount of a species. Can be color, density, abundance. The amount of each species.

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Species diversity is the number of different species in a community. It is a measure of the amount of a species. Can be color, density, abundance. The amount of each species.

Second core important information about the species below? (What's so amazing here?)

Species richness is the number of different species in a community. It is a measure of the amount of a species. Can be color, density, abundance. The amount of each species.

Species evenness is the relative abundance of each species in a community. It is a measure of the amount of a species. Can be color, density, abundance. The amount of each species.

Species diversity is the number of different species in a community. It is a measure of the amount of a species. Can be color, density, abundance. The amount of each species.

Importance of biodiversity

Generation of biodiversity and maintenance of biodiversity.

Generation of biodiversity and maintenance of biodiversity.

Generation of biodiversity and maintenance of biodiversity.

Regeneration Forests is a Native Regeneration Forests (Tropical)

Pay attention to each side of the story. Which is better to maintain biodiversity?

Regeneration Forests is a Native Regeneration Forests (Tropical)

Pay attention to each side of the story. Which is better to maintain biodiversity?

Which one is better to increase biodiversity?

Regeneration Forests is a Native Regeneration Forests (Tropical)

Pay attention to each side of the story. Which is better to maintain biodiversity?

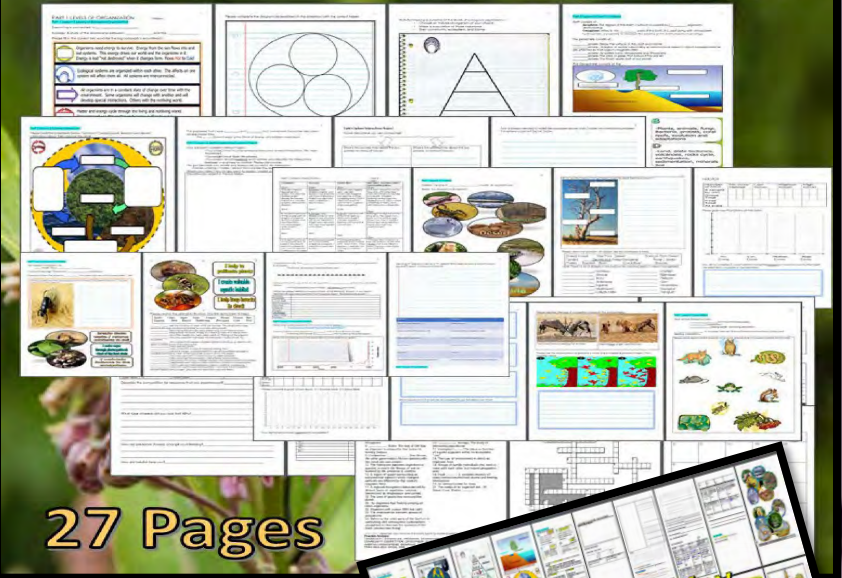
Regeneration Forests is a Native Regeneration Forests (Tropical)

Pay attention to each side of the story. Which is better to maintain biodiversity?

Follow Along Work Bundle



Follow Along Work Bundle



27 Pages

Follow Along Work Bundles



22 Pages

Review Games / Assessments

Each of the three parts concludes with a review quiz. Answers are provided in slideshow form so students can self assess. A blank template sheet is provided in the work bundle. Students can benefit from working together in small table groups with quiet communication. You can decide if you want to allow the use of work bundles or not. These are a nice review opportunity and get the students looking through their work bundles for the answers.



Part 2 Review Game **Lesson 11** Name: _____ Due: Today
1-10 = 5 pts. * = Bonus = 1 pt. (Secretly write owl in correct space +1 pt)
Final Question = 5 pt wager

GET OFF ME	BY MY SIDE	STRANGE PETS	NOT FROM HERE	FOREIGN FILMS
1) Symbiosis	6) Brood parasitism	11) Defensive mutualism	16) A= Thorns (mechanical defense) B= Microbe farms (fungi and bacteria)	*21) Ratatouille
2) Parasitism	7) Sea Lamprey	12) Cleaning symbiosis	17) B is Poison Ivy	*22) James Bond 007
3) true	8) Coevolution	13) Dependent mutualism	18) Invasive Exotic Species	*23) The Mummy
4) true	9) A= Mutualistic B= Predatory C= Competitive (for light and nutrients)	14) Commensalism	19) Native/Endemic	*24) Finding Nemo
5) A= ectoparasite (outside body) B= endoparasite (inside body)	10) trophic mutualism	15) B: Mutualistic, commensalistic and parasitic	20) Cone foods Jellyfish Mussels Commensalizing etc.	*25) The Karate Kid

Final Question Wager _____ /5. Answer: _____

*Secretly write owl in correct space +1 pt. Bonus = 1 pt. (Secretly write owl in correct space +1 pt)
Final Question = 5 pt. Wager

Ecology Quiz Game

- This is the type of mutualism where one species receives food in exchange for moving the pollen or seeds of its partner.



- This is the type of mutualism where one species protects the other and gets some benefits for its help.



Symbiosis

- This is the name for a long term relationship between two or more different species.



This is the name for an organism that has lived in the area for a considerable amount of time.



of symbiosis seen



This is the term for an exotic species that causes harm to people, the environment, and native species.

Invasive Exotic Species

18

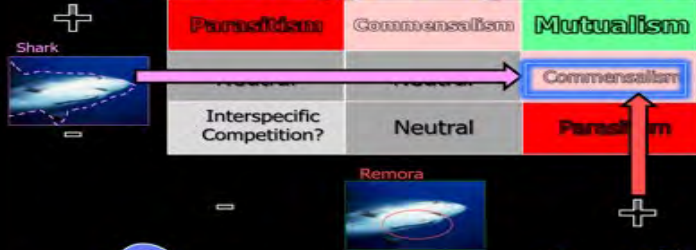


• Which one is poison ivy?

17



Name the type of Symbiosis?



Commensalism

14

- This is the name for a unique type of parasitism seen in birds that involves the laying of eggs in the nests of other birds.
 - The eggs are left under the parental care of the host parents.

6

Brood Parasitism



- Name this jawless fish (Parasite)

– They attach to fish with a sucker and bore a hole into flesh with their tongue.

7 Sea Lamprey



Invasive Exotic Species

- Name 5 invasive exotic species.
 - (1 point each)
 - 100 worst global invasive exotic species list
 - <http://www.issg.org/database/species/search.asp?st=100ss>



20

- Bacteria live in our body. They are...

- A.) Parasitic only
- B.) Commensalistic and Parasitic
- C.) Mutualistic only
- D.) Mutualistic, Commensalistic, and Parasitic

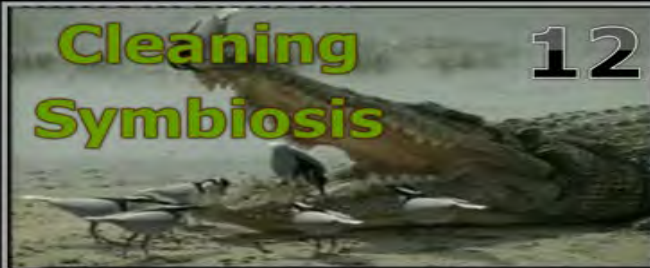
15



- This is the type of mutualism where one species gets food and shelter, the other has parasites removed.

Cleaning Symbiosis

12



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- True or False.

- Parasitism is one of the most successful modes of life displayed by any living organism?
- For every species on earth, they may host a handful of unique parasites.

3



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- Which is an endoparasite, and which is an ectoparasite?



5

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Which is which ecological relationship?

Predator/prey and parasite/host

Competitive species

Mutualistic species

9



- Which one uses **microbe farms**, and which one uses **mechanical defenses**?



- This is the type of mutualism where both species help feed each other.
 - Usually nutrient related.



- This is the type of evolution of two or more species, each adapting to changes in the other.

Coevolution

8

Change

All organisms are in a constant state of change over time with the environment. Some organisms will change with another and will develop special interactions. Others with the nonliving world.

Activities / Labs

Our science activities are designed to help students explore and understand complex scientific concepts in an engaging and interactive way. Each science unit includes several hands-on activities that encourage students to collect data and think critically about the world around them. Our easy-to-follow slideshow provides detailed visuals, simple materials, and clear directions, making it easy for both students and teachers to navigate the activities.

Habitat Activity

Habitat

	No cover Habitat	Low Cover	Medium Cover	High Cover
Number of Mice				
# caught by you				
Group Total				
Final Total				
All trials				

Please graph your final total for all trials below

How did an increase in cover habitat change the amount of mice captured by the foxes? Use data from your graph in your response.

Habitat Activity. Mice and Foxes

This would count as 3 mice caught

- How did an increase in cover habitat change the amount of mice captured by the foxes?
- The data suggests that the high cover habitat was the most difficult to catch mice. Only 13 mice were captured in the high covered compared to 34 in no cover.

Procedure: Work in table groups 3-5.

- Each student must toss a transparency circle into the feeding zone with high cover habitat and record the number of mice you caught on your spreadsheet.
- Find the sum of everyone in your group to get group total.

	No Habitat	Low Habitat	Medium Habitat	High Habitat
Number of Mice				
# caught by you	2	4	3	
Group Total	11	14	15	
Final Total				
All trials				

40

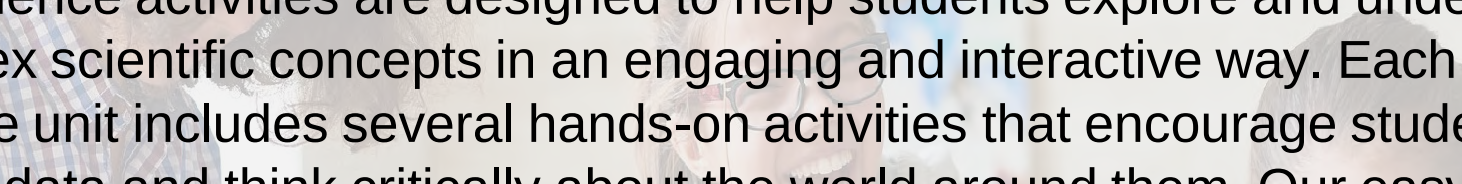
Habitat Activity Available Sheet

Habitat

	No cover Habitat	Low Cover	Medium Cover	High Cover
Number of Mice				
# caught by you				
Group Total				
Final Total				
All trials				

Please graph your final total for all trials below

How did an increase in cover habitat change the amount of mice captured by the foxes? Use data from your graph in your response.



Our science activities are designed to help students explore and understand complex scientific concepts in an engaging and interactive way. Each science unit includes several hands-on activities that encourage students to collect data and think critically about the world around them. Our easy-to-follow slideshow provides detailed visuals, simple materials, and clear directions, making it easy for both students and teachers to navigate the activities.

[illegible]

- **Habitat Activity.** Mice and Foxes

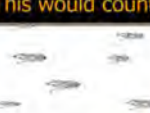
This would count as 3 mice caught

A diagram illustrating a habitat activity. It shows a large yellow oval representing a fox's home range. Inside this oval, there are three small grey mice. The entire scene is set against a background of many more small grey mice scattered across a light blue area, representing a larger habitat.

- Home range
- The area an animal has to live on
- Or the area an animal has to live on

A diagram illustrating a habitat activity. It shows a large yellow oval representing a fox's home range. Inside this oval, there are three small grey mice. The entire scene is set against a background of many more small grey mice scattered across a light blue area, representing a larger habitat.

This would count as 3 mice caught



The diagram shows a rectangular area representing a transect. Inside, there is a central circle. Within this circle, there are three small mouse icons. Outside the circle, there are many more mouse icons scattered throughout the rectangle. The text above the diagram states that the mice inside the circle would count as 3 mice caught.

- How did an increase in cover habitat change the amount of mice captured by the foxes?
- The data suggests that the high cover habitat was the most difficult to catch mice. Only 13 mice were captured in the high covered compared to 34 in no cover.



- Procedure: Work in table groups 3-5.
 - Each student must toss a transparency circle into the feeding zone with **high cover habitat** and record the number of mice you caught on your spreadsheet.
 - Find the sum of everyone in your group to get group total.
-
- | Number of Mice
caught by you | Low Habitat | Low Habitat | Medium Habitat | High Habitat |
|-----------------------------------|-------------|-------------|----------------|--------------|
| Group Total | 11 | 14 | 15 | |
| Total
(All trials) | 40 | | | |



• Habitat Activity Available Sheet

Habitat _____ **Score** _____

Habitat	100% available 100% available	50% available 50% available	25% available 25% available	10% available 10% available	5% available 5% available
Grassland	30	25	15		
Forest					
Wetland					
Desert					
Mountain					
Coastal					
Urban					
Water					

Scoring

100% = 30 points
50% = 25 points
25% = 15 points
10% = 10 points
5% = 5 points

Example:

Grassland: 30 points
Forest: 25 points
Wetland: 15 points
Desert: 10 points
Mountain: 5 points
Coastal: 0 points
Urban: 0 points
Water: 0 points

Notes:

1. The habitat with the highest score is the most available habitat.

2. The habitat with the lowest score is the least available habitat.

3. The habitat with the highest score is the most available habitat.

4. The habitat with the lowest score is the least available habitat.

[illegible]

Habitat

Number of Mice # caught by you	No cover Habitat	Low Cover	Medium Cover	High Cover
Group Total				
Final Total				
All trials				

Please graph your final total for all trials below

A bar graph template with a vertical y-axis labeled 'O' at the bottom and four horizontal bars. The x-axis has four categories: 'No Cover', 'Low Cover', 'Medium Cover', and 'High Cover'. The y-axis has tick marks but no numerical labels.

How did an increase in cover habitat change the amount of mice captured by the foxes?
Use data from your graph in your response.

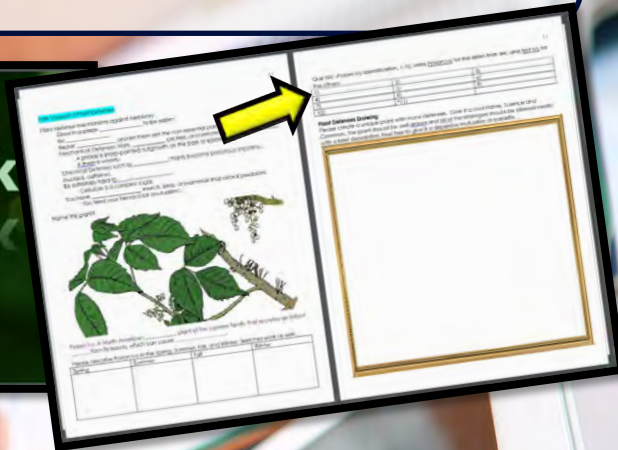
Number of Mice # caught by you	No cover Habitat	Low Cover	Medium Cover	High Cover
Group				
Total				
Final				
Total				
All trials				

Please graph your final total for all trials below.

Built-in Assessment

Each unit contains several built-in assessment questions that students answer in their work bundle. With the question revealed before the answer, the teacher can easily call on individual students or table groups to respond. These provide an effective and efficient way for teachers to assess student learning.

- Quiz Wiz –1-10,
- Is it poison ivy, poison oak, poison sumac, or not poisonous?



Questions in Work Bundle

Built-in Assessment

Each unit contains several built-in assessment questions that students answer in their work bundle. With the question revealed before the answer, the teacher can easily call on individual students or table groups to respond. These provide an effective and efficient way for teachers to assess student learning.



Questions in Work Bundle →

Built-in Video Links

Our science education program is designed with the modern, multimedia learner in mind, and our video links are a perfect complement to our educational materials. These short clips are embedded into the slideshow at just the right places for a fantastic review. Whether you're studying biology, chemistry or physics, our video links are an excellent way to reinforce your learning.

- Review! Lord Howe Stick Insect

- <https://www.youtube.com/watch?v=zRx-UtW1FLk>
- Or
- https://www.youtube.com/watch?v=0XNyDfoFp-4&ab_channel=AtlasObscura



- Video Link! Plantation Forestry & Regeneration Forestry (Tasmania)

- Pay attention to each side of the slide
- Which is better to maintain biodiversity?
- http://www.youtube.com/watch?v=vpiUH8A_wE



- Academic Link / Class Quiz: Types of Camouflage.

- <http://www.pbs.org/wqbh/nova/leopards/seeings/ans.html>



- Video Link: Camouflage and Camouflage



- The Iranian spider-tailed Viper

- <https://www.youtube.com/watch?v=snxddX0h8E>



- Video Link! Alligator Snapper Tongue Lure

- https://www.youtube.com/watch?v=w-aIl_nSkMXU



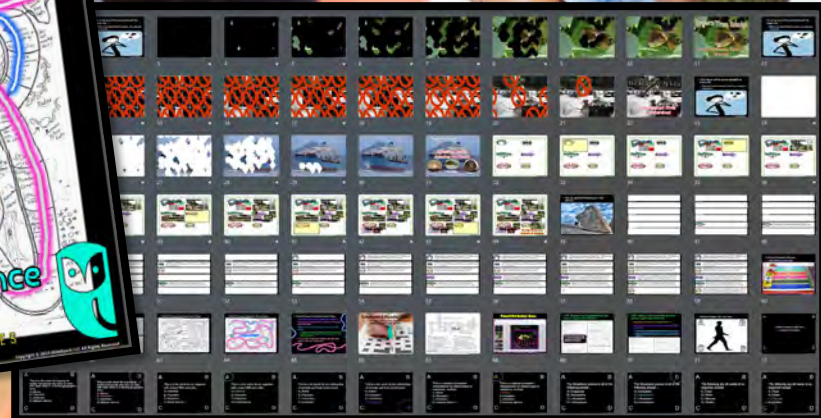
- How does this harmless black racer snake demonstrate Batesian mimicry?

- <http://www.youtube.com/watch?v=ogOTFIRx2Ds>



Games and Review

Games are a fantastic way for students to learn scientific concepts while having fun. We incorporate a variety of games into our curriculum, including interactive quizzes and puzzles that challenge students to think critically about the material. Our Hidden Box Games are a particularly popular feature, which conclude each unit by revealing a picture related to the topic. Students try to guess what the picture might be, making learning an engaging experience.



• The Emerald Ash Borer.



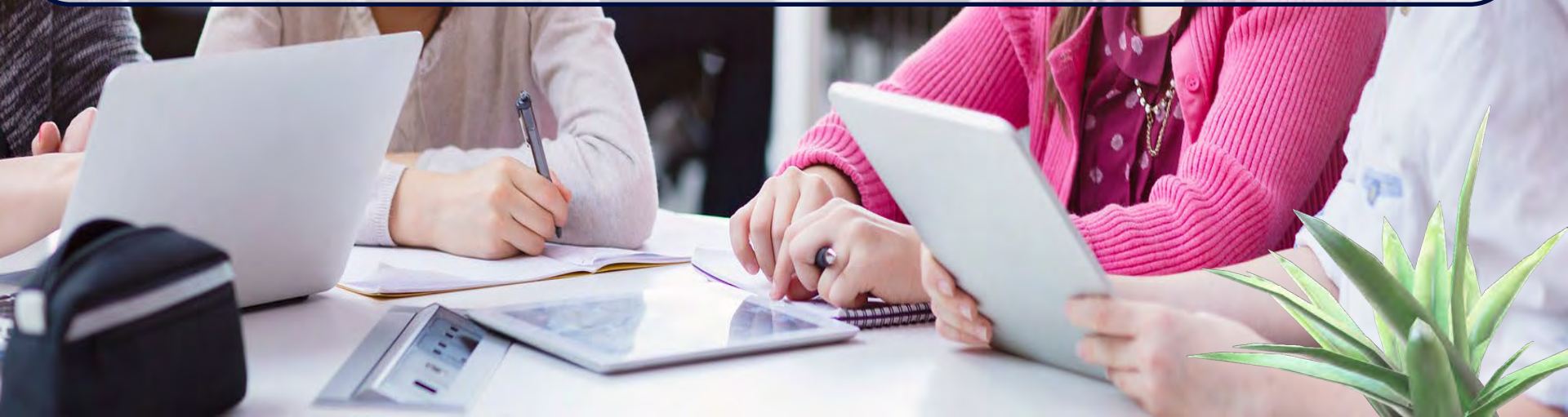
• The Emerald Ash Borer.



The Owl - Each Part of the slideshow has a small clipart Owl hiding somewhere in a slide. The owl is incredibly small and blended into just the right slide. If a student spots the "Owl" they can raise their hand high into the air. When you call upon the student they can say "Owl" and be the student who spotted the Owl. Each PowerPoint Review game also has an owl hiding in it worth one point. Remind the students that they secretly write the word "owl" rather than yell it out during the review games. The Owl search is not included in every lesson. A slide at the beginning of the lesson will alert the students that today is an "Owl" day. Everything arrives editable so delete if you wish. You will find that some students will become the expert owl hunters in the group.

Google Classroom Compatible

Our digital learning programs are designed for students to learn science in a flexible and engaging environment. Our Google Classroom-compatible units provide a seamless learning experience whether your students are in the classroom or learning from home. Our step-by-step slideshows and student work bundles ensure that students can complete their work independently. The PowerPoint Slideshows and step-by-step work bundles can easily be loaded to your Google Drive and posted in your Google Classroom. These are great for daily lessons, students who need additional time, and for a student who was absent and looking to catch up in their work bundle.





Part 1 Lesson 11 Predator Pr...

Google Slides



Part 1 Lesson 12 Wrap Up

Google Slides



Part 1 Lesson 13 Review Ga...

Google Slides



Part 1 Lesson 10 Feeding Si...

Google Slides



Part 1 Lesson 3 Sphere Inter...

Google Slides



Part 1 Lesson 9 Food Webs

Google Slides



Part 1 Lesson 7 Population ...

Google Slides



Part 1 Lesson 8 Competition

Google Slides



Part 1 Lesson 6 Need Niches

Google Slides



Part 1 Lesson 4 Sphere Proj...

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Part 1 Lesson 2 Earths Sphe...

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Part 1 Lesson 5 Habitat

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Part 1 Lesson 1 Levels of Or...

Google Slides



[Part 2 Lesson 3 Camouflage...](#)

Google Slides



[Part 2 Lesson 1 Relative Abu...](#)

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[Part 2 Lesson 5 Batesian Mi...](#)

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[Part 2 Lesson 7 Review Game](#)

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[Part 2 Lesson 3 Camouflage...](#)

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[Part 2 Lesson 6 Mullerian Mi...](#)

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[Part 2 Lesson 2 Biodiversity](#)

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[Part 2 Lesson 4 Mimicry](#)

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[Part 2 Lesson 6 Mullerian Mi...](#)

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Part 3 Lesson 9 WANTED Po...

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Part 3 Lesson 5 Plant Defen...

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Part 3 Lesson 7 Exotic Speci...

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Part 3 Lesson 10 Board Game

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Part 3 Lesson 3 Mutualism

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Ecology Interactions Unit

[Ecology Interactions Unit](#)

Ecology and the Environment: Interactions Unit

3 Parts, 30 Lessons (5th or 6th grade – Easier), Part 1 has 30 page bundle, Part 2 has a 15 page work bundle, Part 3 has a 24 page work bundle -Areas of Focus within The Ecology Interactions Unit: Levels of Biological Organization (Ecology), Parts of the Biosphere, Habitat, Ecological Niche, Types of Competition, Competitive Exclusion Theory, Animal Interactions, Food Webs, Predator Prey Relationships, Camouflage, Population Sampling, Abundance, Relative Abundance, Diversity, Mimicry, Batesian Mimicry, Mullerian Mimicry, Symbiosis, Parasitism, Mutualism, Commensalism, Plant and Animal Interactions, Coevolution, Animal Strategies to Eat Plants, Plant Defense Mechanisms, Exotic Species, Impacts of Invasive Exotic Species.



3 Parts, 30 Lessons (5th or 6th grade – Easier), Part 1 has 30-page bundle, Part 2 has a 15-page work bundle, Part 3 has a 24-page work bundle.

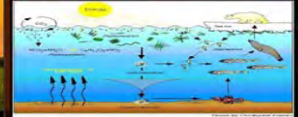
[Ecology Interactions Unit Part 1:](#) Levels of Biological Organization (Ecology), Big Concepts in Eco-Literacy, Diagram of the Levels of Biological Organization, Individuals, Populations, Communities, Ecosystems Large and Small, Biomes, Biosphere, Making a Pyramid of the Levels of Organization Activity, Earth's Spheres, Atmosphere, Hydrosphere, Cryosphere, Lithosphere, Geosphere, Ecosphere, Sphere Interactions, Examples of Sphere Interactions, Hydrosphere Interaction Demo, How Matter and Energy move through the Spheres, Sphere Interaction Project, Habitat, Examples of Animals and their Habitat, Microhabitats, Habitat Lab Activity, Needs of Organisms, Ecological Niche, Case Study on the African Dung Beetle, Fundamental Niche vs Realized Niche, Human Population Growth, Carrying Capacity, R and K Species, Animal Competition, Types of Competition, Intraspecific Competition, Interspecific Competition, Interference, Exploitative Competition, Competition Quiz, Competitive Exclusion Theory, Animal Competition Simulation of Spoon Beaks vs. Grabber Beaks, MacArthur's Warblers Case Study, Animal Interactions, Food Webs, Food Collapse Class Activity with String, Predator Prey Relationships, Feeding Strategies, Generalists vs. Specialist, Foraging Simulation with Bean Seeds in the Grass, Herbivore Survival Strategies, Predator Prey Cycles, Predatory Prey Cycle Notecard Toss Activity, Density Dependent and Density Independent Limiting Factors, Box Games, Board Game Review, Crossword Puzzle, Assessment.

[Ecology Interactions Unit Part 2](#) Part 2: Abundance, Relative Abundance, Calculating Relative Abundance from a Population, Pie Graph of Result, Species Composition, Diversity, Biodiversity, Importance of Biodiversity, Case Study on the Lord Howe Stick Insect, Biodiversity Jenga Activity, How to Maintain Biodiversity, Case Study of Plantation Forestry vs. Native Growth in Tasmania, Find the Animal Fun Camouflage Quiz, Camouflage, Four Types of Camouflage, Camouflage a Gecko in the School Project, Mimicry, Tour of the Worlds fantastic Mimics, Batesian Mimicry, Being a young bird Nastieeos and Tastieeos / Bean Boozled and experiencing Batesian Mimicry Simulation, Aggressive Mimicry, Case Study on the Alligator Snapping Turtle, Beat the Butterfly Man Challenge, Aposematic Coloration, Mullerian Mimicry, Mullerian Coloring Activity, Other Interesting Ways Animal Avoid Predation, Box Games, Crossword Puzzle, Assessment

[Ecology Interactions Unit Part](#) Part 3: Symbiosis, Types of Symbiosis, Parasitism, Major groups of Parasites, Complicated Life Cycle of Parasites, Case Study on the Zombie Snail, Endoparasites, Ectoparasites, Examples with Visuals of many Parasites across the globe, Case Study on the Sea Lamprey, Brood Parasitism and the Cowbird, Perfect Parasite Presentation Project, Coevolution, Ecological Relationships, Mutualism, Types of Mutualisms, Trophic Mutualisms, Case Study on Leaf Cutter Ants, Cleaning Symbiosis, Defensive Mutualism, Dispersive Mutualism, Commensalism, Moving Quiz, Herbivory, Animal Strategies to Eat Plants, Plant Defense Mechanisms, Types of Mechanical Defenses, Poisonous Plants, Case Study on Identifying Poison Ivy, Poison Ivy Quiz, Plants and Animals Defense and Offense Design Project, Exotic Species, How Humans Spread Exotic Species, Invasive Exotic Species, Impacts of Invasive Exotic Species, Group Research of an Invasive Exotic Species Project, Biological Controls, Invasive Exotic Species WANTED Poster Project, Box Games, Crossword, Board Game Review, Assessment

Ecology Interactions Unit

- Food Web: A complex network of many interconnected food chains and feeding interactions.

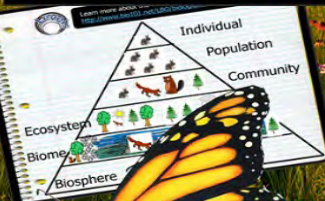


- Rain (the hydrosphere) drops land on atmosphere. These drop land on atmosphere (earth) and form streams and rivers that provide the drinking water for plants and animals in the (biosphere).



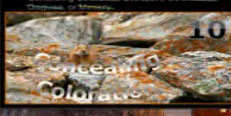
30 Lessons

- Name the spheres?
- Warm water currents move up the Gulf Stream toward Europe?



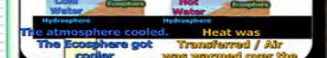
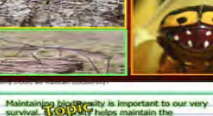
Interactive Slideshows

- Name the correct type of camouflage for the picture? (Can only use each once 7-10)



- There are four types of camouflage: Concealing Coloration, Disruptive Coloration, Mimicry, and Masquerade.

- Match the organism to its niche.
- Breaks down waste / returns nutrients to soil
- I make sugar through photosynthesis
- Start of the food chain
- Maintain balance in the ecosystem

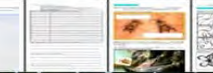
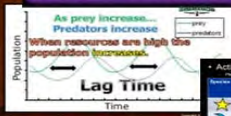
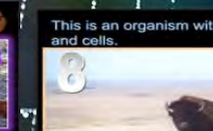


With Follow Along Work Bundles

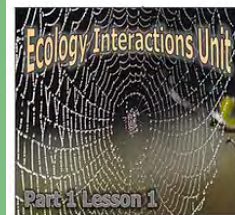


68 Pages

Activities, Assessments, Games, and more all built-in



Part 1: 13 Lessons of 50 minutes, and 30 Page Work Bundle, Levels of Biological Organization (Ecology), Big Concepts in Eco-Literacy, Diagram of the Levels of Biological Organization, Individuals, Populations, Communities, Ecosystems Large and Small, Biomes, Biosphere, Making a Pyramid of the Levels of Organization Activity, Earth's Spheres, Atmosphere, Hydrosphere, Cryosphere, Lithosphere, Geosphere, Ecosphere, Sphere Interactions, Examples of Sphere Interactions, Hydrosphere Interaction Demo, How Matter and Energy move through the Spheres, Sphere Interaction Project, Habitat, Examples of Animals and their Habitat, Microhabitats, Habitat Lab Activity, Needs of Organisms, Ecological Niche, Case Study on the African Dung Beetle, Fundamental Niche vs Realized Niche, Human Population Growth, Carrying Capacity, R and K Species, Animal Competition, Types of Competition, Intraspecific Competition, Interspecific Competition, Interference, Exploitative Competition, Competition Quiz, Competitive Exclusion Theory, Animal Competition Simulation of Spoon Beaks vs. Grabber Beaks, MacArthur's Warblers Case Study, Animal Interactions, Food Webs, Food Web Collapse Class Activity with String, Predator Prey Relationships, Feeding Strategies, Generalists vs. Specialist, Foraging Simulation with Bean Seeds in the Grass, Herbivore Survival Strategies, Predator Prey Cycles, Predatory Prey Cycle Notecard Toss Activity, Density Dependent and Density Independent Limiting Factors, Box Games, Board Game Review, Crossword Puzzle, Assessment.



Part 1 Lesson 1 Levels of Organization



Part 1 Lesson 3 Sphere Interactions



Part 1 Lesson 4 Sphere Project



Part 1 Lesson 5 Habitat



Part 1 Lesson 6 Need Niches



Part 1 Lesson 7 Population Growth



Part 1 Lesson 8 Competition



Part 1 Lesson 9 Food Webs



Part 1 Lesson 10 Feeding Simulation



Part 1 Lesson 11 Predator Prey Cycles



Part 1 Lesson 12 Wrap Up



Part 1 Lesson 13 Review Game



Part 1 Lesson 14 Review Game Answers



Part 1 Work Bundle Print



Part 1 Work Bundle Write on pdf



Part 1 Work Bundle Answers



Part 1 Work Bundle Print with Notes

Ecology Interactions Unit Part 1

Ecology, Relative Abundance, Biodiversity, Camouflage, Mimicry

Preview is a compressed file

- Hundred of species are lost everyday on this planet forever.
 - Estimates put it as high as 70,000 species per year.
 - Humanity is the 6th mass extinction event.



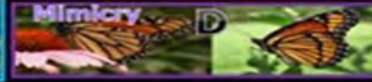
WEB

- Diversity: The variety, or number of kinds of species.
 - Counting the number of different species.



- Match the type of camouflage to the correct animal.

- Concealing Coloration
- Disruptive Coloration
- Disguise
- Mimicry



- Diversity: The variety, or number of kinds of species.
 - Counting the number of different species.



- There are four types of camouflage

- Concealing Coloration
- Disruptive Coloration
- Disguise
- Mimicry



- Activity! Relative Abundance

– Please record the following spreadsheet in your journal. 7 x 7

Species	# of that Species	Divided by	Total	Equals	X 100	= Relative Abundance %	
	27	$\div$	80	.3375	$\times$	100	33.75%
	15	$\div$	80	.1875	$\times$	100	18.75%
	5	$\div$	80	.0625	$\times$	100	6.25%
	8	$\div$	80	.1	$\times$	100	10%
	4	$\div$	80	.05	$\times$	100	5%
	3	$\div$	80	.0375	$\times$	100	3.75%

7 Lessons

Interactive Slideshows

- **Mullerian mimicry:** Several **unrelated** species share a **warning color** that warn predators that these colors are dangerous or toxic.



- **Camouflage:** An adaptation that allows the animal to blend in with its environment to avoid being detected.



- **Hiding Camouflaged Animals**

– You will follow me around the school on a short tour looking for a cool school walls / boards to camouflage the animals below.



- **Importance of biodiversity**

- Generation of soils and maintenance of soil quality.
- Maintenance of air quality.

WEB



How many blue moons?



- Which species is the **venomous coral snake** and which species is the **nonvenomous king snake**?



- **Activity! Relative Abundance**

– Please record the following spreadsheet in your journal 7 x 7

Species	# of that Species	Divided by	Total	Equals	X 100	= Relative Abundance %
★		÷			X 100	
☾		÷			X 100	
✚		÷			X 100	
⊗		÷			X 100	

Use this sheet to help break it down

- **Video Link! (Optional) Camouflage and Mimicry in the reef ecosystem**

– <https://www.youtube.com/watch?v=UB7taiL-Eqs>



Ball's Pyramid

This is a Lord Howe stick insect (*Dryococelus australis*)



The Lord Howe Stick Insect was thought to be extinct for 80 years, after the population living on Lord Howe Island in Australia was wiped out by rats in 1920.

However, on Ball's Pyramid, a narrow rock formation 13 miles from Lord Howe Island, scientists found surviving stick insects. They don't know how they got to Ball's Pyramid or how they managed to survive. To help maintain biodiversity, the scientists went through a lot of effort to keep the insects alive and to increase the population.

Follow Along Work Bundle

PART 2: ANIMALS IN THE ENVIRONMENT

Section 1: Energy Flow in Ecosystems

Energy flows from the sun through producers to consumers. Energy is lost at each step.

- Organisms need energy to survive. Energy from the sun flows into and out of systems. This energy flows through the world and the organisms in it. Energy is lost "out of the system" when it changes form. Flows from the sun to the organisms.
- Biological systems are organized within each other. The effects on one system will affect them all. All systems are interconnected.
- All organisms are in a constant state of change over time with the environment. Some organisms will change with another and will develop special interactions. Others will be the harshest world.
- Matter and energy cycle through the living and nonliving world. Organisms rely on this matter and energy cycling to survive.
- Animals are interconnected in a complex web of life. Changes on one part of the web will affect other parts of the web and the stability of the entire ecosystem.
- Ecosystems have a way to balance changes so that up and down fluctuations are part of the natural balance of the whole.

Measurement of the amount of a species

Abundance: The amount of each species.

Species	# of Fish	Abundance	Species	# of Fish	Abundance
Starfish	10	10	Seahorse	5	5
Crab	15	15	Shrimp	20	20
Clam	25	25	Starfish	10	10
Seahorse	5	5	Crab	15	15
Shrimp	20	20	Clam	25	25

Graph your findings

Graph the abundance of each species on a line graph.

Species	Abundance	Time
Starfish	10	1
Crab	15	2
Clam	25	3
Seahorse	5	4
Shrimp	20	5

Section 2: Abundance

Abundance: The number of individuals of a species in a given area.

Graph the abundance of each species on a line graph.

Section 3: Mimicry

Mimicry: The ability of one species to resemble another species.

Section 4: Camouflage

Camouflage: The ability of an organism to blend in with its environment.

Section 5: Adaptation

Adaptation: A trait that helps an organism survive in its environment.

Section 6: Survival

Survival: The ability of an organism to stay alive in its environment.

Section 7: Mimicry

Mimicry: The ability of one species to resemble another species.

Section 8: Camouflage

Camouflage: The ability of an organism to blend in with its environment.

Section 9: Adaptation

Adaptation: A trait that helps an organism survive in its environment.

Section 10: Survival

Survival: The ability of an organism to stay alive in its environment.

15 Pages

Activities, Assessments, Video Links, and more

- Which two insects are dangerous?

Dangerous

**Not dangerous, but...
they look dangerous
So species let them be...**

- Why should we maintain biodiversity?

Maintaining biodiversity is important to our very survival. Biodiversity helps maintain the valuable and life sustaining systems on our planet. Clean air, clean water, food security, and pest control are all services provided by biodiversity. When species are removed from an ecosystem, the stability of the entire ecosystem can be threatened. It is important to remember that we are part of the ecosystem and our actions and how biodiversity matters.

- Activity! Young Bird (Learn through Experience)

- Today you will become a bird.
- You are testing the world for the first time.
- Go around your group in a circle. Share your experience.
- Become your first choice.
- What will you learn? Write it to feed yourself if you've learned your lesson.

NOTE: You must trust the food you've selected. Please do not eat it and make a big scene. Discuss the value in your table group only. No talking or laughing while you are eating. What a bird does.



- Batesian mimicry: Looking like another species that is dangerous or may taste bad.

Aposematic Coloration: Coloration or markings of an animal serving to warn off predators.



- Mimicry: The resemblance of an animal species to another species or to natural objects.

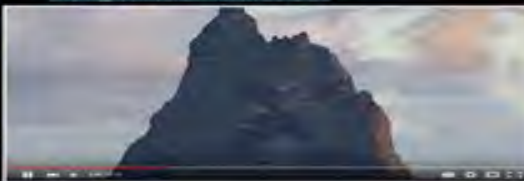
Preying Mantis – Not a stick!



Change All organisms are in a constant state of change over time with the environment. Some organisms will change with another and will develop special interactions. Others with the nonliving world.

- Review! Lord Howe Stick Insect

- <https://www.youtube.com/watch?v=zRx-UtW1FLk>
- Or
- https://www.youtube.com/watch?v=0XNyDfoFp-4&ab_channel=AtlasObscura



- Aggressive Mimicry:

- A form of mimicry in which a predator (the mimic) closely resembles another organism (the model) that is attractive to a third organism (the dupe) on which the mimic preys.



	Organisms need energy to survive. Energy from the sun flows into and out of systems. This energy drives our world and the organisms in it. Energy is lost "not destroyed" when it changes form. Flows Not to Cost.
	Ecological systems are organized within each other. The affects on one system will affect them all. All systems are interconnected.
	All organisms are in a constant state of change over time with the environment. Some organisms will change with another and will develop special interactions. Others with the nonliving world.
	Matter and energy cycle through the living and nonliving world. Organisms rely on this matter and energy cycling to survive.
	Animals are interconnected in a complex web of life. Changes on one part of the web will affect other parts of the web and the stability of the entire ecosystem.
	Ecosystems have a way to balance changes so that up and down fluctuations are part of the natural balance of the whole.

Part 2: 7 Lessons of about 50 minutes and 15 Page Work Bundle, Abundance, Relative Abundance, Calculating Relative Abundance from a Population, Pie Graph of Results, Species Composition, Diversity, Biodiversity, Importance of Biodiversity, Case Study on the Lord Howe Stick Insect, Biodiversity Jenga Activity, How to Maintain Biodiversity, Case Study of Plantation Forestry vs. Native Growth in Tasmania, Find the Animal Fun Camouflage Quiz, Camouflage, Four Types of Camouflage, Camouflage a Gecko in the School Project, Mimicry, Tour of the Worlds fantastic Mimics, Batesian Mimicry, Being a young bird Nastieeos and Tastieeos / Bean Boozled and experiencing Batesian Mimicry Simulation, Aggressive Mimicry, Case Study on the Alligator Snapping Turtle, Beat the Butterfly Man Challenge, Aposematic Coloration, Mullerian Mimicry, Mullerian Coloring Activity, Other Interesting Ways Animal Avoid Predation, Box Games, Crossword Puzzle, Assessment

Ecology Interactions Unit Part 2



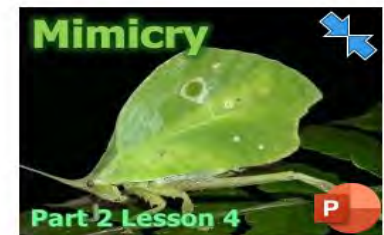
Part 2 Lesson 1 Relative Abundance



Part 2 Lesson 2 Biodiversity



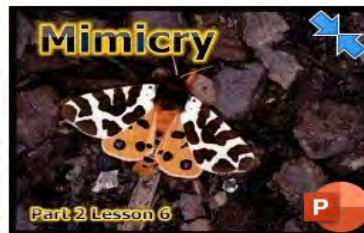
Part 2 Lesson 3 Camouflage



Part 2 Lesson 4 Mimicry



Part 2 Lesson 5 Batesian Mimicry



Part 2 Lesson 6 Mullerian Mimicry



Part 2 Lesson 7 Review Game



Part 2 Lesson 8 Review Game Answers



Part 2 Work Bundle Answers



Part 2 Work Bundle pdf Writable



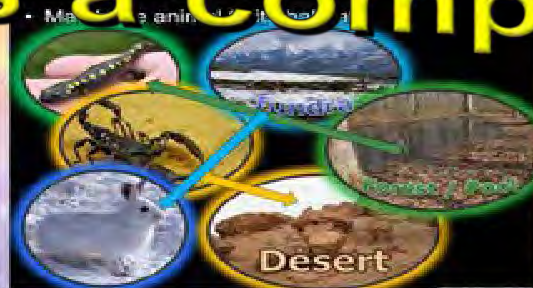
Part 2 Work Bundle Print with Notes



Part 2 Work Bundle Print

Ecology: Levels of Organization, Earth's Spheres, Habitat, Food Webs

Preview is a compressed file



- Most animal interactions are...
 - Competing for the same food supply.
 - Eating (predation).
 - Avoid being eaten (avoiding predation).



- Name the spheres?
- A mountain that blocks rain clouds from reaching the other side.



- Match the organism to its niche.



- Ecology: A study of the relationship between living things and the environment.



- Which is the predator and which is prey?



13 Lessons

Interactive Slideshows



5 Coyotes

Toss with spin

Generations	1	2	3	4	5	6	7	8	→
Rabbits	20								
Coyotes	5								

- Which is the White Rhino (generalist), and which is the Black Rhino (specialist)?
- Hint! Their lip can tell you what they eat



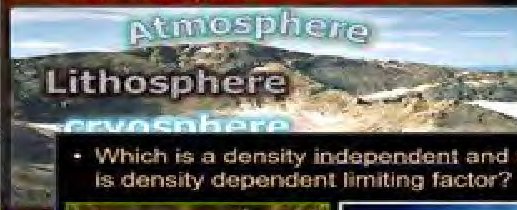
about the levels
of the food chain



Population

Comm

- Geosphere: Below the surface, in the crust and mantle, Aka-lithosphere
- Lithosphere, the hydrosphere, the cryosphere, and the atmosphere



- MacArthur's Warblers.
- How do they exist without driving each other to extinction (Competitive Exclusion)?



- Population: Groups of similar individuals who tend to mate with each other in a limited geographic area.



How the Taping of the Terrarium Project

1. Your student should identify various spheres and describe interactions between them.

2. Your student should identify the spheres and describe the interactions between them.

3. Your student should identify the spheres and describe the interactions between them.

4. Your student should identify the spheres and describe the interactions between them.

5. Your student should identify the spheres and describe the interactions between them.

6. Your student should identify the spheres and describe the interactions between them.

7. Your student should identify the spheres and describe the interactions between them.

8. Your student should identify the spheres and describe the interactions between them.

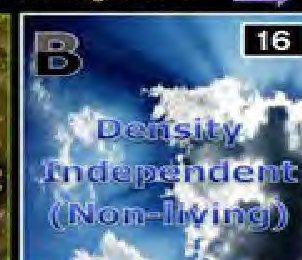
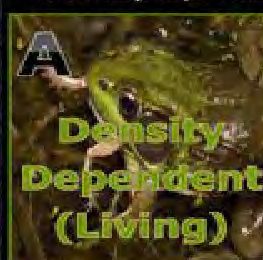
9. Your student should identify the spheres and describe the interactions between them.

10. Your student should identify the spheres and describe the interactions between them.



This project will case study a terrarium. It will describe how the various spheres interact to support the health of the overall system. I plan on taping some arrows to the glass of the terrarium with numbers. The numbers will direct the learner to some supportive text on a sheet which will be placed next to the terrarium that explains the sphere interactions in the terrarium.

- Which is a density independent and which is density dependent limiting factor?



16

Organisms need energy to survive. Energy from the sun flows into and out systems. This energy drives our world and the organisms in it. Energy is lost "not destroyed" when it changes form. Flows **Hot** to **Cold**

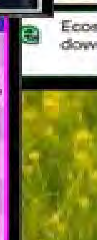
Ecological systems are organized within each other. The affects on one system will affect them all. All systems are interconnected.

All organisms are in a constant state of change over time with the environment. Some organisms will change with another and will develop special interactions. Others with the nonliving world.

Matter and energy cycle through the living and nonliving world. Organisms rely on this matter and energy cycling to survive.

Abiotic and biotic factors of the environment affect the entire system.

- Prey: An animal hunted for food.



Follow Along Work Bundle

The collage displays a variety of educational materials for a biology course, including:

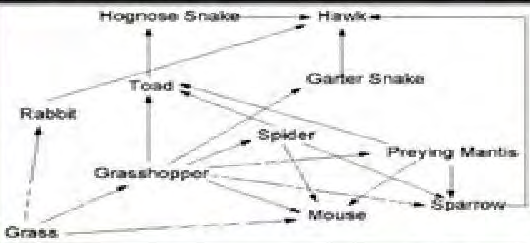
- Page 1: Levels of Organization** - A diagram showing the hierarchy from an organism to the biosphere, with a flowchart of energy flow from the sun to producers and then to consumers.
- Page 2: Ecosystems and the Environment** - A diagram of a pond ecosystem with a tree, a bird, and a fish, illustrating the flow of energy and matter.
- Page 3: Ecosystems and the Environment** - A diagram of a pond ecosystem with a tree, a bird, and a fish, illustrating the flow of energy and matter.
- Page 4: Ecosystems and the Environment** - A diagram of a pond ecosystem with a tree, a bird, and a fish, illustrating the flow of energy and matter.
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- Page 17: Ecosystems and the Environment** - A diagram of a pond ecosystem with a tree, a bird, and a fish, illustrating the flow of energy and matter.
- Page 18: Ecosystems and the Environment** - A diagram of a pond ecosystem with a tree, a bird, and a fish, illustrating the flow of energy and matter.
- Page 19: Ecosystems and the Environment** - A diagram of a pond ecosystem with a tree, a bird, and a fish, illustrating the flow of energy and matter.
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- Page 27: Ecosystems and the Environment** - A diagram of a pond ecosystem with a tree, a bird, and a fish, illustrating the flow of energy and matter.

27 Pages

Activities, Projects, Assessments, and more

WEB

Animals are interconnected in a complex web of life. Changes on one part of the web will affect other parts of the web and the stability of the entire ecosystem.



- **Ecological Niche:** The place or function of a given organism within its ecosystem.



- Visual of Set-up

How did the temperature of the Hydrosphere change the atmospheric temp?



- **Carrying Capacity:** The amount of that an area of land will yield.
- Therefore, the number of animals that area of land will support.



- **Interspecific competition:** Over resources between different species.

Organisms need energy to survive. Energy from the sun flows into and out systems. This energy drives our world and the organisms in it. Energy is lost "not destroyed" when it changes form. Flows Hot to Cold!



- **Typical Predator and Prey population graph.**



- Name the spheres?
- Warm water currents move up the Gulf Stream toward Europe?



This is the name for all of the relationships of populations with each other and their environment?



- Name the spheres?
- An extremely dry season and excessive winds cause devastating fires.



Part 3: 11 Lessons of 50 minutes and 24 Page Work Bundle, Symbiosis, Types of Symbiosis, Parasitism, Major groups of Parasites, Complicated Life Cycle of Parasites, Case Study on the Zombie Snail, Endoparasites, Ectoparasites, Examples with Visuals of many Parasites across the globe, Case Study on the Sea Lamprey, Brood Parasitism and the Cowbird, Perfect Parasite Presentation Project, Coevolution, Ecological Relationships, Mutualism, Types of Mutualisms, Trophic Mutualisms, Case Study on Leaf Cutter Ants, Cleaning Symbiosis, Defensive Mutualism, Dispersive Mutualism, Commensalism, Moving Quiz, Herbivory, Animal Strategies to Eat Plants, Plant Defense Mechanisms, Types of Mechanical Defenses, Poisonous Plants, Case Study on Identifying Poison Ivy, Poison Ivy Quiz, Plants and Animals Defense and Offense Design Project, Exotic Species, How Humans Spread Exotic Species, Invasive Exotic Species, Impacts of Invasive Exotic Species, Group Research of an Invasive Exotic Species Project, Biological Controls, Invasive Exotic Species WANTED Poster Project, Box Games, Crossword, Board Game Review, Assessment

Ecology Interactions Unit Part 3



Part 3 Lesson 1 Symbiosis Parasites



Part 3 Lesson 2 Parasite Project



Part 3 Lesson 3 Mutualism



Part 3 Lesson 4 Animal Offenses



Part 3 Lesson 5 Plant Defenses



Part 3 Lesson 6 Presentation Wrap Up



Part 3 Lesson 7 Exotic Species



Part 3 Lesson 8 Negative Impacts



Part 3 Lesson 9 WANTED Poster



Part 3 Lesson 10 Board Game



Part 3 Lesson 11 Review Game



Part 3 Lesson 12 Review Game Answers



Part 3 Work Bundle Answers



Part 3 Work Bundle pdf Writable



Part 3 Work Bundle Print with Notes



Part 3 Work Bundle Print

Symbiosis, Plant and Animal Interactions, Invasive Species

Preview is a compressed file



- Mechanical Defenses: Hairs, thorns, prickles, and serrated edges, and sap.



- Dispersive mutualisms: One species receives food in exchange for moving the pollen or seeds of its partner.



11 Lessons

This is the relationship between two or more different species.

1

SYMBIOSIS



All organisms are in a constant state of change over time with the environment. Some organisms will change with another and will develop special interactions. Others with the nonliving world.

- Herbivory: The consumption of plants by animals.

- Herbivores are animals adapted to eat plants.
- In predator-prey interactions, adaptations occur in both the **herbivore** and **plant** species it eats.



picture. Give me some specific details.



This is a cleaning symbiosis. The bird gets a food source, and the crocodile gets parasites removed.



This is a trophic mutualism. The leafcutter ant feeds leaves to a fungus. Both the ant and fungus help feed each other.



This is a dispersive mutualism. The hummingbird gets a food source, the flower gets its pollen dispersed.

This is a dispersive mutualism. The monkey gets a food source, the tree gets its seeds dispersed.

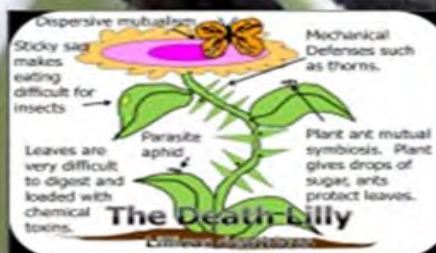
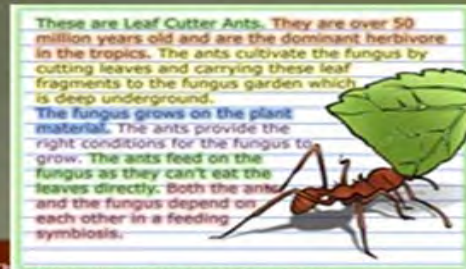
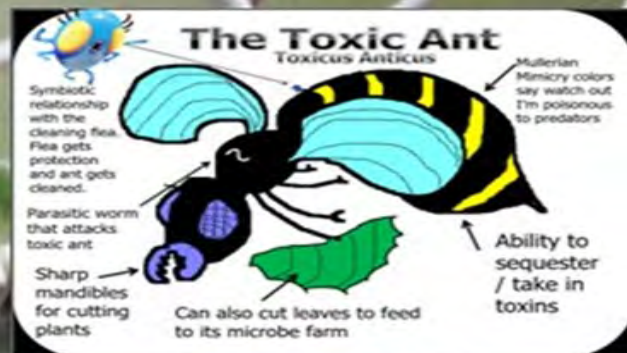
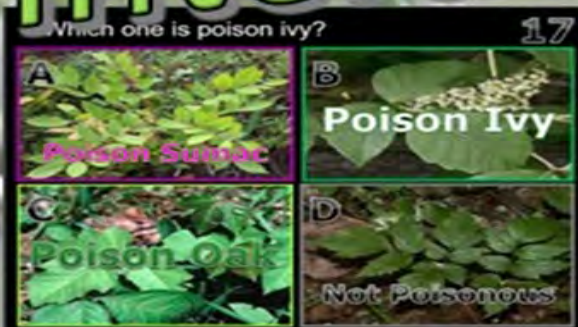


This is a defensive mutualism. The ants get food and shelter, while the tree gets some added protection from herbivores



This is a trophic mutualism. The fungus gives the tree vital nutrients, and the tree helps feed the fungus.

Interactive Slideshows



- Parasitism: One organism benefits while the other is harmed.



- Quiz Wiz - 1-10.
- Is it poison ivy, poison oak, poison sumac, or not poisonous?



- Coevolution: The evolution of two or more species, each adapting to changes in the other.



- Two general types of parasites
 - Endoparasites: Inside your body.
 - Ectoparasites: Outside your body.



Follow Along Work Bundles

22 Pages

The image displays a collage of 22 pages from a 'Follow Along Work Bundles' for 'Invasive Exotic Species'. The pages are arranged in a grid-like fashion, overlapping each other. The pages include various educational materials such as:

- Part 3 Symbols Invasive Exotic Species:** A page with a title and a large, stylized 'A' and 'B' graphic.
- Part 4 Symbols Invasive Exotic Species:** A page with a title and a large, stylized 'A' and 'B' graphic.
- Part 5 Symbols Invasive Exotic Species:** A page with a title and a large, stylized 'A' and 'B' graphic.
- Part 6 Symbols Invasive Exotic Species:** A page with a title and a large, stylized 'A' and 'B' graphic.
- Part 7 Symbols Invasive Exotic Species:** A page with a title and a large, stylized 'A' and 'B' graphic.
- Part 8 Symbols Invasive Exotic Species:** A page with a title and a large, stylized 'A' and 'B' graphic.
- Part 9 Symbols Invasive Exotic Species:** A page with a title and a large, stylized 'A' and 'B' graphic.
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- Part 14 Symbols Invasive Exotic Species:** A page with a title and a large, stylized 'A' and 'B' graphic.
- Part 15 Symbols Invasive Exotic Species:** A page with a title and a large, stylized 'A' and 'B' graphic.
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Activities, Assessments, Links, Built-ins, and more

- Which is edible?



- An invasive species: An organism that is not native and has negative effects.

—Note: Not all introduced species are invasive.



- Exotic species: A species that has been introduced to an ecosystem that is not native to the area.



the other and gets some benefits for its help.



- Brown tree snake: Has killed off many native birds in Hawaii which never had snakes before they were introduced.

Invasive



The Sea Anemone and the Clownfish are a mutualism.

- The anemone protects the clownfish against predators, while the clownfish provides the anemone's endosymbiotic algae with excreted nutrients in its waste.



- Symbiosis: A long term relationship between two or more different species.



- Optional Video

— https://www.youtube.com/watch?v=6oKJ5FGk24&ab_channel=DeepLook



Curriculum Guide

Number of Lessons in each unit (50 min, daily lessons) and difficult rating scale / intended grade level.

 =Easier,

 = More difficult,

 =Most difficult

Earth Science Units	Daily Lessons	Intended Grade	
Geology Topics Unit	60 Lessons	6-8 medium difficulty	
Weather and Climate Unit	40 Lessons	6-8 medium difficulty	
Astronomy Unit	60 Lessons	6-8 medium difficulty	
Weathering, Soil Sciences	28 Lessons	5-7 easier	
Rivers and Water Quality	25 Lessons	5-7 easier	
Water Molecule Unit	20 Lessons	5-7 easier	

Life Science Units

Life Science Units	Daily Lessons	Intended Grade	
Ecology Feeding Levels Unit	13 Lessons	5-6 easier	
Ecology Interactions Unit	30 Lessons	5-6 easier	
Ecology Abiotic Factors Unit	24 Lessons	5-6 easier	
Botany Unit	50 Lessons	5-7 easier	
Evolution and Natural Selection	40 Lessons	5-7 easier	
Taxonomy and Classification	50 Lessons	6-8 medium difficulty	
Infectious Diseases Unit	30 Lessons	7-9 more difficult	
DNA and Genetics Unit	42 Lessons	8-10 most difficult	
Human Body Systems Unit	85 Lessons	6-8 medium difficulty	
Cell Biology Unit	30 Lessons	8-10 most difficult	

Physical Science

	Daily Lessons	Intended Grade	
Laws of Motion and Machines Unit	33 Lessons	8-10 most difficult	
Matter Energy and the Environment	58 Lessons	7-10 medium difficulty	
Atoms and Periodic Table Unit	44 Lessons	8-10 most difficult	
Science Skills Unit	30 Lessons	5-7 medium difficulty	

[Physical Science Curriculum](#)

[Entire SlideSpark Science Curriculum](#)



Dear Valued Educator,

Our fully editable .pptx and .doc resources are perfect for educators looking to bring enthusiasm and creativity to their lessons. We encourage you to make changes to fit your needs and style. As science educators, we're committed to providing students with the tools they need to succeed in the classroom and beyond. Each unit in the curriculum includes a range of resources that have been developed through extensive research and use in a busy classroom. Our teaching approach is designed to make science education engaging and exciting for learners of all ages. We offer a one-of-a-kind science curriculum that will challenge, inspire, and educate students to become tomorrow's scientists and leaders. Join us today and learn more about how our program can help you achieve your classroom goals.

With appreciation,

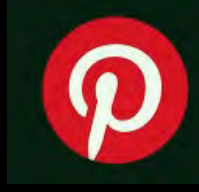
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Thank you for your time and interest in our Science curriculum. We strive to provide students with engaging and informative lessons that will spark their curiosity and encourage scientific exploration. Should you have any questions or concerns, please do not hesitate to contact us. Thank you again for considering our curriculum, and we wish you all the best in your educational journey.

Sincerely,

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EDUCATIONAL RESOURCES



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