

Interactions Within Ecosystems

5E Lesson

The 5E model is a scientifically proven method to improve student engagement and learning in your classroom

- ✓ Engagement
- ✓ Exploration
- ✓ Explanation
- ✓ Elaborate
- ✓ Evaluate



Complete Teacher Instructions

Interactions within Ecosystems - 5E Lesson

Grades 7-10	Interactions within Ecosystems	Ong
Lesson Objective: Students will learn about: - Limiting factors - Tolerance - Biotic & Abiotic population influences - Symbiosis - Predator-Prey relationships - Population equation - Exponential growth		
Possible Student Misconceptions: - One organism always benefits more when two organisms interact - Populations are independent from one another		
Materials: 1 device (smartphone, Chromebook, laptop, tablet, or computer) - A means of projecting a PowerPoint presentation - Internet access		
Teacher Notes: - All videos can be accessed directly from the PowerPoint. To retrieve them, click on the video icon while in slideshow mode and it will automatically open for you. If they don't open, right-click the image and click Edit Hyperlink or something similar. - I've created a video walkthrough if needed. It can be accessed here - https://youtu.be/oCIKIP9SaDQ - I don't believe in long lessons. If you feel your students are bored, stop the PowerPoint and give them a 5-minute break. If you're looking for more resources, I recommend my video collection here - http://www.teachwithaheart.com		

Interactions within Ecosystems – 5E Lesson

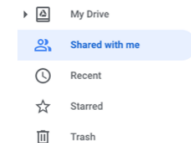
Engagement Phase In the engagement phase your students will complete the activity - Oh Deer which is found in the file – Engagement – Oh Deer Teacher Note: Make sure you perform this activity in an open space like a wide hallway or outside if possible.	Duration: 30 min Teacher Role: learning and understanding G ☐ Connect s ☐ Create inte ☐ Ask questi ☐ Understand of the less
Exploration Phase Exploration – Lab Station Activity - In groups of 2-3, have your students complete Exploration – Lab Station Activity. Once they're done, they will submit their passport to you. Teacher Notes: - The complete instructions for my Lab Station activity can be found in the START HERE – Instructions file.	Duration: 1 hour Teacher Role: learning and understanding G ☐ Students r ☐ Students u ☐ Students r observation results, an connection
Explanation Phase PowerPoint Lesson - The lesson is found in the folder – “Explanation – Lesson” - This lesson is designed to be completed over one - two day(s) - There are many embedded videos and plenty of opportunity to engage, interact and check for your students' understanding throughout the lesson - The lesson covers the following topics: ✓ Limiting factors ✓ Tolerance ✓ Biotic & Abiotic population influences ✓ Symbiosis ✓ Predator-Prey relationships ✓ Population equation ✓ Exponential growth	Duration: 1 hour Teacher Role: concepts by material found presentation.

Teacher Notes: - All videos can be accessed directly from the PowerPoint. To retrieve them, click on the video icon while in slideshow mode and it will automatically open for you. If they don't open, right-click the image and select Edit Hyperlink or something similar. - I've created a video walkthrough if needed. It can be accessed here - https://youtu.be/oCIKIP9SaDQ - I have also enclosed a .PDF version of both the teacher and student versions	Goals ☐ Students develop understanding of the content ☐ Observations and experiences are discussed and critiqued ☐ Students develop vocabulary ☐ Students are able to connect the content presented to previous experiences
Elaborate Phase Reading - Your students will complete – Elaborate – Symbiosis Reading - This activity will require your students to move beyond what was covered directly in the lesson and allow them to develop a deeper understanding of the topic and it's applicability Teacher Notes: Students will work individually or in groups of two	Duration: 1 hour Teacher Role – Facilitate learning and keep students focused Goal ☐ Students use their newly obtained knowledge to propose solutions and extend their learning to new situations
Evaluate Phase Quiz - Have your students complete - Evaluate – Interactions Within Ecosystems – Quiz Teacher Notes: - All quiz questions will come from the lesson and symbiosis reading. - It's sometimes best to have the students peer evaluate - Placing students in small groups and having them exchange papers to mark will accomplish two things 1) Provide immediate feedback on the quiz they just completed 2) Significantly reduce your marking time - Peer evaluation is not needed, only suggested when appropriate	Duration: 30 min. Teacher Role – Distribute and collect evaluation Goal ☐ Students are given the opportunity to demonstrate their understanding and evaluate their own progress

Each phase is clearly described

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TWF

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A Complete Lesson

- Student copies with blanks
- Videos embedded right into your slideshow
- Google Classroom Ready

Predator – Prey Relationship

- Predator – a type of consumer that will seek out and eat other organisms
- Examples – owl and mouse; lion & antelope

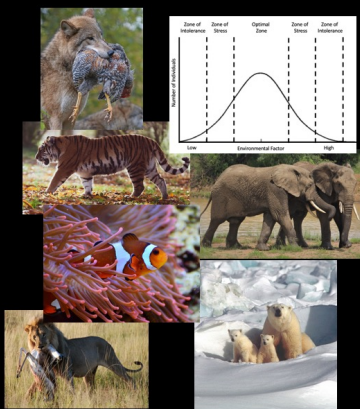
Predator – Prey Relationship

- Predator – a type of consumer that will seek out and eat other organisms
- **Prey – the animal that the predator eats**
- Examples – owl and mouse; lion & antelope

Teacher and Student Versions of the presentation

Biotic and Abiotic Population Influences

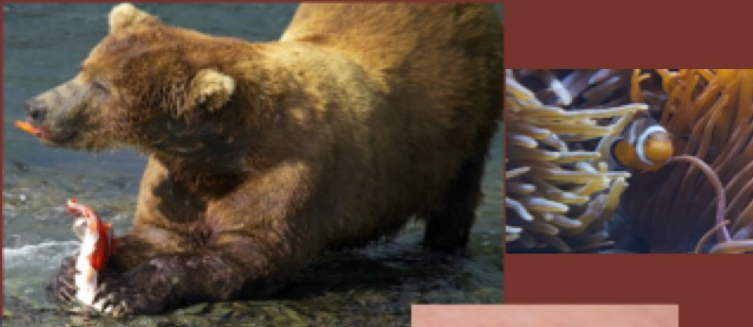
- Biotic and Abiotic Factors
- Limiting factors
- Tolerance
- Carrying Capacity
- Symbiosis
- Predator-Prey relationships
- Population Equation
- Exponential growth



Google Slides and PowerPoint Versions Included
Google Classroom Ready

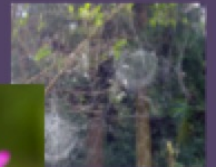
Includes my Interactive and Engaging Science Reading and Lab Station Activities

Interactions Within Ecosystems Lab Station Activity



7 Lab Station Activities to get your kids out of their seats and engaged in their learning

Symbiotic Relationship between plants and insects Scientific Reading Comprehension Article

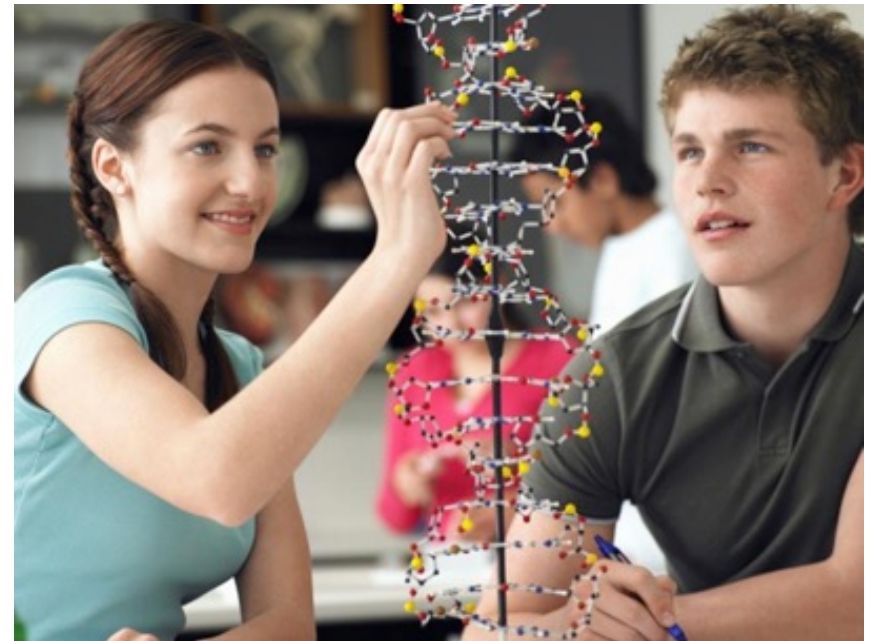


Improve your students **Scientific Literacy** and **Analysis Skills**, use as an **Emergency Substitute Plan** or create **Applicability** in your classroom

Get away from tired practices and unengaged students



Provide a Scientifically-Proven means of instruction



Incorporate Technology and Increase Collaboration

