

2

2.2: Where Do Species Come From?



19 Lessons

Evolutionary History



Evolutionary History





EH 2.2.1 WARM-UP

HAND IN

Students observe similar structures in the gorilla and mole, and they consider why these structures have evolved to appear very different. (10 min)

Thinking About Gorillas and Moles

Gorillas and moles are very different species that live in different environments. Look at their hands and think about what these organisms need to do each day to survive, then answer the questions below.

Gorilla



Mole



Describe the shape of the gorilla's hands:

Describe the shape of the mole's hands:

Why do you think the gorilla's hands are shaped the way they are? What does the gorilla use its hands to do?

Why do you think the mole's hands are shaped the way they are? What does the mole use its hands to do?



EH 2.2.1 WARM-UP

So far, we know that these differences have something to do with the environments where these organisms live. We also know that differences in these structures have something to do with the principles of natural selection, which we learned about before this unit—ideas like adaptive traits and mutations play a role in explaining evolution. Today we are going to read about some specific examples where one species became two. This will help us to fill in more of the picture explaining how and why evolution happens.

Gorilla



Mole





EH 2.2.2 ACTIVE READING: WHERE DO SPECIES COME FROM?

Students are introduced to and read the Where Do Species Come From? article set. (25 min)

stability: when something stays mostly the same over time.

The opposite of stability is change, a word that you are already likely familiar with. Stability and change are important ideas that can help you to better understand evolution; thinking about stability and change today will also help you to better understand the articles you are going to read.

One way to think about stability in evolution is to think of structures that don't change, or that change very little over time. When you're thinking about the process of evolution, you can think of change as the differences that happen in the structures of species that share a common ancestor. As you read the articles today, you can think about when structures are stable and when they change. You can also think about what factors affect stability and change.



EH 2.2.2 ACTIVE READING: WHERE DO SPECIES COME FROM?

Introduce the Where Do Species Come From? article set in the [Amplify Library](#),

Where Do Species Come From?

These articles will help students gather more evidence to help answer the Investigation Question: *How does an ancestor population evolve into descendant species with differences in their shared structures?*



Speciation



EH 2.2.2 ACTIVE READING: WHERE DO SPECIES COME FROM?

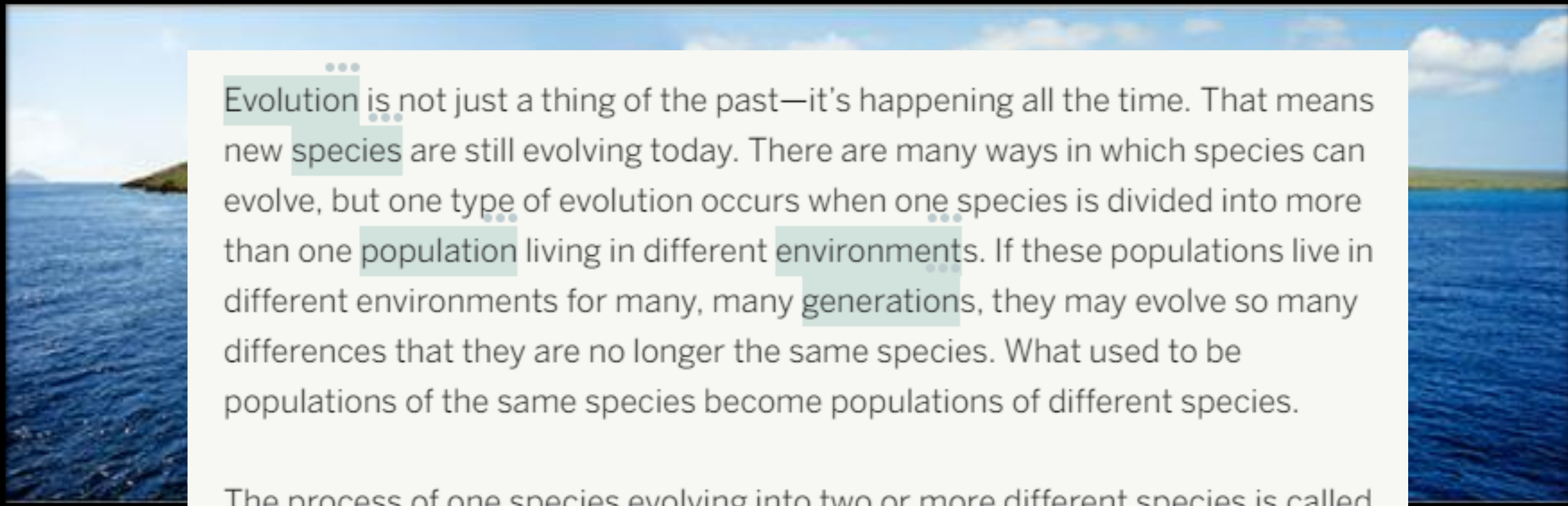
Where Do Species Come From?



The Galápagos Islands are remote islands off the coast of South America. Organisms that made their way to the islands became separated from the populations on the mainland. Shutterstock



Where Do Species Come From?



Evolution is not just a thing of the past—it's happening all the time. That means new species are still evolving today. There are many ways in which species can evolve, but one type of evolution occurs when one species is divided into more than one population living in different environments. If these populations live in different environments for many, many generations, they may evolve so many differences that they are no longer the same species. What used to be populations of the same species become populations of different species.

The process of one species evolving into two or more different species is called speciation. Speciation often starts when populations are separated by a barrier, such as a body of water or a mountain range. After they are separated, the



Where Do Species Come From?

Active Reading Guidelines

1. Think carefully about what you read. Pay attention to your own understanding.
2. As you read, annotate the text to make a record of your thinking. Highlight challenging words and add notes to record questions and make connections to your own experience.
3. Examine all visual representations carefully. Consider how they go together with the text.
4. After you read, discuss what you have read with others to help you better understand the text.





Where Do Species Come From?

Reading *Where Do Species Come From?*

When your teacher instructs you to do so, open the [Where Do Species Come From? article set](#). You can also find this article set in your Digital Resources. Read and annotate the introduction with your class, then talk with your partner and choose the article about the species that most interests you.

I am going to read about

Galápagos tortoises
polar bears
flightless ducks



EH 2.2.3 DISCUSSING ANNOTATIONS

Students share annotations with their peers and revisit the summarizing strategy. (10 min)

Since you each read different articles, you will need to tell your partner a little bit about the species in the article you read.

You can use these sentence starters to do this quickly.

After each of you explains your speciation story to your partner, you can share and discuss the annotations you made, as we normally do.

•**“The common ancestor population for my species was _____.”**

•**“The two species that evolved from the common ancestor population were _____ and _____.”**



Reviewing Annotations

1. Look over your annotations on the *Where Do Species Come From?* article set. Pick one or two of your annotations to share with a partner. Then, edit the annotations and add #share.
2. Discuss the tagged annotations with your partner. After your discussion, edit these annotations and change the tag to #discussed.
3. Now, choose a question or connection, either one you already discussed or a different one you still want to discuss with the class. Edit the annotation and add #present.

Discussing Annotations

#share

Carefully choose an interesting annotation (comment, question, connection, vocabulary word) you'd like to share with your partner and add #share to this annotation.

#discussed

Add #discussed to your annotation if you feel that you and your partner have resolved a question OR if your discussion gave you a deeper understanding about something in the article.

#present

Add #present to your annotation to mark any unresolved questions or ideas you would like to present to the class.

•“The common ancestor population for my species was _____.”

•“The two species that evolved from the common ancestor population were _____ and _____.”



EH 2.2.3 DISCUSSING ANNOTATIONS

speciation: the process by which one population evolves into two or more different species

This is a scientific term for what you read about in each of your articles today. Over the next few lessons, we will keep learning about how speciation happens and how this process helps us to understand the larger scale changes we see in evolution.



EH 2.2.3 DISCUSSING ANNOTATIONS

HAND IN

Reflecting on Annotations

Review your annotations, answer the survey question, and then press HAND IN to submit your article.



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Evolution is not just a thing of the past—it's happening all the time. That means new species are still evolving today. There are many ways in which species can evolve, but one type of evolution occurs when one species is divided into more than one population living in different environments. If these populations live in different environments for many, many

Rate how successful you were at using your Active Reading skills by responding to the following statement:

As I read, I paid attention to my own understanding and recorded my thoughts and questions.

1: Never

2: Almost never

3: Sometimes

4: Frequently/Often

5: All the time