

Helpful Links

[How to Make a Copy of a Doc](#) (text)

[How to Edit Google Docs](#) (opens new tab)

[Accommodations for all learners](#)

[How to Make a Copy of and Edit a Resource \(Video\)](#)
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[How to Post a resource to Google Classroom](#)

[Helpful Tips for Teaching Remotely](#)

[How to add a folder to your Google Drive](#) (opens new tab)

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[Recommendations for using New Visions Site](#)

Human Impact - Species Survival Plans Living Environment

How are human activities altering the physical and living environment? Is it possible to save species from extinction? In this 1-2 week remote learning module, students revisit and apply ideas related to ecology and evolution to develop plans to address the population decline of endangered species, gaining a greater understanding of how humans have altered ecosystems and what actions may be taken (such as the use of biotechnology) to preserve biodiversity.

Learning Plan

Google Classroom-Ready Documents and Links

[Instructional Model](#) | [Practice and Application Materials](#)

★ [Folder of Documents](#)

Launch

The launch can happen either synchronously or asynchronously.

Part 1: What is going on in our local ecosystem? How do you think humans impact ecosystems?

- 1) Prompt students to think about a local ecosystem, like a nearby park, and ask them to provide an example of how humans have impacted a biotic and an abiotic component of that system. Have students reflect on the impacts shared to consider whether they are positive or negative.

Students can share their ideas with a partner, teacher, or the class. They can also individually write ideas in their notebook.



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New Visions Remote Teaching and Learning: <http://remote.newvisions.org>

[This is an opportunity to gauge how much students can recall what they have learned about ecosystems and biodiversity, this past year and in middle school.]

- 2) Provide the guiding questions:
 - a) How are human activities altering the physical and living environment?
 - b) Is it possible to save species from extinction?

Part 2: Why are these species going extinct? How have humans impacted these species?

- 1) Have students watch and respond to the **HHMI Video: Keystone Species** and **Nat Geo Keystone Species Text**.

[Here it is important for students to grasp the idea of a keystone species being disproportionately important in an ecosystem.]

- 2) Prompt students to share one idea for why a keystone species might be going extinct.

- 3) Present the Task: Distribute the **Species Survival Task - Reading and Research**. Students should read through the task. Assign or allow students to choose which species they will focus on: honey bees, coral, mountain pine trees, or african elephants. Provide them an opportunity or space to ask questions about what they will be expected to turn in at the end of the module.

[Students should work individually, to ensure they produce evidence of their own learning by the end of the module.]

Video: [HHMI Video - Keystone Species](#)

Article: [Nat Geo Keystone Species Text](#)

Handouts:

- [HONEY BEE: Species Survival Plan Task - Research and Reading](#)
- [CORAL: Species Survival Plan Task - Research and Reading](#)
- [MOUNTAIN PINE TREES: Species Survival Plan Task - Research and Reading](#)
- [AFRICAN ELEPHANT: Species Survival Plan Task - Research and Reading](#)

**Work
Time**

Part 1: Whole class topic

- 1) Students learn together about climate change, doing remote "stations" activity.
- 2) Through an online discussion, students discuss how climate change could affect their species.

Part 2: Students complete Research and Reading and Action Planning

- 1) Students complete research on their own, then develop action plans.

Part 1:

- [Images](#) - shared as a common resource
- [Worksheet](#) - each student gets one and submits it

Handout: [Species Survival Plan Task - Create an Action Plan](#)

Check In

Teacher Check-Ins

- 1) Over the course of the week, check on all students' research and reading work, to make sure they are able to access and read materials.

Peer Feedback on Initial Draft

- 1) Have students comment on others' action plans.

OR

- 2) Have students share with another person/group in the class OR share with family. Prompt them to discuss - what do they think about your idea for saving the species?

Wrap-Up

Showcase final species survival plans

- 1) Students share their plans with the group.

Asynchronous or Synchronous Discussion

- 1) First prompt: Revisit what students shared during the Launch.
What role do humans play in the environment?

- 2) Second prompt: Revisit what students shared during the Launch
. What does this all mean for our own local actions and our local ecosystem?

Resource Index for Teacher Reference

Species	Summary of Human Impact - FOR TEACHER REFERENCE	Quantitative Data - Population	Quantitative Data about a Related Factor	Background Informational Text	Additional Resources
Coral	There are lots of coral species. We are generalizing a bit here. Coral bleaching occurs when the temp drops or rises in the water, resulting in the loss of the symbiotic algae that provide the majority of the coral's energy. Coral bleaching can affect coral survival.	Coral - Population data	Global trends in coral bleaching Average Sea Surface Temperatures in San Juan (Bridge Data Sets from National Marine Educators Association)	Background Text on Coral (1240L) Video on coral reefs	Additional Texts NOAA coral reef watch - maps of coral bleaching hotspots around the world Online Reef GIS maps - interactive maps and data sets on reefs, surface temperatures, bleaching, and other relevant data NPR podcast - climate scientists working to conserve coral reefs Article , photographs, and brief time-lapse video of coral bleaching
Mountain Pine Trees	Because of warmer winters, this beetle is surviving at higher altitudes and eating the pine bark. This is in turn leads to other disruptions: 1) increased carbon release into the atmosphere as trees decompose. 2) decreased use of water by trees, changing the groundwater levels 3) increased fire risk due to dead, dry trees	Pine Tree Map	Data about Climate in Rocky Mountain National Park Data about Pine Beetle Infestation	Background Text on Mountain Pines (1120L)	Additional Texts BioScience article with great background for teacher, maps that students can use as a reference. Dynamics of Mountain Pine Beetle Outbreaks Ghost Forests, Global Warming, and the Mountain Pine Beetle USDA Pine Beetle Resource Bark Beetle Outbreaks in Western North America Climate Change in Rocky Mountain National Park Fact sheet on pine beetles
African elephant	Elephants are under threat across the globe. African elephants are especially vulnerable due to ivory poaching and habitat loss.	African elephant populations	Poaching deaths, Ivory Trade , and Human population growth	Background text on African Elephants (1240L)	Additional Texts National Geographic resources on elephant populations and poaching WWF brief overview of African elephants and threats HHMI short video describing the increase of tuskless elephants in response to ivory poaching
Honey bees	Bees produce honey and serve as key pollinators of many of the world's food crops. Scientists have indicated that honey bees are declining; with whole hives often completely disappearing. More	Honey Bee Population	Data related to honey bee populations , worldwide pesticide use and changes in honey production.	Background text on honey bees (1180L)	Additional Texts Teacher background reading on pesticides as contributing factor of bee hive collapse

	research is being done to understand this alarming loss of bee colonies but evidence suggests that pesticides, disease, and climate change-related stress may be to blame.				Teacher or advanced-level reading on the multiple causes behind hive collapse Complex infographic representing many facets of the honey bee story earthobservatory - information, resources, and data on the connection between climate change and colony collapse disorder
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Distributing Resources on Google Classroom

Make a Copy (for yourself): First, select a student material to share. Once you have opened the Google Document click **File** → **Make a copy**. Change the document name and choose where to save it (*We recommend creating a Google Drive Folder to house your materials for each course*) → Click **Ok**.

Once you have made your copy, modify or adapt it to fit the needs of your students.

Distributing Student “Copies”: Now you are ready to post your document to your students in Google Classroom:

- 1) From the ‘**Classwork**’ page, click the ‘**Create**’ button, then select ‘**Assignment**.’
- 2) You have the options to post to all students in one or more classes, or to individual students in a class. When you choose, ‘**Make a Copy for Each Student**,’ each student gets an individual copy of the file that they can edit. The student’s name is automatically added to the document title. (*Need a [visual tutorial](#)?*)
- 3) To see all of the student files for a particular assignment, select ‘**View Assignment**’ and then click on a thumbnail image of the student work.
- 4) Because you created and made the copies of the assignment, those documents belong to you and live in a folder in your Google Drive titled ‘Classroom.’ That means that as students work on an assignment, you can view their progress, add feedback in comments, and make edits in the documents. You do not have to wait for them to ‘Turn It In’ to access the doc, and students don’t have to ‘Share’ the files with you. You control access to any files they attach until assigned.

Recommendations for using New Visions Science Materials:

DO	DON'T
Use the content on NV's science curriculum site with your preferred online learning platform like Google Classroom, Schoology, or Nearpod.	Send students directly to the NV science curriculum site
Make a copy of the resource you would like to share, then remove any information you do not want sent to students.	Share resources from the NV science curriculum site using the Google Classroom button on our site without modifying the resources
Consider combining parts of different resources, to provide remote instruction that makes sense.	Attempt to cover a lot of new content at one by emulating the pace of in-person instruction
Review and modify resources before sharing with students.	

Helpful Tips for Teaching Remotely

Re-engaging Content: As both teachers and students get used to technology and develop structures around remote learning, this can be a good time to have students re-engage with high leverage content they previously engaged with in order to consolidate their learning.

Developing Consistent Structures for Planning and Instruction: All of our materials for math and science have a common structure, which can be used as a week-long or two-week framework. Using a reliable structure can help keep teaching sustainable and support your students and families, who may be trying to develop routines for working together at home!

Social and Emotional Needs: Students need an opportunity to express their reactions to the pandemic occurring around them. It is vital for school systems to meet the social and emotional needs of students, and this can be achieved, in part, through weekly journal prompts connected to current events. These prompts will give students the space to respond to events locally and nationally while also encouraging them to write. We also encourage teachers to think about incorporating these [brain breaks for remote learning](#). This [SEL Learning Guide](#) may also be helpful.

Our website was designed for teachers and so resources have teacher notes which often include responses. PLEASE DO NOT SEND STUDENTS DIRECTLY TO THE WEBSITE but instead adapt the resources and distribute them via an online learning platform or through email.

Accommodations for all learners:

[Please visit this site on Remote learning for all learners to help you think through accommodations before using this resource with your students.](#)

Suggestions relevant to the content provided in this learning plan:

- Provide transcripts of all crash course videos using [this link](#).
- Post audio files of yourself reading the primary source documents. A site like <https://www.naturalreaders.com/> may be helpful. Shorten the documents for students who need extra support.
- If using this in a real time virtual learning classroom, give extra time for students to respond, and, if possible, translate all materials into home languages of students using [google translate](#) or [microsoft translator](#).
- Model the responses for students verbally and in written format. Also consider modeling how
- When available, used Closed Captions for videos.
- Many more! Visit the [site above](#) for more ideas.