



EXPEDITION  
DAYS



MCDOWELL  
SONORAN  
CONSERVANCY

# Expedition Days Online

# TEACHER HANDBOOK



ARIZONA  
COMMUNITY  
FOUNDATION

The Kovach Family



## Welcome to Expedition Days Online!

This unit is designed to broaden your students' knowledge of the diverse Sonoran Desert environment and deepen their understanding of how they, too, are a part of this complex ecosystem.

Expedition Days Online (EDO) integrates inquiry and exploration into student learning, fits both in-person and virtual teaching formats, and is customizable to the needs of your classroom. The unit is aligned with multiple 3<sup>rd</sup> grade math, language arts, social studies, and science standards to create a holistic STEAM curriculum.

To help you integrate EDO into your teaching, in this packet you will find:

- A “how to” overview for using the EDO curriculum
- A comprehensive list of standards for each module
- Concept maps for each of the modules
- Activity list for each module with time estimates
- Suggested module and activity sequence

We have designed this unit to be both accessible and meaningful for you and your class. To continue improving Expedition Days Online and future programs, **if you participate, we ask that you:**

1. Have students complete the pre-assessment **before** using the materials: <https://www.surveymonkey.com/r/KLR2KYY>
2. Have students complete the post-assessment **after** using the materials: <https://www.surveymonkey.com/r/KVMBDP2>
3. Complete a teacher feedback survey when you are finished using the materials: <https://www.surveymonkey.com/r/FCF5K3L>



## How to use Expedition Days Online

Expedition Days Online is designed to fit your unique classroom and we encourage you to customize the material to suit the needs of your students.

Here are some general suggestions for using the curriculum:

1. Use the module overviews and concept progressions to get a sense of what the module will entail and what your students will learn about.
2. Use the module sequence to guide what you assign/cover with your students each week.
3. There are Study Guides for each module for students to download and print out that include all activities.
4. Each module is an embedded presentation on the Conservancy website that students can freely access. These presentations include all necessary videos, links, concept information, and activity directions.
5. Both the module Study Guides and presentations can be found here: <https://www.mcdowellsonoran.org/education/expo>
6. Please adapt this material for your particular instructional format and students.



# **STANDARDS**

## **3rd GRADE**

**Science Standards**

- 3.L1U1.5: Develop and use models to explain that plants and animals (incl. humans) have internal and external structures that serve various functions that aid in growth, survival, behavior, and reproduction.
- 3.L2U1.6: Plan and carry out investigations to demonstrate ways plants and animals react to stimuli.
- 3.L2U1.8: Construct an argument from evidence that organisms are interdependent.

**Math Standards**

3.NBT.A.2: Fluently add and subtract within 1,000.

3.MD.B: Represent and interpret data.

**Standards for Mathematical Practice:**

SMP 2: Reason abstractly and quantitatively.

SMP 4: Model with mathematics.

SMP 5: Use Appropriate tools strategically.

**History and Social Science Standards**

- 3.SP1.1: Create and use a chronological sequence of related events to compare developments that happened at the same time.
- 3.SP1.2: Compare life in specific historical time periods to life today.
- 3.SP3.3: Identify and use evidence to answer compelling questions about Arizona.
- 3.SP3.6: Construct arguments and explanations using reasoning, examples, and details from sources.
- 3.SP3.7: Present summaries of arguments and explanations using print, oral, and digital technologies.
- 3.SP4.1: Explain probable causes and effects of events.
- 3.G1.1: Use and construct maps and graphs to represent changes in Arizona over time.
- 3.G2.1: Explain how people modify and adapt to the Arizona environment.
- 3.G4.1: Describe how Arizona has changed over time.

**Inquiry Elements:**

Element 3: Gathering and Evaluating Sources

Element 4: Developing Claims

Element 5: Communicating Conclusions

Element 6: Taking Informed Action

**English Language Arts Standards**

- 3.RI.1: Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers
- 3.RI.3: Describe the relationship between a series of historical events, scientific ideas or concepts...using language that pertains to time, sequence, and cause/effect.
- 3.RI.7: Use information gained from illustrations (maps, photographs) and the words in a text to demonstrate understanding of the text.
- 3.W.1: Write opinion pieces on topics or texts, using reasons to support one's point of view.
- 3.W.2: Write informative/explanatory texts to examine a topic and convey ideas and information clearly.
- 3.SL.2: Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually quantitatively, and orally.

**Science Standards**

3.L2U1.8: Construct an argument from evidence that organisms are interdependent.

**History and Social Science Standards**

- 3.SP3.2: Distinguish between primary and secondary sources.
- 3.SP3.3: Identify and use evidence that draws information from multiple sources to answer compelling questions about Arizona.
- 3.SP3.6: Construct arguments and explanations using reasoning, examples, and details from sources.
- 3.SP3.7: Present summaries of arguments and explanations using print, oral, and digital technologies.
- 3.SP4.1: Explain probable causes and effects of events.
- 3.G1.1: Use and construct maps and graphs to represent changes in Arizona over time.
- 3.G2.1: Explain how people modify and adapt to the Arizona environment.
- 3.H1.1: Utilize a variety of sources to construct a historical narrative exploring Arizona's cultures, civilizations, and innovations.

**Inquiry Elements:**

Element 3: Gathering and Evaluating Sources

Element 4: Developing Claims

Element 5: Communicating Conclusions

Element 6: Taking Informed Action

**English Language Arts Standards**

- 3.RI.1: Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers
- 3.RI.3: Describe the relationship between a series of historical events, scientific ideas or concepts...using language that pertains to time, sequence, and cause/effect.
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- 3.SL.2: Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually quantitatively, and orally.

**Science Standards**

- 3.E1U1.4: Construct an explanation describing how the Sun is the primary source of energy impacting Earth systems.
- 3.L2U1.6: Plan and carry out investigations to demonstrate ways plants and animals react to stimuli.
- 3.L2U1.7: Develop and use system models to describe the flow of energy from the Sun to and among living organisms.
- 3.L2U1.8: Construct an argument from evidence that organisms are interdependent.

**English Language Arts Standards**

- 3.RI.1: Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers
- 3.RI.3: Describe the relationship between a series of historical events, scientific ideas or concepts...using language that pertains to time, sequence, and cause/effect.
- 3.RI.7: Use information gained from illustrations (maps, photographs) and the words in a text to demonstrate understanding of the text.
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**Science Standards**

- 3.L2U1.6: Plan and carry out investigations to demonstrate ways plants and animals react to stimuli.
- 3.L2U1.8: Construct an argument from evidence that organisms are interdependent.

**Math Standards**

- 3.NBT.A.2: Fluently add and subtract within 1,000.
- 3.MD.B: Represent and interpret data.

**Standards for Mathematical Practice:**

- SMP 1: Make sense of problems and persevere in solving them.
- SMP 2: Reason abstractly and quantitatively
- SMP 4: Model with mathematics
- SMP 5: Use Appropriate tools strategically
- SMP 7: Look for and make use of structure.

**History and Social Science Standards**

- 3.SP3.3: Identify and use evidence that draws information from multiple sources to answer compelling questions about Arizona.
- 3.SP3.6: Construct arguments and explanations using reasoning, examples, and details from sources.
- 3.SP3.7: Present summaries of arguments and explanations using print, oral, and digital technologies.
- 3.SP4.1: Explain probable causes and effects of events.
- 3.G1.1: Use and construct maps and graphs to represent changes in Arizona over time.
- 3.G2.1: Explain how people modify and adapt to the Arizona environment.
- 3.G4.1: Describe how Arizona has changed over time.

**Inquiry Elements:**

- Element 3: Gathering and Evaluating Sources
- Element 4: Developing Claims
- Element 5: Communicating Conclusions
- Element 6: Taking Informed Action

**English Language Arts Standards**

- 3.RI.1: Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers
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**MODULE OVERVIEWS**  
**&**  
**CONCEPT MAPS**

# Urban Desert Overview

Student time:

- 15-30 min. online presentation
- 60-90 min. completing activities
- 20-30 min. completing mini project

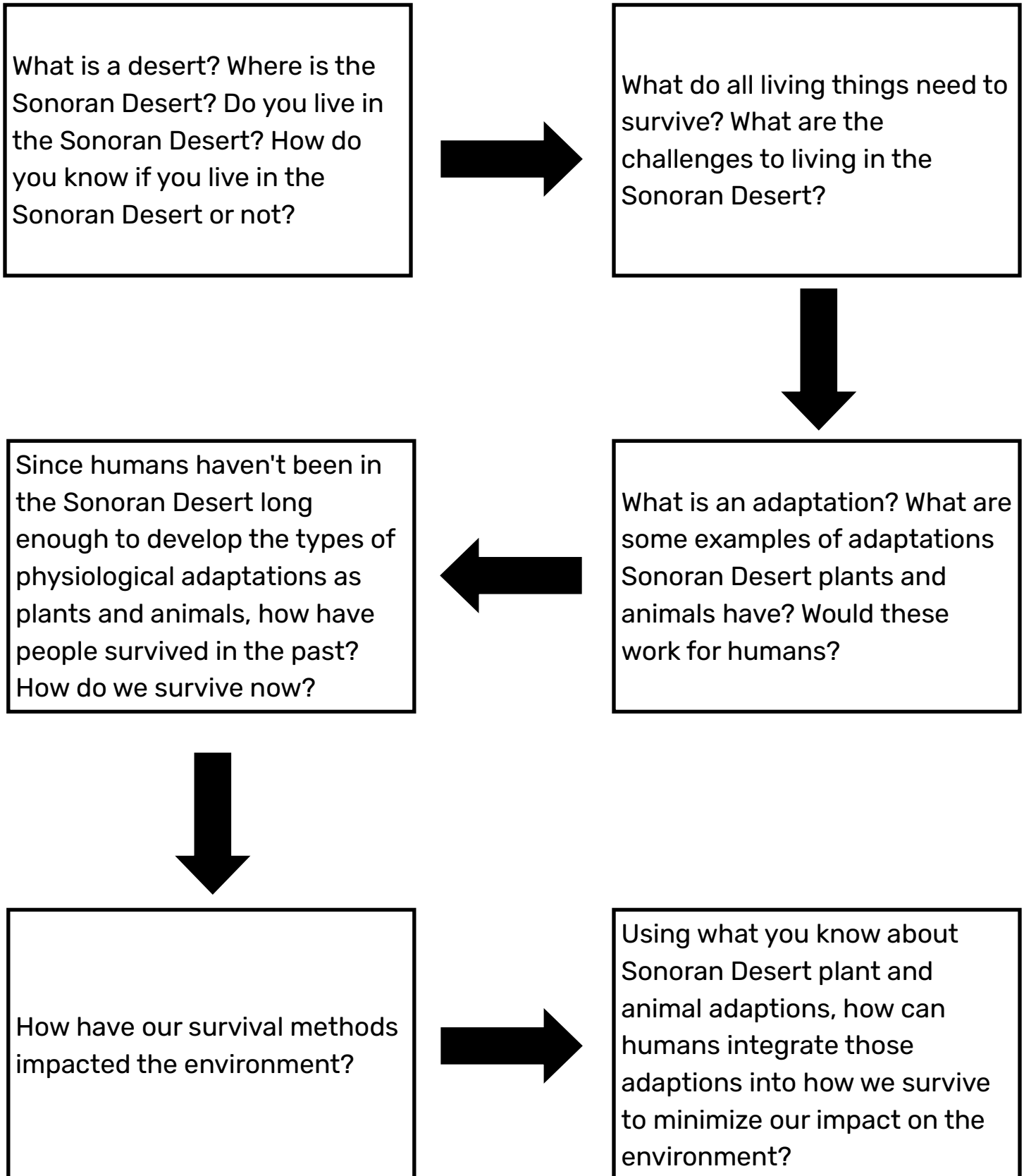
## Major Theme

Human habitation of an environment changes that environment. Our job is to find a way to live with as little negative impact on the environment as possible.

## Big Ideas

- We all live in the Sonoran Desert, even in urban areas.
- Adaptation is an evolutionary process where an organism becomes better suited to its habitat.
- Animals and plants have adapted to the Sonoran Desert environment.
- Humans are not physiologically adapted to the desert in the same way native Sonoran Desert animals are. Instead, we find external ways to control the environment to make it more comfortable for us.
- How humans interact with and control the environment changes the environment.
- Students can use observational methods to discover and investigate the urban desert we live in.

# Urban Desert Concept Progression



# Trash Through Time Overview

Student time:

- 45-60 min. online presentation
- 45-60 min. completing activities
- 20-30 min. completing mini project

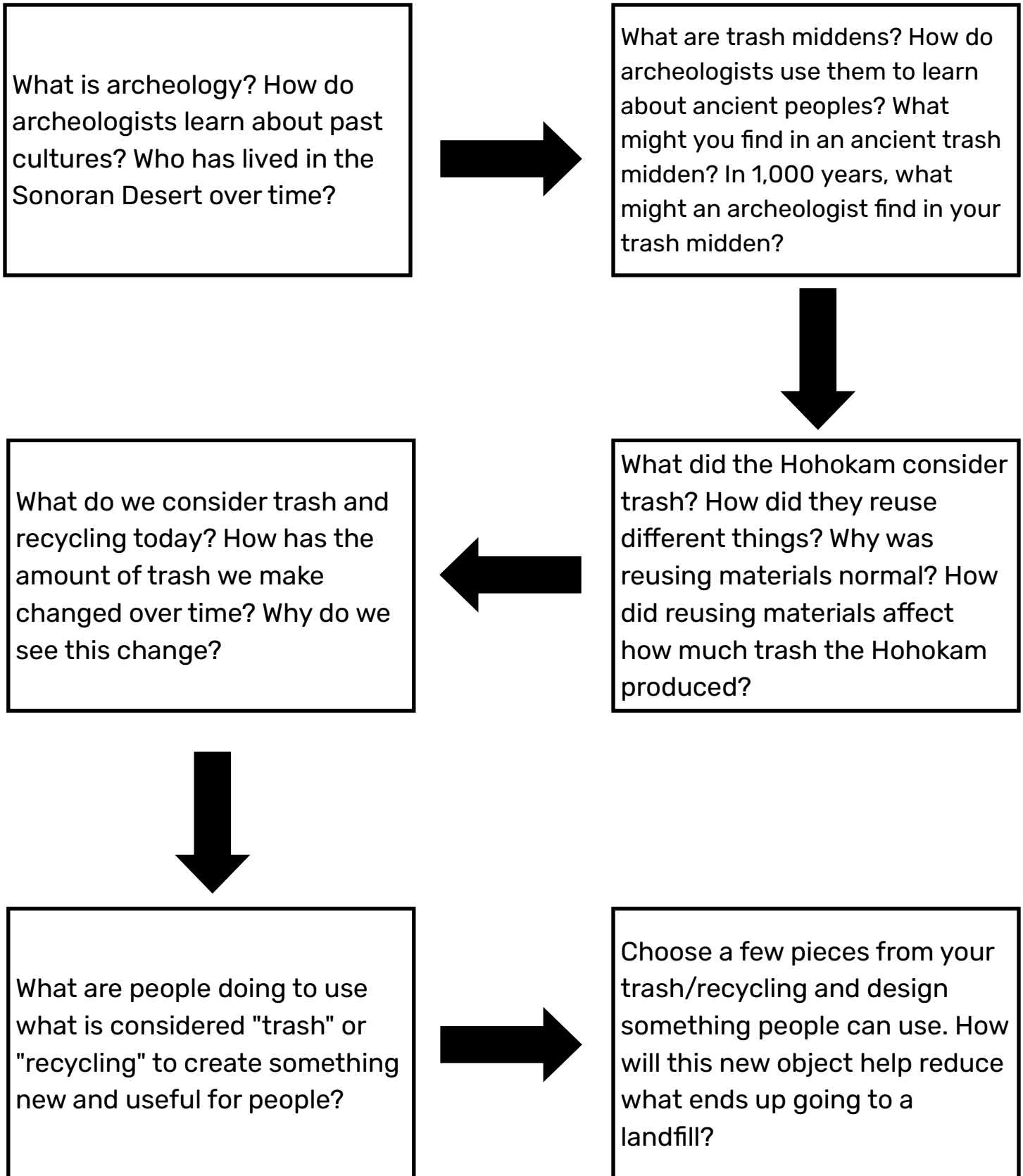
## Major Theme

Humans have created trash throughout history but what we consider trash and our relationship to our environment has changed. We can learn from the past to make more sustainable decisions for the future of our environment.

## Big Ideas

- Archeology is the study of human history through physical remains of what cultures have left behind, such as artifacts, structural remains, tools, and trash.
- Archeologists study trash middens to understand past cultures because trash holds the key to discovering what was important in peoples' daily lives.
- Human trash and what humans consider trash has changed over time.
- A society's trash reflects the resources available to its people.
- The trash a society produces affects their environment.

# Trash Through Time Concept Progression



# Web of Life Overview

Student time:

- 30-45 min. online presentation
- 60-90 min. completing activities
- 30-45 min. completing mini project

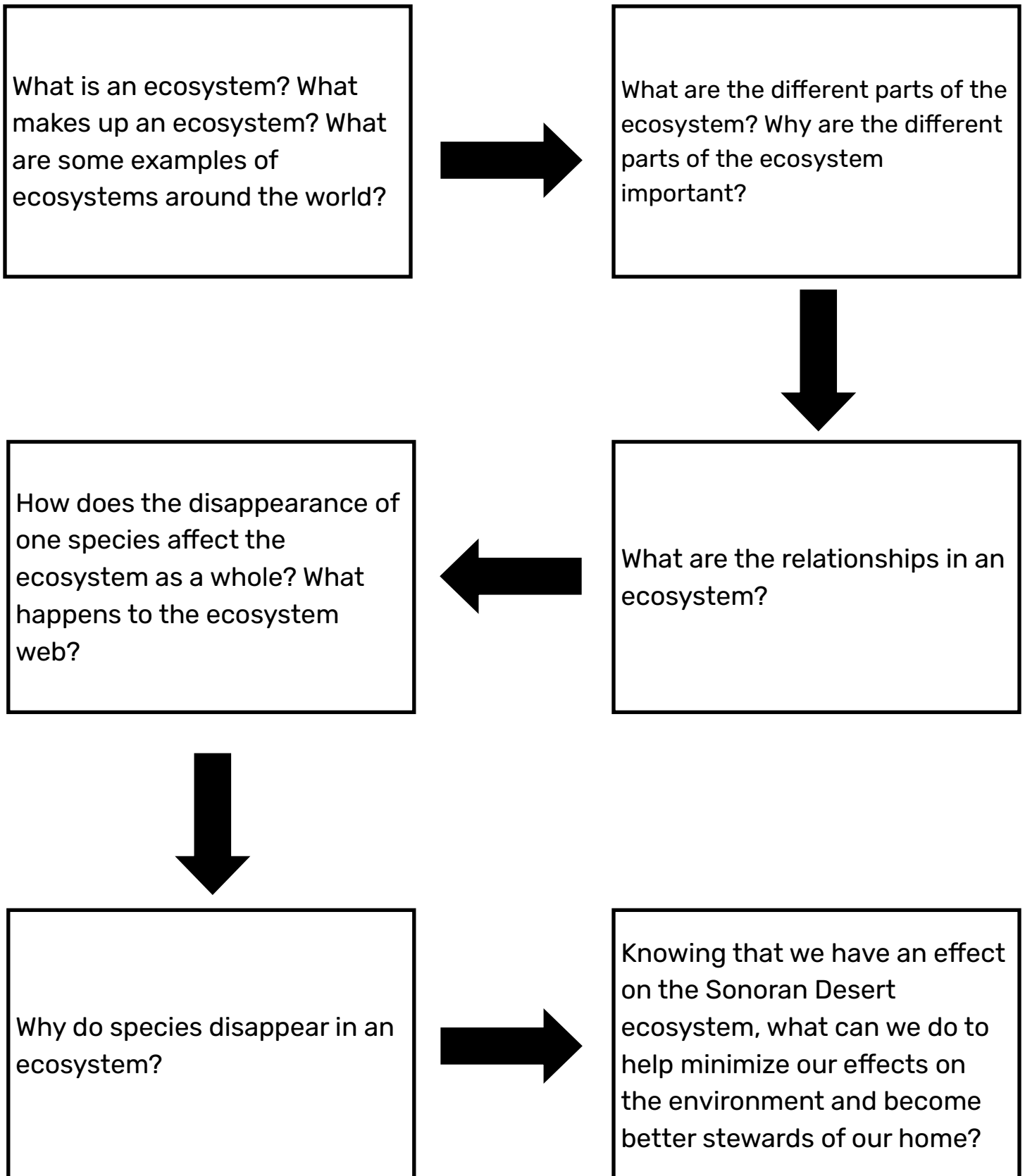
## Major Theme

There are many ecosystems in the world, but all ecosystems have species that are interconnected and depend on one another for survival. Humans are a part of and affect the ecosystem they live in.

## Big Ideas

- An ecosystem is a group of living things that interact with each other and their environment.
- The disappearance of any one species in an ecosystem will negatively affect other species and the entire ecosystem may become unbalanced.
- The Sonoran Desert is an ecosystem and humans are a part of it.
- Humans affect the Sonoran Desert ecosystem and are connected to the health of it.

# Web of Life Concept Progression



# Tipping the Scales (supplemental) Overview

Student time:

- 45-60 min. online presentation
- 30-60 min. completing activities
- 20-30 min. completing mini project

## Major Theme

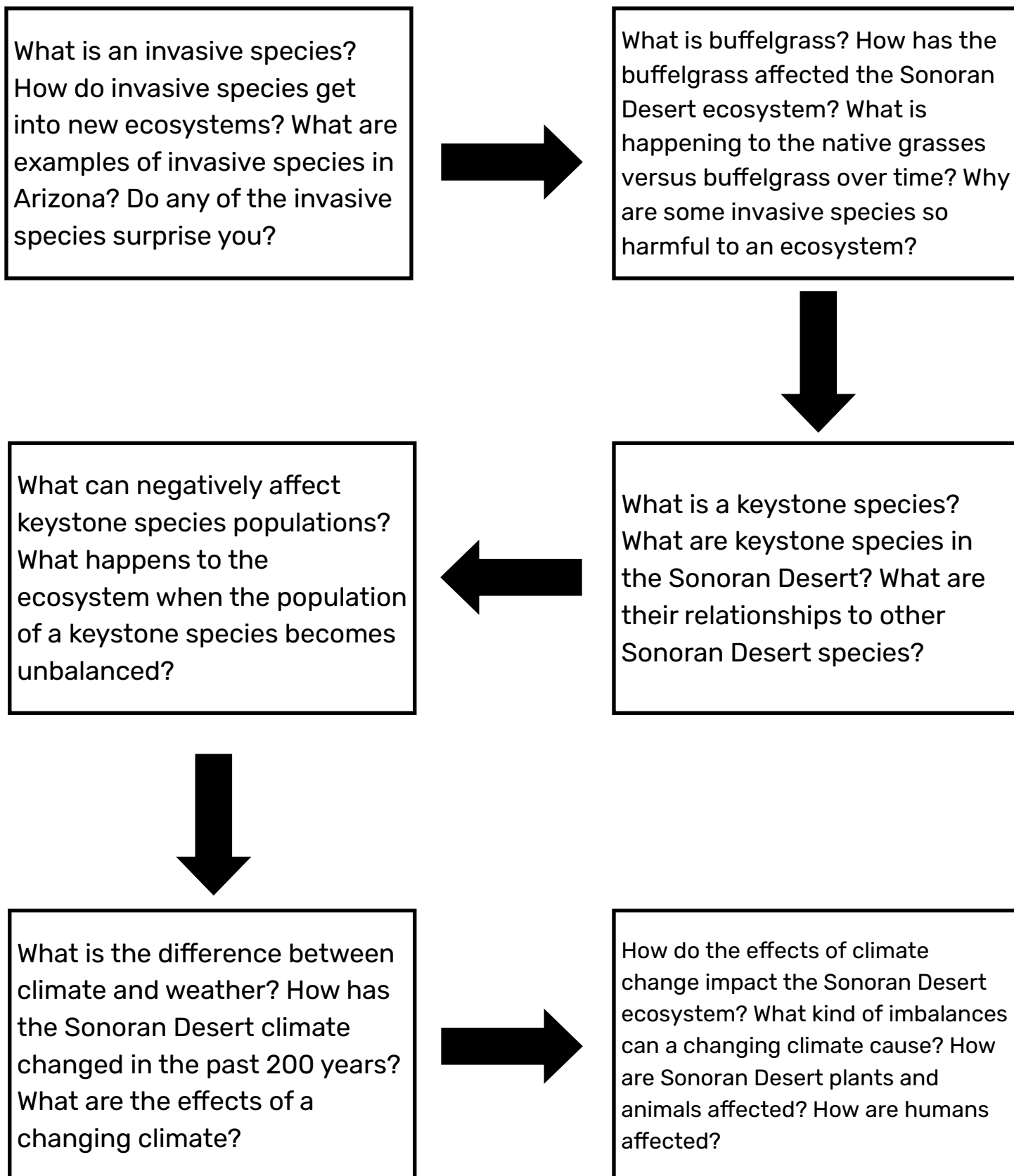
There are multiple ways an ecosystem can become unbalanced, many of which are human caused. To ensure the health and longevity of the Sonoran Desert ecosystem, we must find ways to bring it back into balance.

## Big Ideas

- Invasive species may cause an unbalanced ecosystem if they out-compete native species for resources and the native species disappear.
- The loss of keystone species, either through human or natural causes, can unbalance an ecosystem.
- Climate change stresses the environment and leads to unbalanced ecosystems.



# Tipping the Scales Concept Progression



# **ACTIVITY LIST**

<b>Module</b>	<b>Activity</b>	<b>Student Goals</b>	<b>Est. time (minutes)</b>
Urban Desert	Finding the Desert	Decide if places on the map are in a desert. Use the second map to see if these places are in the Sonoran Desert.	15
Urban Desert	What Do You Need to Survive?	Decide whether each item is something you need to survive or something you want. Know what all living things need to survive.	10-15
Urban Desert	Adapting like a Sonoran Desert Species	Draw or write what you might look like if you had one or more Sonoran Desert plant or animal adaptations.	10-15
Urban Desert	Surviving in the Sonoran Desert	Compare how humans survived in the Sonoran Desert in the past with how we survive in the Sonoran Desert today.	15-20
Urban Desert	Changing Cities, Changing Temperatures	Compare two temperature graphs from different cities and come up with possible answers for why there are differences between the two graphs.	15-20
Urban Desert	Desert Inspiration: Inventing with Adaptations	Take what you know about adaptation and human's impact on the environment and create a new design that will help humans survive in the desert with less impact.	20-30
Trash Through Time	What's in Your Trash?	Record what's in your trash or recycling. Describe what an archeologist in the future might say about you and your family based on your trash.	15
Trash Through Time	What Do You Consider Trash?	Identify what you consider trash and recycling.	5
Trash Through Time	Reuse to Reduce Waste	Come up with creative ways to reuse different items to keep them out of the landfill.	10
Trash Through Time	Recycling versus Reuse	Explain the difference between recycling and reuse. Describe how people are getting creative with trash and recycling to create completely new items.	10
Trash Through Time	Changing Trash to Treasure	Design something new using items from your trash and recycling. Describe how this new item is useful and how it helps reduce the amount of waste going to the landfill.	20-30

<b>Web of Life</b>	Parts of an Ecosystem	Decide if each picture shows a living or nonliving thing. Explore how each part of the Sonoran Desert ecosystem is important.	15
<b>Web of Life</b>	Relationships in the Desert	Use your detective skills to determine how different species are connected in the Sonoran Desert ecosystem.	15-20
<b>Web of Life</b>	Disappearing Species	Determine what happens to the species in an ecosystem when one species disappears.	15
<b>Web of Life</b>	Design Your Web	Test your understanding of the relationships between species in an ecosystem and create your own ecosystem web.	15
<b>Web of Life</b>	Putting It All Together	Using what you have learned in Web of Life and other modules, design a new way humans can minimize our impact on the environment.	30-45
<b>Tipping the Scales</b>	Native or Non-native?	Identify species that are native and non-native to the Sonoran Desert.	10
<b>Tipping the Scales</b>	Buffelgrass in the Desert	Compare the populations of buffelgrass and native desert plants over time and come up with possible answers for why we see the changes in the two populations.	15
<b>Tipping the Scales</b>	Climate or Weather?	Use what you know about climate and weather to decide whether each statement in the following conversation is talking about climate or weather.	5
<b>Tipping the Scales</b>	Changing the Climate	Use the graph to come up with possible effects of human activity on climate in the Sonoran Desert.	10
<b>Tipping the Scales</b>	An Unbalanced Ecosystem	Explain how climate change affects the Sonoran Desert ecosystem, including the survival of invasive species and keystone species.	20-30

# **MODULE SEQUENCE**

- Sequence based on students spending approx. 25 minutes on the material per day each week (approx. 120 min per week)
- Entire unit (Urban Desert, Trash Through Time, and Web of Life) will take approx. 8 hours total
- If you choose, you can integrate supplemental material from Tipping the Scales. You can either add additional time each week, or expand the unit an additional week.

### **Week 1 students complete:**

- Urban Desert Part 1, 2, and 3  
Activities: Finding the Desert, What Do You Need to Survive?, Adapting like a Sonoran Desert Species
- Trash Through Time Part 1 and 2  
Activities: What's in Your Trash?

### **Week 2 students complete:**

- Urban Desert Part 4, 5, and 6  
Activities: Surviving in the Sonoran Desert; Changing Cities, Changing Temperatures; Desert Inspiration: Inventing with Adaptations
- Trash Through Time Part 3 and 4  
Activities: What Do You Consider Trash?, Reuse to Reduce Waste

### **Week 3 students complete:**

- Trash Through Time Part 5 and 6  
Activities: Recycling versus Reuse, Changing Trash to Treasure
- Web of Life Part 1 and 2  
Activities: Parts of an Ecosystem



# Continued

## **Week 4 students complete:**

- Web of Life Part 3, 4, 5, and 6  
Activities: Relationships in the Desert, Disappearing Species,  
Design Your Web, Putting It All Together\*

**\*Note:** If possible, we strongly recommend this activity be done in small groups that share out at the end