

Place the following in order from first to last in ecological succession.

First

Grasses

Trees

Mosses/Lichens

Shrubs

Last

When would the moss/lichen population grow exponentially?

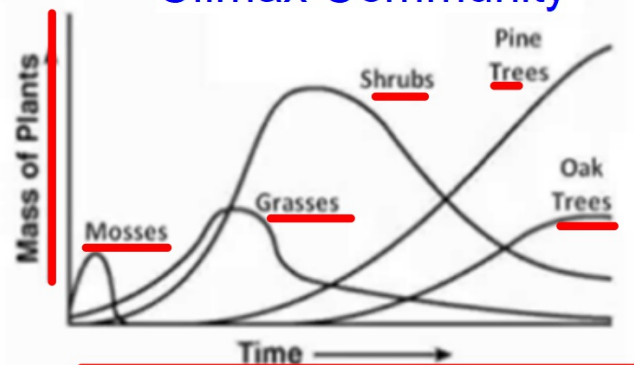
Soon after the disaster

When the pine trees start to grow

What is the main difference between primary and secondary succession?



Label: **Pioneer species**
Climax Community



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Soon after the disaster

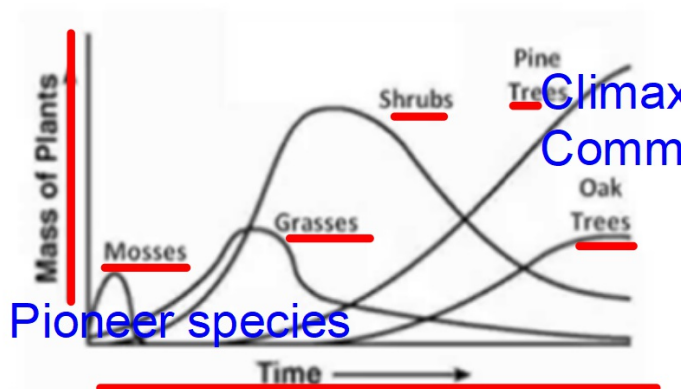
When the pine trees start to grow

What is the main difference between primary and secondary succession?

Primary: Starts on bare rock, totally new ecosystem

Secondary: New ecosystem forms from remnants of prior ecosystem

Label:



To get:

How do Humans Disrupt Ecosystems?

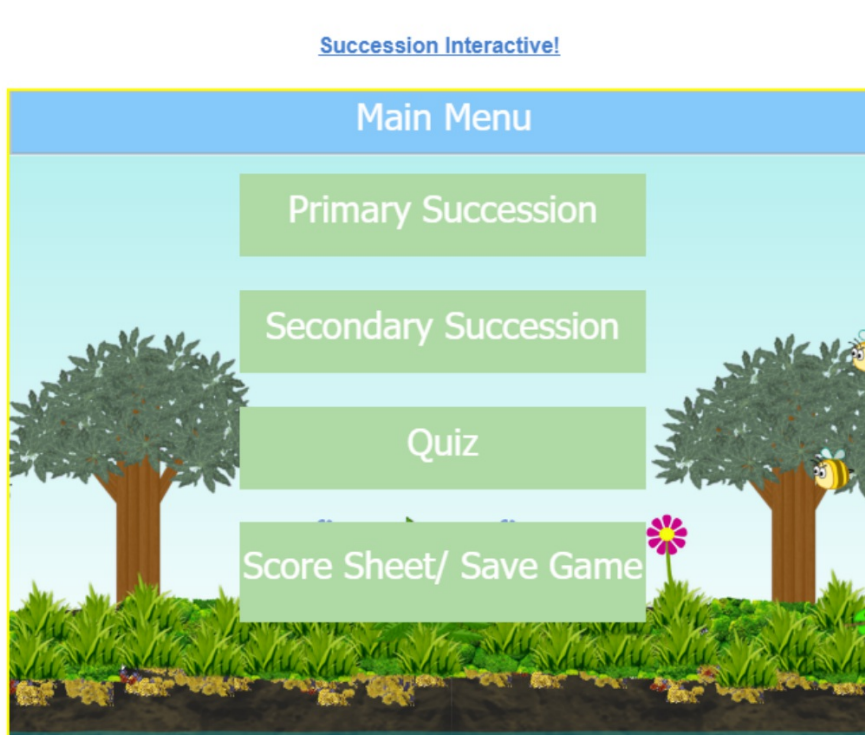
Human Disruption Chart

Objective:

Describe the positive and negative impacts that humans have on ecosystems

10 minutes:

Play the Succession Game / Quiz



Read the article:

How do humans affect ecosystems?

With your table group fill out the graphic organizer.

15 min

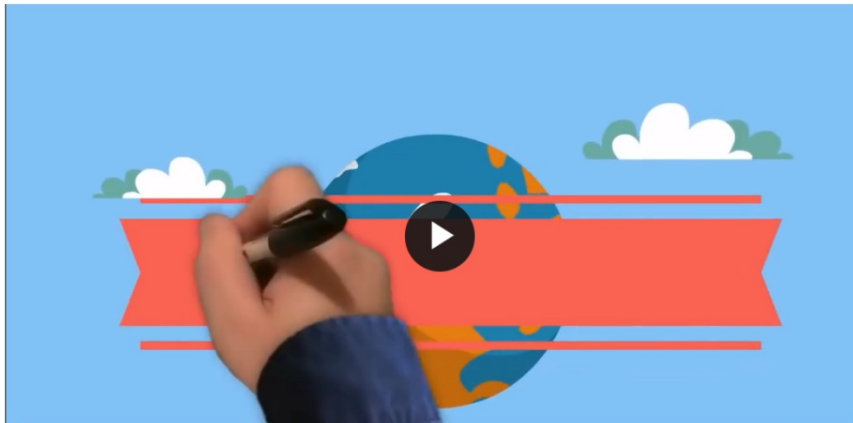
HUMAN IMPACT	EFFECT ON ENVIRONMENT	Possible Solutions
<p>POLLUTION</p> <ul style="list-style-type: none">• Combustion of Fossil Fuels• Pesticides & Fertilizers	<p>[Redacted]</p> <p>[Redacted]</p>	<p>[Redacted]</p>
<p>OVERHUNTING & OVERFISHING</p>	<p>[Redacted]</p> <p>[Redacted]</p>	<p>[Redacted]</p> <p>[Redacted]</p>
<p>DEFORESTATION</p>	<p>[Redacted]</p>	<p>[Redacted]</p>
<p>URBANIZATION</p>	<p>[Redacted]</p>	<p>[Redacted]</p>

HUMAN IMPACT	EFFECT ON ENVIRONMENT	Possible Solutions
POLLUTION <ul style="list-style-type: none"> • Combustion of Fossil Fuels • Pesticides & Fertilizers 	-Air Pollution Decrease light intensity-decrease photosynthesis -could lead to water pollution/acid raing	Green Technologies: Solar, wind or hydropower Car pooling/public transportation
	Get into ground water and bodies of water -can kill plants and animals -Eutrophication- Algae blooms- dead zones	Biological alternatives Reduce reliance on large scale agriculture
OVERHUNTING & OVERFISHING	Remove keystone species -unbalanced ecosystem	Set limits on the number that can be taken
	Bycatch- kills many unintended fish destroys coral reefs -damages aquatic ecosystems	Set limits on the number that can be taken. Get rid of practices that allow significant amounts of bycatch.
DEFORESTATION	Heavier equipment makes deforestation happen at a faster rate -Global Warming, Less habitat/food -Less biodiversity	Replant with native species. Remove at a slower pace.
URBANIZATION	Removes soil nutrients, surface vegetation and trees. Increases pollution. Hinders migration Increases water runoff	Green Roof technologies. Public transportation, Multiuse buildings, sustainable practices.

What is an Invasive Species?

An invasive species can be any kind of living organism that is not native to an ecosystem and causes harm.

Watch this video (link on MyMCPS) and listen for different characteristics of INVASIVE Species



Characteristics of Invasive Species

- Species moved to a new ecosystem.
- Number of individuals increased rapidly.
- Species cause damage to ecosystems.
- Some breed rapidly.
- Some have no natural predators.
- They can spread disease.



Just a few of the Invasive Species in Our Area



Emerald Ash Borer



Wavyleaf Basketgrass



Zebra Mussel

Nutria



What is a Non-Native Species?

Non-native species are those that have occurred outside of their natural range.

May not hinder or prevent the survival of others within the ecosystem. They simply exist where they typically have not

Invasive Species	Both	Non-Native Species

Causes harm to ecosystem

Fits into existing food web without disturbance

From another ecosystem

Low reproduction rate
Decreases biodiversity

No predators

High Reproduction Rate

Increases biodiversity

Habitat Generalist
Does not cause harm

Invasive Species	Both	Non-Native Species
<p>Causes harm to ecosystem</p> <p>Decreases biodiversity</p> <p>No predators</p> <p>High Reproduction Rate</p> <p>Habitat Generalist</p>	<p>From another ecosystem</p>	<p>Fits into existing food web without disturbance</p> <p>Low reproduction rate</p> <p>Increases biodiversity</p> <p>Does not cause harm</p>

Step 5: Disturbances

1. Describe the disturbance(s) to the organisms' ecosystem.

Such as natural disaster, disease, human activity, or invasive species.

Fill in the following information:

Describe the disturbance		
Does this lead to succession?		
Which type of succession?		
How do you know?		
What impact will this disturbance have on abiotic factors of your ecosystem?		
What impact will this disturbance have on biotic factors of the ecosystem?		
What impact will this disturbance have on your species?		

Citations:

Use the remaining time to complete the Research Folio (Yellow Packet)

Research 2 disturbances to YOUR SPECIES' ecosystem

Identify the type of succession that would follow

Answer each of the questions on this page.

