# Part 6 Ecological Succession

Name:

## Part 6 Lesson 1 Ecological Succession

What would happen to this street if people disappeared forever that morning. 5 years to 500 years?

Describe how after the Chernobyl disaster, ecological succession progressed in a city of Pripyat, Ukraine without humans

Ecological succession: The predictable and gradual _____ of one community of living things by another community.

Fill-in the plant communities and provide some arrows as described in the slideshow.


## Part 6 Lesson 2 Primary and Secondary Succession

Primary Succession: The development of plant and animal life in an area _____ topsoil.

Secondary Succession: Succession in an area that previously colonized life but is now _____. Soil is present.

In secondary succession, regrowth is usually _____ because…

-_____ are already in soil.
-Stumps and roots and some plants can _____.
-There is still _____, nutrients, and micro-organisms.

_____Species: The _____ species to colonize after a disturbance.

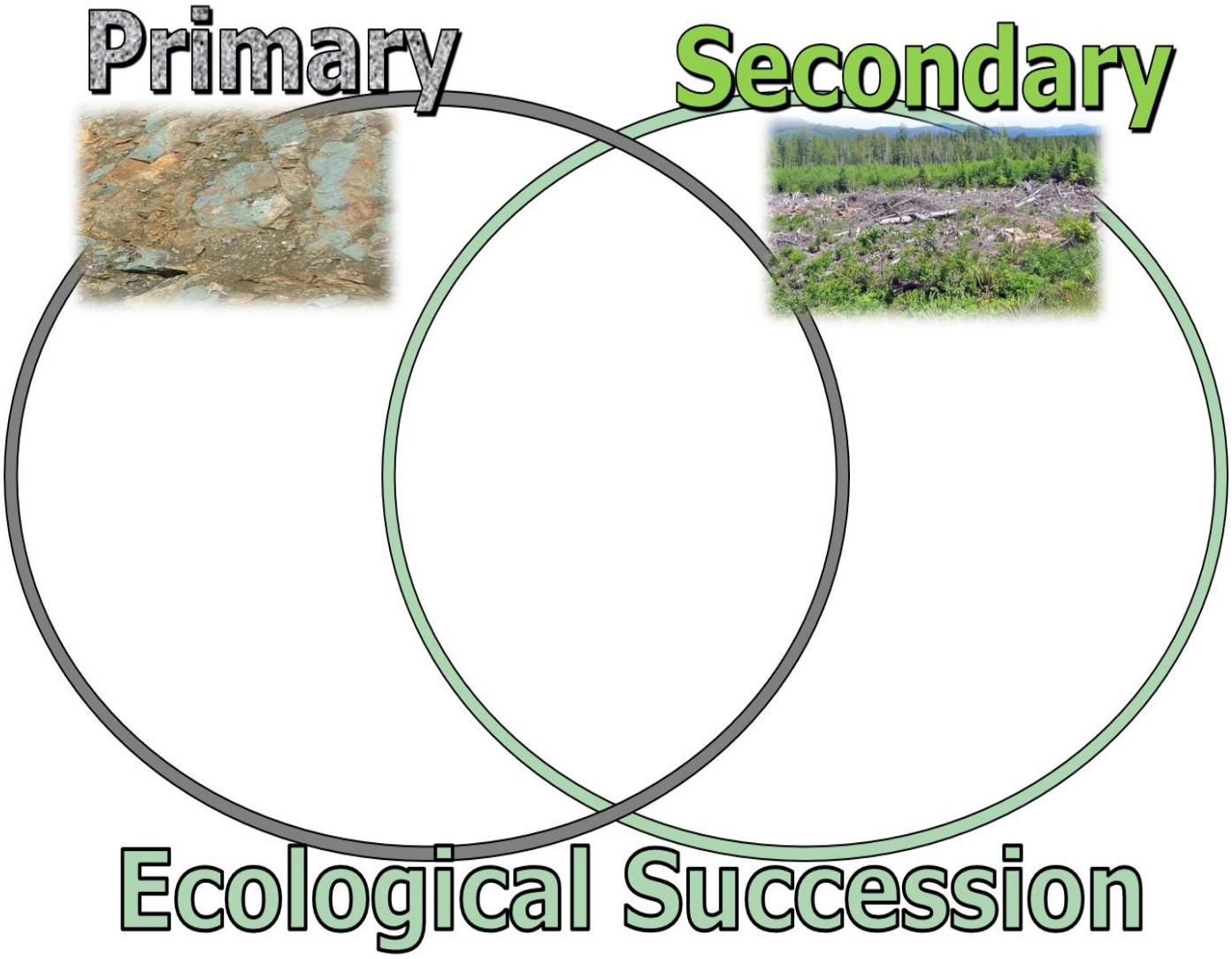
Which picture represents primary succession and which picture represents secondary succession?

Animal Succession: Animals replace _____.

Animals also help succession.

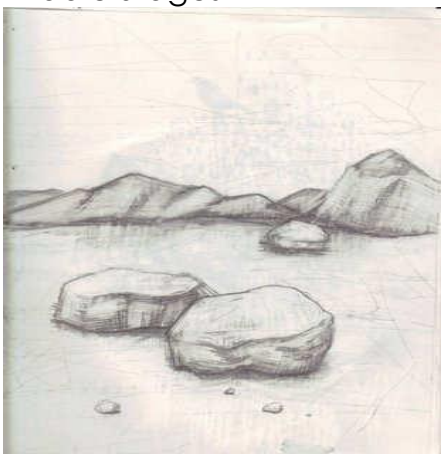
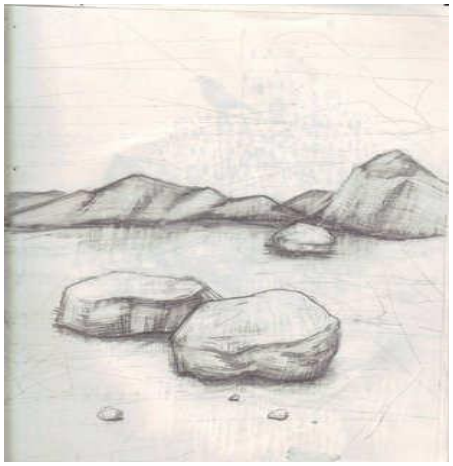
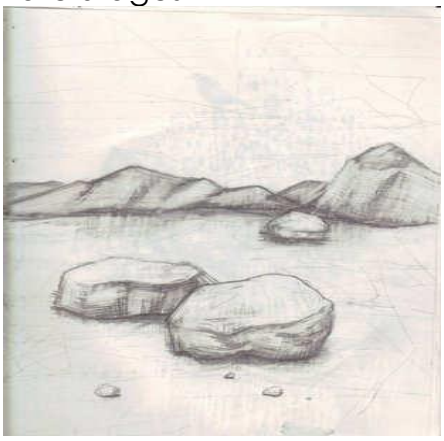
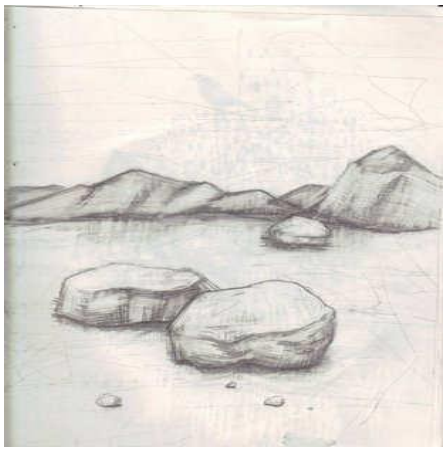
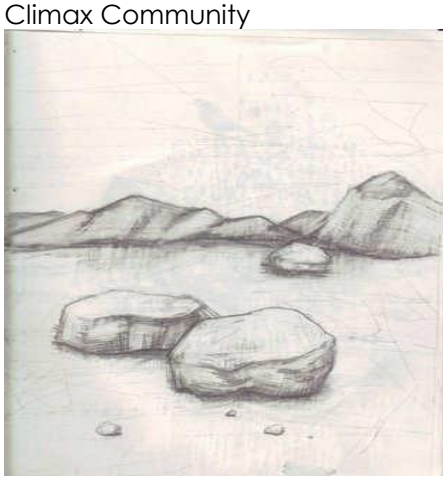
Seed _____, soil formation, tunneling, falling trees.

Please fill-in the Venn Diagram for Primary and Secondary Succession as described in the slideshow




Describe the role of lichens in early ecological succession. Decorate the rock below as a visual to help you explain.

Please sketch in plants and animals to show 200 years of ecological succession in six pictures spread out over time.
**Provide with text some** of the plant species represented in your drawings in the space below each box.

| | | |
|---|---|---|
| The early stages  |  |  |
| Middle Stages  |  |  |
| Late Stages  |  | Climax Community  |

The order of ecological succession from primary succession. Draw an arrow on the left side of this page showing time. Is this an example of primary or secondary succession?

Bare Rock
Lichens
- Acids secreted by the lichens _____ weather rock and create _____ fragments.

M_____
- Create humus and retain moisture.

Grasses and Sedges
M_____ Stage
- Grasses
- Yearly plants
- Weeds

Old _____ Community
- Perennials (year after year).
- Goldenrod, Milkweed.

Sun Loving _____
- Soil base now forms.
- Sumac, Willow, Dogwood, Apple.

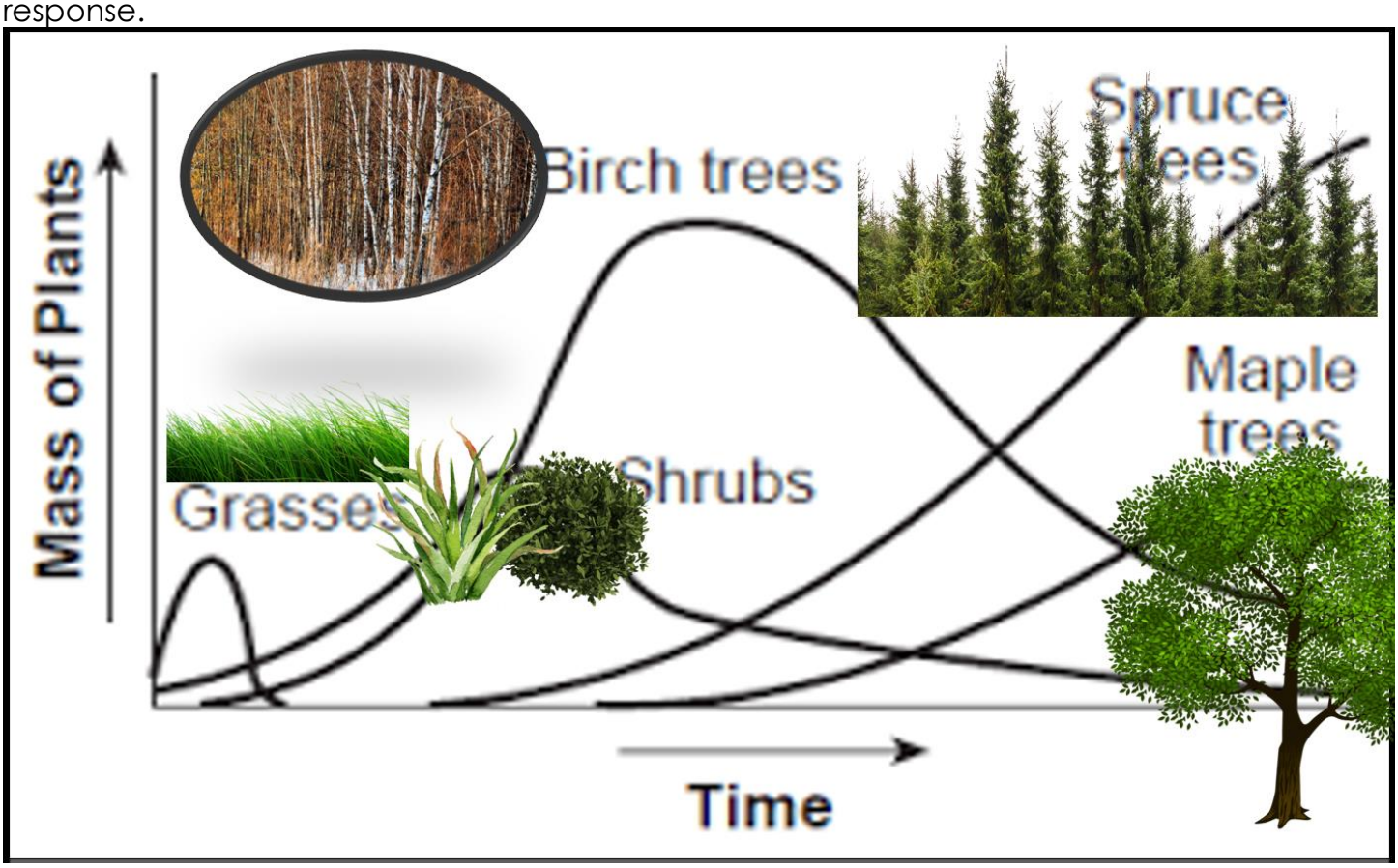
Sun _____ Trees
- Organic matter increases from fallen leaves.
- Poplar, Birch, Quaking Aspen.

_____
- Enriched soil allows pines to grow
- Pines are sun loving and grow well
- Eventually they _____ _____ their offspring, no new pines grow.

Shade _____ Hardwoods
- These can grow in shade.
- Oak, Hickory, Ash.

Climax Community (_____ loving hardwoods)
- Beech Trees, and Maples
- Climax means _____ community.

Describe the graph below. Use some data to describe how some plant communities have been replaced by new communities. Use the words "Mass of Plants" and "time" in your response.



## Part 6 Lesson 3 Fire Ecology

Events that can restart succession.

-A forest _____.

Fire ecology: A branch of ecology that focuses on the origins of wildland fire and its _____ to the environment that surrounds it, both living and non-living.

Fire Adaptation: Plants have _____ with special traits contributing to successful abilities to survive fires at various stages in their life cycles.

Fire Dependence: This concept applies to species of plants that rely on the effects of fire to make the environment more hospitable for their regeneration and growth.

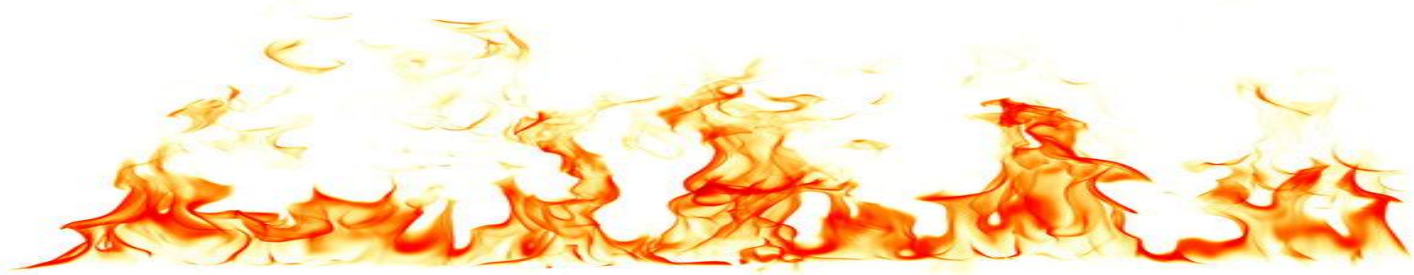
The "Let it Burn Philosophy" is based on…

- Large _____ fires result from fuel accumulations above historic levels.
- Both firefighters and the public _____loss of life or serious injury.
- Intense or long-lasting smoke caused by _____ _____ fire can impact air quality and seriously affect respiratory health.
- The costs of controlling larger and more damaging wildland fires have _____ dramatically.

| | |
|---|---|
| Which is not part of the "Let it Burn Philosophy."<br>A.) Large destructive fires result from fuel accumulations above historic levels.<br>B.) Both firefighters and the public risk loss of life or serious injury.<br>C.) Fire poses a serious risk to the ecology of a forest and should be suppressed.<br>D.) Intense or long-lasting smoke caused by large uncontrolled fire can impact air quality and seriously affect respiratory health.<br>E.)The costs of controlling larger and more damaging wildland fires have risen dramatically. | Which is not part of the "Let it Burn Philosophy."<br>A.) Large destructive fires result from fuel accumulations above historic levels.<br>B.) Forest fires do not have any risks associated with them.<br>D.) Intense or long-lasting smoke caused by large uncontrolled fire can impact air quality and seriously affect respiratory health.<br>E.)The costs of controlling larger and more damaging wildland fires have risen dramatically. |

Please watch the video below and provide a summary of some things learned in the video.

- Video: Forest Fires (10 Minutes)
- http://www.youtube.com/watch?v=TSwYToj34jE



| | |
|---|---|
| Which is a bogus statement from the summary below?<br>A.) Fire is an important and inevitable part of America's Wild Lands.<br>B.) It's now widely recognized that we must restore fire to many areas from which it has been excluded.<br>C.) Wild Land fires only produce damages to the environment and to people's interests.<br>D.) By working together, people can maximize the benefits of Wild Land fire and minimize the damages, including threats to public health. | Which is a bogus statement from the summary below?<br>A.) Fire is an important and inevitable part of America's Wild Lands.<br>B.) It's now widely recognized that we must restore fire to many areas from which it has been excluded.<br>C.) Wild Land fires produce benefits and damages to the environment and to people's interests.<br>D.) By working together, people can maximize the benefits of Wild Land fire and not worry about the damages and threats to public health. |

Events that can restart succession Continued…

A forest fire

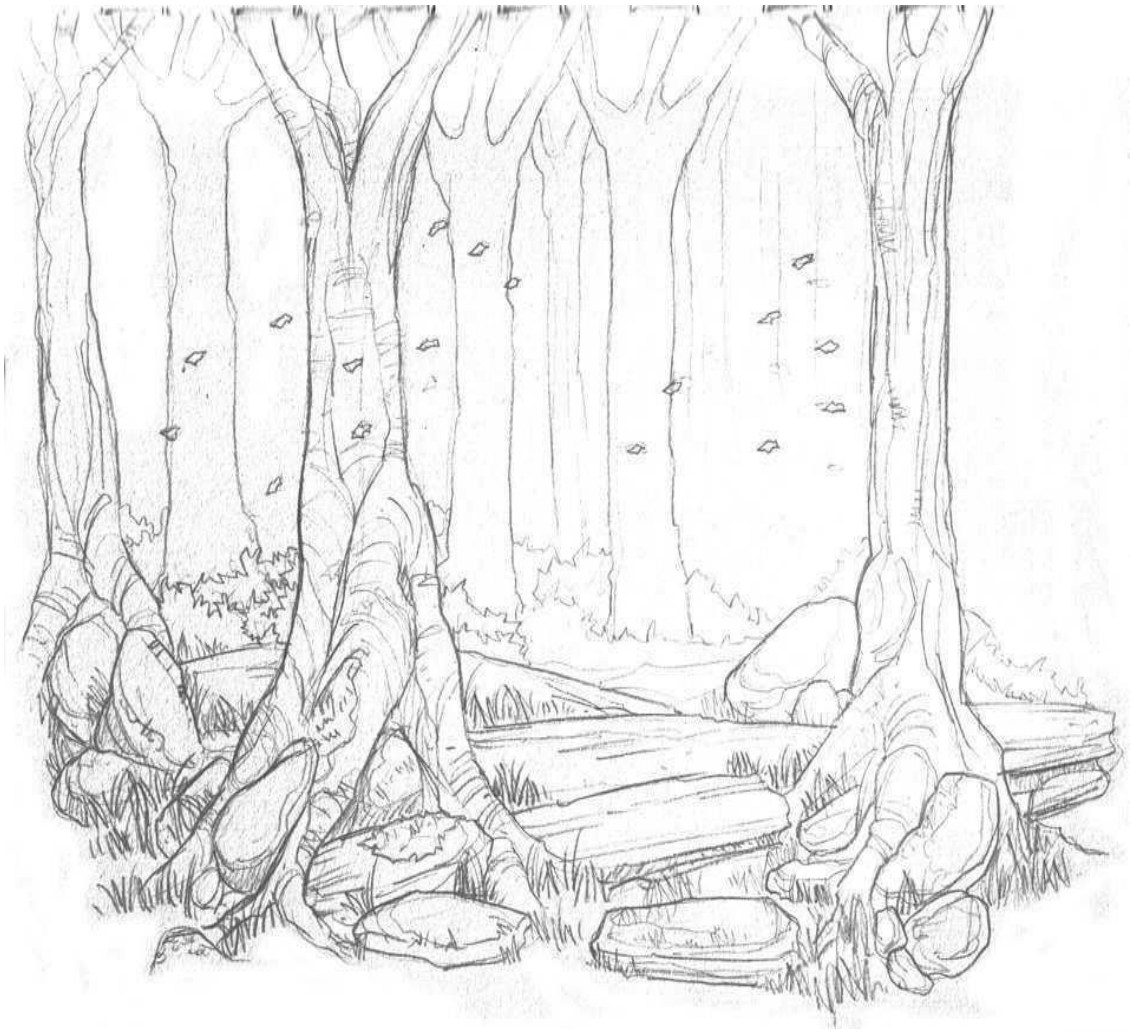
A _____ event.

Logging / Human Impact.

_____

Ice Age / Glaciers.

Describe some events that will turn this climax community back to the beginning of secondary succession.



## Part 6 Lesson 4 Wrap-Up Ecological Succession and Quiz

Quiz 1-10 Name the stage of succession.

- Bare Rock, Lichens, Mosses, Meadow Stage, Old-Field Community, Sun-loving shrubs, Sun-loving trees, Conifers, Shade tolerant Trees, Shade Loving Trees (Climax).

| | | |
|---|---|---|
| 1) | 2) | 3) |
| 4) | 5) | 6) |
| 7) | 8) | 9) |
| 10) | *11) | |

As succession increases in time

# of species……increases
Total population……increases
Total Biomass…… "
Organic Matter…… "

What is the essence of ecological succession?

## Part 6 Optional Field Study / Visitation of Successional Stages

### Ecological Succession Data Sheet

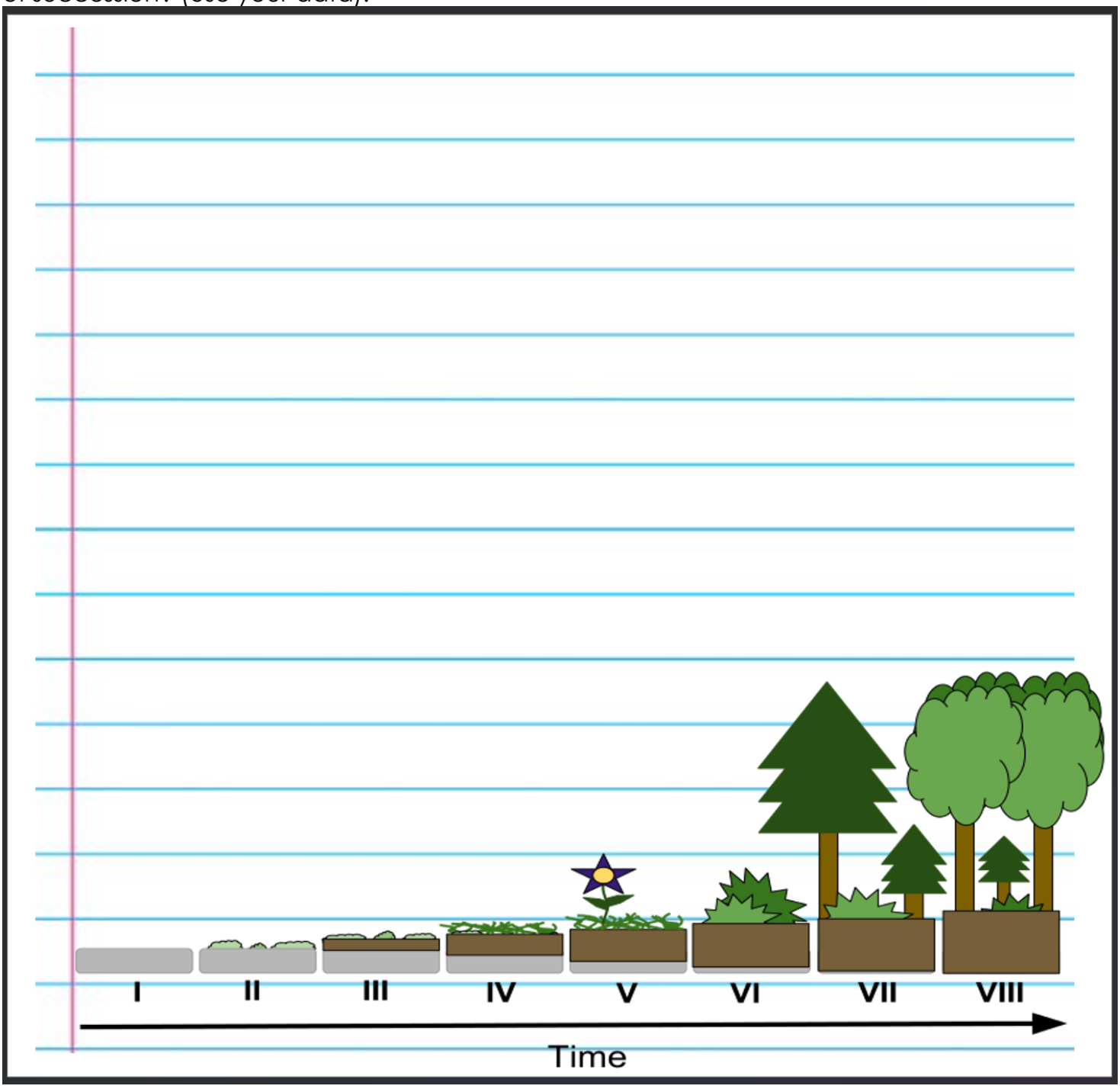
Please record some information below from each stage of succession visited. Please randomly toss 10 cm square into the plot to record info.

1.) For # of plant species on ground, count the number of species found.
2.) For # height and number of plants, place a meter stick into your tossed 10 cm square and record the height that each plant touches the stick. Ex, 3 cm, 9 cm, 22 cm.
3.) For Canopy look up and record yes or no if trees are above you.
4.) Describe the soil. Word bank: No soil, sandy, sand and loam, loamy and rich / organic

| Stage | Bare Rock | Moss | Mead-ow | Old Field | Shrub | Conifer | Sun Love Tree | Shade Toler--ant Trees | Shade Love Trees |
|---|---|---|---|---|---|---|---|---|---|
| # of plant species ground | | | | | | | | | |
| #Height and number of Plants | | | | | | | | | |
| Canopy of Trees Y/N | | | | | | | | | |
| Describe Soil | | | | | | | | | |
| General De--scription | | | | | | | | | |

Using your data, please describe differences observed in some different stages of ecological succession.

How do the number of species, height of plants, canopy, and soil change over time / stages of succession? (Use your data).



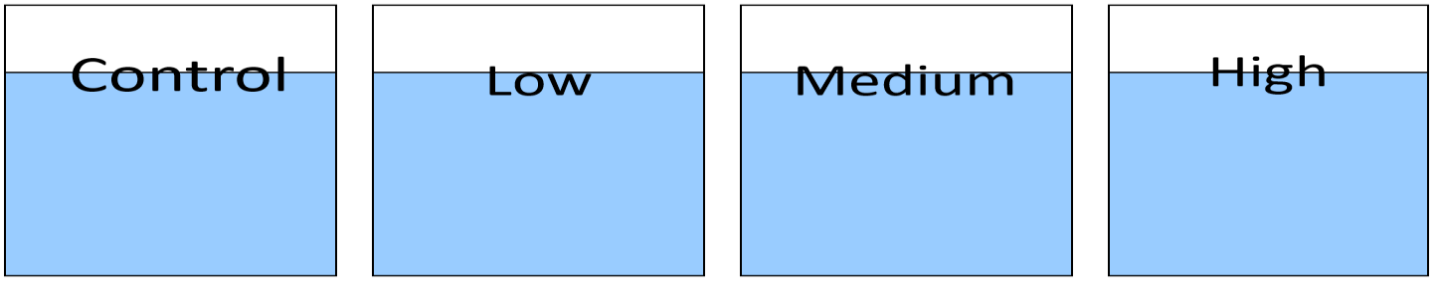

## Part 6 Lesson 6 Aquatic Succession

Aquatic Succession: This succession begins in the pond or the lake. Small micro-organisms and small plants _____ in the water body.

As time passes, the number of plants in the water body may _____, and it would be changed into dry condition. It is a slow process.

Please sketch what the four containers look like now.

– What does fertilizer do to an aquatic system?




Draw three Lakes – Add the appropriate colors and vegetation to each box.

Eutrophic Mesotrophic Olgiotrophic

Eutrophic

- Having concentrations of nutrients optimal or for plant or animal _____. It is used to describe _____ or soil solutions.

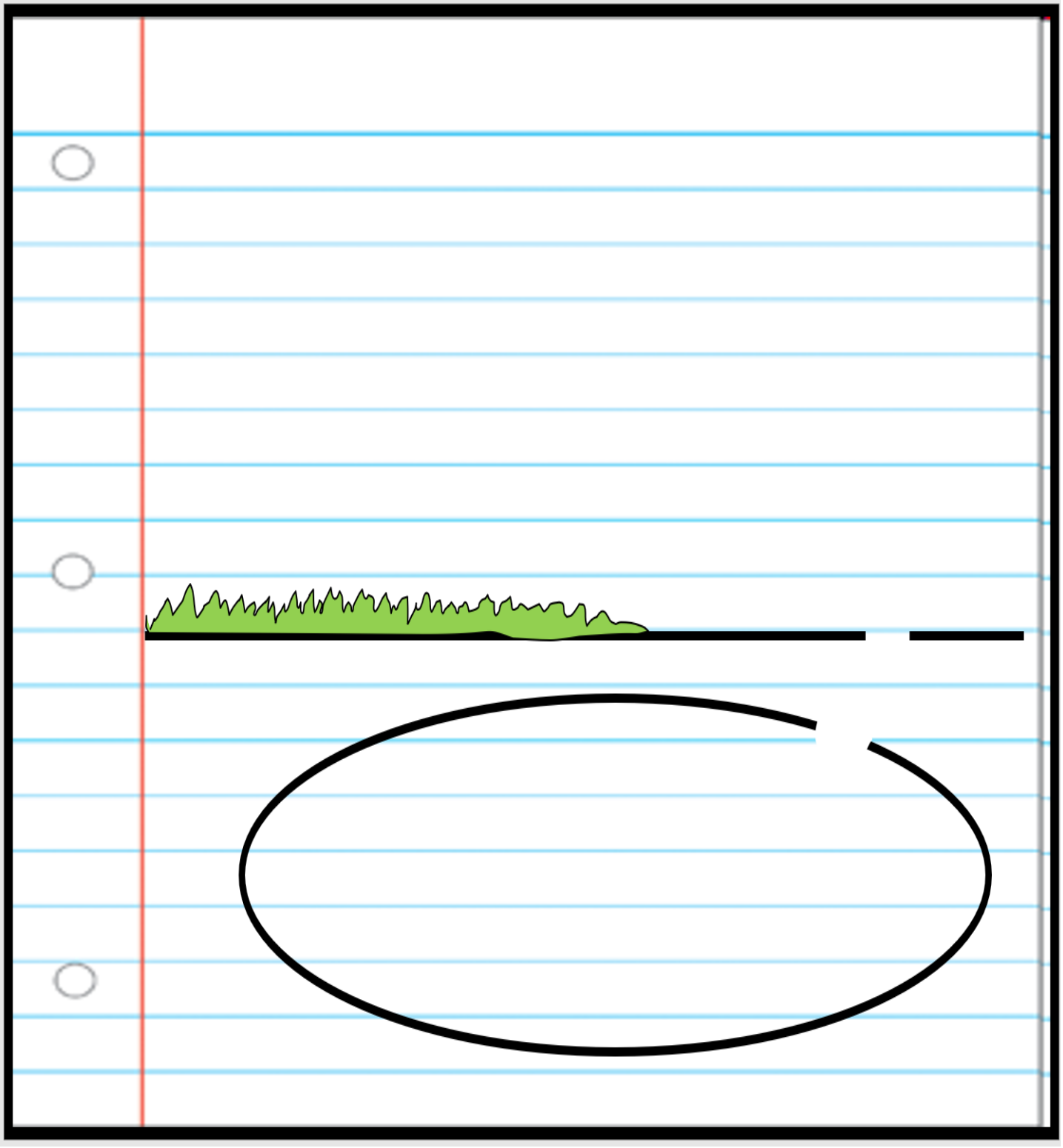
Mesotrophic

Production is considered _____.

Olgiotrophic

Describes a lake or river with _____ productivity.

Please fill-in the diagram below as described in the slideshow



Eutrophication

Aquatic plants use Phosphorus and Nitrogen and grow _____

Aquatic plants overpopulate and _____.

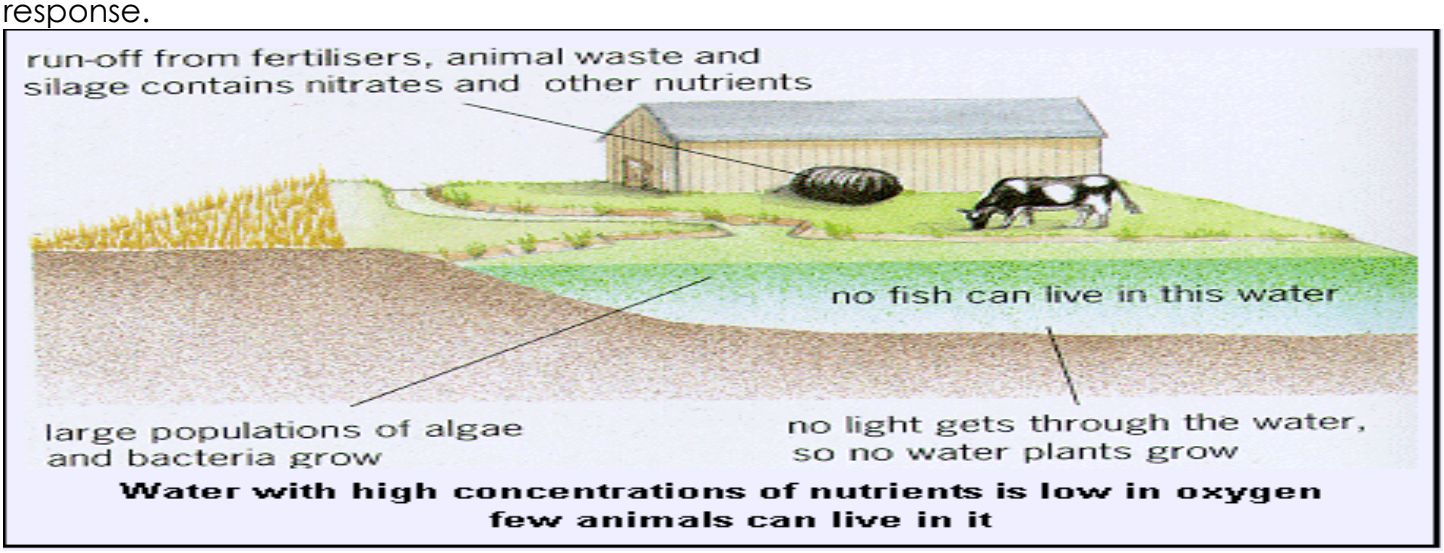
Bacteria break down dead plants and use _____ in water (respiration).

No oxygen left for fish / other aquatic life and _____.

Sequence the following to create the correct order of events for Eutrophication. 1-6

___ An overpopulation of aquatic life cause a massive die-off.
___ Fish and other aquatic life die
___ An Algal bloom occurs. Sunlight doesn't pass through surface.
___ Excess nutrients (N & P) are carried by runoff into the rivers, streams, or lakes.
___ Algae die and are decomposed by bacteria causing a decrease in dissolved oxygen in water.
___ Nutrients cause plant growth (algae).

Please describe Eutrophication below. Use the pictures with text as a resource in your response.

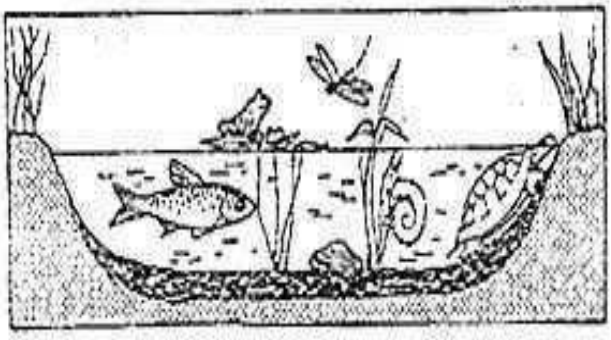


Activity 1-10 – Olgiotrophic, Mesotrophic, or Eutrophic or Eutrophication

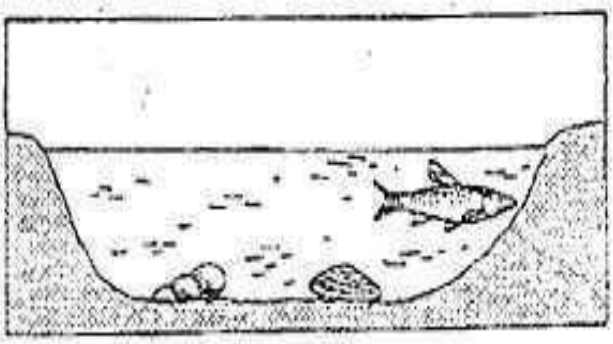
| | | |
|---|---|---|
| 1) | 2) | 3) |
| 4) | 5) | 6) |
| 7) | 8) | 9) |
| 10) | *11) | |

Describe the order of the pond ages from youngest to oldest based on aquatic ecological succession. Which is Oligio, Meso, and Eutrophic?

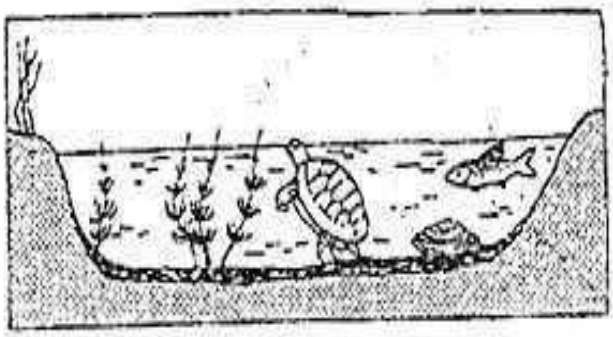
**Pond A**



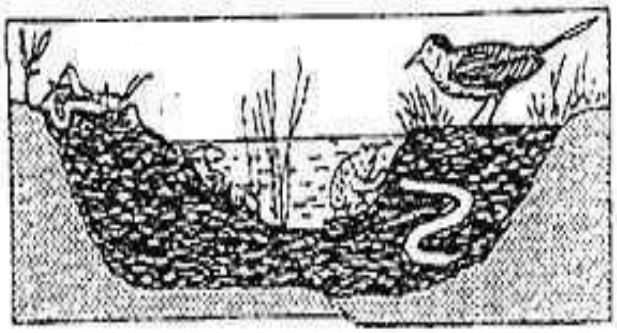
**Pond B**



**Pond C**



**Pond D**



Youngest _____, Next oldest_____ Next oldest _____ The Oldest_____

SAVE THESE NOTES. Do Not Lose

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**Across**

1. Excessive richness of nutrients in a lake or other body of water, frequently due to runoff from the land, which causes a dense growth of plant life and death of animal life from lack of oxygen.
6. _____ Succession: This succession begins in the pond or the lake. Small micro-organisms and small plants grow in the water body. As time passes, the number of plants in the water body may increase, and it would be changed into dry condition. It is a slow process.
7. Fire A_____: Plants have evolved with special traits contributing to successful abilities to survive fires at various stages in their life cycles.
10. _____ Succession: Succession in an area that previously colonized life but is now disturbed.
12. _____ ecology: A branch of ecology that focuses on the origins of wildland fire and its relationship to the environment that surrounds it, both living and non-living.
13. In secondary succession, regrowth is usually _____
16. C_____: Enriched soil allows pines to grow Pines are sun loving and grow well Eventually they shade out their offspring, no new pines grow.
17. _____ Succession: Animals replace animals.
19. M_____: These help to create humus and retain moisture.
20. M_____ Stage: Grasses Yearly plants Weeds
21. Ecological _____: The predictable and gradual replacement of one community of living things by another community.

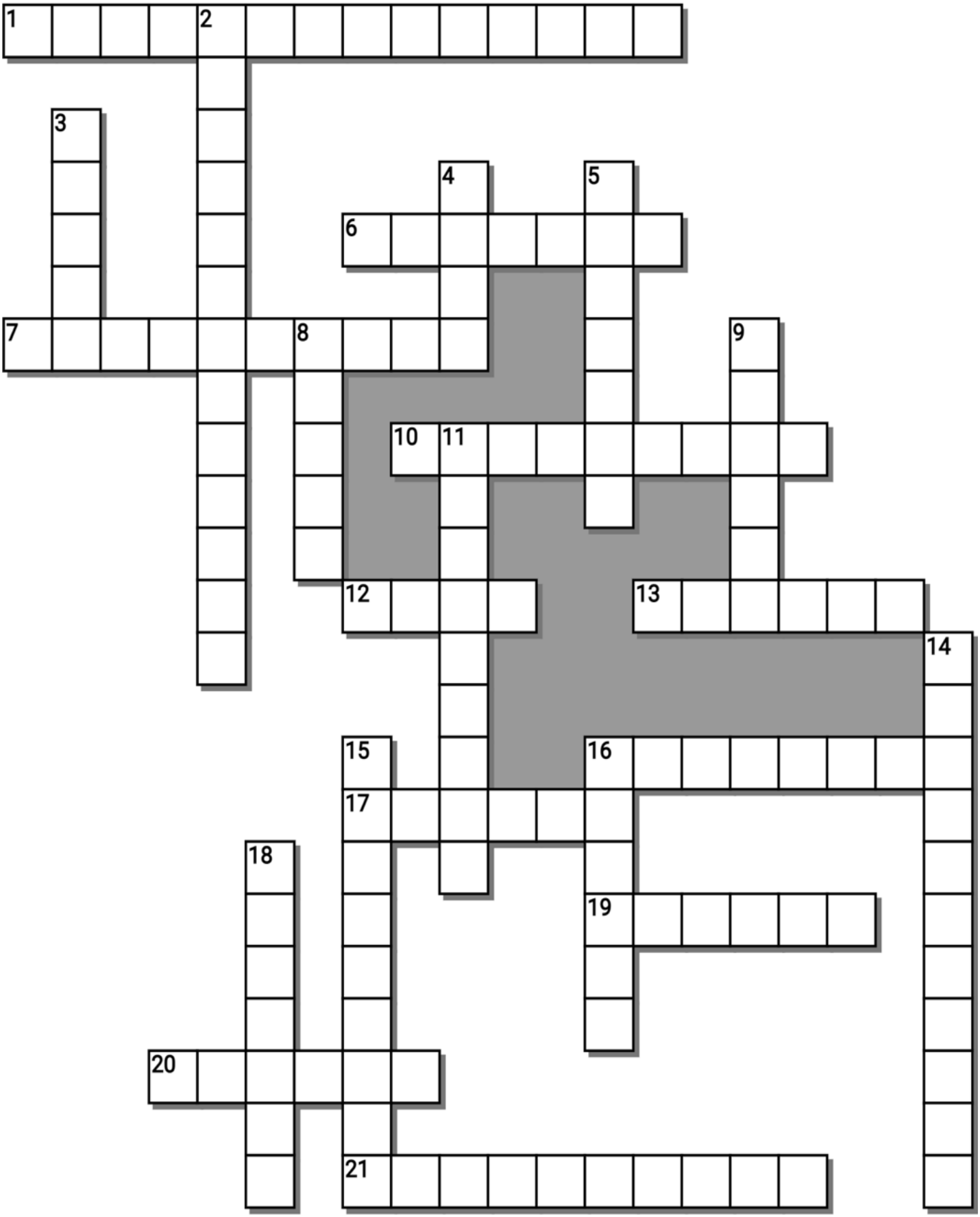
**Down**

2. Describes a lake or river with low productivity.
3. Old-_____ Community: Perennials (yea after year). Goldenrod, Milkweed
5. These secrete acids and weather rock (chemical weathering) and create soil fragments.
8. Sun-Loving _____: Organic matter increases from fallen leaves. Poplar, Birch, Quaking Aspen.
9. Sun-loving _____: Soil base now forms. Sumac, Willow, Dogwood, Apple
11. Having concentrations of nutrients optimal or for plant or animal growth. It is used to describe nutrient or soil solutions.
14. Production is considered moderate in a water body
15. Shade Tolerant _____: These can grow in shade. Oak, Hickory, Ash.
16. Shade Loving Trees: _____ Community Beech Trees, and Maples Climax means final community.
18. _____ Succession: The development of plant and animal life in an area without topsoil.

----------teacher can remove this word bank to make more challenging----------

**Possible Answers**

ADAPTATION, ANIMAL, AQUATIC , BURN, CLIMAX, CONIFERS, EUTROPHIC, FASTER, FIELD , FIRE, HARDWOODS, LICHENS, MEADOW, MESOTROPHIC, MOSSES, OLIGIOTROPHIC, PRIMARY , SECONDARY, SHRUBS , TREES , EUTROPHICATION, SUCCESSION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# Part 6 Review Game Lesson 7

Name:

1-10 = 10 pts * = Bonus + 1 pt,
(Secretly write owl in correct space +1 pt)
Final Question = 5 pt wager

Due: Today
Score ____ / 100

| TIMES HAVE CHANGED | PRIME TIME | ON STAGE | GET YOUR SUCCESS ON | THEN AND NOW<br>Bonus round<br>1 pt each |
|---|---|---|---|---|
| 1) | 6) | 11) | 16) | *21) |
| 2) | 7) | 12) | 17) | *22) |
| 3) | 8) | 13) | 18) | *23) |
| 4) | 9) | 14) | 19) | *24) |
| 5) | 10) | 15) | 20) | *25) |

Final Question Wager ___ /5 Answer: _____

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# Part 6 Ecological Succession

Name:

## Part 6 Lesson 1 Ecological Succession

What would happen to this street if people disappeared forever that morning. 5 years to 500 years?

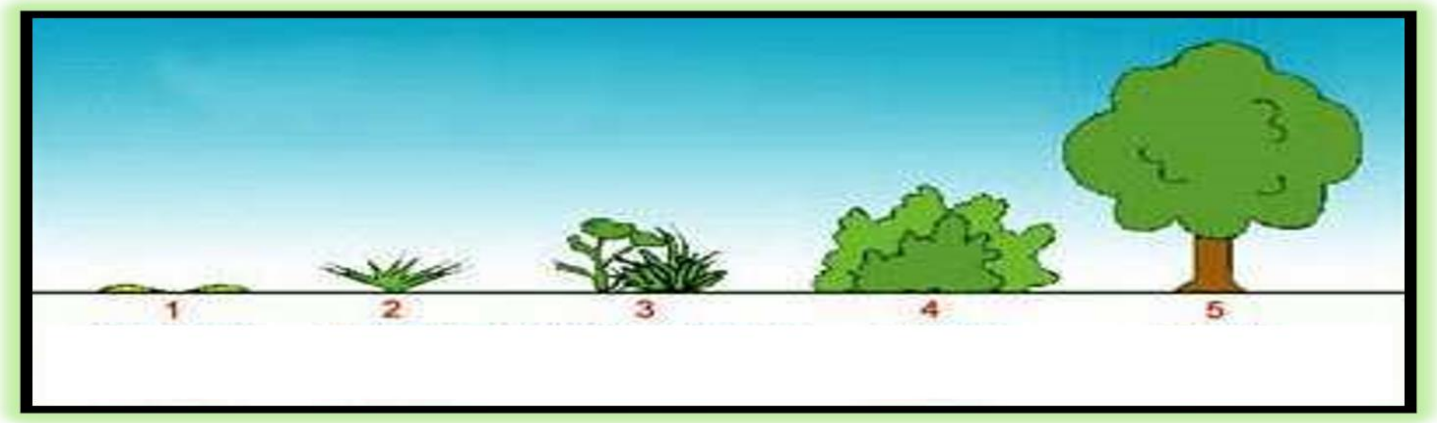
Overtime, the area would become a forest. Ecological succession is the predictable and gradual replacement of one community of living things by another community. First rock would become weathered into soil, mosses and grasses would move in, then shrubs, and trees. The buildings would slowly fall into disrepair.

Describe how after the Chernobyl disaster, ecological succession progressed in a city of Pripyat, Ukraine without humans

After the Chernobyl disaster, the city of Pripyat became the victim of gradual ecological succession. Without people, windows broke, plants began to colonize the city and what was once a thriving metropolis is now slowly becoming a forest. This area is a stunning example of what happens when people leave a city.

Ecological succession: The predictable and gradual replacement of one community of living things by another community.

Fill-in the plant communities and provide some arrows as described in the slideshow.




## Part 6 Lesson 2 Primary and Secondary Succession

Primary Succession: The development of plant and animal life in an area without topsoil.

Secondary Succession: Succession in an area that previously colonized life but is now disturbed. Soil is present.

In secondary succession, regrowth is usually faster because…
-Seeds are already in soil.
-Stumps and roots and some plants can regrow.
-There is still soil, nutrients, and micro-organisms.

Pioneer Species: The first species to colonize after a disturbance.

Which picture represents primary succession and which picture represents secondary succession?

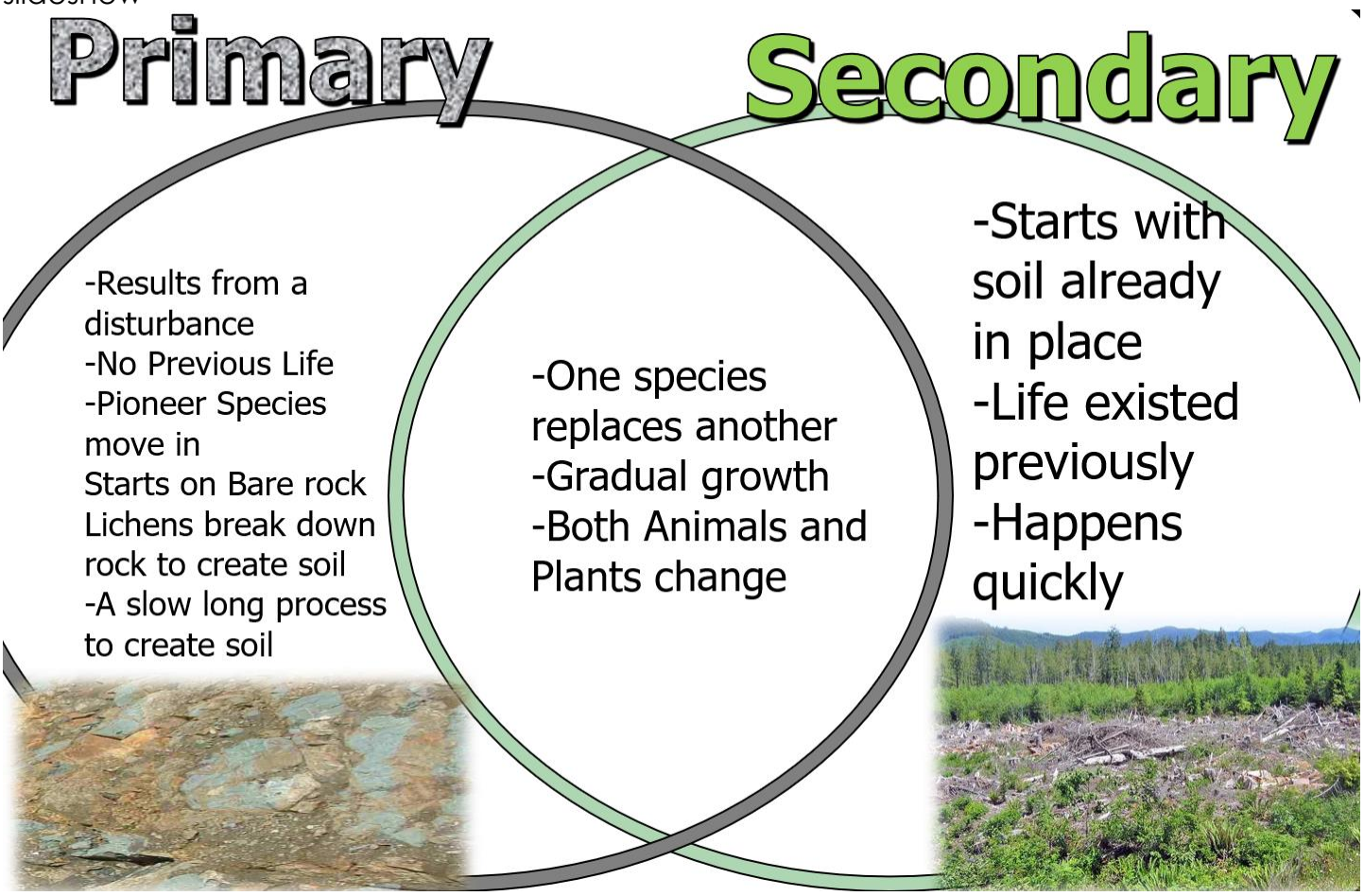

Secondary Succession: Succession in an area that previously colonized life but is now disturbed. Soil is present.


Primary Succession: The development of plant and animal life in an area without topsoil.

Animal Succession: Animals replace Animals.
Animals also help succession.

Seed dispersal, soil formation, tunneling, falling trees.

Please fill-in the Venn Diagram for Primary and Secondary Succession as described in the slideshow

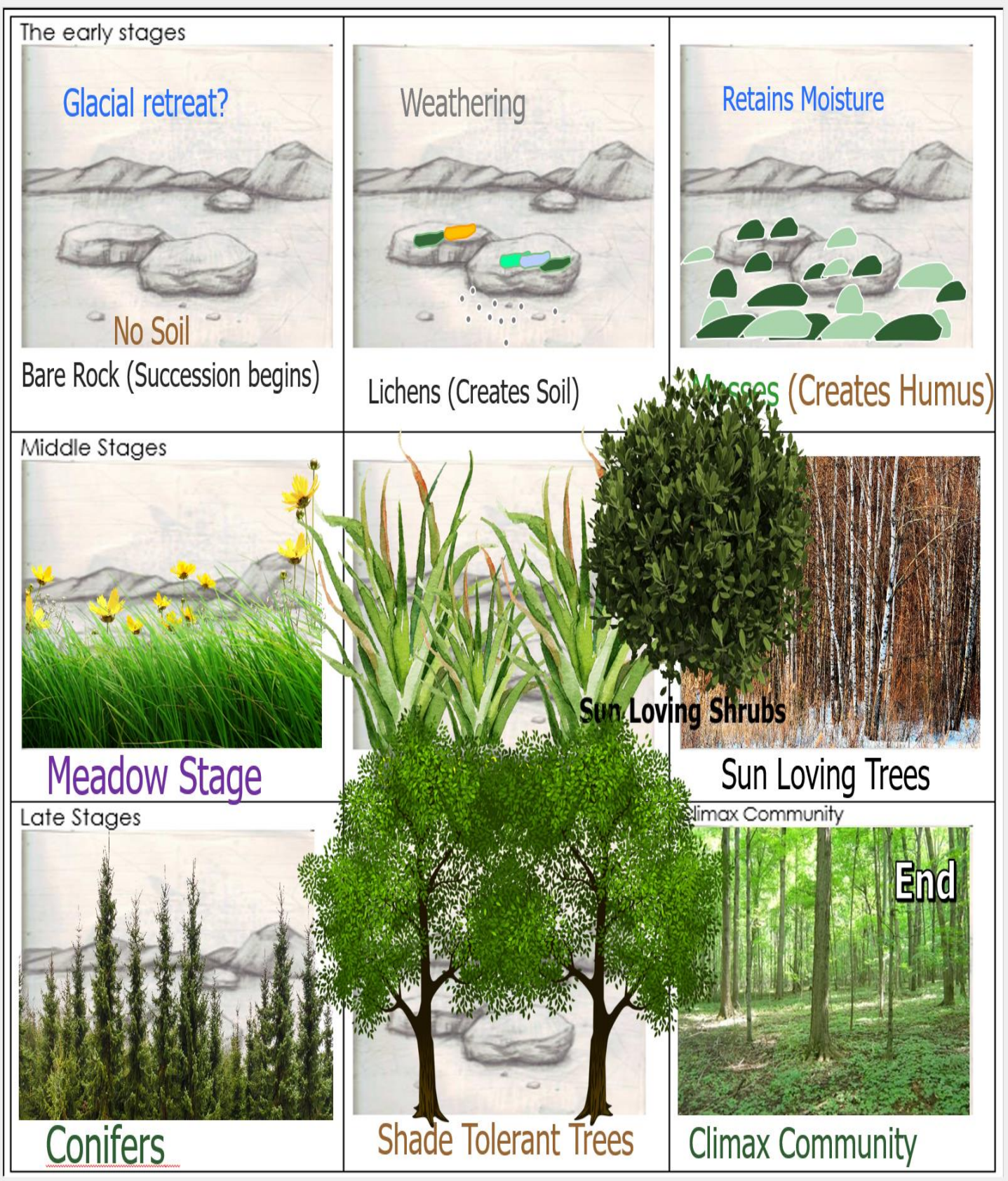



Describe the role of lichens in early ecological succession. Decorate the rock below as a visual to help you explain.

- Lichens
  - Acids secreted by the lichens chemically weather rock and create soil fragments.

Please sketch in plants and animals to show 200 years of ecological succession in six pictures spread out over time.

**Provide with text some** of the plant species represented in your drawings in the space below each box.



The order of ecological succession from primary succession. Draw an arrow on the left side of this page showing time. Is this an example of primary or secondary succession?

Bare Rock
Lichens
- Acids secreted by the lichens chemically weather rock and create soil fragments.

Mosses
- Create humus and retain moisture.

Grasses and Sedges
Meadow Stage
- Grasses
- Yearly plants
- Weeds

Old-Field Community
- Perennials (year after year).
- Goldenrod, Milkweed.

Sun Loving Shrubs
- Soil base now forms.
- Sumac, Willow, Dogwood, Apple.

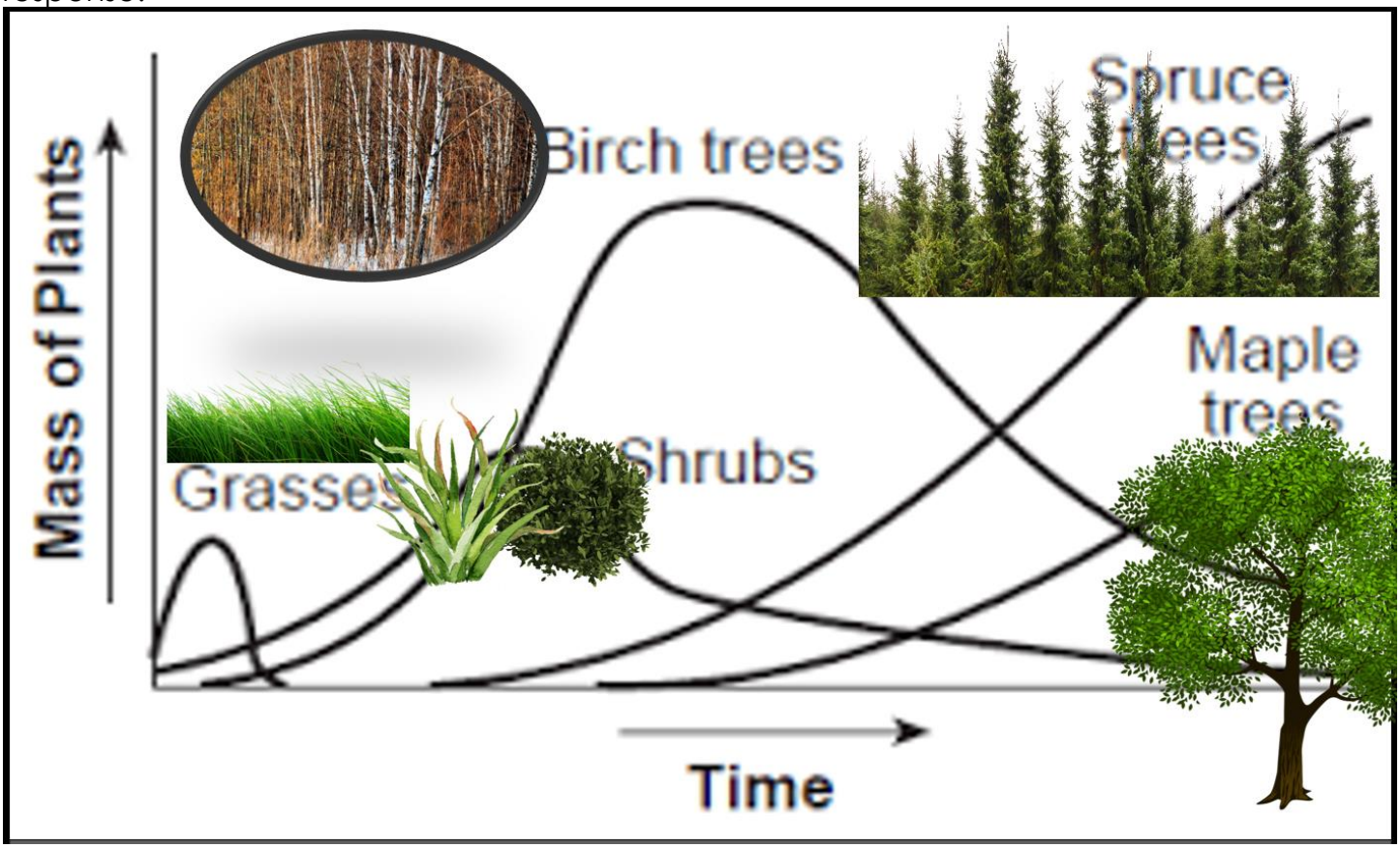
Sun Loving Trees
- Organic matter increases from fallen leaves.
- Poplar, Birch, Quaking Aspen.

Conifers
- Enriched soil allows pines to grow
- Pines are sun loving and grow well
- Eventually they shade out their offspring, no new pines grow.

Shade Tolerant Hardwoods
- These can grow in shade.
- Oak, Hickory, Ash.

Climax Community (Shade loving hardwoods)
- Beech Trees, and Maples
- Climax means last community.

Describe the graph below. Use some data to describe how some plant communities have been replaced by new communities. Use the words "Mass of Plants" and "time" in your response.




Plants communities replace other communities and get larger in mass over time. Grasses and Shrubs have the least mass with birch and spruce having the most mass.

## Part 6 Lesson 3 Fire Ecology

Events that can restart succession.

-A forest fire.

Fire ecology: A branch of ecology that focuses on the origins of wildland fire and its relationship to the environment that surrounds it, both living and non-living.

Fire Adaptation: Plants have evolved with special traits contributing to successful abilities to survive fires at various stages in their life cycles.

Fire Dependence: This concept applies to species of plants that rely on the effects of fire to make the environment more hospitable for their regeneration and growth.

The "Let it Burn Philosophy" is based on…

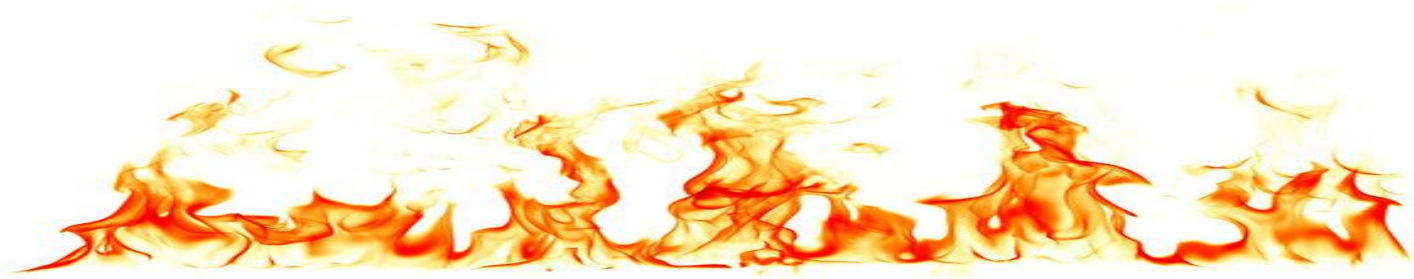
- Large destructive fires result from fuel accumulations above historic levels.
- Both firefighters and the public risk loss of life or serious injury.

- Intense or long-lasting smoke caused by large uncontrolled fire can impact air quality and seriously affect respiratory health.
- The costs of controlling larger and more damaging wildland fires have risen dramatically.

| | |
|---|---|
| Which is not part of the "Let it Burn Philosophy."<br>A.) Large destructive fires result from fuel accumulations above historic levels.<br>B.) Both firefighters and the public risk loss of life or serious injury.<br>C.) Fire poses a serious risk to the ecology of a forest and should be suppressed.<br>D.) Intense or long-lasting smoke caused by large uncontrolled fire can impact air quality and seriously affect respiratory health.<br>E.)The costs of controlling larger and more damaging wildland fires have risen dramatically. | Which is not part of the "Let it Burn Philosophy."<br>A.) Large destructive fires result from fuel accumulations above historic levels.<br>B.) Forest fires do not have any risks associated with them.<br>D.) Intense or long-lasting smoke caused by large uncontrolled fire can impact air quality and seriously affect respiratory health.<br>E.)The costs of controlling larger and more damaging wildland fires have risen dramatically. |

Please watch the video below and provide a summary of some things learned in the video.

- Video: Forest Fires (10 Minutes)
- http://www.youtube.com/watch?v=TSwYToj34jE

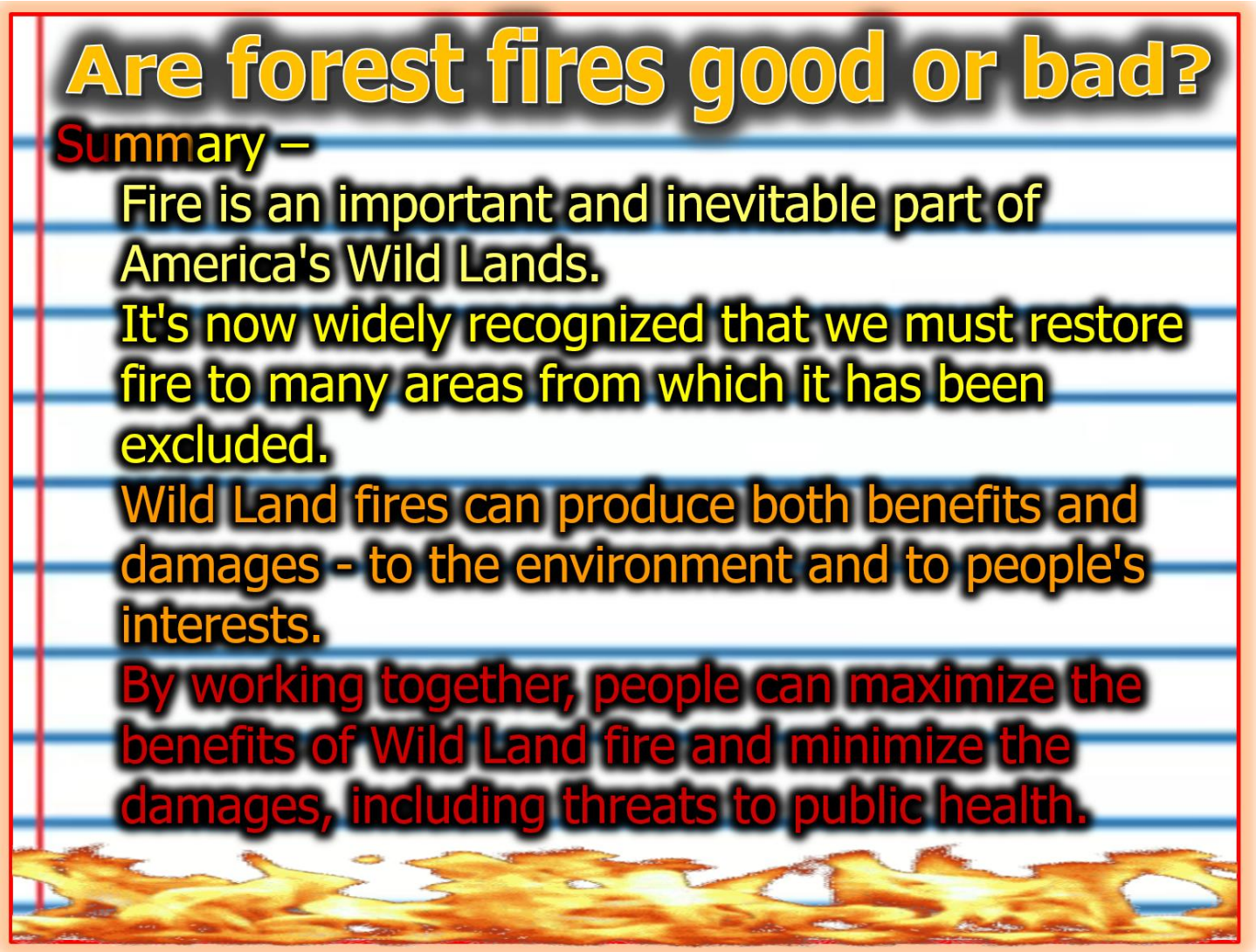


| | |
|---|---|
| Which is a bogus statement from the summary below?<br>A.) Fire is an important and inevitable part of America's Wild Lands.<br>B.) It's now widely recognized that we must restore fire to many areas from which it has been excluded.<br>C.) Wild Land fires only produce damages to the environment and to people's interests.<br>D.) By working together, people can maximize the benefits of Wild Land fire and minimize the damages, including threats to public health. | Which is a bogus statement from the summary below?<br>A.) Fire is an important and inevitable part of America's Wild Lands.<br>B.) It's now widely recognized that we must restore fire to many areas from which it has been excluded.<br>C.) Wild Land fires produce benefits and damages to the environment and to people's interests.<br>D.) By working together, people can maximize the benefits of Wild Land fire and not worry about the damages and threats to public health. |

Events that can restart succession Continued…

A forest fire

A Volcanic event.
Logging / Human Impact.
Impact Event
Ice Age / Glaciers.




Describe some events that will turn this climax community back to the beginning of secondary succession.

Events that can restart succession Continued…

A forest fire
A Volcanic event.
Logging / Human Impact.
Impact Event
Ice Age / Glaciers.

## Part 6 Lesson 4 Wrap-Up and Quiz

Quiz 1-10 Name the stage of succession.

- Bare Rock, Lichens, Mosses, Meadow Stage, Old-Field Community, Sun-loving shrubs, Sun-loving trees, Conifers, Shade tolerant Trees, Shade Loving Trees (Climax).

| | | |
|---|---|---|
| 1)<br>Sun Loving Trees | 2)<br>Lichens | 3)<br>Shade Loving Trees / Climax Community |
| 4)<br>Bare Rock | 5)<br>Meadow Stage | 6)<br>Sun Loving Shrubs |
| 7)<br>Shade Tolerant Trees | 8)<br>Mosses | 9)<br>Old-Field Community |
| 10)<br>Conifers | *11)<br>Edward Cullen<br>Bella Swann | |

As succession increases in time

# of species……increases
Total population……increases
Total Biomass…… "
Organic Matter…… "

What is the essence of ecological succession?

- The essence of succession is that each species brings upon its own downfall by changing the environment.
  - Other organisms can then survive and dominate.
  - The process repeats and each species die until climax community.
  - You create your own extinction.

## Part 6 Optional Field Study / Visitation of Successional Stages

Ecological Succession Data Sheet

Please record some information below from each stage of succession visited. Please randomly toss 10 cm square into the plot to record info.

5.) For # of plant species on ground, count the number of species found.
6.) For # height and number of plants, place a meter stick into your tossed 10 cm square and record the height that each plant touches the stick. Ex, 3 cm, 9 cm, 22 cm.
7.) For Canopy look up and record yes or no if trees are above you.
8.) Describe the soil. Word bank: No soil, sandy, sand and loam, loamy and rich / organic

| Stage | Bare Rock | Moss | Mead-ow | Old Field | Shrub | Conifer | Sun Love Tree | Shade Toler--ant Trees | Shade Love Trees |
|---|---|---|---|---|---|---|---|---|---|
| # of plant species ground | | | | | | | | | |
| #Height and number of Plants | | | | | | | | | |
| Canopy of Trees Y/N | | | | | | | | | |
| Describe Soil | | | | | | | | | |
| General De--scription | | | | | | | | | |

Using your data, please describe differences observed in different stages of succession.

- How do the number of species, height of plants, canopy, and soil change over time / stages of succession? (Use your data).
- Please write a sentence that uses your data to describe one stage of succession. Plan on sharing and having your peers guess.
  - Please don't mention the stage directly.
  - Example: This stage of succession was full of woody plants at about eye height. The soil was loam based and not many small plants were on the floor but it didn't have a canopy yet.

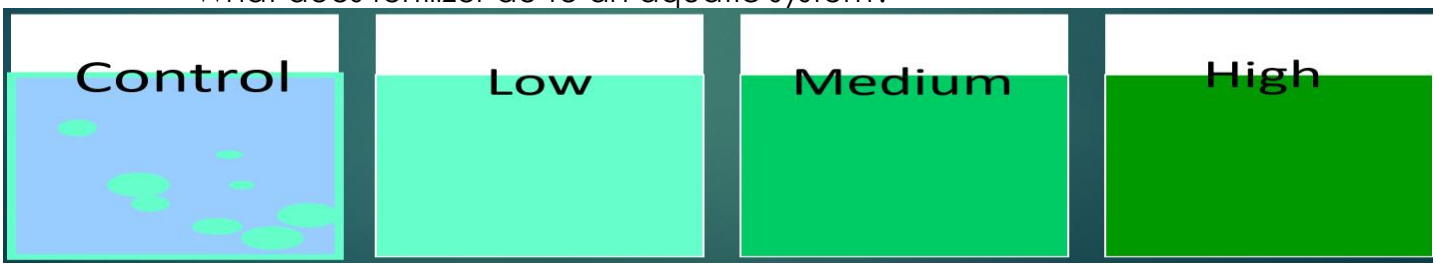
Part 6 Lesson 5 Aquatic Succession

Aquatic Succession: This succession begins in the pond or the lake. Small micro-organisms and small plants grow in the water body.

As time passes, the number of plants in the water body may increase, and it would be changed into dry condition. It is a slow process.

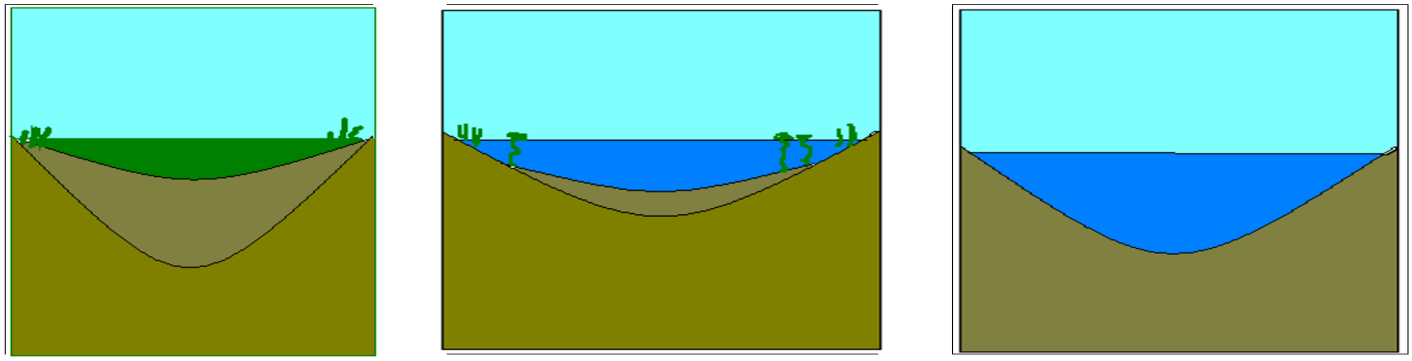
Sketch the container

- Experiment from two weeks ago.
  - Please sketch what the four containers look like now.
  - What does fertilizer do to an aquatic system?




Draw three Lakes – Add the appropriate colors and vegetation to each box.

Eutrophic Mesotrophic Olgiotrophic



Olgiotrophic

Describes a lake or river with low productivity.

Mesotrophic

Production is considered moderate.

Eutrophic

Having concentrations of nutrients optimal or for plant or animal growth. It is used to describe nutrient or soil solutions.

Which one is Olgiotrophic and which is Eutrophic?

| | |
|---|---|
| Answer=<br>Olgiotrophic<br>Describes a lake or river with low productivity. | Answer=<br>Eutrophic<br>Having concentrations of nutrients optimal or for plant or animal growth. It is used to describe nutrient or soil solutions. |


Part 2 Lesson 15 Eutrophication

Please sketch below ad described in the slideshow.


Eutrophication

Aquatic plants use Phosphorus and Nitrogen and grow out of control
Aquatic plants overpopulate and die
Bacteria break down dead plants and use oxygen in water (respiration).
No oxygen left for fish / other aquatic life and they die.

# Put the steps in order for Eutrophicatior

4 An overpopulation of aquatic life cause a massive die-off.

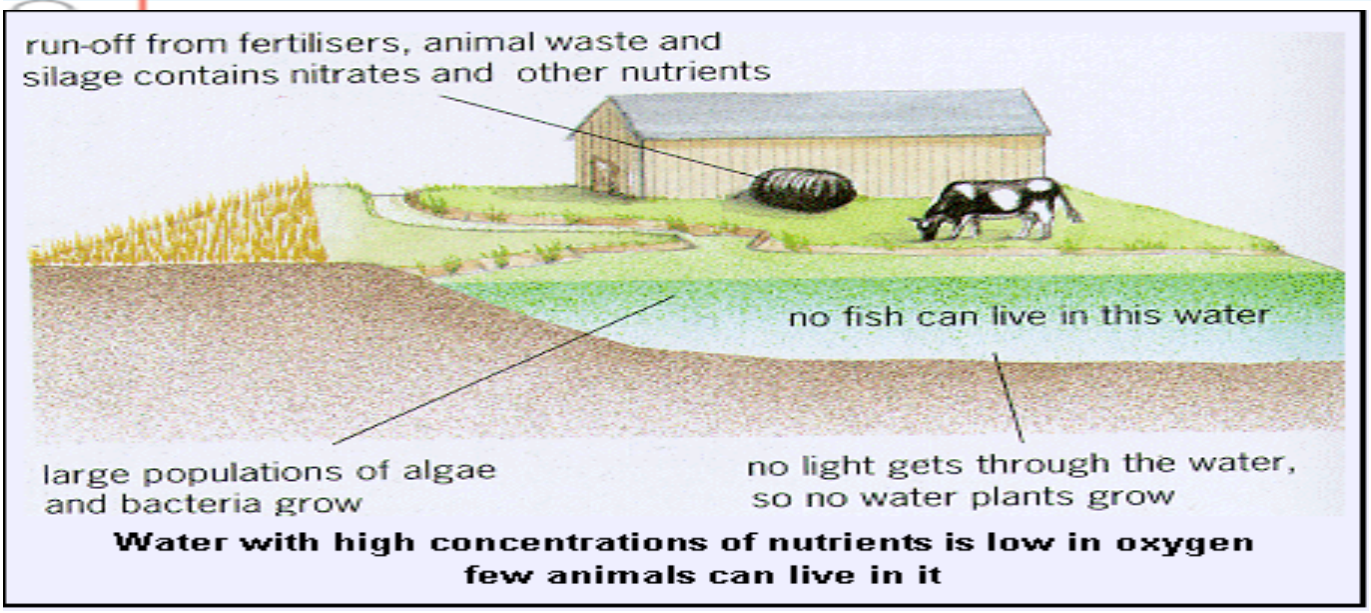
6 Fish and other aquatic life die

3 An Algal bloom occurs. Sunlight doesn't pass through surface.

1 Excess nutrients (N & P) are carried by runoff into the rivers, streams, or lakes.

5 Algae die and are decomposed by bacteria causing a decrease in dissolved oxygen in water.

2 Nutrients cause plant growth (algae).



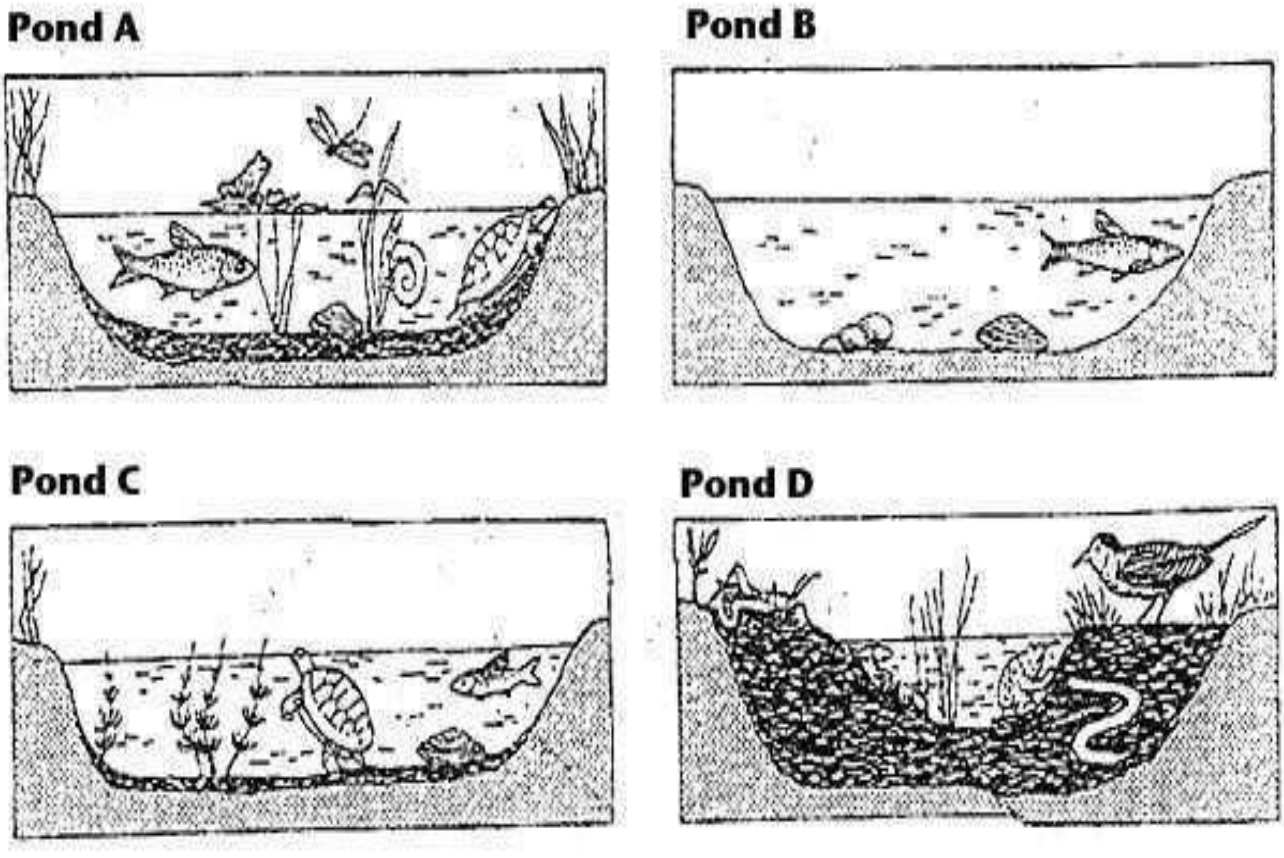

Please describe Eutrophication below. Use the pictures with text as a resource in your response.Excess nutrients (mainly nitrates and phosphates) enriched water runoff to the water bodies. Extensive growth of algae causing algal bloom. Depletion of dissolved oxygen and production of toxins. Due to the depletion of oxygen required to support aquatic life and harmful toxins produced, aquatic organisms fail to survive and the lake chokes to death, which no longer can support life.

Activity 1-10 – Olgiotrophic, Mesotrophic, or Eutrophic or Eutrophication

| | | |
|---|---|---|
| 1)Eutrophic | 2) Eutrophication | 3) Eutrophic |
| 4)Eutrophic | 5)Olgiotrophic | 6) Eutrophication |
| 7)Meso/Olgiotrophic | 8)Meso or Eutrophic | 9)Olgiotrophic |
| 10) Eutrophic | *11)Happy Gilmore | Score= |

Please label the following pictures as olgiotrophic, mesotrophic, eutrophic, or eutrophication.


Describe the order of the pond ages from youngest to oldest based on aquatic ecological succession. Which is Oligio, Meso, and Eutrophic?




Youngest B, Next oldest_C Next oldest A The Oldest D

SAVE THESE NOTES. Do Not Lose

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**Across**

1. Excessive richness of nutrients in a lake or other body of water, frequently due to runoff from the land, which causes a dense growth of plant life and death of animal life from lack of oxygen.
6. _____ Succession: This succession begins in the pond or the lake. Small micro-organisms and small plants grow in the water body. As time passes, the number of plants in the water body may increase, and it would be changed into dry condition. It is a slow process.
7. Fire A_____: Plants have evolved with special traits contributing to successful abilities to survive fires at various stages in their life cycles.
10. _____ Succession: Succession in an area that previously colonized life but is now disturbed.
12. _____ ecology: A branch of ecology that focuses on the origins of wildland fire and its relationship to the environment that surrounds it, both living and non-living.
13. In secondary succession, regrowth is usually _____
16. C_____: Enriched soil allows pines to grow Pines are sun loving and grow well Eventually they shade out their offspring, no new pines grow.
17. _____ Succession: Animals replace animals.
19. M_____: These help to create humus and retain moisture.
20. M_____ Stage: Grasses Yearly plants Weeds
21. Ecological _____: The predictable and gradual replacement of one community of living things by another community.

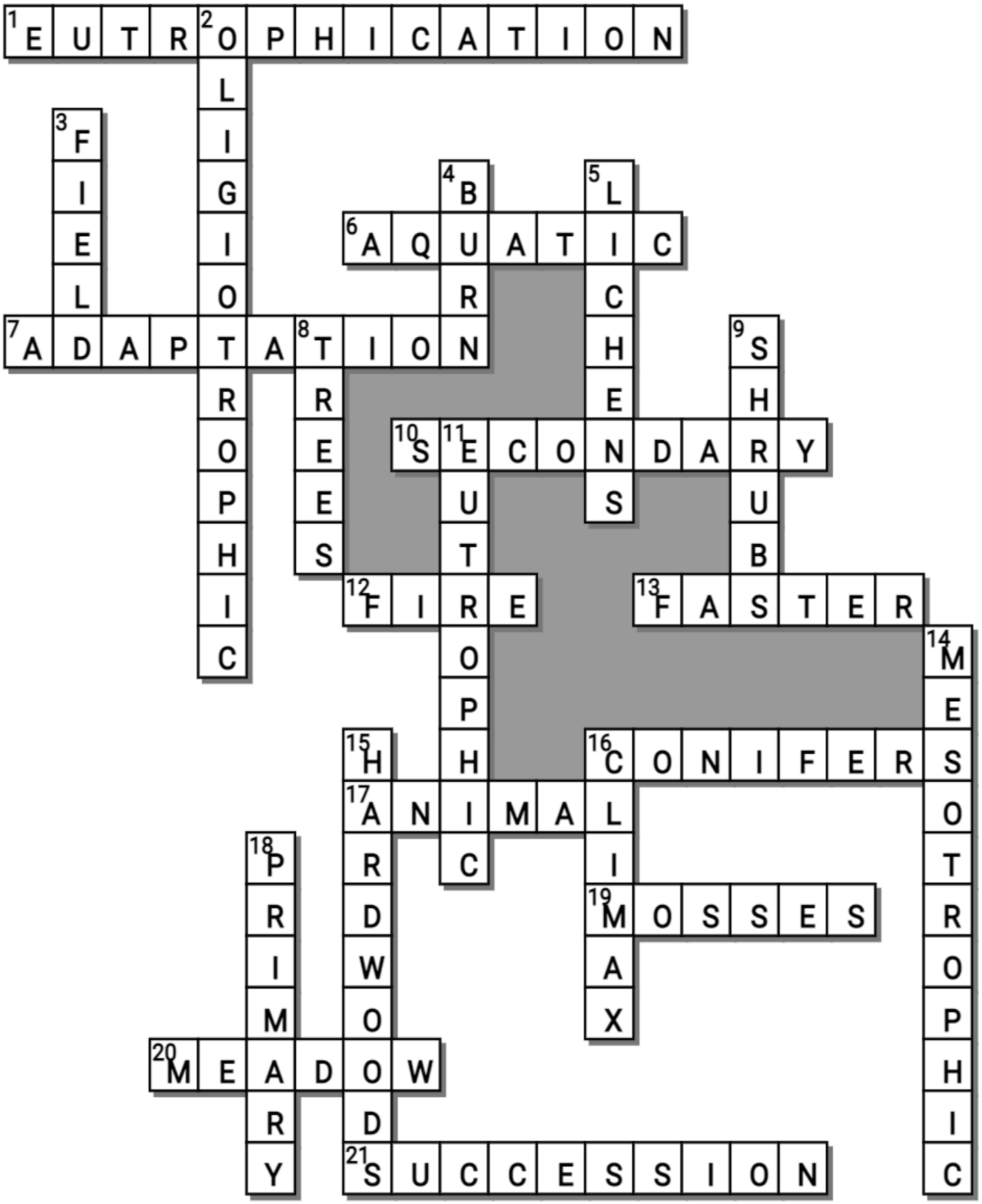
**Down**

2. Describes a lake or river with low productivity.
3. Old-_____ Community: Perennials (year after year). Goldenrod, Milkweed
5. These secrete acids and weather rock (chemical weathering) and create soil fragments.
8. Sun-Loving _____: Organic matter increases from fallen leaves. Poplar, Birch, Quaking Aspen.
9. Sun-loving _____: Soil base now forms. Sumac, Willow, Dogwood, Apple
11. Having concentrations of nutrients optimal or for plant or animal growth. It is used to describe nutrient or soil solutions.
14. Production is considered moderate in a water body
15. Shade Tolerant _____: These can grow in shade. Oak, Hickory, Ash.
16. Shade Loving Trees: _____ Community Beech Trees, and Maples Climax means final community.
18. _____ Succession: The development of plant and animal life in an area without topsoil.

----------teacher can remove this word bank to make more challenging----------

**Possible Answers**

ADAPTATION, ANIMAL, AQUATIC , BURN, CLIMAX, CONIFERS, EUTROPHIC, FASTER, FIELD , FIRE, HARDWOODS, LICHENS, MEADOW, MESOTROPHIC, MOSSES, OLIGIOTROPHIC, PRIMARY , SECONDARY, SHRUBS , TREES , EUTROPHICATION, SUCCESSION


1 EUTROPHICATION
2 OLIGIO
3 FIELL
4 B
5 L
6 AQUATIC
7 ADAPTATION
8 TROPHIC
9 SHUB
10 SUCCESSES
11 SECONDARY
12 FIRE
13 FASTER
14 MESOTROPHIC
15 HH
16 CONIFERS
17 ANIMALIC
18 PRIMARY
19 MOSSES
20 MEADOW
21 SUCCESSION
RDWOD
AX

# Part 6 Review Game Lesson 7

Name:

1-10 = 10 pts * = Bonus + 1 pt,
(Secretly write owl in correct space +1 pt)
Final Question = 5 pt wager

Due: Today
Score ____ / 100

| TIMES HAVE CHANGED | PRIME TIME | ON STAGE | GET YOUR SUCCESS ON | THEN AND NOW Bonus round 1 pt each |
|---|---|---|---|---|
| 1) Chernobyl | 6) Pioneer Species | 11) Old-Field Community | 16) E.) All of the above. | *21) Tom Cruise |
| 2) weathering | 7) Lichens | 12) Sun Loving Trees | 17) Fire Event | *22) Oprah Winfrey |
| 3) Ecological Succession | 8) Humus | 13) Shade Tolerant Hardwoods | 18) C.) Fire poses a serious risk to the ecology of a forest and should be put out immediately | *23) President Barack Obama |
| 4) Secondary Succession | 9) Mosses | 14) Sun Loving Shrubs | 19) Letter B | *24) Johnny Depp |
| 5) C.) Secondary Shrubs create the soil making process. | 10) Meadow Stage | 15) Climax Community | 20) A=Eutrophic B=Olgiotrophic C=Mesotrophic | *25) Albert Einstein |

Final Question Wager ____/5 Answer: Old-Field Community

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