Ecology

With Wendy Watson-Teague, NEC Area Co-ordinator

Requirements

1. Construct a diagram of a fresh-water pond ecosystem with pasted-on animal cut-outs.

2. Pick one mammal, bird, reptile, and amphibian from your home environment, and for each construct a diagram of its ecological pyramid.

3. Know the meaning of the following terms:

a. Ecology

b. Plankton

c. Community

d. Conservation

e. Food chain

f. Climax community

g. Commensalism

h. Eutrophication

i. Ecological succession

j. Biome

4. Make detailed field observations and a careful library book study of the habitat of some small animal in your own environment. Write a report of about 500 words, one-half from your field observations and one-half from your book/internet study.

5. Define an ecosystem and state what the basic biological and physical factors are that keep it a balanced system.

6. Investigate the disposal of rubbish in your area. How much is disposed per family per day? per week? per year? How can it be better taken care of?

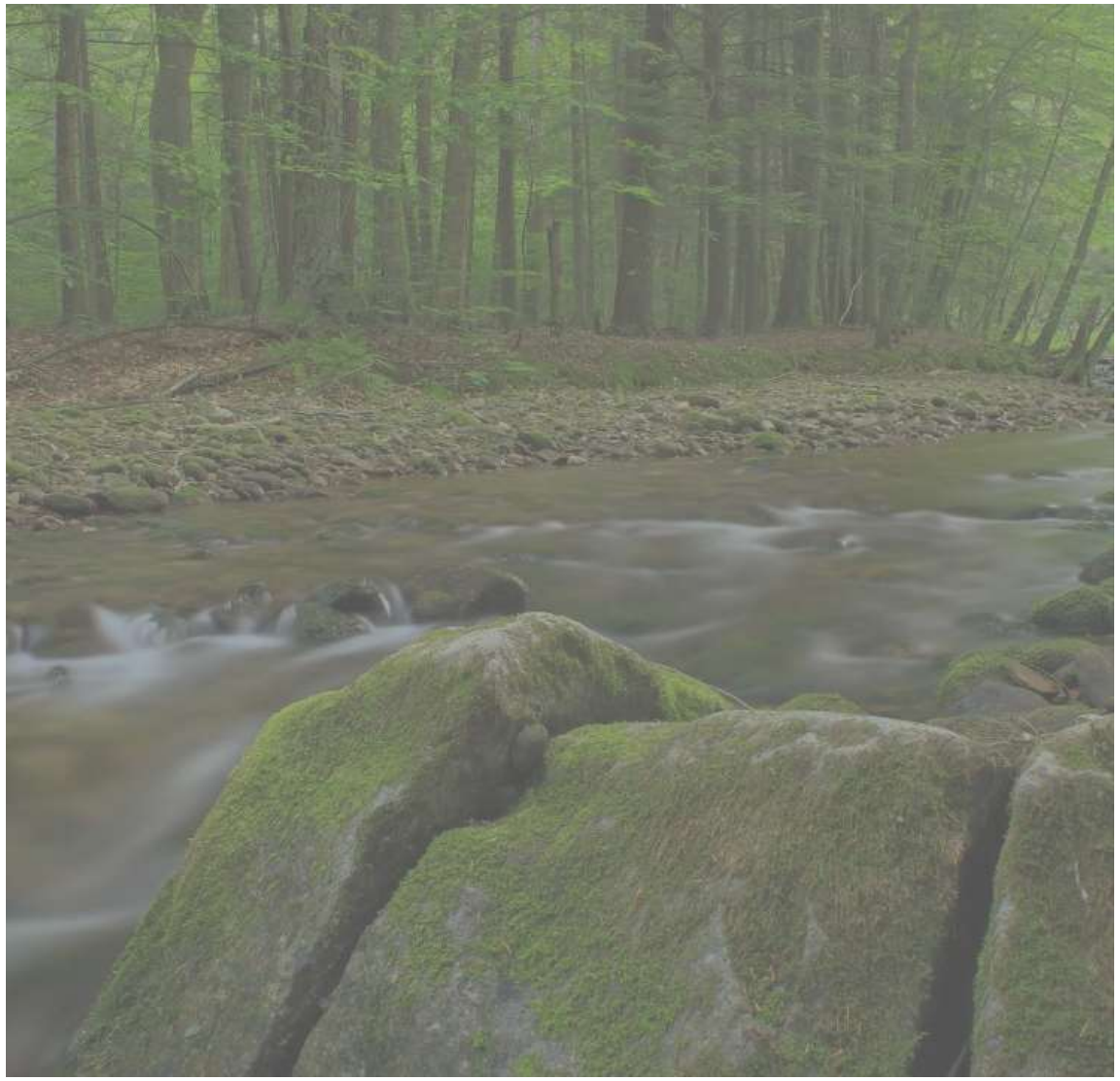
7. Check your nearest city for one month for its air pollution level. Plot a curve for this level on a graph for the month. Find out what caused the peaks on your graph.

8. List ten ways in which you might actively work to improve the environment in which you live. Put four of these into practice.

9. Find a Spirit of Prophecy quotation and a Bible text pertinent to ecology, and be able to explain their relevance and application to our day.

Requirement 1

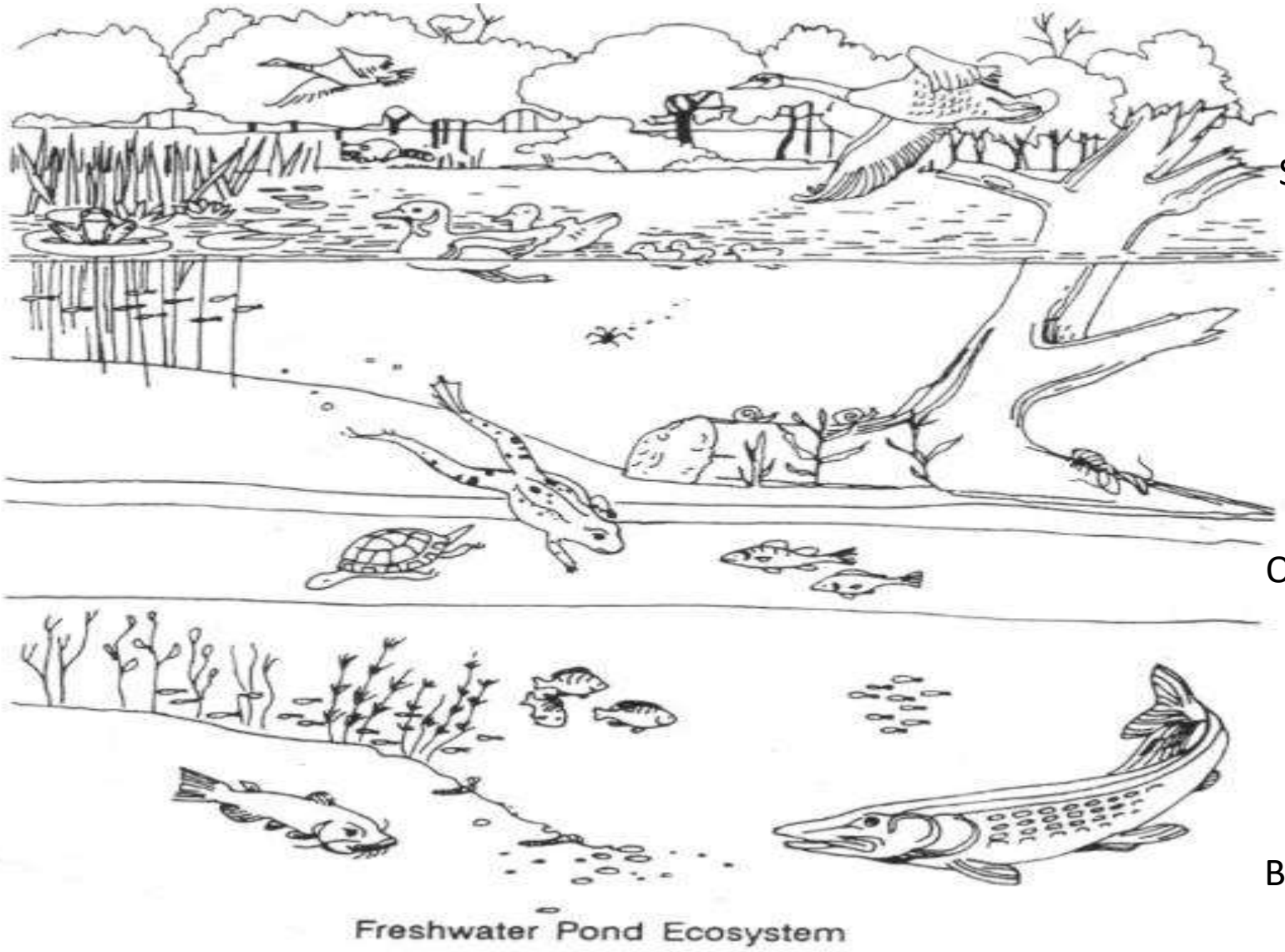
- Construct a diagram of a fresh water pond ecosystem



Fresh water pond

Fresh-water pond ecosystem

Habitats



Question?

- What other inhabitants can you think of that live in a fresh- water pond?

other inhabitants could also be….

- Shellfish

Cattail

Geese

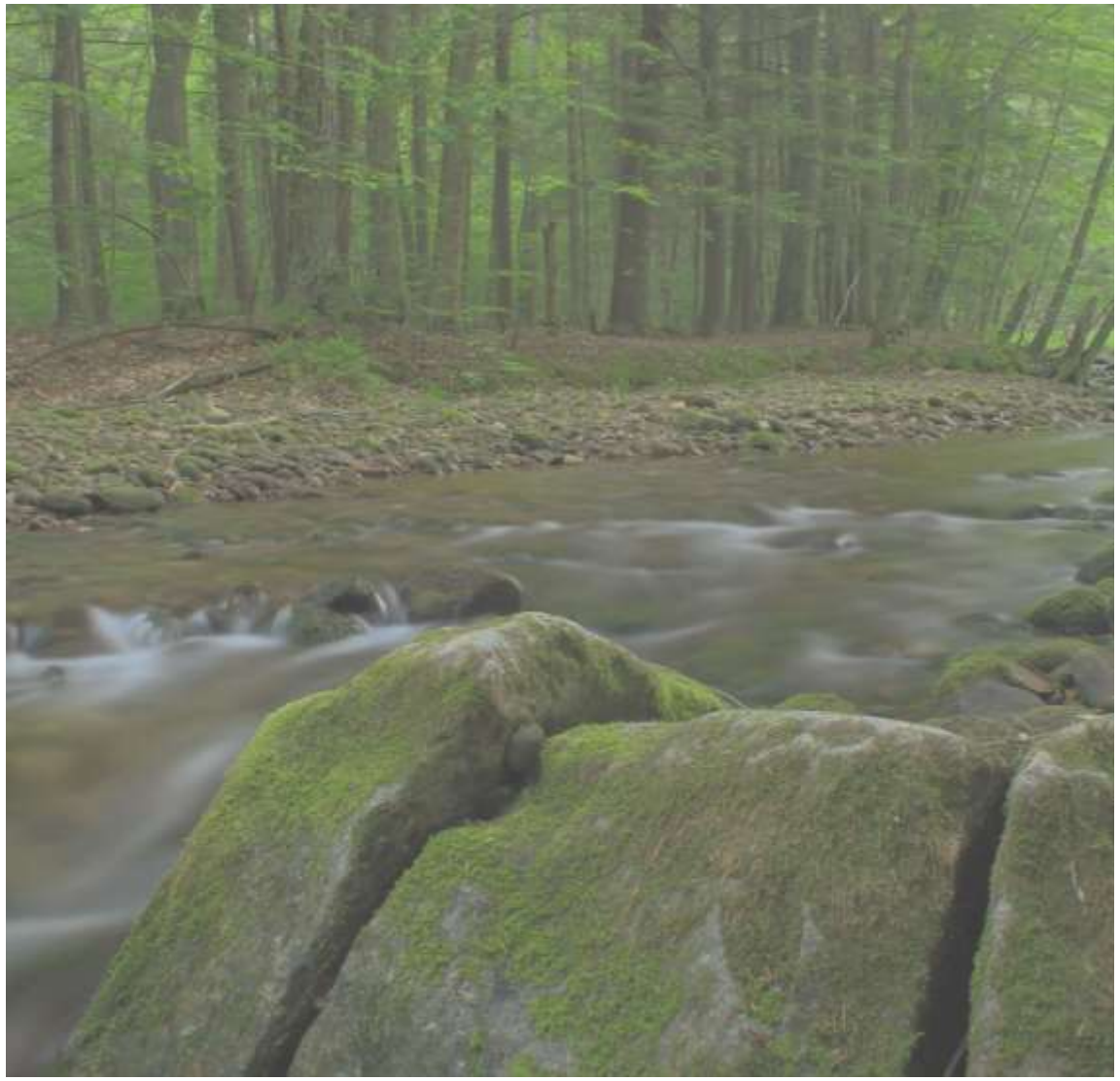
Painted turtle

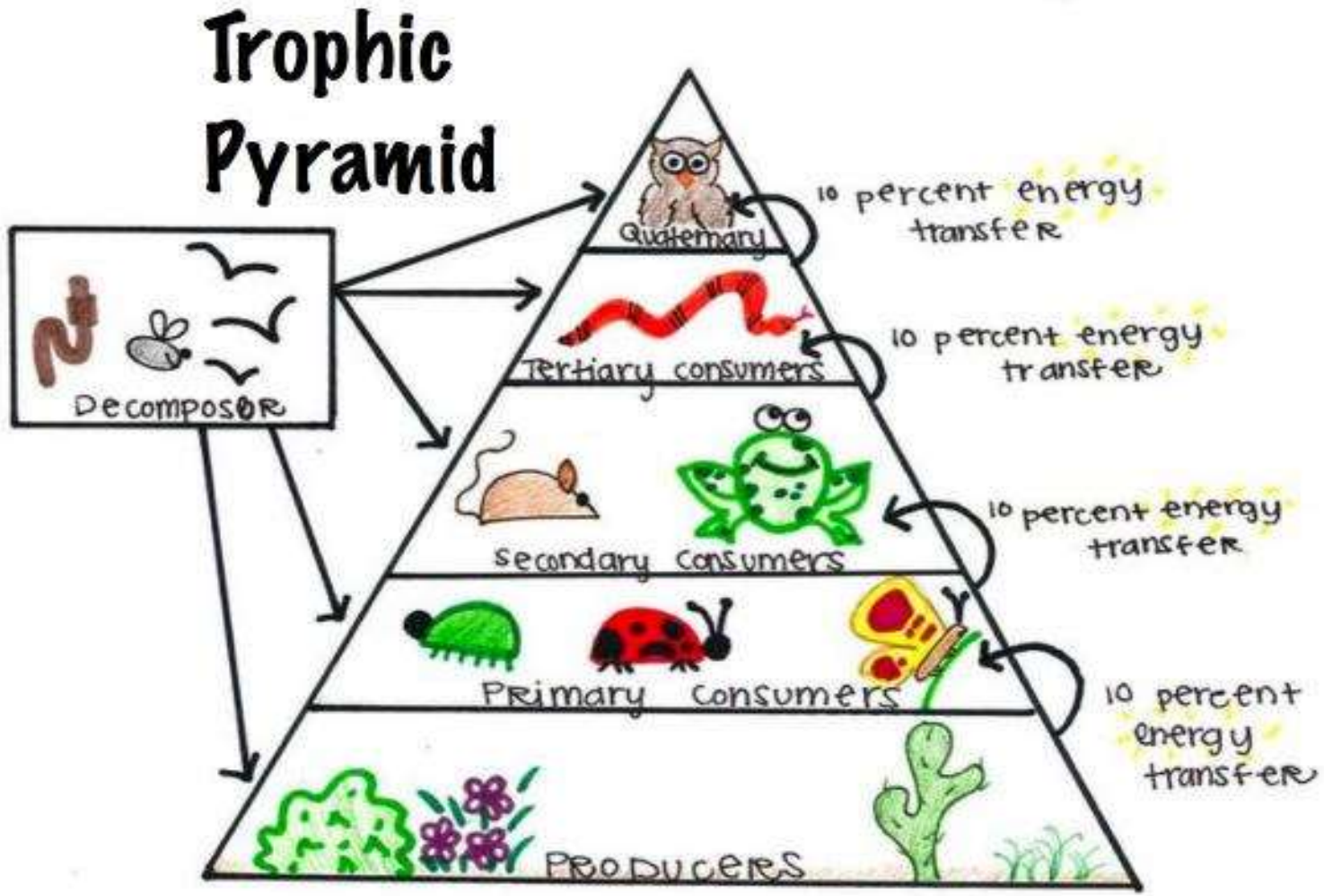
Duck weed

Crayfish

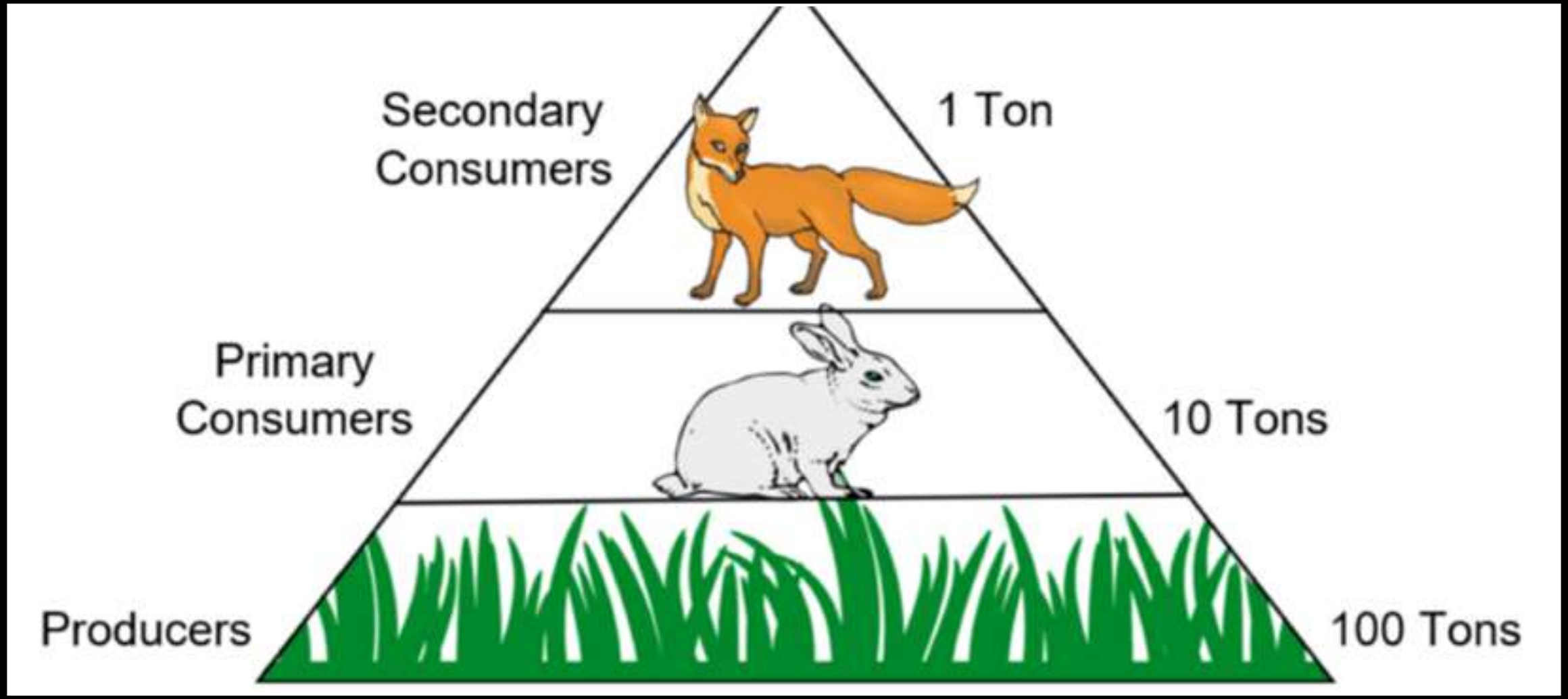
Requirement 2

- Pick one mammal, one bird, one reptile, and one amphibian from your home environment and for each construct a diagram of its ecological pyramid.



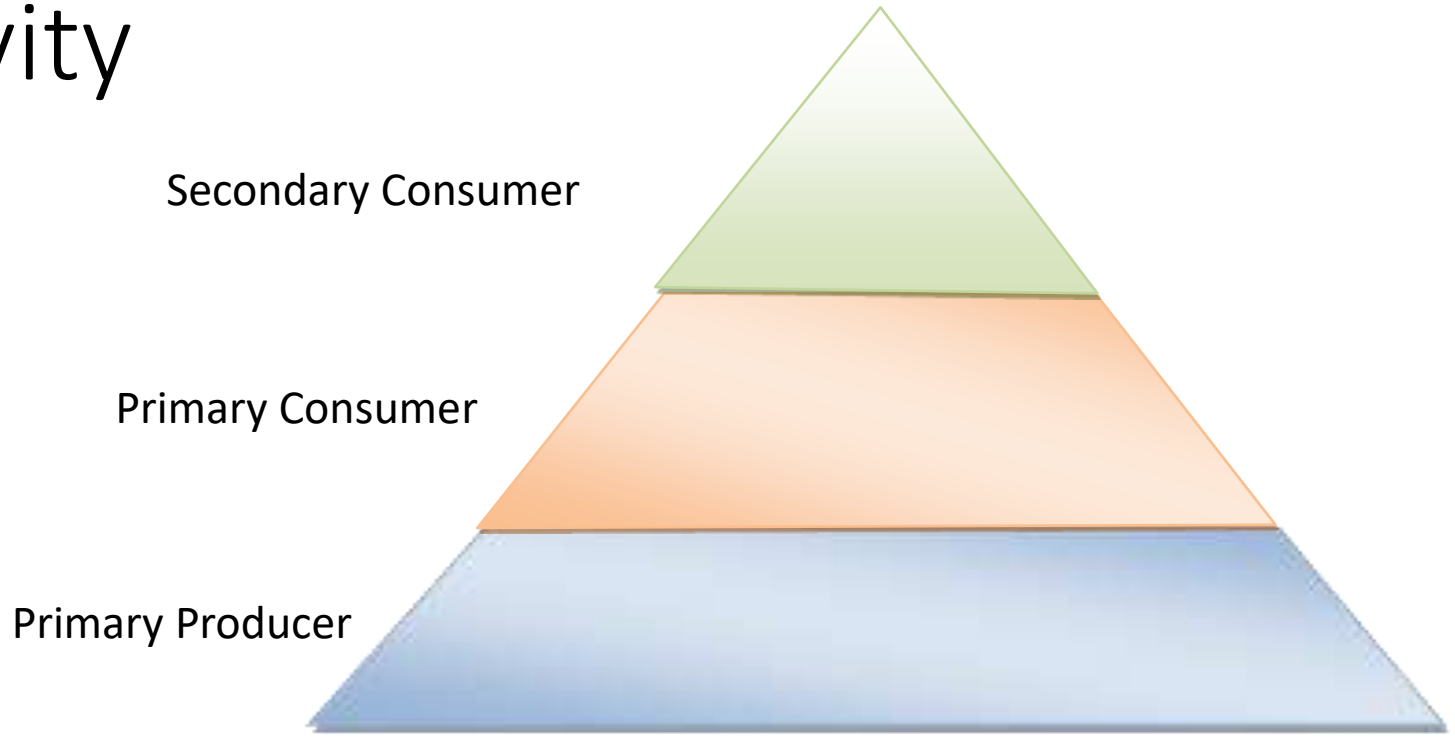


Ecological pyramid



Animal ecological pyramid

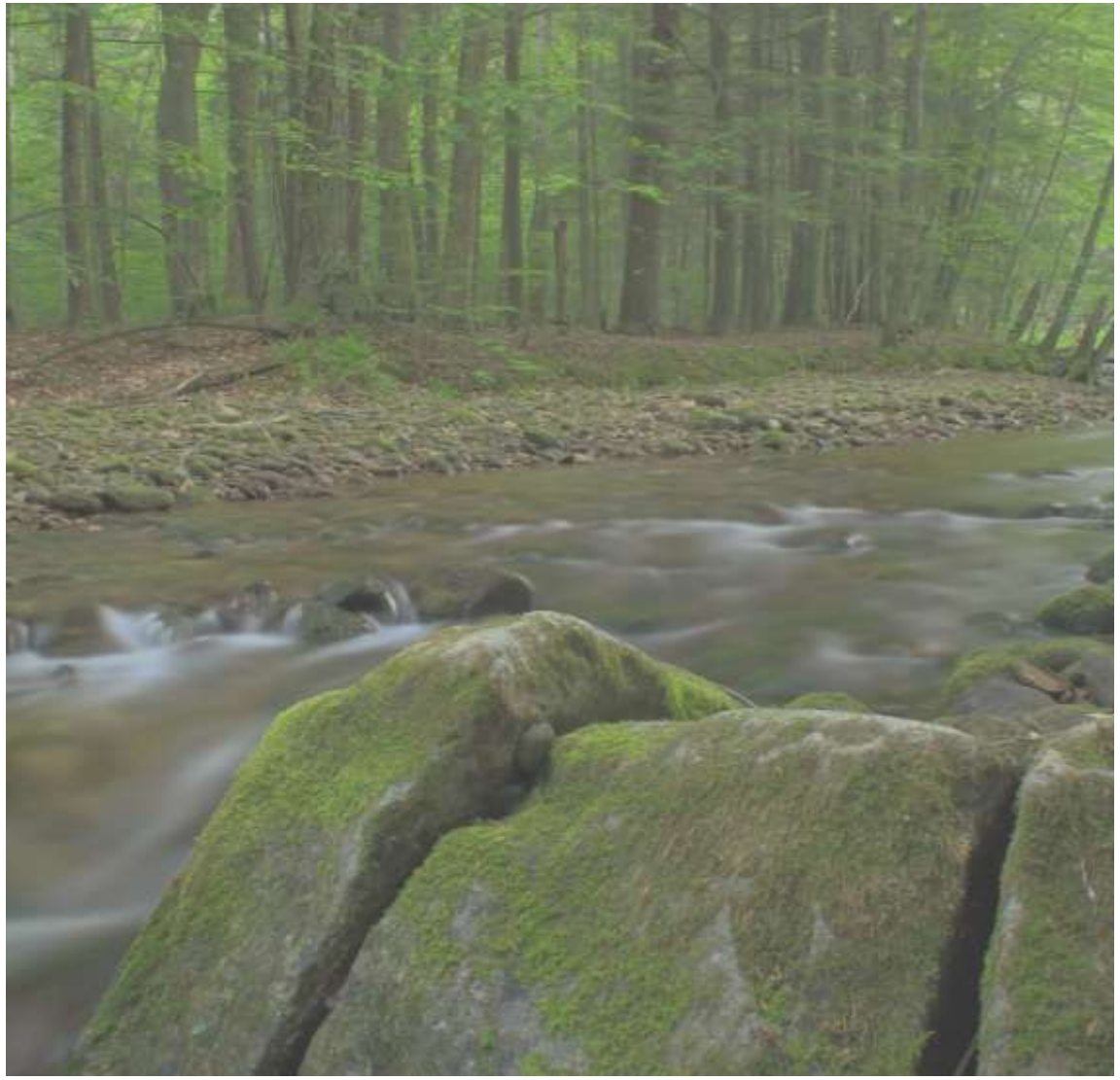
Activity



Construct an ecological pyramid for:
A bird
A reptile
An amphibian

Requirement 3

- Know the meaning of the following terms:
- a. Ecology
- b. Community
- c. Food Chain
- d. Commensalism
- e. Ecological succession
- f. Plankton
- g. Conservation
- h. Climax community
- i. Eutrophication
- j. Biome



a. Ecology

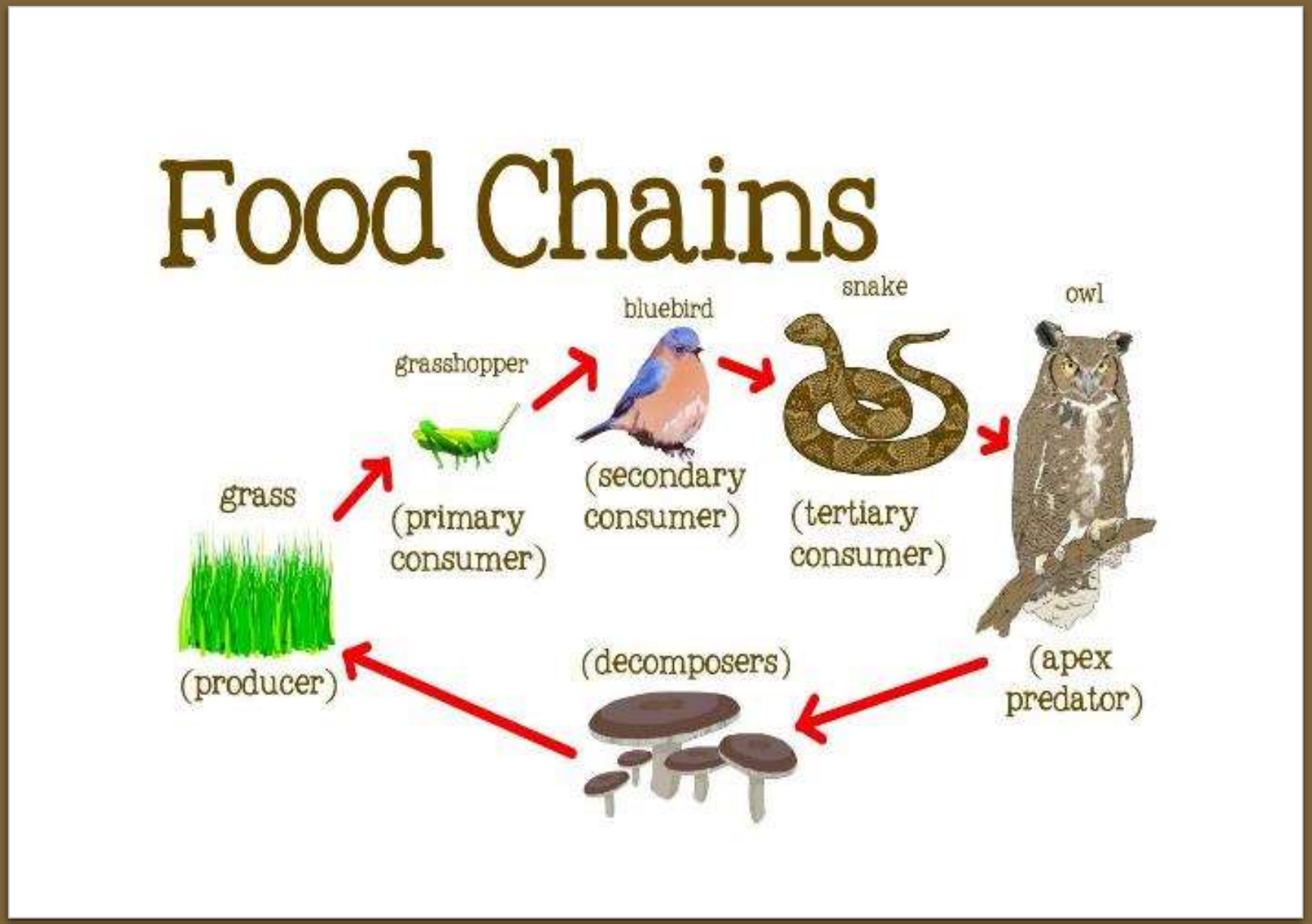
The study of plants and animals in relation to each other and to their physical surroundings.

b. Community

A total of living organisms having mutual relationships among themselves and to their environment.

Or,

Groups of organisms in an area that interact or depend on each other for survival.



c. **Food chain**
The transfer of food energy from one organism to another

d. Commensalism

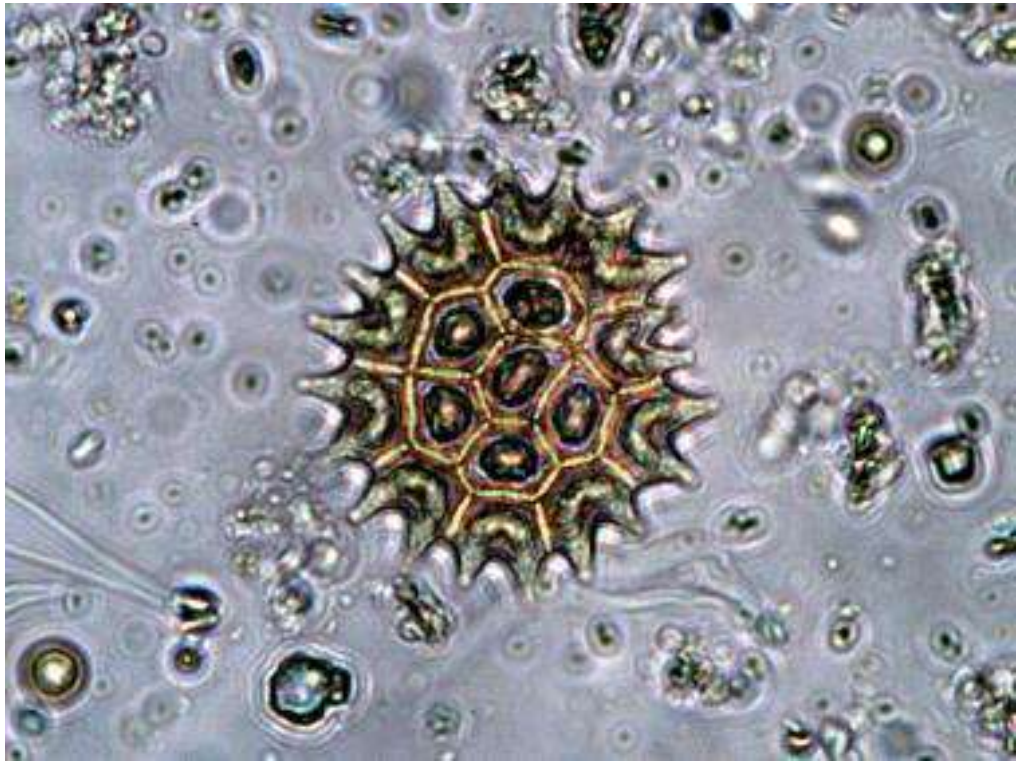
The relationship between two organisms where one benefits and the other neither benefits nor is harmed.

e. Ecological Succession

Members of a community, by their very activities, tend to change the environment.

f. Plankton

The microscopic animals and plant life found floating in bodies of water which are used as food by fish and water mammals.

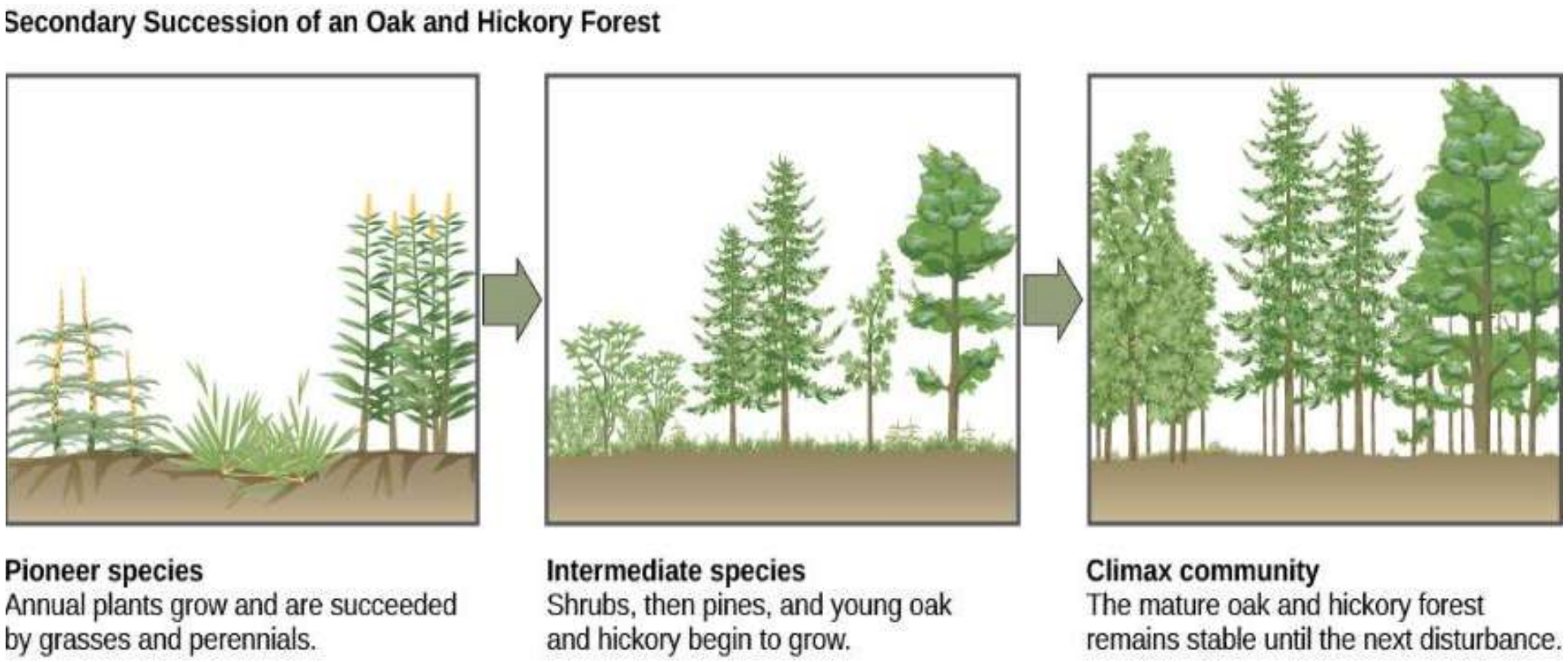


g.

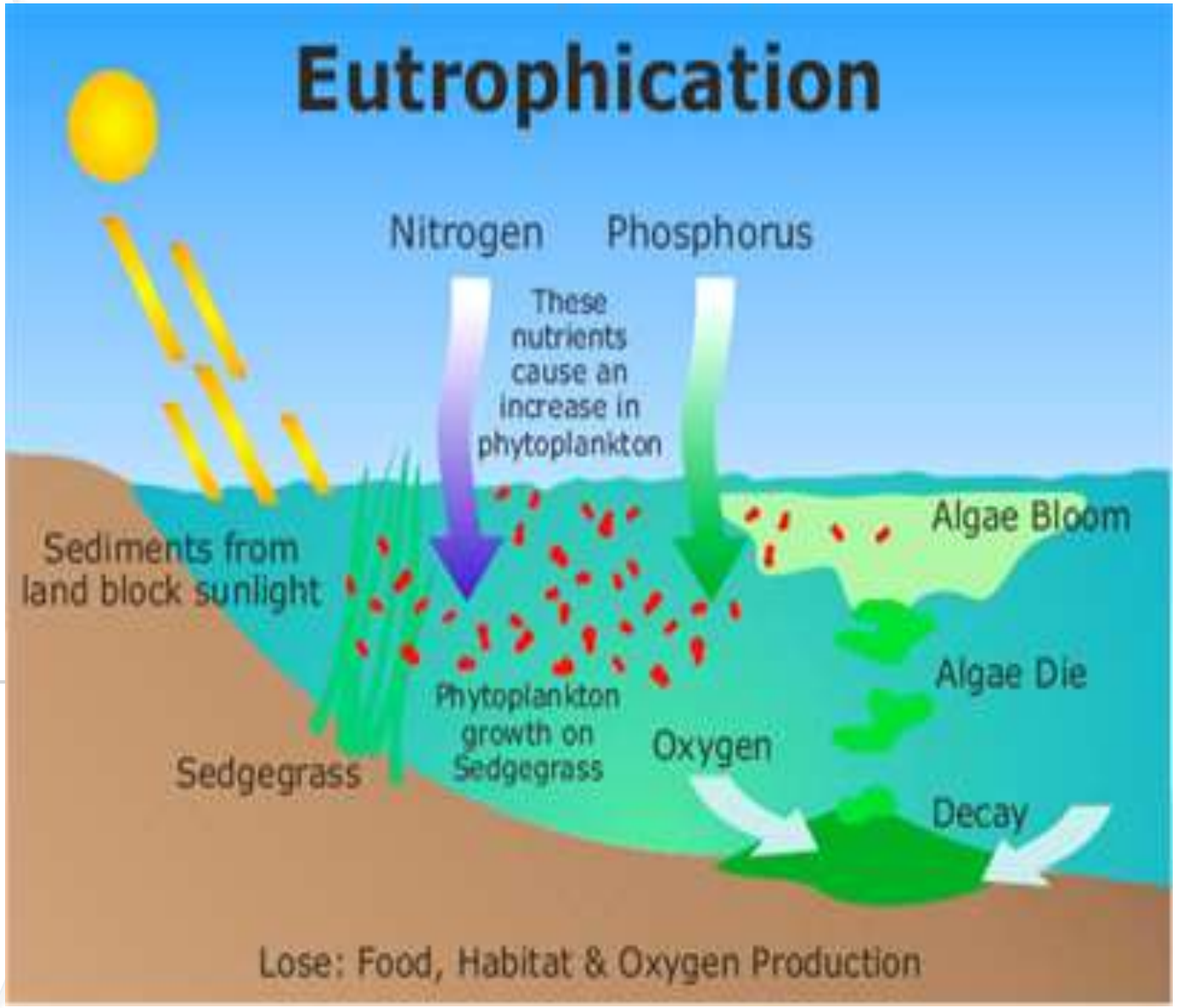
Conservation

The wise use of natural resources.

h. Climax community. No longer used terminology



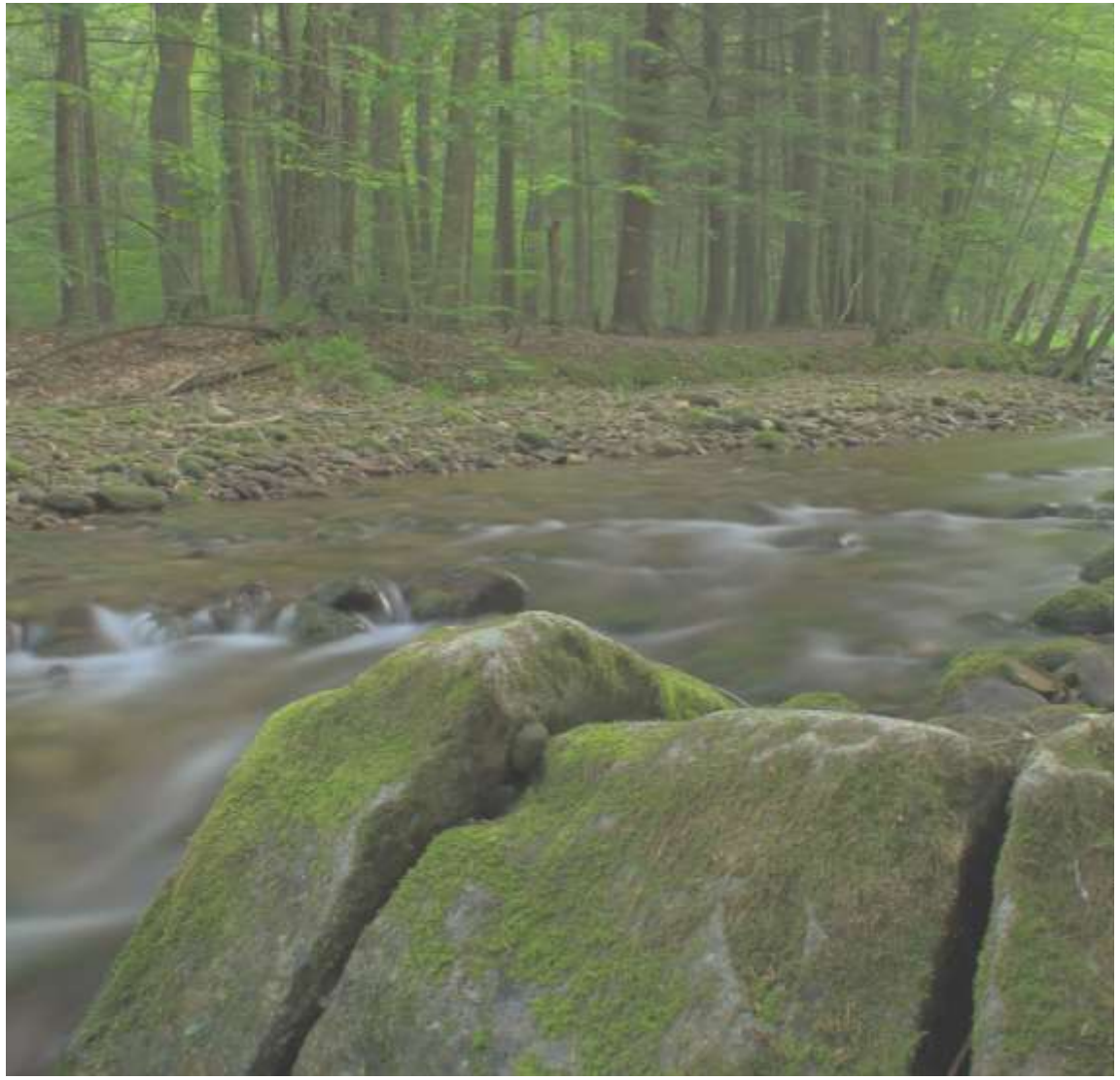
i. **Eutrophication**
The process by which a body of water, such as a lake, matures and ages, characterised by an environment growing progressively richer in mineral and organic nutrients, resulting in a seasonally recurring depletion in oxygen that is ultimately incompatible with animal life.



j. **Biome**
Biomes are climatically and geographically defined as contiguous areas with similar climatic conditions on the Earth, such as communities of plants, animals, and soil organisms, and are often referred to as ecosystems.

Requirement 4

- Make detailed field observations and library-book / internet study of the habitat of some small animal in your own environment. Write a report; one-half from your field observations and one half from your book / internet study. Length about 500 words.



Observation Log			Animal Observed:	House sparrow	
Date:	26 Aug 08	26 Aug 08	26 Aug 08	26 Aug 08	26 Aug 08
Time:	1:00 pm	1:30 pm	2:00 pm	4:00 pm	5:00 pm
Location:	Outside my bedroom	Outside my bedroom	Outside my bedroom	Outside my bedroom	Outside my bedroom

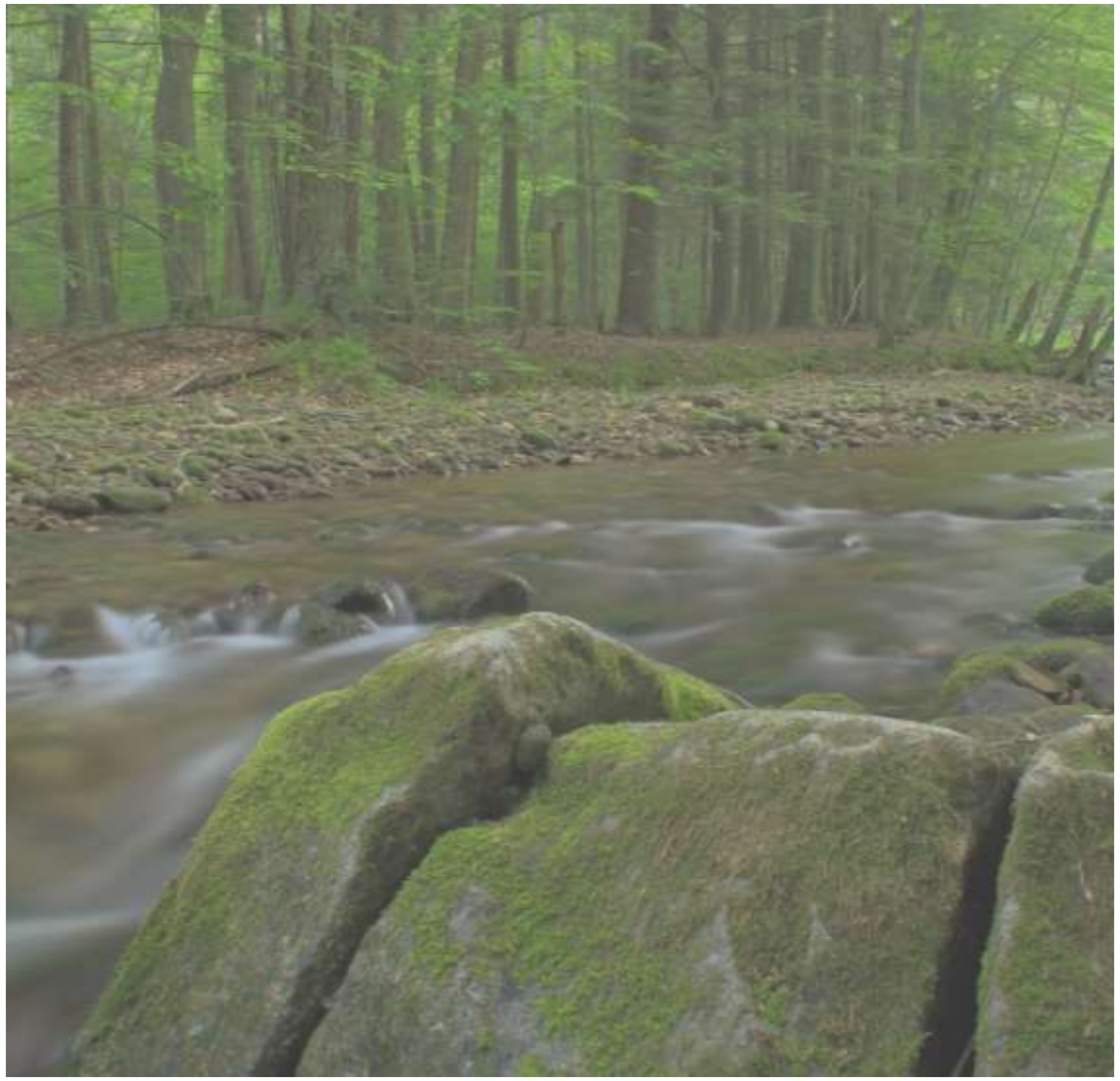
Notes on Observations

There are 9 house sparrows in the observation area.
The sparrows spent most of their time in the small trees and on the ground
They were eating bread crusts on the ground
The sparrows did not interact with any other animal. All of the sparrows kept away from us.
There was a pecking order in the sparrows. Some of the sparrows would chase the other sparrows away. The sparrows with the brightest markings chased the other sparrows away from food. Sometimes they would chase the other sparrows for no particular reason. This appeared to be a sign of dominance.
The sparrows appeared to chirp continuously. They kept in constant communication the whole time during the observation.
Some sparrows appeared much darker in colour than others.
The markings on their chest varied in size between the sparrows.

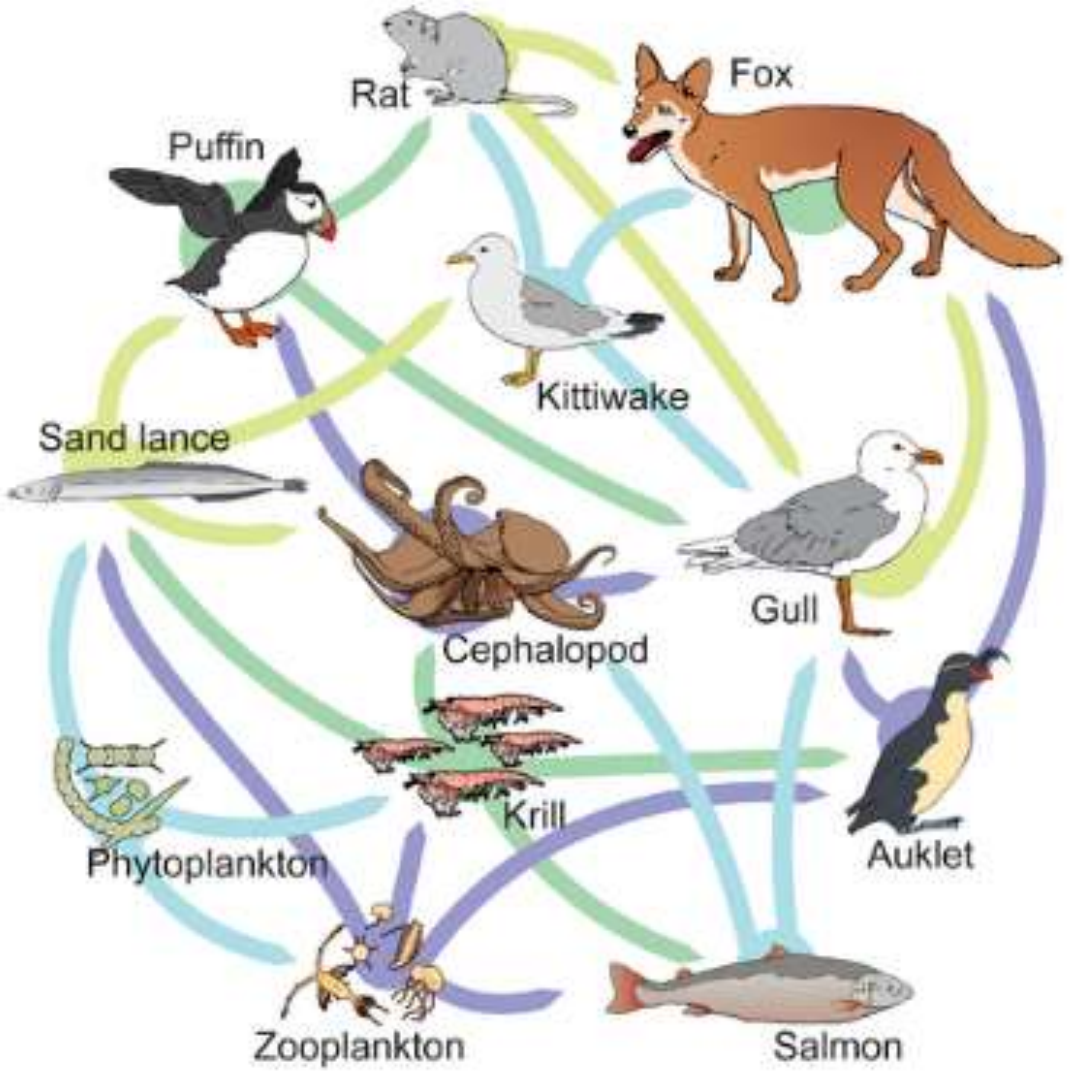
Sample log

Requirement 5

- Define an ecosystem and state what the basic biological and physical factors are that keep it a balanced system.



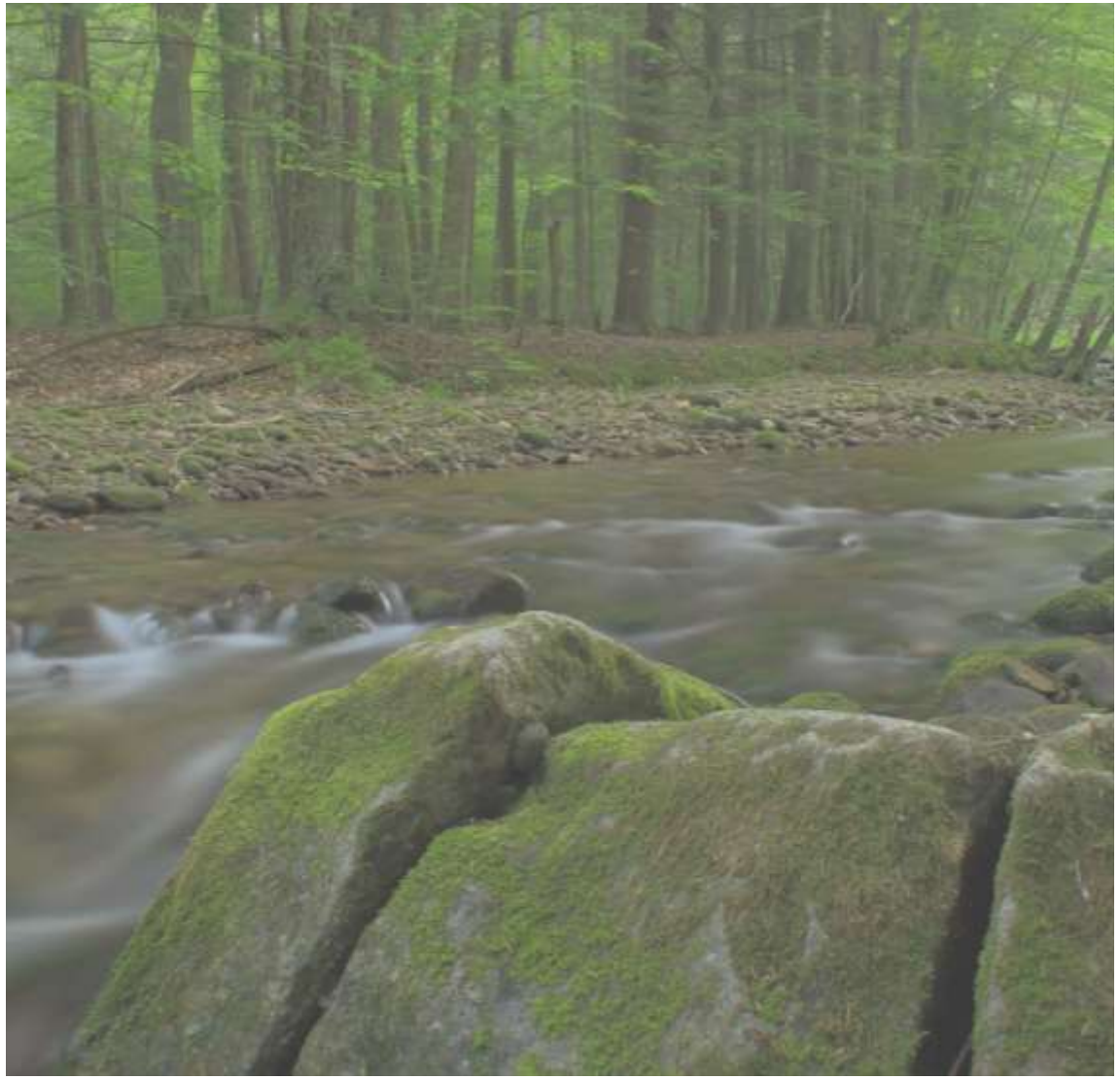
Points to remember when defining an ecosystem



What keeps an ecosystem in balance?

Requirement 6

- Investigate the disposal of rubbish in your area. How much is disposed of per family per day? per week? per year? How can it be better taken care of?



For local information contact your local council

Authority	Residual household waste per household (kg/household)	Percentage of household waste sent for reuse, recycling or composting	Percentage of municipal waste sent to landfill	Collected household waste per person (kg)	per person (kg) per week	per person (kg) per day
Wolverhampton MBC	502	49%	5%	418	8.05	1.15
Walsall MBC	564	40%	49%	391	7.52	1.07
Solihull MBC	574	44%	9%	440	8.47	1.21
Sandwell MBC	475	48%	9%	379	7.29	1.04
Dudley MBC	578	35%	6%	381	7.33	1.04
Coventry City Council	564	36%	8%	377	7.25	1.03
Birmingham City Council	653	30%	6%	373	7.18	1.02

The four R’s

1. Reduce:

The best way to control waste is to prevent its generation in the first place.

Avoid unnecessary packaging and products.

An example is to use alternatives to plastic grocery bags.

2. Reuse:

The waste that cannot be reduced should be reused.

Find ways to use packaging or waste in ways beyond their original intention.

The four R’s

3. Recycle:

The waste that cannot be reused should be recycled

Recycling converts waste into other forms of usable products.

Examples include the recycling of plastic into playground equipment or vegetation into compost.

Other recyclable products include paper, cardboard, steel, plastic and glass.

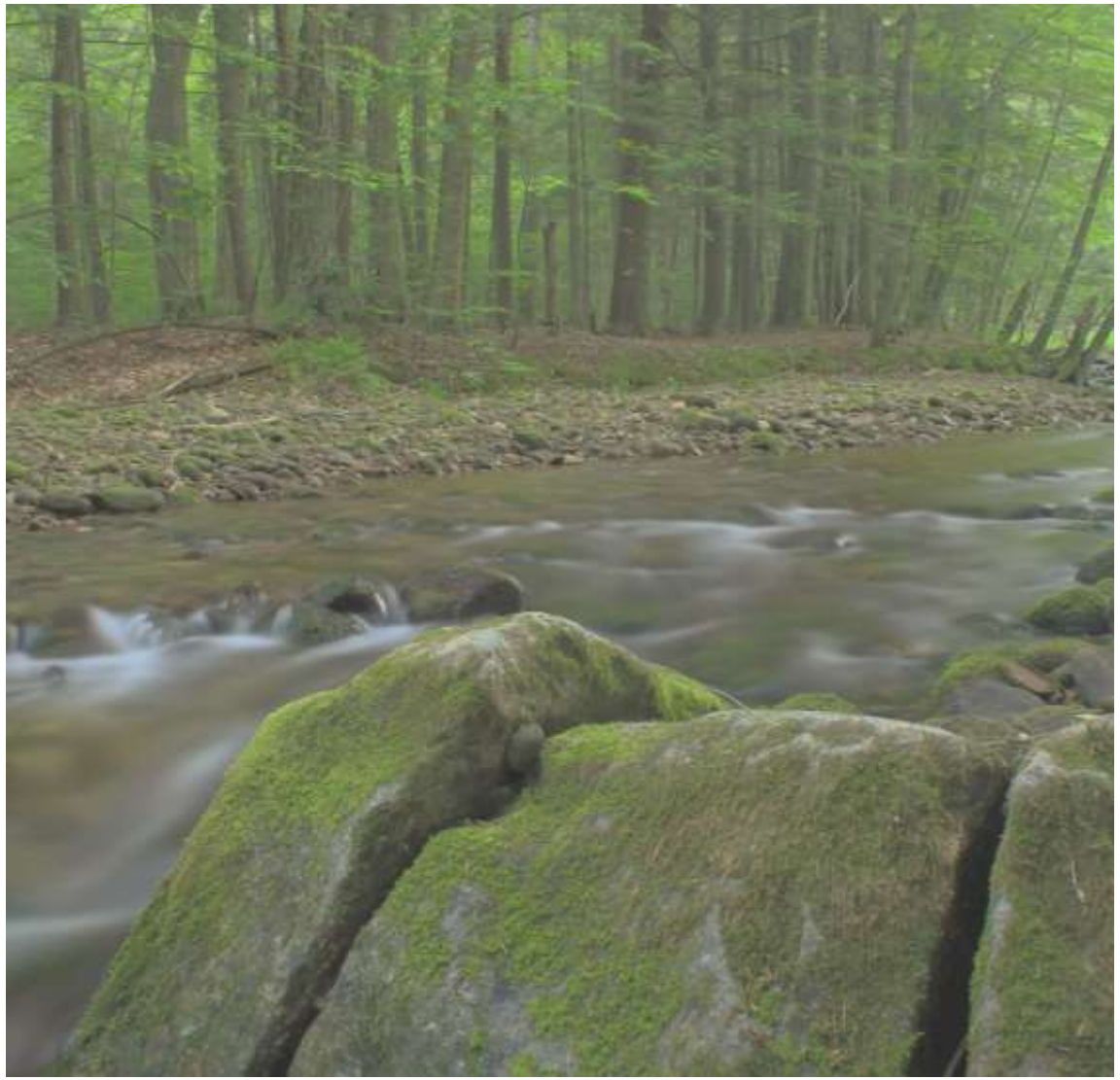
4. Refuse:

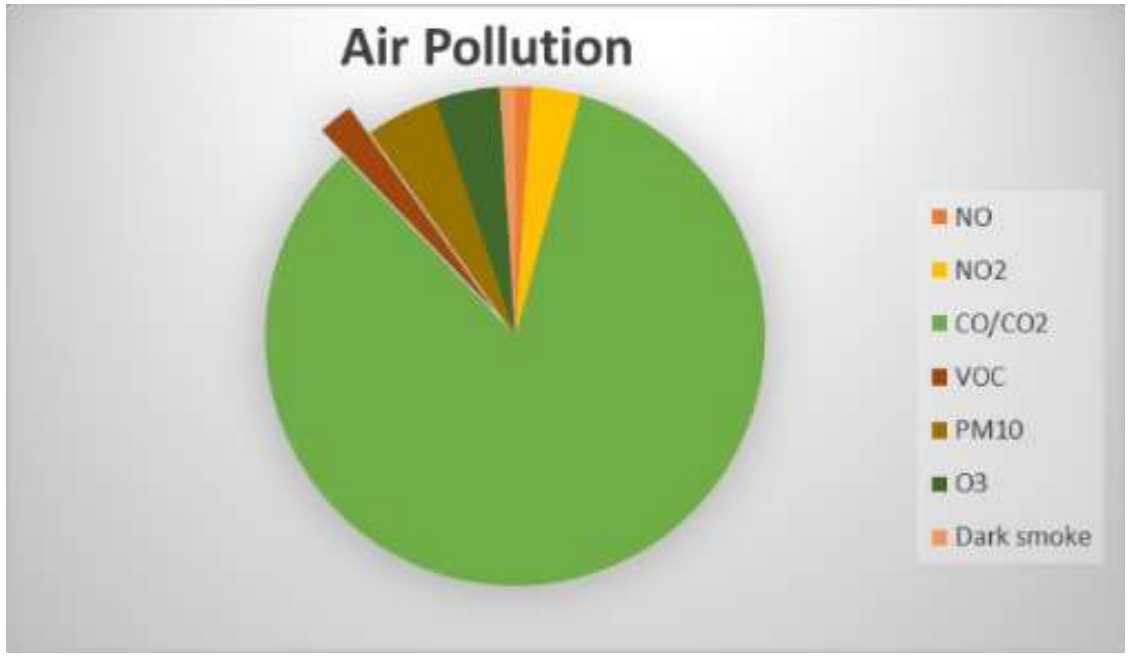
The waste that cannot be recycled should be disposed of as refuse.

All waste (refuse) should be disposed of at appropriate council landfills.

Requirement 7

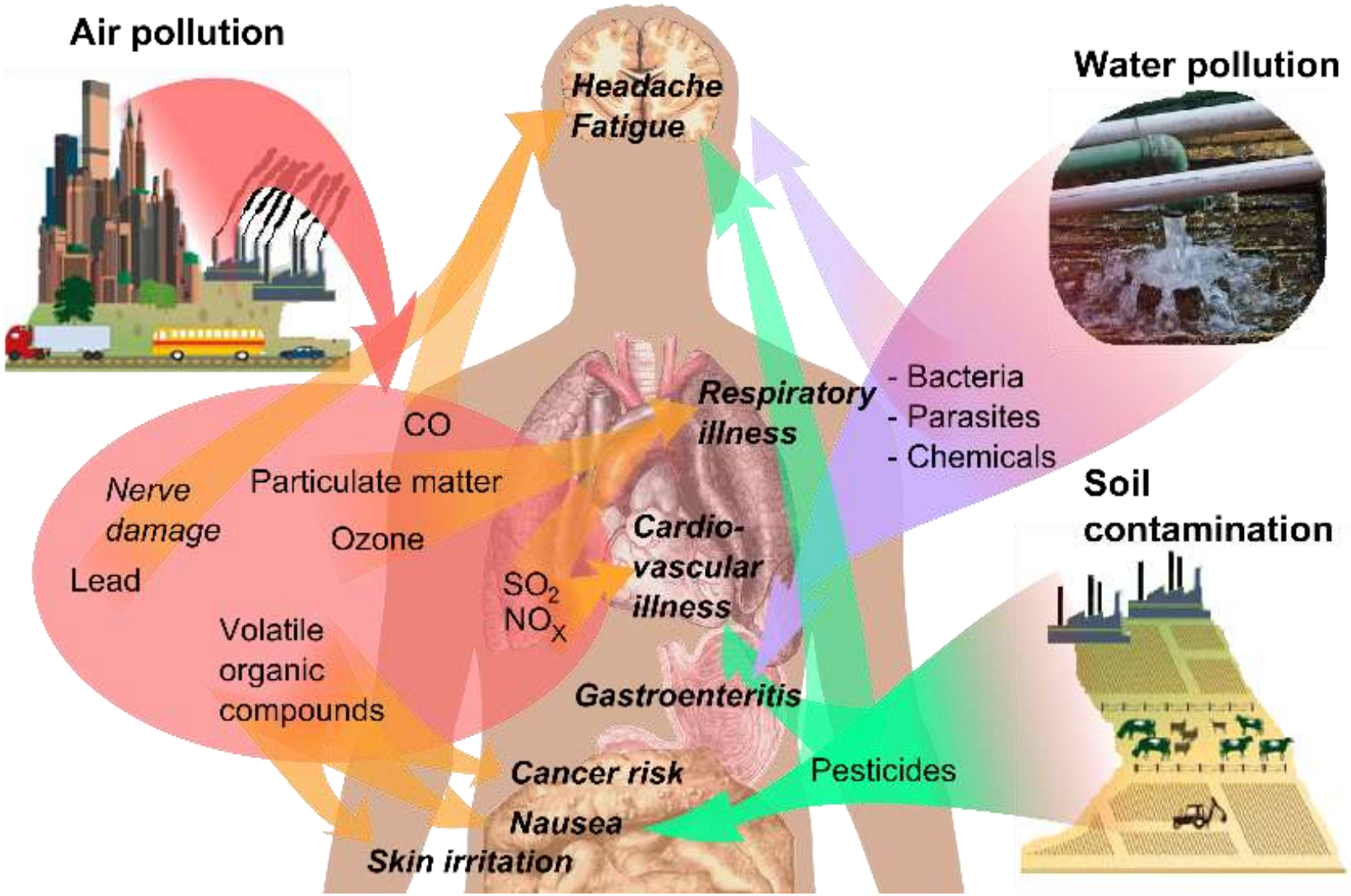
- Check your nearest large city for one month for its air pollution level. Plot a curve for this level on a graph for the month. Find out what caused the peaks in your curve.



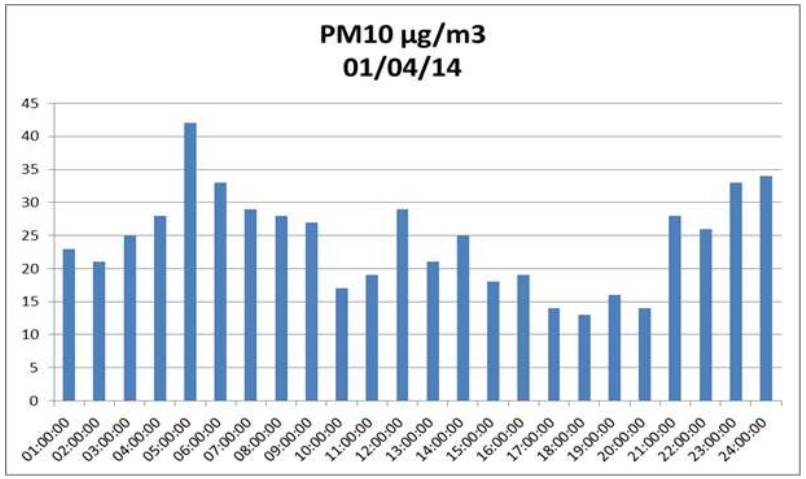


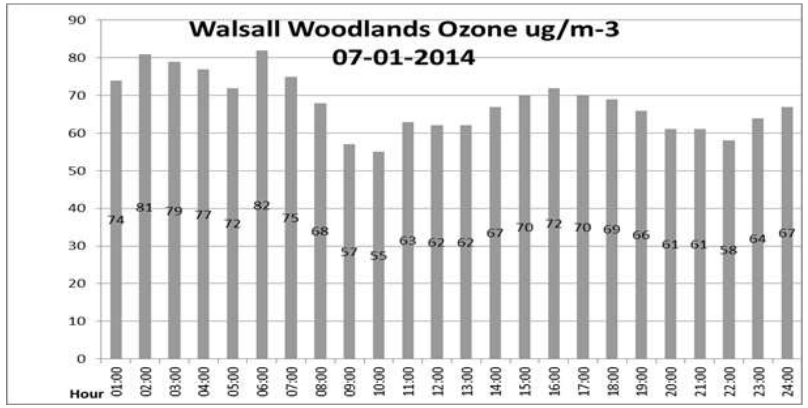
Measuring Air pollution

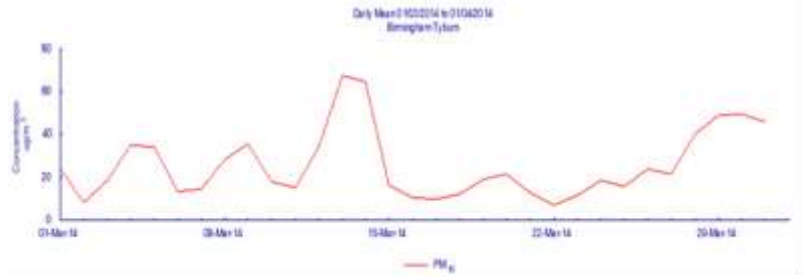
Health effects of pollution



Sample charts

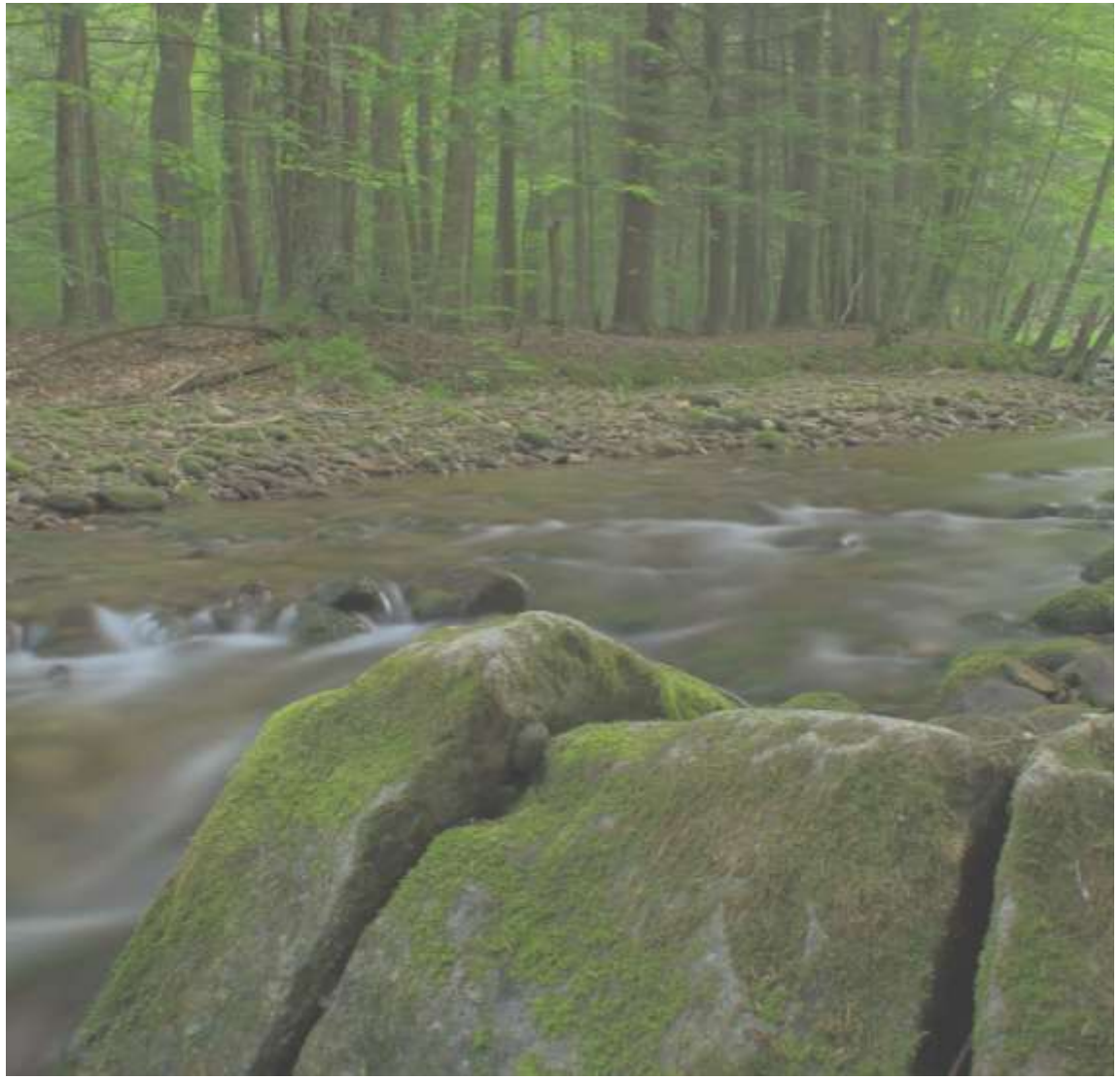






Requirement 8

- List ten ways in which you might actively work to improve the environment in which you live.
- Put four of these into practice.



Activity

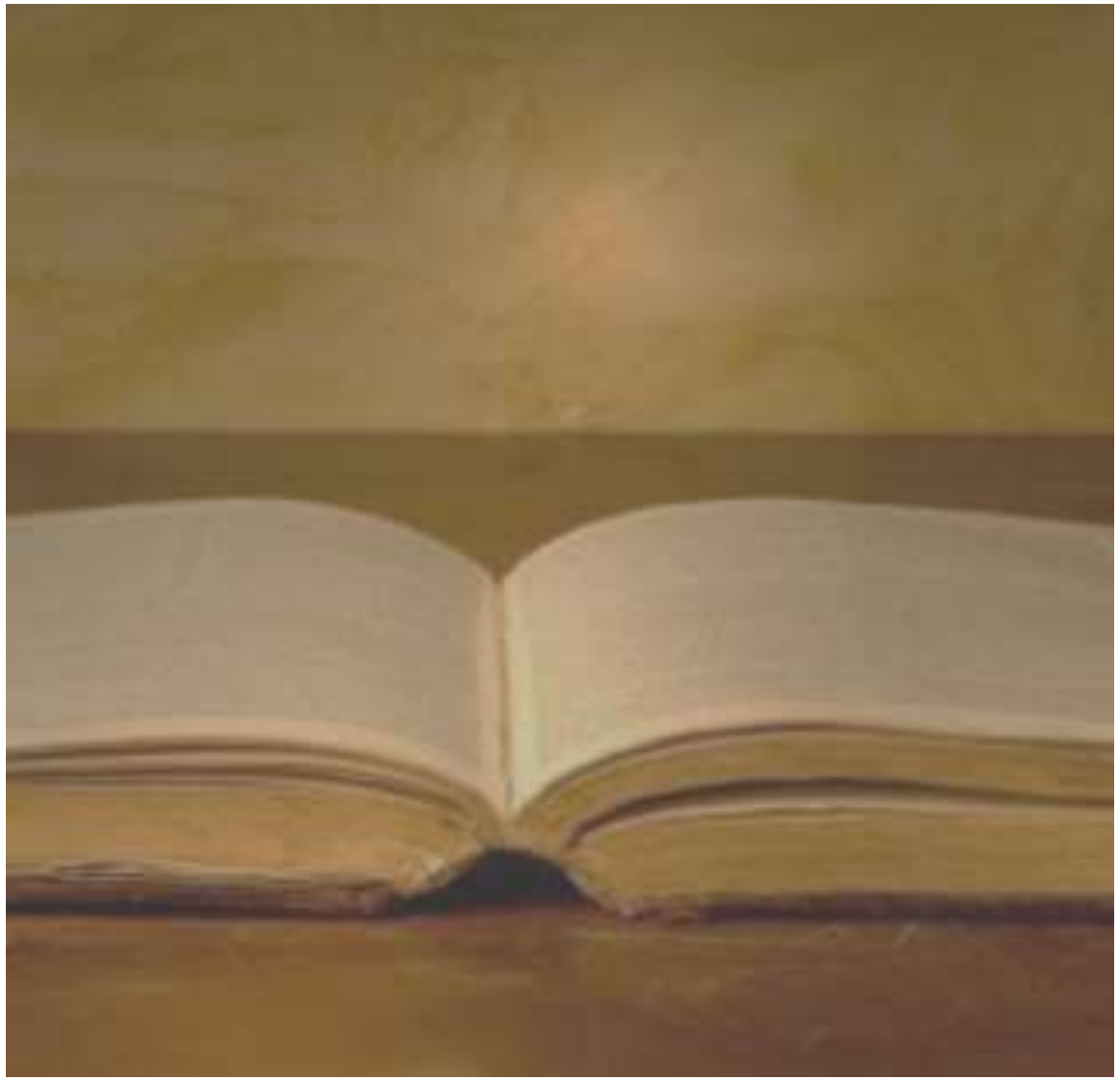
- In what ways can you actively improve the environment in which you live? Answers in the chat please.

- What are the four R's? answers in the chat please

- What is the major threat to clean air these days?
- Answer in chat please

Requirement 9

- Find a Spirit of Prophecy quotation and a Bible text pertinent to ecology and be able to explain their relevance and application to our day.



We should consider the sustainability of our actions

- Deuteronomy 22:6-7
- Genesis 2:15
- Deuteronomy 32:29
- Proverbs 1:19
- 2 Corinthians 12:14
- Proverbs 12:10
- Leviticus 25:2-7
- Deuteronomy 20:20
- Job 38:26-27
- Job 39
- Revelation 11:18

It makes a difference what meat you eat

- Leviticus 11:2
- Deuteronomy 14:3-20
- Genesis 7:2
- Genesis 9:3
- 1 Corinthians 15:39
- Deuteronomy 10:13
- Leviticus 11

Living things are composed of elements from the earth, and they decompose into earth

Genesis 3:19

Spirit of Prophecy

- Recent emphasis on ecology has convinced many that using meat as a primary protein source is an arrogant exploitation of the earth's finite resources.
- Counsels on Diet and Foods p36

Any questions?
Send via chat please

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Thank
YOU