Life Science

Subject: Science

5th Grade

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EDPSY 401

S/R Project Draft

**EALRS: EALR 4: Life Sciences**

* In grades 4-5 students learn that plants and animals have different structures that work together to respond to various internal and external needs. Students compare various human and animal structures and reflect on how the different structures enable the organism to respond to external and internal needs. Students also learn that healthy body structures depend on good nutrition. These concepts are stepping-stones to later understanding of how structures are built up from cells.

EALR 4.5 LS1A: Sort plants and animals according to their structures (e.g., presence of hair, feathers, or scales on their skin) and behaviors (e.g., grazing, hunting, or diving for food).

EALR 4.5 LS1B: List parts of an animal’s body and *describe* how it helps the animal meet its basic needs (e.g., the bones support the body so it can move; the blood carries food and oxygen throughout the body).

*Describe* the *function* of a given animal behavior (e.g., salmon swim upstream to spawn, owls hunt at night when prey are vulnerable).

EALR 4.5 LS1C: Give examples of how plants and animals respond to their *environment* (e.g., many plants grow toward the light, animals hide when they see a predator).

EALR 4.5 LS1D: Give examples of how plants and animals respond to internal needs (e.g., plants wilt when they don’t have water; animals seek food when they are hungry).

**EALR 1: Systems**

* In grades 4-5 students learn that systems contain smaller (sub-) systems, and that systems are also parts of larger systems. The same ideas about systems and their parts learned in earlier grades apply to systems and subsystems. In addition, students learn about inputs and outputs and how to predict what may happen to a system if the system's inputs are changed. The concept of a hierarchy of systems provides a conceptual bridge for students to see the connections between mechanical systems (e.g., cities) and natural systems (e.g., ecosystems).

EALR 4-5 SYSA: Systems contain subsystems.

EALR 4-5 SYSB: A *system* can do things that none of its *subsystems* can do by themselves.

EALR 4-5 SYSC: Systems have *inputs* and *outputs*. Changes in *inputs* may change the *outputs* of a *system*.

EALR 4-5 SYSD: One defective part can cause a subsystem to malfunction, which in turn will affect the system as a whole.

**EALR 4: Life Science, Ecosystems**

* In grades 4-5 students learn how ecosystems change and how these changes affect the capacity of an ecosystem to support populations. Some changes in ecosystems are caused by the organisms themselves. The ability of any organism to survive will depend on its characteristics and behaviors. Humans also play an important role in many ecosystems and may reduce negative impacts through thoughtful use of natural resources. Concepts related to ecosystems, including food webs, make it possible for students to understand the interrelationships among various forms of life and between living things and their environment.

EALR 4-5 LS2A: An [*ecosystem*](http://standards.ospi.k12.wa.us/GlossaryPopup.aspx?subject=10&word='Ecosystem') includes all of the [*population*](http://standards.ospi.k12.wa.us/GlossaryPopup.aspx?subject=10&word='Population')*s* of living organisms and nonliving physical factors in a given area. Living organisms depend on one another and the nonliving physical factors in their *ecosystem* to help them survive.

EALR 4-5 LS2B: Plants make their own food using [energy](http://standards.ospi.k12.wa.us/GlossaryPopup.aspx?subject=10&word='Energy') from the sun. Animals get food by eating plants and/or other animals that eat plants. Plants make it possible for animals to use the energy of sunlight

EALR 4-5 LS2C: Plants and animals are related in [*food web*](http://standards.ospi.k12.wa.us/GlossaryPopup.aspx?subject=10&word='Food+web')*s* with [*producer*](http://standards.ospi.k12.wa.us/GlossaryPopup.aspx?subject=10&word='Producer')*s* (plants that make their own food), [*consumer*](http://standards.ospi.k12.wa.us/GlossaryPopup.aspx?subject=10&word='Consumer')*s* (animals that eat *producers* and/or other animals), and [*decomposers*](http://standards.ospi.k12.wa.us/GlossaryPopup.aspx?subject=10&word='Decomposers') (primarily bacteria and fungi) that break down wastes and dead [*organism*](http://standards.ospi.k12.wa.us/GlossaryPopup.aspx?subject=10&word='Organism')*s*, and return [*nutrients*](http://standards.ospi.k12.wa.us/GlossaryPopup.aspx?subject=10&word='Nutrients') to the soil.

EALR 4-5 LS2D: *Ecosystems* can change slowly or rapidly. Big changes over a short period of time can have a major impact on the *ecosystem* and the *populations* of plants and animals living there

EALR 4-5 LS2E: All plants and animals change the *ecosystem* where they live. If this change reduces another organism's access to resources, that *organism* may move to another location or die

EALR 4-5 LS2F: People affect *ecosystems* both positively and negatively.

**Objectives and Propositions:**

1. Students will be able to list parts of an animal’s body (**EALR 4.5 LS1A)**
   * The important parts of the body in all animals are:
     + The bones
     + The different parts of the outer part of different animals (i.e. skin, feathers, scales)
     + Different mouthparts for different diets
     + Vital organs in different animals

Brain, heart, lungs, etc.

Personal Communications:

Group: Get together in small groups and list as many parts in an animal as you can

Individual: Take a student in the hall and say “point to your femur”

1. Students will be able to *describe* how body parts help the animal meet its basic needs (**EALR 4.5 LS1B)**
   * Bones in an animal’s body exist to support the body so it can move
   * The blood carries food and oxygen throughout the body
   * Fish have scales so they can swim easily in water
   * Different mouthparts for eating or preying

Personal Communications:

Group: Each group will be assigned a body part and together list 2 ways that part helps the body.

Individual: Try to decide what you think is the most important body part and why

1. Students will be able to give examples of how plants and animals respond to their environment (**EALR 4.5 LS1C)**
   * Plants grow towards the light to gain the most nutrients
   * Certain animals hibernate during certain seasons

Personal Communications:

Group: think about in groups why or why not things can live in Antarctica.

Individual: Make a list of what kinds of clothes you wear in different seasons.

1. Students will be able to identify how plants, animals, and humans respond to internal needs (**EALR 4.5 LS1D)**
   * When an animal or human is thirsty, they drink
   * When an animal or human is hungry, they eat
   * When plants, animals and humans are lacking in a certain vitamin or substance, they will crave that substance
   * If a body cannot create a substance they must obtain it elsewhere (i.e. a food source)
   * If a plant does not get enough water, it will wilt

Personal Communications:

Group: Get together in groups and make a food pyramid

Individual: Write about a time you remember you were very hungry, how did that feel?

5. Students will be able to understand that an organism’s ability to survive is influence by the organism’s behavior and the ecosystem in which it lives. (**1.3.10**)

* Describe how an organism’s ability to survive is affected by a change in an ecosystem (e.g., the loss of one organism in a food chain affects all other organisms in that food chain).
* Describe the path of substances (i.e., air, water, mineral nutrients) through a food chain.

Personal Communications:

Group: Students will group together and piece together who is at the top of the food chain and who is at the bottom. (Ex: Lion on top, mosquitoes towards bottom)

Individual: Each student will determine where on the food chain they fall.

1. Students will be able to understand the organization and function of human body structures and organs and how these structures and organs interconnect. (**1.2.8**)

* Recognize, explain, and give examples of human systems that are composed of organs (e.g., ear for hearing, mouth for speech).
* Describe the functions of major organs (e.g., the skin protects the human body from harmful substances, unhealthy organisms, and from drying out; the brain get signals from the parts of the human body, controls the life functions, and sends signals out to the body parts).
* Describe the interdependence of organ systems in the human body (e.g., what would happen if one part of the human body system was missing).
* Describe how the systems allow the human body to take in and use mineral nutrients (air, food, water) for living, growth, and repair (e.g., breathing in air supplies the oxygen necessary to live).
* Identify and describe how human body systems compare to the systems of other living organisms (e.g., the human ear compared to an elephant’s for hearing sound).

Personal Communications:

Group: Students will take turns trying to complete tasks without using one of their senses (Ex: try and get in a line without using their vision)

Individual: Students will draw pictures comparing their systems to other systems (Ex: elephant ears to human ears)

7. Students will be able to understand that organisms can be a single cell or many cells that form parts with different functions. (**1.2.6**)

* Observe with a microscope and record that living things are made mostly of cells (i.e., plants, animals, and single-celled organisms).
* Describe how plant and animal cells are similar and different.
* Describe the life function of a part of a living thing (e.g., wings of a bird).

Personal Communications:

Group: Each group will be assigned a different part of the human body and will be asked to reason why this part of the body is important for survival.

Individual: Students will be asked to write a story of how life would be different if they had wings.

8. Students will be able to understand that plant and animal species change over time. (**1.3.9**)

* Recognize and tell how some kinds of plants and animals survive well, some survive less well, and some cannot survive at all in particular environments, and provide examples.
* Recognize and describe how individual plants and animals of the same kind differ in their characteristics and sometimes the differences give individuals an advantage in surviving and reproducing.
* Demonstrate or describe that fossils can be compared to one another and to living organisms according to their similarities and differences (i.e., some organisms that lived long ago are similar to existing organisms, but some are quite different).

Personal Communications:

Group: Students will group up and try to determine which fossils belong to which animals.

Individual: Students will be asked to write about a perfect environment for plants to thrive in, and then compare this environment with the one they are living in.

1. Students will be able to understand how to distinguish living from nonliving and how to use characteristics to sort common organisms into plant and animal groups. (**1.1.6**)

* Describe the characteristics of organisms.
* Describe and sort organisms using multiple characteristics (e.g., anatomy such as ﬁns for swimming or leaves for gathering light, behavior patterns such as burrowing or migration, how plants and animals get food differently).
* Classify and sort common organisms into plant and animal groups.

Personal Communications:

Group: Students will be placed in groups with a matching game. This game will have a plant and animal section and they will be asked to list as many different kinds of plants and animals that they can in this table.

Individual: Students will go around to different plants around the classroom and label them as real or fake.

1. Students will be able to predict what might happen to a system if a part in one or more of its subsystems is missing, broken, worn out, mismatched, or misconnected. (**EALR 4-5 SYSD**)

* A broken toe will affect the skeletal system, which in turn greatly reduces a person’s ability to walk.

1. Students will be able to describe what goes into a system (input) and what comes out of a system (output). (**EALR 4-5 SYSC**)

* When making cookies, inputs include sugar, flour, and chocolate chips; outputs are finished cookies.

1. Students will be able to describe the effect on a system if its input is changed. (**EALR 4-5 SYSC**)

* If sugar is left out, the cookies will not taste good.

1. Students will be able to specify how a system can do things that none of its subsystems can do by themselves. (**EALR 4-5 SYSB**)

* A forest ecosystem can sustain itself, while the trees, soil, plant, and animal populations cannot.

1. Students will be able to identify at least one subsystem of an object, plant of animal (**EALR 4-5 SYSA**)

* An airplane contains subsystems for propulsion, landing, and control).

1. Students will be able to Give examples to show how the plants and animals depend on one another for survival (**EALR 4-5 LS2A**)

* Worms [decompose](http://standards.ospi.k12.wa.us/GlossaryPopup.aspx?subject=10&word='Decompose') waste and return [nutrients](http://standards.ospi.k12.wa.us/GlossaryPopup.aspx?subject=10&word='Nutrients') to the soil, which helps plants grow.

1. Students will be able to [Explain that](http://standards.ospi.k12.wa.us/GlossaryPopup.aspx?subject=10&word='Explain+that') plants make their own food, and animals, including humans, get food by eating plants and/or eating other animals. (**EALR 4-5 LS2B**)
2. Students will be able to [Compare](http://standards.ospi.k12.wa.us/GlossaryPopup.aspx?subject=10&word='Compare') the roles of [producer](http://standards.ospi.k12.wa.us/GlossaryPopup.aspx?subject=10&word='Producer')s, [consumer](http://standards.ospi.k12.wa.us/GlossaryPopup.aspx?subject=10&word='Consumer')s, and [decomposers](http://standards.ospi.k12.wa.us/GlossaryPopup.aspx?subject=10&word='Decomposers') in an [ecosystem](http://standards.ospi.k12.wa.us/GlossaryPopup.aspx?subject=10&word='Ecosystem'). (EALR 4-5 LS2C)

* Draw a simple [food web](http://standards.ospi.k12.wa.us/GlossaryPopup.aspx?subject=10&word='Food+web') given a list of three [common](http://standards.ospi.k12.wa.us/GlossaryPopup.aspx?subject=10&word='Common') [organism](http://standards.ospi.k12.wa.us/GlossaryPopup.aspx?subject=10&word='Organism')s.
* Draw arrows properly and identify the [producer](http://standards.ospi.k12.wa.us/GlossaryPopup.aspx?subject=10&word='Producer')s and [consumer](http://standards.ospi.k12.wa.us/GlossaryPopup.aspx?subject=10&word='Consumer')s.

1. [Describe](http://standards.ospi.k12.wa.us/GlossaryPopup.aspx?subject=10&word='Describe') how one [population](http://standards.ospi.k12.wa.us/GlossaryPopup.aspx?subject=10&word='Population') may affect other plants and/or animals in the [ecosystem](http://standards.ospi.k12.wa.us/GlossaryPopup.aspx?subject=10&word='Ecosystem'). (**EARL 4-5 LS2E**)

* Increase in Scotch Broom replaces native plants normally eaten by butterfly caterpillars, reducing the butterfly population.

1. [Describe](http://standards.ospi.k12.wa.us/GlossaryPopup.aspx?subject=10&word='Describe') ways that humans can improve the health of [ecosystem](http://standards.ospi.k12.wa.us/GlossaryPopup.aspx?subject=10&word='Ecosystem')s. (**EALR LS2F**)

* Recycling wastes, establishing rain gardens, planting native [species](http://standards.ospi.k12.wa.us/GlossaryPopup.aspx?subject=10&word='Species') to prevent flooding and [erosion](http://standards.ospi.k12.wa.us/GlossaryPopup.aspx?subject=10&word='Erosion').
* Overuse of fertilizers, littering, not recycling.

Life Sciences

5th Grade

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Multiple Choice

Directions: Circle the answer, which best answers the question. Only one answer is correct. Be sure to read the questions and answers carefully. This sections is worth 5 points (1 point per question).

1. How would happen to an ecosystem that lost an organism? 5

1. The ecosystem would remain the same; it is only one organism
2. The ecosystem would disappear
3. Old species, which had died out, would come back to the ecosystem
4. The loss of an organism would affect all the other organisms in the food chain

2. What is the function of the skin on a human body? 6

a. To protect the human body from harmful substances

b. To give the body shape

c. Allow for movement

3. What would happen if one part of the human body system was missing? 6

a. There would be no structure or movement

b. The organ systems in the human body are interdependent

c. The human could not go swimming

4. What is the purpose of fins on fish? 9

a. Fins allow fish to breath under water.

b. Fins allow for fish to swim.

c. Fins allow fish to hunt.

5. Which is an example of a human system that is composed of organs? 5

a. The ear for hearing

b. The teeth for smiling

c. The nails for walking

Fill-in the blank/Short Answer

Directions: Read each question carefully and fill in the blank, or answer in the designated area. This section is work 5 points (1 point per question).

* An organism’s ability to survive is affected by a change in an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. 5
* Breathing in air supplies the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ necessary to live. 6
* Living things are mostly made of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ . 7
* How would larger leaf size help a plant? 9

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

* What is a function of the brain? 6

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

True/False

Directions: Read each statement carefully. Circle true is the statement is true and circle false if the statement is false. This section is worth 5 points (1 point per question).

11. All mammals require a heart, brain, and lungs to function properly.

TRUE FALSE

12. All the organs work as a team in the human body to be successful.

TRUE FALSE

13. The blood in an animal’s body exists to carry toxins throughout the body in order to get them out efficiently.

TRUE FALSE

14. Many plants grow toward the light in order to get the most nutrients.

TRUE FALSE

15. If an animal or human is dehydrated, their bodies will create water to rehydrate them.

TRUE FALSE

Matching

Directions: Place the corresponding letter in the designated space that most accurately describes the word. This sections is worth 5 points (1 point per question).

16.\_\_\_\_\_\_\_\_Bones

17.\_\_\_\_\_\_\_\_Gills

18.\_\_\_\_\_\_\_\_Sunlight

19.\_\_\_\_\_\_\_\_Wilt

20.\_\_\_\_\_\_\_\_Craving

A. The structures that make up a skeleton.

B. A reaction that the body has when it is not getting enough nutrients.

C. A reaction that plants have due to lack of water.

D. The element that allow some animals to breathe underwater.

E. One of three elements vital to a plants survival.

On a scale of one to ten, how well do you believe you did on your test? (Please circle the correct number on the scale.)

1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10

What could you do in order to do better on the next test?

Answer Key

Multiple Choice

* + - 1. D-objective 5
      2. A-objective 6
      3. B-objective 6
      4. B-objective 9
      5. A-objective 5

Short Answer/Fill in the Blank

* + - 1. Ecosystem-objective 5
      2. Oxygen-objective 6
      3. Cells-objective 9
      4. To absorb more light-objective 9
      5. Gets signals from parts of the body, or controls the life functions, or sends signals out to the body parts-objective 6

True/False

* + - 1. T-objective 1
      2. T-objective 1
      3. F-objective 2
      4. T-objective 3
      5. F- objective 4

Matching

* + - 1. A-objective 1
      2. D-objective 2
      3. E-objective 3
      4. C-objective 4
      5. B-objective 4

Table of Specifications

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Content** | **Knowledge/Understanding** | **Classifying Reasoning** | **Analyzing** | **Total** |
| *Objective 1* |  | 1 | 2 | 3 |
| *Objective 2* |  | 1 | 1 | 2 |
| *Objective 3* |  | 1 | 1 | 2 |
| *Objective 4* |  | 2 | 1 | 3 |
| *Objective 5* | 3 |  |  | 3 |
| *Objective 6* | 4 |  |  | 4 |
| *Objective 7* | 1 |  |  | 1 |
| *Objective 9* | 2 |  |  | 2 |
| TOTAL | 10 | 5 | 5 | 20 |

How to involve students in assessment papers

Students will be broken into five groups of four students. Within those groups, the students will write two test questions. The test questions may be adapted and used on the assessment.

How to involve student voice

The students will be asked how well they think they did on their test. At the end of each students test, there will be a scale of one to ten. The student will be asked to circle the number that is the most appropriate for how well they believe they did on the test. Following the scale, the students will be asked what could they do the next time to better their test experience for the following test.