

**Discipline:** Science and Technology  
**Standards Category:** Biological Sciences  
**Lesson Focus:** Five kingdoms of organisms

PA Standard(s):	Related TESOL Standard(s):
3.3.10A: Explain the structural and functional similarities and differences found among living things.	Goal 2: To use English to achieve academically in all content areas. Standard 2: Students will use English to obtain, process, construct, and provide subject matter information in spoken and written form.

**Key Objectives in Accordance with TESOL Level:**

Pre-Conversational/ Beginning	Intermediate	Advanced
Students will be able to: <ul style="list-style-type: none"> <li>Identify and characterize major life forms by kingdoms through a process of selection and labeling.</li> <li>Compare the five kingdoms of organisms by choosing and organizing.</li> <li>Visually categorize the animal kingdom by classes.</li> <li>Dissect and graph characteristics of species to determine relationships, draw and label species that are alike species in Science Learning Log.</li> </ul>	Students will be able to: <ul style="list-style-type: none"> <li>Identify, characterize and describe the major life forms by kingdoms.</li> <li>Use basic vocabulary to verbally compare and contrast the five kingdoms of organisms.</li> <li>List and divide the animal kingdom into the correct classes.</li> <li>Dissect and graph characteristics of species to determine relationships and record or draw relationships in Science Learning Log.</li> </ul>	Students will be able to: <ul style="list-style-type: none"> <li>Identify, justify and explain the differences in the major life forms by kingdoms in written form.</li> <li>Elaborate the rationale for creating the five kingdoms of organisms.</li> <li>Explain the major characteristics in separating the animal kingdom into classes.</li> <li>Dissect and graph characteristics of species to determine their relationship summarize of findings in Science Learning Log.</li> </ul>

**Suggested Level:**  
High School

**Lesson Focus**  
Five kingdoms of organisms

**Teaching Strategies:**  
Whole group instruction

Cooperative groups

Differentiate instruction

**Assessment Strategies:**  
Observation

Rubric for major life forms and animal kingdom classes

Science learning log

Written summary

**Materials:**

1. Grade level appropriate Biology Text
2. Visual posters and labels of the 5 kingdoms of organisms
3. Picture cards of various species in each of the five kingdoms
4. Checklist for recording student responses
5. Collection of various items for classifying and categorizing i.e.:  
eyeglasses, fingernail clippers, hairbrush, eating utensils, ceramic cups, drinking glasses, shirt, shoes, potato, jello, laptop computer, books, pencils, chalk, magazines, scissors, pillow, rubber band, frying pan etc:

**Procedures:** (ESL Suggestions in Italics)

*Prepare a list of important and pertinent vocabulary words to distribute and review in advance of the lesson with the ESL students. **Provide an outline of the lesson for the ESL students to give them a preview of what they will be learning. As the lesson progresses the students can follow the outline to support and promote their understanding***

1. Divide students into groups of 4 or 5. *Group the ESL students to provide the most success. When possible group together a non-English speaker with a student from the same language background to provide support.*
2. Distribute collection of items and instruct students to group them in ways they deem appropriate.
3. Each group reports on their groupings with an oral rationale
4. Class discussion on the categorization of the items among the different groups. Determine the difficulty in developing a system for the groupings of the items.
5. Introduce the system developed by Carolus Linnaeus to classify organisms:  
Kingdom, Phylum, Class, Order, Family, Genus, Species.
6. Randomly display visuals of various living organisms. Illicit students to group them according to similar characteristics.
7. Correct any misplaced organisms
8. Label the group accordingly Monera, Protista, Fungi, Plantae, and Animalia
9. Discuss the characteristics and attributes of each kingdom.
10. Distribute kingdom labels and picture cards of various organisms representing all 5 kingdoms to the cooperative groups. Instruct students to place the organisms in the correct kingdom. *The beginning ESL students should be provided the opportunity to place the picture in the kingdom. Intermediate ESL students should be encouraged to provide a basic explanation of their reasoning for placing an organism in a kingdom.*
11. Organized in Cooperative Groups examine species for characteristics and record findings in the graph. (Use worksheet)  
*Be sure to pair beginning level students with partners of equal*

*language skills as well as advanced or intermediate.*

## 12. Record data in Science Learning Log

### **Assessment:**

#### **Beginning**

Teacher checks for understanding by observing and recording on a rubric students' responses as they categorize and label major life forms.

*Peer assessment and support can be given to beginning student in checking learning logs.*

#### **Intermediate**

Teacher observes and records on rubric as students work in pairs to categorize and describe the major forms of life.

Read student's Science Learning Log to check for their understanding.

#### **Advanced**

Teacher assigns peer partners to discuss the justification for their identification of major life forms. Students self assess their understanding followed by a written explanations in their Science Learning Log

### **Notes:**

The teacher directing the lesson determines selection of picture cards. A generic rubric is offered but may be supplemented with more detail depending on the teacher's selection of materials.

# Science Rubric

Student's Name: \_\_\_\_\_ Date: \_\_\_\_\_

## Classifying Major Life Forms & Animal Kingdom Classes

Science Knowledge	Less than Proficient	Score	Proficient	Score	Above Proficient	Score
Categorized major life into Monerans Kingdom	5 of 10		8 of 10		10 of 10	
Categorized major life into Protists Kingdom	5 of 10		8 of 10		10 of 10	
Categorized major life into Fungi Kingdom	5 of 10		8 of 10		10 of 10	
Categorized major life into Plants Kingdom	5 of 10		8 of 10		10 of 10	
Categorized major life into Animal Kingdom	5 of 10		8 of 10		10 of 10	
Mammals	5 of 10		8 of 10		10 of 10	
Birds and Reptiles	5 of 10		8 of 10		10 of 10	
Amphibians and Fish	5 of 10		8 of 10		10 of 10	
Arthropods	5 of 10		8 of 10		10 of 10	
Mollusks and Worms	5 of 10		8 of 10		10 of 10	
Jellyfish and Sponges	5 of 10		8 of 10		10 of 10	

## Classifying Species Similarities and Differences

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

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

**Materials needed:**

Specimens of three species labeled A, B, C

Dissecting Microscope

Forceps

Petri Dishes (3)

**Procedures:**

Complete the table below by:

1. Examine the specimens
2. Make a hypothesis about their relationship
3. Examine each species for the characteristic listed in the table
4. Record “**yes**” if the characteristic is present, “**no**” if it is not
5. Summarize the data in the last three columns in the following way: If the two species have the same answer, record a score of one. If the two species have different answers, record a zero.
6. Total each of the last three columns and compare the sums. The more similar the two species being compared are, the higher the score will.

Characteristic	Species	Scores
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Petri Dish	A	B	C	A-B	A-C	B-C
Chewing mouth parts						
Six legs						
Wings						
Antennae						
Exoskeleton						