

## CLASSIFYING LIVING THINGS

### Performance Standard 12A/11A.C

Students will apply the process of scientific inquiry to classify present life forms and their adaptations accordingly:

- *Knowledge*: Identify observable features of living organisms (e.g., number of legs, method of breathing, food-getting method, outer covering, presence of a backbone, kinds of teeth, etc.); for grouping living organisms.
- *Application*: Classify living organism by common physical characteristics by creating a taxonomic chart.
- *Communication*: Explain how the organisms were classified and the process used to classify them.

### Procedures

1. ***In order to know and apply concepts that explain how living things function, adapt, and change (12A) and the concepts, principles and processes of scientific inquiry (11A)***, students should experience sufficient learning opportunities to develop the following:

- Identify distinguishing features or physical characteristics of living organisms.
- Classifying living organisms by observable physical characteristics according to the rules for grouping them.
- Describe observed science condition (physical characteristics) using appropriate attributes.
- Devise inquiry process for classification data.
- Analyze results and communicate conclusions from inquiry investigation.

Note to teacher: This activity relates to knowledge associated with standard 12A, while addressing the performance descriptors for stage C within standard 11A. Applying scientific habits of mind noted in standard 13A are foundational to these activities. Using various technologies to estimate, measure and record data address some performance descriptors in 13B.

2. Have students review and discuss the assessment task and how the rubric will be used to evaluate their work.
3. Begin inquiry investigation by using concept maps to introduce students to classification systems that are in common use. Use multiple examples which may encourage one, two or three possible stages for sorting. Some possibilities include odd and even numbers, multiples of numbers, geometric shapes, vocabulary words (by topic or alphabetical listing), family members, kinds of clothing, plant leaves, etc. Students should devise their own criteria for classification systems and explain their categories and relationships. Encourage students to ask questions about 'how to classify'. Guide students toward answering their questions using applicable scientific vocabulary terms and resources.
4. Provide each student an envelope with the pictures of the living things to classify. (Provide ample pictures of different and similar recognizable animals.) This assessment will be completed by classifying the pictures in student-determined concept maps and explaining the basis for multi-step classification by the questions they asked about the animal: How does it eat? How many legs? Is there a backbone?, etc. (The number of required steps should depend upon student's abilities and expectations.)
5. Have the students complete the assessment task as follows:
  - Ask each student to group the organisms by at least two (and possibly up to four) common physical characteristics on their concept map pages, showing common features as links.
  - Have each student explain the basis of his/her classification system and questions to be answered using the concept map.
6. Evaluate each student's work using the Science Rubric as follows and add the scores to determine the performance level:
  - *Knowledge*: The questions for sorting the animals by their physical features were complete and correct.
  - *Application*: The mapping for classifying was appropriate and correct according to student questions.
  - *Communication*: The explanation for the grouping was logical and well-detailed.

### Examples of Student Work not available

### Time Requirements

- One class period for assessment (practice mapping may require approximately 20 minutes)

**Resources**

- One envelope per student containing pictures of various living organisms
- Blank pages for concept maps
- Science Rubric