What Makes an Animal?

SCIENCE NSPIRED

Science Objectives

- Students will learn the five basic characteristics of the animal kingdom.
- Students will learn to use a dichotomous key to distinguish one animal from another.

Vocabulary

- zoology
- organelle
- heterotroph
- motile
- body plan
- dichotomous key
- eukaryote
- multicellular
- autotroph
- sessile
- developmental stage

About the Lesson

- In this lesson students learn about basic animal biology and identification of different animal species.
- Students will:
  - Identify and describe the five characteristics of all organisms in the Animal Kingdom.
  - Contrast these characteristics with those of other kingdoms.
  - Use a dichotomous key to identify nine different species of animals.

TI-Nspire™ Navigator™

- Send out the *What_Makes_an_Animal.tns* file.
- Monitor student progress using Class Capture.
- Use Live Presenter to spotlight student answers.

Activity Materials

- *What_Makes_an_Animal.tns* document
- TI-Nspire™ Technology
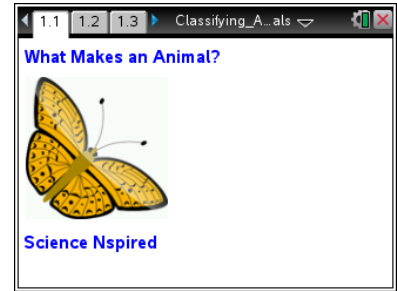
TI-Nspire™ Technology Skills:
- Download a TI-Nspire document
- Open a document
- Move between pages
- Open a Directions Box

Tech Tips:
Make sure that students understand how to select an answer to a question using enter .

Lesson Materials:
Student Activity
- What_Makes_an_Animal_ Student.doc
- What_Makes_an_Animal _ Student.pdf

TI-Nspire document
- What_Makes_an_Animal.tns

Discussion Points and Possible Answers

Allow students to read the introduction on the activity sheet.

Move to pages 1.3 – 1.4.

1. Students will read information about the first two characteristics of animals, eukaryotic cells and multicellular.

    Students will be introduced to the five characteristics of animals. Classroom discussion could compare and contrast these traits to other kingdoms.
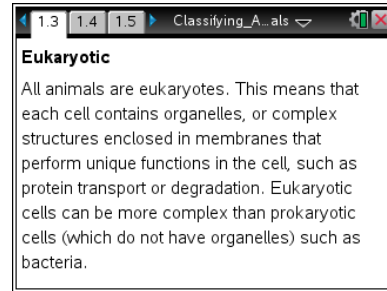
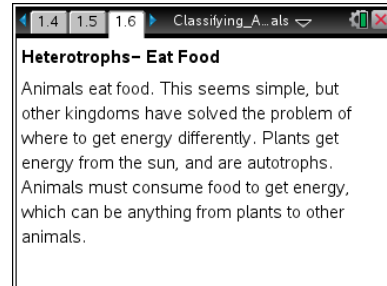Have students answer question 1 on the activity sheet, in the .tns file, or both.

Q1.   Name one multicellular eukaryote that is NOT an animal.

    Sample Answers: Any plant or fungus, not bacteria

Move to page 1.6.

2. Students will read information about the third characteristic of animals, eating food.

    Autotrophs don't require energy in the form of fixed carbon. There are many bacteria which are autotrophs. An auxotroph is similar, although requires a specific nutrient in its diet.
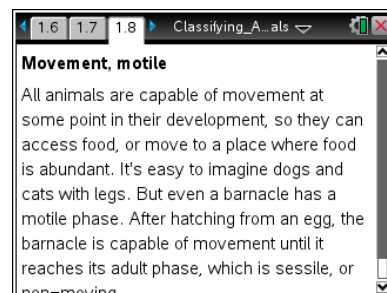
Have students answer question 2 on the activity sheet, in the .tns file, or both.

Q2.   If an organism is not a heterotroph, it might be a(n)_____.

    Sample Answers: autotroph or auxotroph.

Move to pages 1.8 – 1.9.

3. Students will read information about the fourth and fifth characteristics of animals, movement and a fixed body plan.

Have students answer questions 3–5 on the activity sheet, in the .tns file, or both.

Q3. A mushroom must consume food (decaying plant material). Is it an animal? Explain.

Sample Answer: No, mushrooms are a fungus. They are not motile and have no fixed body plan or developmental stage.

Q4. Why is motility important for animals?

Sample Answer: Heterotrophs need to get to food- either by going to it, or settling in a place where it will be (as in sea urchins and barnacles)

Q5. Does an organism need a backbone to be an animal? Explain.

Sample Answer: No. Bugs and worms are examples of invertebrate animals. 'Vertebrate' is a more narrow classification of certain animals.

Move to pages 2.1 – 2.3.

4. Students are to read the directions in the pop-up box for completing the simulation of the dichotomous key. To close the directions, they can click the ☒ . They need to answer the questions for all nine animals, before answering the assessment questions that follow the simulation. If the animal name that appears at the end of the questions does not match with the picture, students can click the down arrow of the clicker to revisit the questions and change their answer(s).
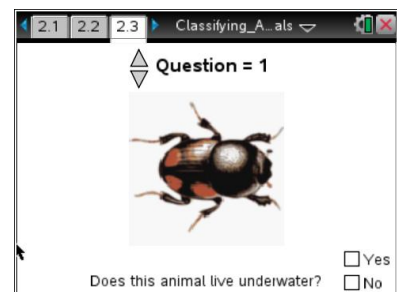
If needed at any time during the simulation, students can press menu if they would like to view the directions again.

Have students answer questions 6–16 in the .tns file.

Q6. What animal is this?

Answer: A. Beetle

Q7. What animal is this?

Answer: H. Starfish

Q8.   Does this animal demonstrate motility?

Answer: Yes

Q9.   What animal is this?

Answer: F. Lizard

Q10. What animal is this?

Answer: B. Butterfly

Q11. Is this animal a heterotroph?

Answer: Yes

Q12. What animal is this?

Answer: E. Horse

Q13. What animal is this?

Answer: G. Snail

Q14. What animal is this?

Answer: I. Whale

Q15. What animal is this?

Answer: C. Fish

Q16. What animal is this?

Answer: D. Frog

Have students answer questions 17–19 on the activity sheet, in the .tns file, or both.

Q17. For which three animals were you asked about having wings?

   Answer: A. Butterfly, C. Beetle, D. Snail

Q18. For which two animals were you asked about a tail?

   Answer: A. Lizard, C. Frog

Q19. Which of the organisms you classified met the five characteristics of animals?

   Answer: All

TI-Nspire Navigator Opportunities

Choose a student to be a Live Presenter to demonstrate how to negotiate the animal identification simulation. The questions in the activity may be distributed as Quick Polls or used as a formative or summative assessment.

Wrap Up
When students are finished with the activity, retrieve the .tns file using TI-Nspire Navigator. Save grades to Portfolio. Discuss activity questions using Slide Show.

Assessment
- Formative assessment will consist of questions embedded in the .tns file. The questions will be graded when the .tns file is retrieved. The Slide Show will be utilized to give students immediate feedback on their assessment.