Explore Activity

Investigate Identification Keys

Question How can you identify plants and animals using identification keys?

Record

Use the Tree Identification Key to identify the tree shown on page 15. Write which steps on the Tree Identification Key you follow. Record the characteristic you observe at each step. Then use the Tree Identification Key to identify each tree shown on the Tree Leaves Pictures Learning Master. Make a table on a separate sheet of paper for each tree.

Tree Identification

Step Followed	Characteristic
1	

The tree is a _____ .

Explore Activity   continued

Tree Identification Key

Step 1
   1a. If the tree has flat, broad leaves, then go to step 2.
   1b. If the tree has needle-like leaves, then go to step 5.

Step 2
   2a. If the leaves are attached across from each other, then go to step 3
   2b. If the leaves are not attached across from each other, then go to step 4.

Step 3
   3a. If the leaves have pointy tips, the tree is a bitternut hickory.
   3b. If the leaves have rounded tips, the tree is a black locust.

Step 4
   4a. If the leaves have uneven edges, the tree is a red oak.
   4b. If the leaves have smooth edges, the tree is a black cherry.

Step 5
   5a. If the needles are short and flat, go to step 6.
   5b. If the needles are long and pointy, then go to step 7.

Step 6
   6a. If the needles are flat and round, the tree is a red cedar.
   6b. If the needles are flat and pointy, the tree is a white spruce.

Step 7
   7a. If the needles are in pairs, the tree is a red pine.
   7b. If the needles are in bundles of 5, the tree is a white pine.

Explore Activity   continued

Tree Leaves Pictures

Use the Tree Identification Key to find the name of the tree that each leaf comes from. Make a table on a separate sheet of paper for each tree. Write the name on the line below the picture.
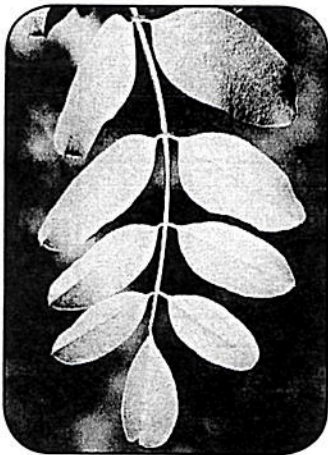

_____   _____   _____

_____   _____   _____   _____

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Explore Activity   continued

Use the Fish Identification Key to identify the fish shown on page 16. Write which steps on the Fish Identification Key you follow. Record the characteristic you observe at each step. Then use the Fish Identification Key to identify each fish shown on the Fish Pictures Learning Master. Make a table on a separate sheet of paper for each fish.

Fish Identification

Step Followed	Characteristic
1	
3	
4	

The fish is a _____ .

Explore Activity   continued

Fish Identification Key

Step 1
    1a. If the fish has both eyes on top of its head, then go to step 2.
    1b. If the fish has one eye on each side of the head, then go to step 3.

Step 2
    2a. If the fish has a long, whip-like tail, it is a spotted eagle ray.
    2b. If the fish has a short, blunt tail, it is a peacock flounder.

Step 3
    3a. If the fish has spots, then go to step 4.
    3b. If the fish does not have spots, then go to step 5.

Step 4
    4a. If the fish has chin "whiskers," it is a spotted goatfish.
    4b. If the fish does not have chin "whiskers," it is a band-tail puffer.

Step 5
    5a. If the fish has stripes, then go to step 6.
    5b. If the fish does not have stripes, it is a glassy sweeper.
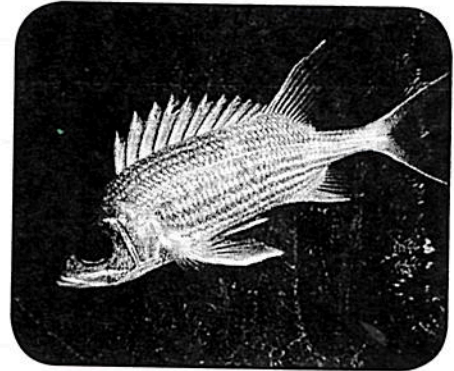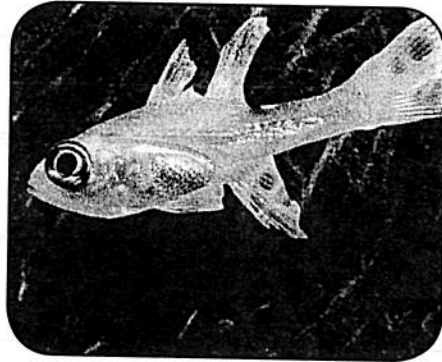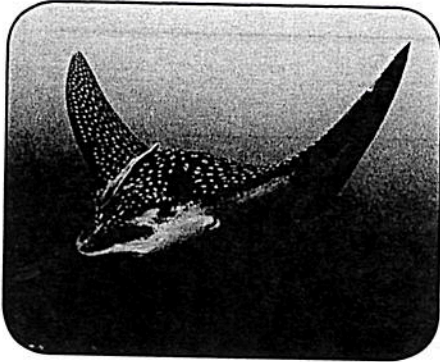
Step 6
    6a. If the fish has a v-shaped tail, it is a squirrel fish.
    6b. If the fish has a blunt tail, it is a glass-eye snapper.

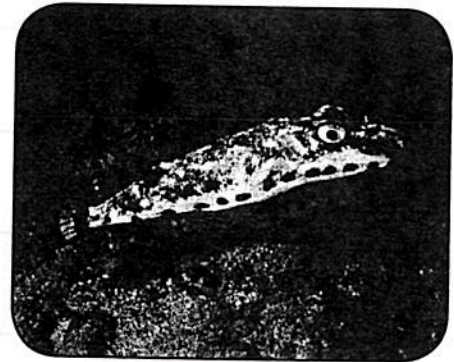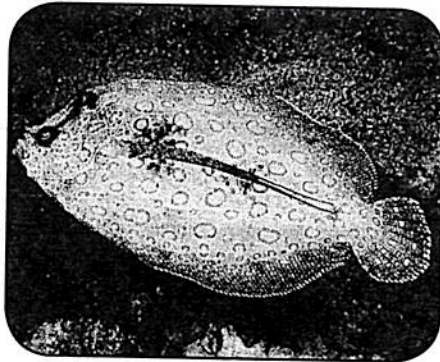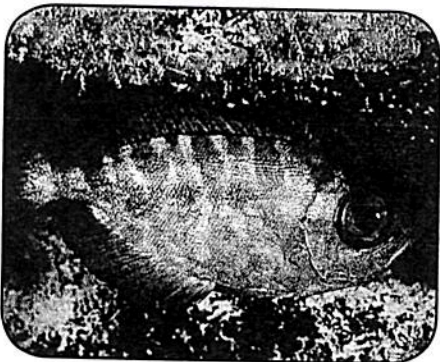**Explore Activity** continued

Fish Pictures

Use the Fish Identification Key to find the name of each fish. Make a table on a separate sheet of paper for each fish. Write the name on the line below the picture.

_____   _____   _____

_____   _____   _____

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Explore Activity continued

Explain and Conclude

1. What is the name of the tree on page 15? What is the name of the fish on page 16?

_____

_____

_____

_____

2. Explain how you used the identification keys to identify trees and fish.

_____

_____

_____

_____

Explore Activity continued

3. Share your results with other groups. Did all groups identify the trees and the fish the same? Explain any differences.
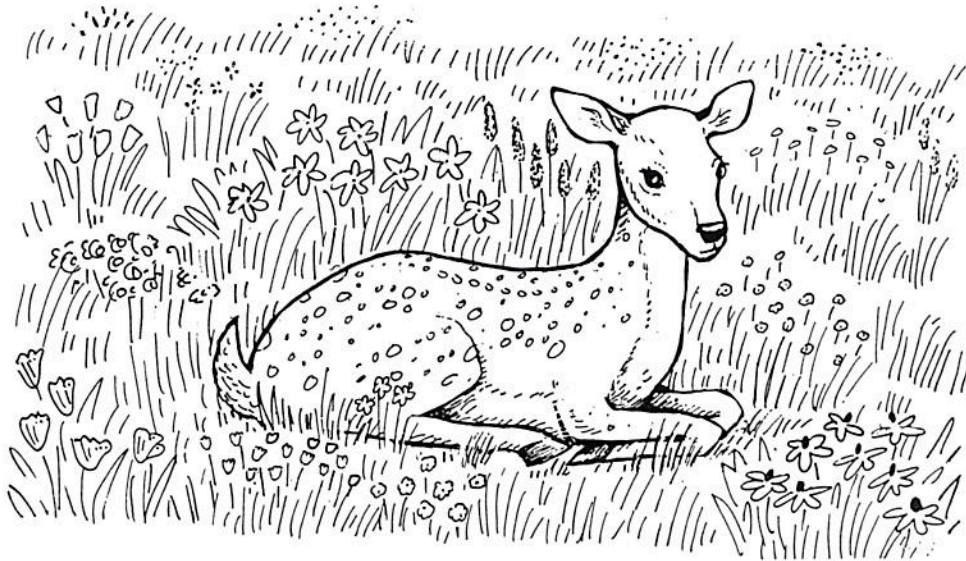
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Chapter 1 Science Vocabulary

Write one of the vocabulary words in each blank
to complete the sentence.

cell
invertebrate
kingdom
species
vascular plant
vertebrate

1. An animal with a backbone is a(n) _____ .

2. A(n) _____ contains bundles of tubelike cells that carry water and food.

3. Every living thing can be classified into a(n) _____ , one of six large groups.

4. A small unit of a living thing is a(n) _____ .

5. A(n) _____ is a group of similar living things that can produce offspring and the offspring also can produce offspring.

6. A(n) _____ is an animal without a backbone.

Write a caption for the picture using vocabulary words.

_____

_____

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Classify Vertebrates into Classes

Read the characteristics of each class of vertebrates. Refer to them as you complete the activity on the next page.

Fish

- skeleton made of bone or cartilage
- usually covered in scales
- live in water
- breathe with gills

Amphibians

- live part of their life in water and part on land
- need a moist environment to survive
- go through metamorphosis
- young breathe with gills
- adults breathe with lungs

Reptiles

- covered in scales
- often live in hot, dry places
- breathe with lungs
- gain or lose heat easily to the environment

Birds

- covered in feathers
- have two scaly legs and two wings
- have lightweight, hollow bones
- hatch from eggs
- breathe with lungs

Mammals

- have hair or fur
- bodies trap heat inside
- breathe with lungs
- usually give birth to live young
- females make milk to feed young

Chapter 1 Extend Learning continued

Search the Big Ideas Book for photos of vertebrates in each class. Then record the animals you identify and page numbers in the chart.

Examples of Vertebrates	
Fish	
Amphibians	
Reptiles	
Birds	
Mammals	

Chapter 1 Share and Compare
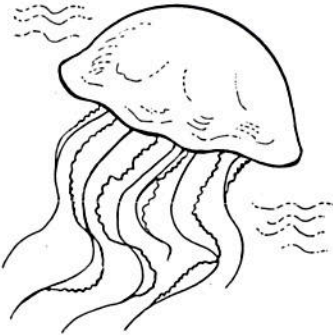
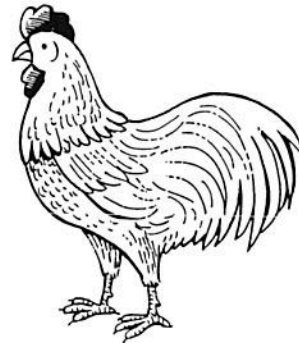Classify each of these organisms as a vertebrate, an invertebrate, a vascular plant, or a nonvascular plant.
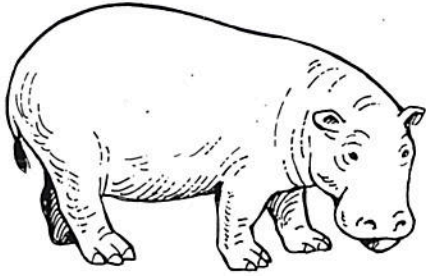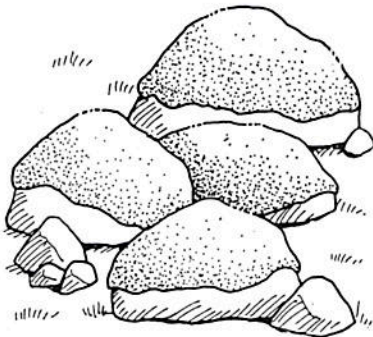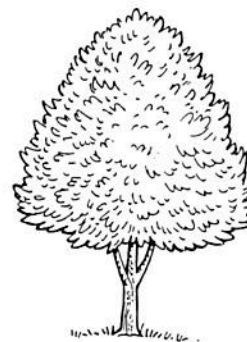
Hippo: _____

Sunflower: _____

Jelly: _____

Chicken: _____

Moss: _____

Tree: _____

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Directed Inquiry

Investigate Plant Cells

Question How do onion cells compare with *Elodea* cells when you observe them under a microscope?

Record

Write what you observe in the table below.

Plant Cells Observed with a Microscope

Cell	Observations
Onion	
Elodea	

Name _____ Date _____

Directed Inquiry continued

Draw an onion cell in the space below. Label the nucleus, cell wall, and cytoplasm in your diagram.

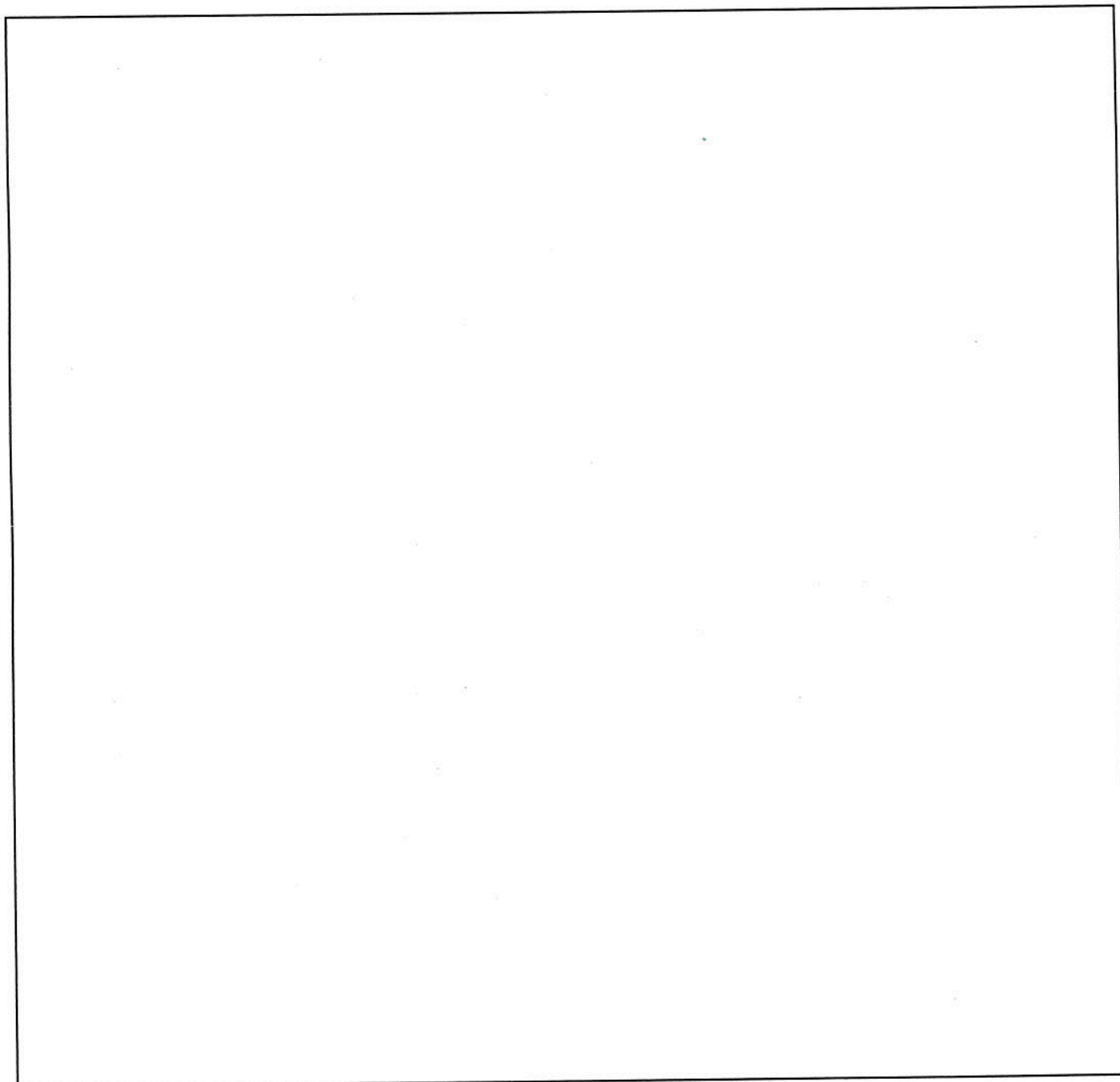Onion Cell

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Life Science

Directed Inquiry   continued

Draw an *Elodea* cell in the space below. Label the nucleus, cell wall, cytoplasm, and chloroplasts in your diagram.

Elodea Cell

Directed Inquiry   continued

Explain and Conclude

1. What structures did you observe in the onion cells? What structures did you observe in the *Elodea* cells?

_____

_____

_____

_____

_____

2. Compare your drawings of the onion cells and the *Elodea* cells. How are the cells alike and different?

_____

_____

_____

_____

_____

Directed Inquiry   continued

3. The onion cells came from an onion bulb, which is where food is stored. The *Elodea* cells are from a leaf of an *Elodea* plant. Why do you think the *Elodea* cells have chloroplasts and the onion cells do not?

_____

_____

_____

_____

_____

Think of Another Question

What else would you like to find out about *Elodea* and onion cells? How could you find an answer to this new question?

_____

_____

_____

_____