Lesson 4: Manatees are mammals; they are closely-related to elephants.

Suggestion: Perhaps use this activity when teaching students classification—either to introduce or reinforce characteristics of mammals.

Objective: Students will learn characteristics of mammals and will use observation skills to list similarities and differences between manatees and their close relative, elephants.

Vocabulary: mammals, vertebrates, warm-blooded, mammary glands, flipper

You will need:

- Copies of animal photographs (included in this lesson plan)

Strategy:

1. Either introduce or ask students to help you list characteristics of mammals (what's special about mammals that makes them different from other types of animals such as reptiles, amphibians, fish and birds?)
    a. Mammals have hair
    b. Mammals give live birth (with some exceptions: duck-billed platypus and spiny anteater lay eggs)
    c. Mammals nurse their young (mothers feed their babies milk from mammary glands)
    d. Mammals are warm-blooded
    e. Mammals generally only have two sets of teeth throughout their life (manatees are an exception!)

2. What other characteristics are shared by mammals (but may also be shared by other groups of animals)?
    a. Mammals are vertebrates
    b. Many other possible answers (eyes, ears, skin etc.)

3. Show students pictures of manatees (laminated handouts or projected). Ask them to look closely at the pictures to see if they can tell what group of animals manatees belong to. Have them explain why they choose the answer that they give.
    a. Correct answer: Mammals (pictures show hair around manatee's mouth; baby manatee nursing from mother)

4. Show class pictures of elephants. What group of animals do elephants belong to? (Mammals)

5. Do elephants and manatees look similar? [The first response will probably be "No!"]. Show students pictures of close-ups of manatee and elephant skin, flipper/foot, manatee lips/elephant trunk. Have students list similarities.

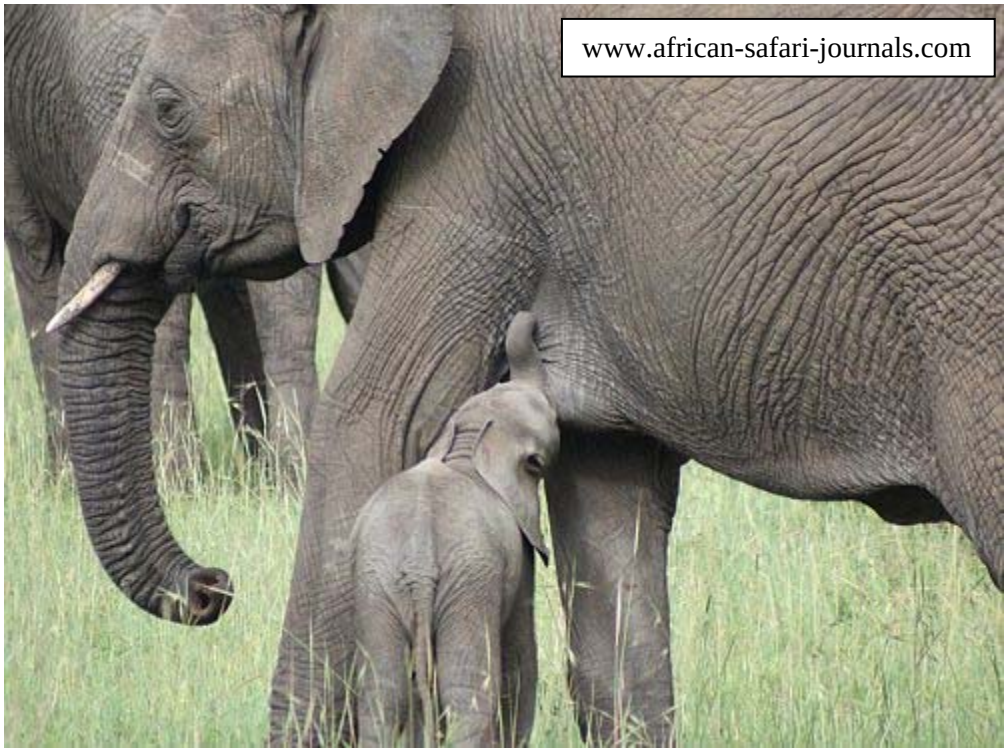
a. Wrinkled, grey skin
b. Sparse hairs
c. Nails on end of flipper/foot
d. Eat plants
e. Use lips/trunk to get food into mouth
f. Small eyes
g. Nurse young under flipper/leg

6. Which of these are characteristics of mammals? (hairs, nursing young)

7. What differences are there between manatees and elephants?
    a. Manatees live in water, elephants live on land
    b. Manatees have a wide tail, elephants have a narrow tail
    c. Manatees have flippers, elephants have legs
    d. Manatees do not have hind (back) legs [They do have hip bones, but no leg or foot bones]
    e. Elephants have a trunk, manatees do not
    f. Elephants have large ear lobes, manatees do not
    g. Elephants can have tusks, manatees do not

8. Explain to the class that elephants are thought to have evolved from the same ancestor as manatees. Ask them why they think elephants might have developed these different characteristics. (You might break the class into small groups and give each group one characteristic and some reference materials—perhaps internet access—have them discuss and come up with a theory that they write down, then present to the class for further discussion.)
    a. Manatees have a broad tail to help them swim (it provides power). Elephants do not need to be able to be powerful swimmers, and a wide tail would be heavy for them to carry around.
    b. Manatees use flippers to steer. Elephants must be able to hold up their heavy body and walk around on land, so they need larger, sturdier legs.
    c. Manatees do not need rear legs, elephants do. If elephants didn't have rear legs, it would be very difficult for them to walk!
    d. Elephants have to be able to reach their food, which may be tree branches, or may be on the ground. A long trunk helps them do this more easily. Manatees eat plants that are underwater or floating and they can easily get their mouth right up to their food. A trunk would make it harder for manatees to swim.
    e. Elephants use their large ear lobes to help them cool down. Their ears contain many blood vessels which carry warm blood. Because the blood vessels are close to the surface of the skin, heat can be transferred to the air which makes the elephant cooler. Manatees live in water, which helps them cool down. Besides, large ear lobes would get in the way when a manatee is swimming.

Standards addressed: SC.3.L.15.1; SC.3.N.1.6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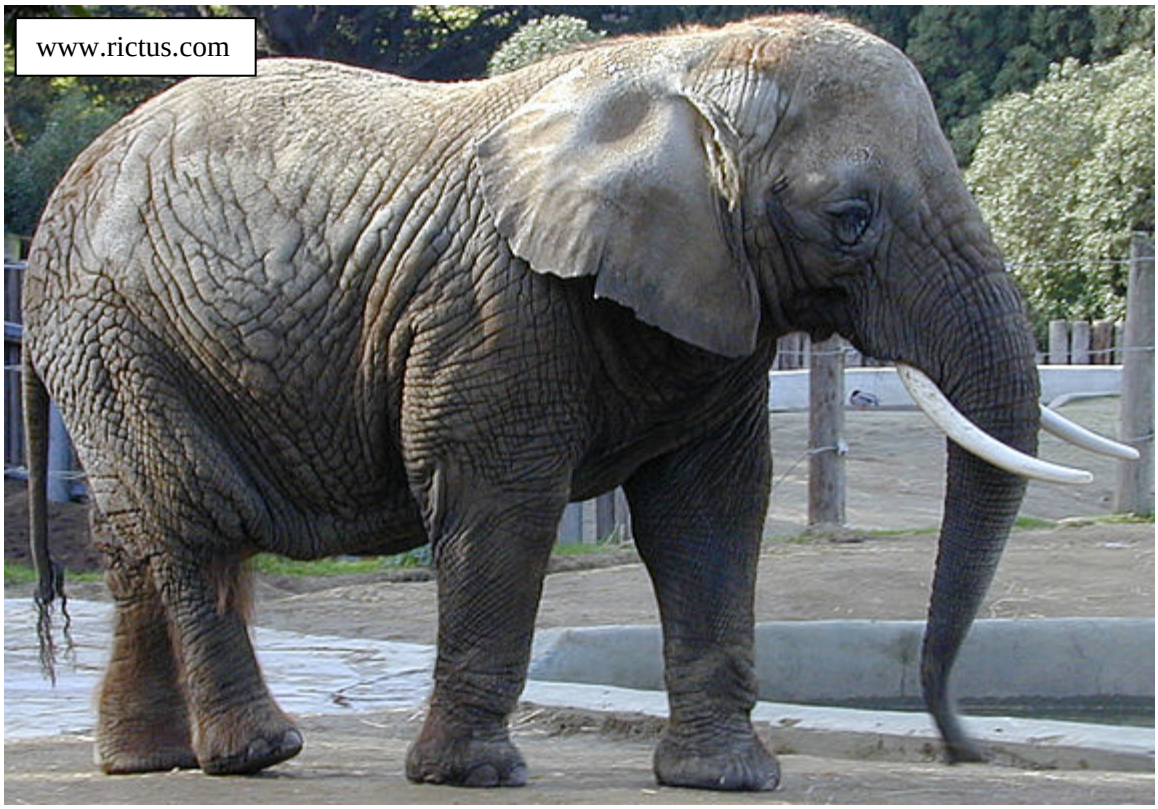
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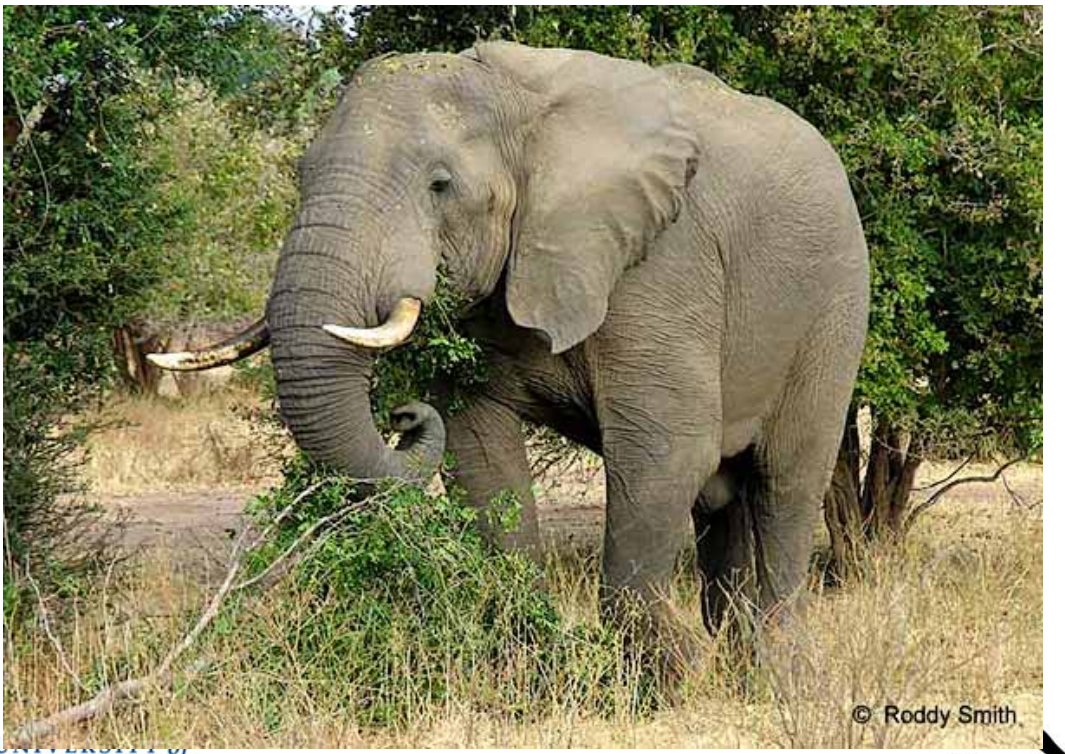
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