LESSON ONE  SCIENCE ACTIVITY 1.2  Grade Level K-6

Mammals, Marine Mammals, and Pinnipeds

OBJECTIVE
Students will identify physical characteristics of mammals, marine mammals, and pinnipeds.

TIME REQUIRED
Three sections taking 15 minutes each. Works best with groups of six to eight students.

BACKGROUND
Mammals are animals that have hair or fur, nurse their young with milk, give birth to live young, and are warm blooded. Marine mammals are mammals that live in marine (salt water) ecosystems. Marine mammals have all the characteristics of mammals but they live all or much of their lives in the ocean. There are four main groups of marine mammals:
  • cetaceans (si-TAY-shens) – whales, dolphins, porpoise
  • pinnipeds (PINN-i-peds) – true seals, eared seals, walrus
  • sirenians (si-REHN-ee-ans) – manatees and dugongs
  • marine fissipeds (FIS-si-peds) – sea otters, polar bears

Pinniped = “fin-foot”

Pinnipeds are marine carnivores (meat-eaters) and are divided into three main groups:
  • True seals (phocid) – do not have an external ear flap; sausage shaped body, can’t stand on all four flippers (crawls on land), swim with hind flippers (example – harbor seal)
  • Eared seals (otariid) – have an external ear flap, can walk on all four flippers on land, swim using front flippers for propulsion, have long neck and large flippers (example – Steller sea lion, northern fur seal)
  • Walrus (odobenid) – no external ear flap, but can walk on all four flippers on land, swim with hind flippers for propulsion

In this activity, students will go through three exercises:
  1. “What is a mammal?” – Discuss characteristics of mammals and sort animals into mammals and non-mammals.
  2. “What is a marine mammal?” – Discuss characteristics of marine mammals and sort animals into marine mammals and other mammals.
  3. “What is a pinniped?” – Discuss characteristics of pinnipeds and sort pinnipeds into true seals, eared seals, and walruses.

To simplify the activity for younger students, students can sort animals into mammals and non-mammals, then pick out marine mammals and pinnipeds from the pile of mammals.

MATERIALS
• Pictures or clipart of non-mammals, mammals and marine mammals (worksheets 1.2.1-1.2.3). For younger students (K-1), you can use manipulatives – plastic animals, or stuffed animals (a variety of mammals, marine mammals, and non-mammals). For older students, photocopy the worksheets with mammals, marine mammals, and non-mammals, and cut them into individual squares
• Worksheet 1.2.4 a+b, (“What is a mammal?”) – these worksheets can be cut to provide two half-sheet worksheets for young students
• Worksheets 1.2.5 a+b, (“What is a marine mammal?”)
• Student Worksheets 1.2.6, 1.2.7 (“What is a pinniped?”)

PROCEDURES
This series of three activities is great for grades K-1. Students can work individually or in small groups. The activity can be set up as a station facilitated by one teacher, with a group of six to eight students

WHAT IS A MAMMAL?
• Ask students “What is a mammal?”
• Go through the four main characteristics of a mammal and list on the board:
  - Has fur or hair
  - Most mammals have live babies*
  - Nurses young with milk
  - Is warm-blooded (body is warm from the inside)
• Platypus and echidna (spiny anteater) are the only mammals that lay eggs.
• Put the Mammal Talking Points 1.2.4 up on the board.
Elementary Curriculum: Grades K–6

PRODECURES continued

- Using one of the pictures of a mammal, or a stuffed mammal, talk about each of the characteristics. Hold up other pictures of mammals or non-mammals and ask the class if the animal is a mammal or a non-mammal.
- Give each student two to four small pictures (from worksheets 1.2.1 – non-mammals and 1.2.2 – mammals). Ask the students to sort the pictures into groups of mammals and non-mammals.
- Grades K-1 – hand out Worksheet 1.2.4 a or b (this can be cut in half so that you have two small worksheets, 8.5”x5.5” each).
- For worksheet 1.2.4 a or b, ask students to circle the mammals.
- Grades 2-3 – Using a book from the library, students can write a paragraph or short report on a mammal. Reports can include where the animal lives, what time of year it has its babies, how many babies it has, and what it eats.
- Grades 4-6 use stuffed animals or pictures to review characteristics of mammals, marine mammals, and pinnipeds.

WHAT IS A MARINE MAMMAL?
- Ask students “What is a marine mammal?”
  - Marine mammals are mammals that live in salt water.
- Review the four main characteristics of a mammal and list on the board:
  - Has fur or hair
  - Most mammals have live babies
  - Nurses young with milk
  - Warm-blooded (body is warm from the inside)
- Most marine mammals live in salt water but there are some (Baikal seals, Saimaa seals, Caspian seals, some harbor seals, and river dolphins) that live in freshwater lakes, and marine mammals can go into fresh water.
- Marine mammals breathe air (unlike fish, which get their oxygen from the water)
- There are four main groups of marine mammals:
  - Whales, dolphins and porpoise (CETACEANS – “si-TAY-shens”)
  - Seals, sea lions and walrus (PINNIPEDS – “PINN-i-peds”)
  - Manatees and dugongs (SIRENIANS – “si-REHN-ee-ans”)
  - Sea otters, polar bears (Marine FISSIPEDS – “FISS-i-peds”)
- Using one of the pictures of a marine mammal, or a stuffed marine mammal, talk about each of the characteristics. Hold up other pictures of marine mammals, fish, or other mammals, and ask the class if the animal is a marine mammal.
- Give each student three to six small pictures (from worksheets 1.2.1 – non-mammals, 1.2.2 – mammals and 1.2.3 – marine mammals). Ask the students to sort the pictures into groups of marine mammals and non-marine mammals. Can also use plastic animals to sort.
- Grades K-1 – hand out Worksheet 1.2.5 a or b (this can be cut in half so that you have two small worksheets, 8.5”x 5.5” each).
  - For worksheet 1.2.5 a or b, ask students to circle the marine mammals.
- Grades 2-3 – Using a book from the library, students can write a paragraph or short report on a marine mammal. Reports can include where the animal lives, what time of year it has its babies, how many babies it has, and what it eats.

WHAT IS A PINNIPED?
- Ask students “What is a pinniped?”
  - Pinniped means “fin-foot” and refers to a group of animals that includes true seals, eared seals and walrus.
- Hand out pictures (or plastic stuffed animals) of true seals, eared seals, and walrus. Ask students to look at their animal and talk about its characteristics. Have students sort themselves into groups based on whether they have a true seal, an eared seal, or a walrus. Go over the characteristics of each group:
  - True seal
    - No external ear flap (just a hole where the ear is)
    - Pulls itself over land on its stomach
    - Swims with hind flippers
  - Eared seal
    - Has external ear flap
    - Can walk on all four flippers on land
    - Swims with front flippers
  - Walrus
    - No ear flap
    - Can walk on all four flippers
    - Swims mostly with hind flippers, steering with front flippers
    - Both males and females have tusks
Laaquadâx: The Northern Fur Seal

• Grades K-1 – hand out Worksheet 1.2.6 a or b (this can be cut in half so that you have two small worksheets, 8.5”x5.5” each) and student worksheet 1.2.7 a or b.
  ◆ For worksheet 1.2.6 a or b, ask students to circle the pinnipeds.
  ◆ For worksheet 1.2.7 a or b, ask students to circle the true seals, put squares around the eared seals and count the walrus. Have the students color in the number of boxes for the number of true seals, eared seals and walrus they counted. This activity can also be done in a more hands-on way by giving students pictures of true seals, eared seals, and walruses and making a graph on the white board.
• Grades 2-3 – Students can write a paragraph or short report on a pinniped, using a book from the library. Reports can include where the animal lives, what time of year it has its babies, how many babies it has, and what it eats.
• Grades 4-6 – Students complete worksheet 1.2.8 to review the characteristics of a mammal, marine mammal and pinniped.

DISCUSSION
Review the characteristics of mammals, marine mammals, and pinnipeds.

EXTEND AND EXPLORE
For any of the activities, graph the results (e.g. comparing the number of non-mammals to mammals).
Non Mammals
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What is a mammal?

- Has fur or hair
- Most mammals have live babies
- Nurses young with milk
- Warm-blooded (body is warm from the inside)
ACTIVITY 1.2 WORKSHEET 1.2.4 a What is a Mammal?

Circle the mammals.

ACTIVITY 1.2 WORKSHEET 1.2.4 b What is a Mammal?

Circle the mammals.
What is a marine mammal?

- Most marine mammals live in salt water
- Breathes air
- Has fur or hair
- Has live babies
- Nurses young with milk
- Warm-blooded (body is warm from the inside)
ACTIVITY 1.2 WORKSHEET 1.2.5 a What is a Marine Mammal?

Circle the marine mammals.

ACTIVITY 1.2 WORKSHEET 1.2.5 b What is a Marine Mammal?

Circle the marine mammals.
What is a pinniped?

- Pinniped = Fin-foot
- True seal, eared seal, walrus

- **True seal**
  - No ear flap
  - Crawls on land
  - Swims with hind flippers

- **Eared seal**
  - Ear flap
  - Can walk on all four flippers
  - Swims with front flippers

- **Walrus**
  - No ear flap
  - Can walk on all four flippers
  - Male and female have big tusks
ACTIVITY 1.2  WORKSHEET 1.2.6a  What is a Pinniped?

Circle the pinnipeds.

ACTIVITY 1.2  WORKSHEET 1.2.6b  What is a Pinniped?

Circle the pinnipeds.
Circle the true seals.
Put squares around the eared seals.
Count the number of walruses.

Show how many true seals, eared seals and walruses you found.
Laaqudaḵ: The Northern Fur Seal

ACTIVITY 1.2 TEACHER KEYS

ACTIVITY 1.2 WORKSHEET 1.2.4 a What is a Mammal?
Circle the mammals.

ACTIVITY 1.2 WORKSHEET 1.2.4 b What is a Mammal?
Circle the mammals.

ACTIVITY 1.2 WORKSHEET 1.2.5 a What is a Marine Mammal?
Circle the marine mammals.

ACTIVITY 1.2 WORKSHEET 1.2.5 b What is a Marine Mammal?
Circle the marine mammals.

ACTIVITY 1.2 WORKSHEET 1.2.6a What is a Pinniped?
Circle the pinnipeds.

ACTIVITY 1.2 WORKSHEET 1.2.6b What is a Pinniped?
Circle the pinnipeds.
What is a mammal?

There are four characteristics of a mammal. List as many as you can.

1. 
2. 
3. 
4. 

Name at least three marine mammals. Note: Penguins are not marine mammals.

1. 
2. 
3. 

Pinnipeds are a type of marine mammal. Name at least three pinnipeds.

1. 
2. 
3. 
What is a mammal?  **ANSWERS MAY VARY**

There are four characteristics of a mammal. List as many as you can.

1. has hair or fur
2. most mammals have live babies
3. nurses young with milk
4. warm-blooded (body is warm from the inside)

Name at least three marine mammals.

1. northern fur seal
2. orca whale
3. sea otter

Pinnipeds are a type of marine mammal. Name at least three pinnipeds.

1. northern fur seal
2. harbor seal
3. walrus