Mammals

Answer Key: Grades 7–8 Lesson Extensions

Notes:

- This answer key should be used as a guide for basic responses to the questions and instructions found in the grades 7–8 lesson extensions. The children should be encouraged to make their student journals tidy, beautiful, and exceptionally well done.
- Encourage the children to write their answers in their own words, with definitions being a possible exception.
- There are two types of answers provided in this answer key:

  Sample answers: Most questions are open ended, so the children's answers will not match the provided text exactly or include everything provided in the sample answer. However, some answers should match more closely (for example, vocabulary word definitions, copied charts, etc.).

  Answers will vary: This is used when there will be great variation in the children's answers, which may be due in part to a lesson having more information provided than another lesson. Refer to the text in the lesson to check these answers.

Lesson 1

2. Write a paragraph explaining how sound is transferred through the ear, using the vocabulary words (which are in bold italics). In your paragraph underline the vocabulary words.

Sample answer: Sound waves enter through the external ear and pass through the ear canal. The sound waves then hit the eardrum, which is a piece of thin tissue, causing the eardrum to vibrate. The vibrating eardrum passes the sound waves to the three bones (called the malleus, incus, and stapes) in the middle ear that conduct the sound. Lastly, the sound waves move into the inner ear where they hit the cochlea. This organ is filled with liquid and has nerves that sense vibrations and convert them into electrical impulses, and these impulses are interpreted as sound by the brain. The semicircular canals and the vestibule, also found in the inner ear, help us with balance.

Lesson 2

2. Answer the questions at the bottom of this page.

Questions and sample answers:

1. Explain the difference between the uteri found in mammals that have litters and those that typically have one baby (like that in humans).

Mammals that give birth to litters carry their fetuses (babies) in uterine horns, which look more like tubed sections. In mammals that typically give birth to one baby (such as humans), the uterine horns are small, with the baby growing in the main cavity.

*2. **Critical Thinking**: Why do you think it makes sense for mammals that have litters to have their fetuses grow in uterine horns?*

Their uterine horns are specially designed to carry multiple fetuses. The uterine horns appear to have more room and individual space.

3. Define the vocabulary words (which are in bold italics).

Sample answer:

In utero: within the uterus
Uterine horns: tubelike sections of the uterus where babies grow in animals with litters
Embryology: the study of life from conception to birth

Lesson 3

2. Copy the sketch of the horse's hoof found in the center of this page (or draw your own).

Sample answer:

3. List 2–3 bullet points for each section of the hoof—outside, inside, and underneath.

Sample answers:

Outside the Hoof: (only 2–3 bullet points needed)

- The visible outer part of the hoof is the hoof wall.
- The hoof wall is made of keratin and grows continuously.
- People who take care of horses trim the hoof wall.
- The hoof wall acts as a protective barrier to the inside of the horse's hoof.
- The hoof wall functions as a shock absorber.
- The part where the top of the hoof meets the hairline is called the coronet.
- The coronet is where the hoof wall grows.

Inside the Hoof: (only 2–3 bullet points needed)

- The last bone in the tip of the horse's toe is the largest and is called the coffin bone.
- The hoof surrounds the coffin bone.
- Behind the coffin bone toward the back of the hoof is the digital cushion.
- The digital cushion is made up of cartilage and acts as a cushion by absorbing shock.

Under the Hoof: (only 2–3 bullet points needed)

- The sole dips inward, so it doesn't usually touch the ground.
- The sole protects the inside of the hoof and is made of keratin.
- The keratin on the sole is a bit softer than the keratin on the outside of the hoof and more easily worn down.
- There is a line at the tip of the sole called the white line. The white line is an area where the sole connects to the hoof wall.
- Caretakers of horses will keep a close eye on the white line because if it becomes infected, it could cause separation between the sole and the hoof wall.
- The V-shaped structure of the underpart of the hoof is called the frog.
- The frog is strong and thick, and it protects the digital cushion found inside the hoof.
- Inside the frog are sensitive nerves that help the horse sense the surface it's standing on.

Lesson 4

2. Define the vocabulary words (which are in bold italics).

Sample answer:

Prehension: the act of grasping something
Mastication: the process of chewing food
Digesta: the name of food after it's been swallowed
Esophagus: a muscular tube leading to the stomach from the throat
Monogastric: one stomach (found in humans, cats, dogs, pigs, and other mammals)
Gastric juices: enzymes and stomach acid that help break down food and kill off bacteria
Pseudo-ruminant: a classification term for animals that primarily eat forage and roughage but do not have rumens or four-chambered stomachs

3. Answer the questions in the bottom section.

Questions and sample answers:

1. How do pseudo-ruminants depend on microorganisms for digestion?

Microorganisms help break down the strong cellulose found in fiber. Pseudo-ruminants could not otherwise break down cellulose.

*2. **Critical Thinking:** Nutritionists say it is important for you to chew your food properly when eating. Why do you think this is the case?*

Chewing is part of the digestive process. The teeth and saliva in your mouth work together to break down food both physically and chemically. The enzymes in saliva break down food and convert molecules into substances needed for better digestion.

Lesson 5

2. List 5–7 facts about sloths that you found most interesting.

Answers will vary: Bullet points should reflect information found in the extension lesson.

3. Present what you learned to a family member or draw a picture based on one of the scenes from the text.

Answers will vary: The child will have either presented the information to a family member or drawn a picture of a sloth.

Lesson 6

2. It's impossible to know what animals are thinking, so scientists carefully design experiments to determine how much animals understand. Imagine you are studying one of the primates below. Describe an experiment you would do to test how much your chosen primate knows.

Answers will vary: The child should have come up with an experiment inspired by one of the primates listed in the lesson.

Lesson 7

2. Create a Venn diagram to compare and contrast meerkats and mongooses.

Sample answer: The Venn diagram should have two partially overlapping circles. One circle should be labeled MEERKAT, and the other circle should be labeled MONGOOSE. The overlapped section includes information true for both meerkats and mongooses, as seen in the diagram below.

3. Write 3–5 bullet points of things you learned about hyenas.

Sample answer:

Hyenas: (only 3–5 bullet points needed)

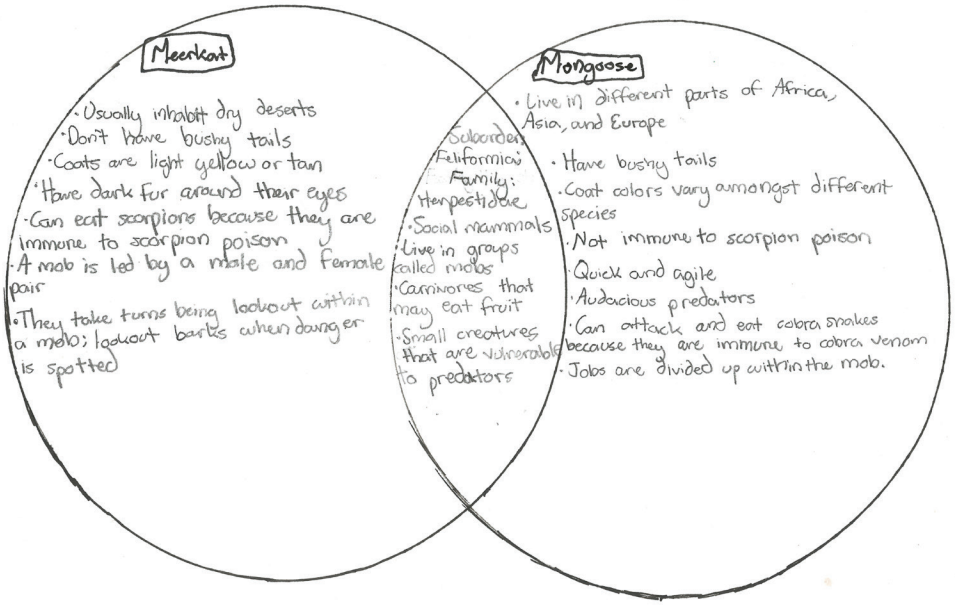
- Hyenas may appear to look more like dogs, but they are more closely related to cats.
- Suborder: Feliformia; Family: Hyaenidae
- There are four species of hyena: spotted, brown, striped, and the aardwolf.
- Hyenas live in Africa.
- Hyena habitats match their diet.
- Female hyenas outrank males among spotted hyenas.
- Only the spotted hyenas make the characteristic human-sounding laugh.
- Hyenas are known as scavenger carnivores, but they are very capable of successfully hunting wildebeest, antelope, and many other smaller mammals, fish, and reptiles.
- Hyenas are not wasteful, even eating bones and hooves.
- Hyenas have powerful jaws.
- Aardwolves are insectivores (unlike other hyenas); they dine on termites, eating about 30,000 termites each night.

Lesson 8

2. In a paragraph at least three to five sentences long, describe some of the ways canines can help humans. If desired, you could also include some information about a canine in your own life.

Answers will vary: The child's three- to five-sentence paragraph will reflect information found in the unit and may include information about a canine in his or her own life.

Lesson 7 Venn Diagram

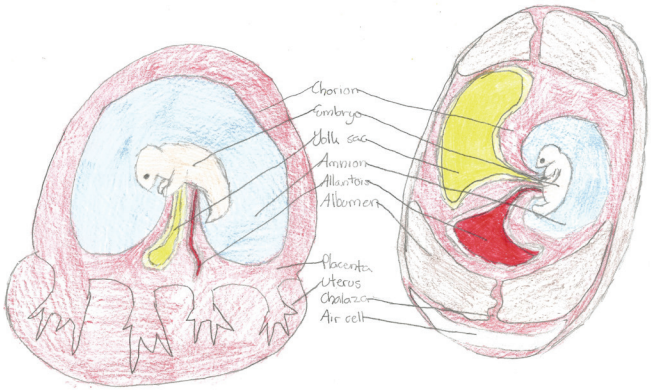


Lesson 9

2. Do one or both of the following assignments:

a. Copy the diagram of the placental mammal embryo and the shelled embryo.

Sample answer:



b. Write definitions for each term labeled on the egg diagrams. (Note: You may refer to Lesson 2 or your science wall for help with the words placenta *and* uterus.*)*

Sample answer:

Chorion: outermost membrane (or layer)
Embryo: early stage of a developing baby
Yolk sac: food source (bigger in shelled animals as it must sustain the baby through the whole growth period before hatching; smaller in placental mammals as it is only needed until the placenta develops)
Amnion: fluid-filled sac that covers the embryo and acts as a shock absorber
Allantois: pouch that stores waste and helps with respiration
Albumen: clear liquid that protects the yolk and provides more nutrients to the embryo
Placenta: an organ that is formed within the uterus during pregnancy that sustains the developing baby through the umbilical cord
Uterus: the womb—where a baby grows inside its mother
Chalaza: rope-like structure that anchors the yolk
Air cell: a pocket of air that provides the hatchling with air when it's ready to hatch

Lesson 10

2. Based on the information you read, write whether you think wombats, Tasmanian devils, and kangaroos are herbivores or carnivores. What features about each of these marsupials' teeth would lead you to your conclusion?

Sample answer:

Wombats: Herbivores; the molars are designed for grinding; there is a gap between the incisors and molars (some children may be able to conclude that this indicates there are no canine teeth).
Tasmanian devils: Carnivores; teeth are designed to tear and shred through meat and bone; they have an extremely powerful bite.
Kangaroos: Herbivores; the molars are designed for grinding; there is also a wide gap between the front and back teeth.

Lesson 11

2. Compare the ways that aardvarks and armadillos protect themselves from predators and dine on ants. Do this by creating a chart with headings at the top for "aardvark" and "armadillo" and on the left side for "protection" and "food."

Sample answer:

See chart below.

Lesson 11 Aardvark and Armadillo Chart

	Aardvark	Armadillo
Protection	·Aardvarks usually pause after exiting their burrows so they can try and hear any predators nearby. They do this because they have very poor eyesight, so they can't spot predators very well. ·They leave their burrows by leaping. ·They can seal up their nostrils to prevent dust from getting in.	·Armadillos are equipped with bands of armor (carapaces) that are made of bone so they can protect themselves. ·Three-banded armadillos can roll up like the roly-poly bug.
Food	·They eat termites or ants. ·An aardvark may eat up to 50,000 insects in one night. ·Aardvarks have an amazing sense of smell, and once they find their prey, they will dig at soft mounds and use their sticky tongues to catch it.	·Armadillos usually just eat ants and termites, but they will sometimes eat certain plants and fruits. ·Although they are nocturnal, they will search for food in the morning and evening. ·They have poor eyesight, so they rely on their great sense of smell to track prey. ·They use their sticky tongues to catch prey. ·They use their sharp claws to dig out their prey.

Lesson 12

2. List one characteristic for each mammal discussed that is different from that of rodents.

Sample answer:

Rabbit | Hare: (only 1 bullet point needed)

- They have skeletal differences.
- They have an extra set of incisors.
- Their incisors are white (not orange).
- They are herbivores.

Pika: (only 1 bullet point needed)

- They are strict herbivores.
- They have skeletal differences. For example, their skulls are flatter than rodent skulls.
- They have more incisors.

Ferret | Weasel | Mink: (only 1 bullet point needed)

- Their teeth match those of carnivores—they have canines.

Mole | Shrew: (only 1 bullet point needed)

- Their front teeth are pointy and sharp.
- There is no gap between their incisors and molars.

Lesser Mouse-Deer: (only 1 bullet point needed)

- They are ungulates (hoofed mammals).
- They have long, sharp tusks (modified canines).

Hedgehog: (only 1 bullet point needed)

- Hedgehog spines are unbarbed (compared to the barbed quills of a porcupine, a rodent).
- Hedgehog spines are about the same size and shape along their body (unlike those of the porcupine).
- Hedgehogs roll into a ball and hide as a defense rather than release their spines as porcupines do.

Lesson 13

2. Pick one of the bears and write an informative paragraph using what you learned in this extension lesson. Write the paragraph in such a way that it could have been used in the main lesson to teach about the bear. If desired, include a sketch of the bear.

Answers will vary: The child's paragraph should be of similar length and structure as the lesson's paragraphs about bears and include information taken from the bullet points of ONE of the bears featured in the extension lesson.

Lesson 14

2. Do one or both of the following assignments:

a. List 5–7 interesting facts about marine mammals.

Answers will vary: Bullet points should reflect information about marine mammals found in the extension lesson.

b. Briefly summarize how rescue teams are able to disentangle a trapped whale, based on what you read in the case study.

Sample answer: When whales become entangled in fishing gear, they become panicked and stressed. Because whales are very heavy, rescuing them can be very difficult. Rescuers do not want to harm themselves or further harm the whale, so they do not get into the water with the whale. Instead, they follow behind the whale in a boat. A grappling hook is used to catch and hold on to the fishing lines that are tangled up. A series of buoys are attached to prevent the whale from diving and to slow it down. Rescuers get into a small inflatable boat to catch up to the moving whale. Eventually, the whale will slow down as it begins to get tired. Rescuers then use a tool attached to a pole to cut away the rope without harming the whale. Once the whale is free, the team cleans up any remaining rope to prevent another animal from getting entangled in it.

