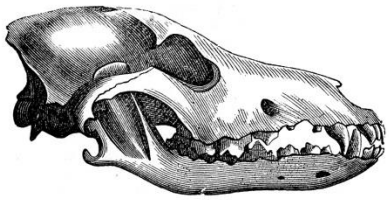
Name:_____ Life Science, 3rd Grade

Plant and Animal Specimens

DOCENT ANSWER KEY



Instructions:

Carefully observe the numbered animal and plant specimens. Try to identify the adaptation associated with the specimen. There may be more than one adaptation for each. Next determine how the adaptation helps the plant or animal survive. Write down your answers below at the corresponding number. Use complete sentences. (Docent Note: There can be more answers than provided below.)

#1 – Sequoia Pinecone

Adaptation: *The pine cone has hard scales which hold seeds. This is a physical adaptation.*

Why does it help?

Pine cones are built to protect the seeds of a pine tree until they are released in on OPTIMUM spot. The further the seeds get away from the parent tree, the higher the chances are that the seed will grow into a huge tree. Because a huge tree will "suffocate" a smaller tree due to the huge roots taking all the available water in the soil. Pine cones typically remain green and closed for up to 20 years.

#2 – Armadillo Helmet

Adaptation: *The armadillo's helmet is a physical adaptation. It is a tough, protective type of shield or armor over its head. The brownish green color of the armadillo's helmet is also another physical adaptation.*

Why does it help?

The armadillo's hard helmet plate protects its head from predators. The coloring of its armor allows it to blend into its scrubby grassland environment.

Adaptation: _____

#3 – South African Porcupine Quill

Adaptation: *The porcupine's quill is sharp, tough yet hollow. Its quills are a physical and behavioral adaptation.*

Why does it help?

The porcupine's quills are hollow and do not weigh down the porcupine. The quills offer protection from predators. When threatened by a predator the porcupine will raise its quills and rattle and shake them around while grunting and growling, in its first attempt to detour a predator. If this does not work the porcupine will charge backwards. The quills are sharp and fall out easy. If the porcupine is successful it will embed a quill in the predator leaving a wound.

#4 – Bird's Nest

Adaptation: *Bird's build nests to protect their eggs and young. This is an adaptive and behavioral adaptation.*

Why does it help?

Birds somehow know how to build nests and know where to find materials to build them. Every type of bird builds its own type of nest. Nests provide a safe place to incubate eggs and often protection and a home for their young.

#5 – Bearded Dragon Moulted Skin

Adaptation: *Lizards moult or shed their skin. This is a physical adaptation.*

Why does it help?

This allows them shed their outgrown skin.

Skull Identification: How to tell what it was!

Skulls can tell us a lot about an animal. By looking at the **ORBITS** or eye sockets of the skull you can tell if the animal was a predator or a prey.

Location of the orbits (eye sockets):

- Located in front of the head, pointed forward, then the animal was more than likely a predator.
    - Why? When the eyes are located in the front of the skull the animal has better binocular vision for hunting.
- Located off to the side, then the animal was probably a prey species.
    - Why? When the eyes are located off to the side of the head the animal has better peripheral vision….a better range of view.

The formation of the teeth can also tell us if the animal was a predator or a prey.

- Herbivore: These animals eat plants. They have flattened molars which are flat and smooth; perfect grinding surfaces. They will extremely reduced canine teeth or none at all.
- Carnivore: These animals eat primarily meat. They have incisors, canine, premolar and molar teeth. The canine teeth in the front of the mouth are used for piercing and holding prey.
- Omnivore: These animals eat plants and meat. They also have all four types of teeth (incisors, canine, premolar and molars). Omnivore's molars are flat like an herbivore whereas the carnivore has sharper pointy molars.

Skull #1 - Coyote

Carefully study the teeth. By the shape and placement of the teeth indicate if it is herbivore, carnivore or omnivore and why?

The coyote is a predator. It has sharp and pronounced canine teeth which it using for holding and killing its prey. Its back teeth (molars) are also sharp and pointing not flat.

Where are the orbits (eye sockets) located? What type of adaptation is this (physical, behavioral, and structural) and how does it let the animal survive?

The orbits are located in front of the skull. This allows the coyote to locate its prey with precision. This is a structural adaptation which helps the coyote hunt for food.

Skull #2 - Deer

Carefully study the teeth. By the shape and placement of the teeth indicate if it is herbivore, carnivore or omnivore and why?

This deer is an herbivore. It has very flat brad molars which it using for grind its food. It does have some canine but they are very small.

Where are the orbits (eye sockets) located? What type of adaptation is this (physical, behavioral, and structural) and how does it let the animal survive?

The orbits are located on the side of the deer's head. This is a structural adaptation which ensures the deer's survival. It provides the deer with the ability to better see any potential danger.

Skull #5 – North American River Otter Skull

Carefully study the teeth. By the shape and placement of the teeth indicate if it is herbivore, carnivore or omnivore and why?

This is a tricky one. River otters are generally omnivores. They eat meat as well as some aquatic plants. The molars are a little flatter than a carnivore.

Where are the orbits (eye sockets) located? What type of adaptation is this (physical, behavioral, and structural) and how does it let the animal survive?

The orbits are located in front of the skull. This allows the otter to locate its prey with precision. This is a structural adaptation which helps it hunt for food.