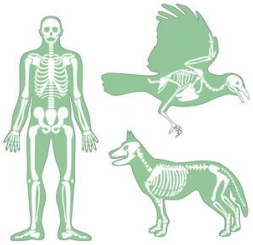
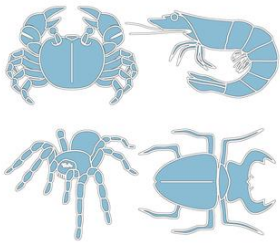
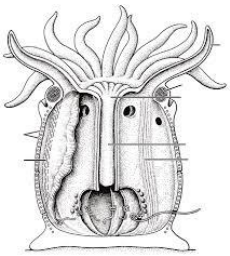
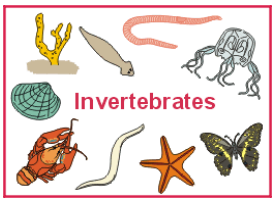
Science V9/S5: Exoskeletons/Endoskeletons

Skeletal systems allow animals to move, support posture, and protect vital organs. All animals have skeletons, but not every animal has the same type of skeleton. Some animals have their skeletons on the inside of their bodies. An endoskeleton is an interior skeletal system. An exoskeleton is an exterior skeletal system. Hydrostatic skeletons are flexible skeletons supported by fluid pressure.

Endoskeleton (Inside)	Exoskeleton (Outside)	Hydrostatic Skeletons
		

Animals with endoskeletons can usually grow large because their bones can support a lot of weight. Two examples of these are whales and elephants. Organisms with exoskeletons usually remain small because their shells are too heavy for their body sizes. Examples of these are spiders and crabs. Wearing an exoskeleton is like wearing a suit of armor. It would restrict our movement and be uncomfortable to travel in. Endoskeletons allow the organism to move much more freely and flexibly.

Invertebrates vs Vertebrates



The animal kingdom is divided into two types of animals: vertebrates and invertebrates. Vertebrates house their skeletons on the inside of their bodies while invertebrates wear their skeletons on the outside of their bodies.

Endoskeletons can grow inside of the organism because bones are made of living tissues. A con of having exoskeletons is their inability to grow with the organism. They are made of a substance called chitin, and they lock in moisture. Because exoskeletons do not grow, the organism needs to leave its exoskeleton and replace it with a new one.

Cicada Shedding its Exoskeleton

First, the cicada pushes its body out of the shell.

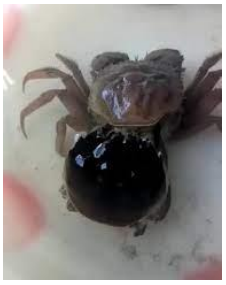
Next, the cicada is able to pull itself out of the shell.

Then, the cicada breaks free from its shell completely.

Finally, the cicada lets its wings dry before flight.

Animals can shed their exoskeletons a lot of times during their life cycles. Some animals shed their skin every week while others only a few times in their lifetimes. Shedding one's exoskeleton is an extremely disruptive process, and it is often difficult for the organism. An organism shedding its exoskeleton is extremely vulnerable until a new skeleton grows back.

Times These Organisms Shed per Lifecycle

Crabs	Grasshoppers	Shrimp	Caterpillars
			
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