

### **SEA LAMPREY**

A sea lamprey is a primitive fish that has no bones, only cartilage. They do have a notochord and a cartilage backbone, but they have no fins or jaws. They are parasitic fish that use their sucker like mouth to latch onto larger species of fish. They pierce them with sharp teeth and suck their blood. Their eggs are tiny and gelatinous.



### **ATLANTIC TUNA**

A Tuna is a bony fish that is an amazing creature. It is a "transatlantic torpedo that can sprint at highway speed while warming its brain with energy from its muscles." It lays gelatinous eggs are laid as the male and female spawn and release sperm and eggs at the same time in the same location. Reproduction is external. Its skeleton has a backbone that has been ossified (become hard instead of just being cartilage). It has a dorsal nerve chord, a notochord, and has pectoral fins that are paired appendages (occur on both sides). Overfishing, due to man's love for Sushi is pushing this fish toward extinction.



## **BULLFROG**

The Bullfrog is an invasive amphibian species to Southern California and common in ponds and lakes east of the Rockies. They are large, green, and have a roaring mating call that makes them sound like a bull about to charge. They have a dorsal nerve chord, a notochord, an ossified skeleton with a spinal column, paired appendages that have become paired legs. They lay gelatinous eggs that can only be laid in the water like fish do. Instead of spawning, these creatures show grasping behavior that insures the male and female are in the same location when gametes are released. Reproduction is external. Amphibians are capable are moving out of the water, but they must return for their reproduction.



### **SNAPPING TURTLE**

Snapping Turtles are amazing reptiles that have adapted for eating fish in rivers, lakes and ponds throughout the United States. They blend in to the river bottom and lay still with their mouths open. A little appendage at the bottom of their mouth comes out and wiggles like a worm. When a fish investigates...SNAP (thus the name). Their horny beaks cut the fish in half and they swallow the chunks whole. Turtles have a dorsal nerve chord, a notochord, a bony vertebral skeleton, and paired appendages in the form of legs. As with many reptiles, they have developed an amniotic egg that is leathery and contains the nourishment for the embryo inside a amnotic sac that also incloses the fetus. These eggs must be laid on land in a place that has the correct temperatures and moisture for them to develop and hatch. This allow reptiles to not depend on water reproduction.



**KANGAROO**

The Kangaroo is the "Deer" of the marsupial world. They are mammals that more primitive than placental mammals that include humans and most any other mammal you can think of (except the opossum). These creature haved a notochord, a dorsal nerve chord, a bony skeleton than includes a spine, paired appendages that are legs, and an amniotic sac where the embryo develops. Marsupial young do not have placentas that attach it to the mother's uterus. Instead, they are born as a tiny pink embryo that crawls from the vagina to the pouch where it attaches to a mammary gland to complete its development. Only its forearms and sucking mouth are well developed when it is "born" and begins its journey to the pouch.



### **RHESUS MONKEY**

The Rhesus monkey is a primate that is known for its intelligence and adaptability. It has a nerve chord, a notochord, an ossified skeleton with a vertebral column, paired appendages as legs and arms, and an amniotic sac. It is a placental mammal and keeps its babies in its uterus until they are more mature, like around 9 months. The baby is attached to the mother in the uterus by a placenta and gets its nourishment and oxygen through its umbilical cord while using it to expel its metabolic waste (CO<sub>2</sub> & Urea). Its foramen magnum (big hole for the spinal column at the base of the skull) is behind the skull instead of underneath it. This makes it more difficult for this monkey to be upright on 2 legs because the head is then forward. Their canine teeth are longer than their other teeth and are used in defense.



### **HUMANS (*HOMO SAPIENS*)**

Humans are the most adaptable mammal on earth and have inhabited almost every imaginable habitat. They have amazing intelligence (most of the time) and are capable of altering Earth to meet their needs. They have a spinal cord and notocord, a bony skeleton with a spinal cord, paired appendages as arms and legs, an amniotic sac, a placenta, but their foramen magnum is directly under the skull. This gives them the advantage of walking upright with the head being balanced on top of the neck versus forward. Their canine teeth are as short as their other teeth. Humans pick up tools to defend themselves (including sticks, stones, and nuclear weapons).

