

# For Creative Minds

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## Animal Classification

Just as we sort money or candy, scientists sort all living things into groups to help us understand and connect how things relate to each other. Scientists ask questions to help them sort or classify animals.

The first big sorting question is whether the animal has (or had at some point in its life) a backbone. If the answer is “yes,” the animal is a vertebrate. If the answer is “no,” the animal is an invertebrate.

Vertebrates are broken into five major Classes:

- Amphibian hatchlings are called larvae or tadpoles and live in water, using gills to breathe. As they grow, they develop their legs and lungs and move onto land. They have soft, moist skin and are cold-blooded.
- Bird chicks hatch from eggs. Birds are the only animals that have feathers. They use lungs to breathe and are warm-blooded.
- Fish young are either born alive or hatch from eggs. They use gills to get oxygen from the water. Most have moist scales covered with a thin slime. They are cold-blooded.
- Mammal babies drink milk from their mothers. They are the only animals that have hair or fur. Whiskers and quills are considered a type of hair. They use lungs to breathe and are warm-blooded.
- Most reptiles hatch from leathery eggs but some are born alive. They use lungs to get oxygen from the air, even if they live in water. They have dry scales or plates and are cold-blooded.

Invertebrate animals are also broken down into large groups. One of the largest Classes of invertebrates is insects.

- Most insects hatch from eggs. All insects have three body parts: head, thorax, and abdomen. Some but not all insects have wings. They are cold-blooded.

### **Some questions scientists ask:**














Does it have a backbone?

Does it have feathers, fur or scales?

Are the babies born alive or do they hatch from eggs?

Does the baby drink milk from its mother?

If it has a skeleton, is it inside (endoskeleton) or outside (exoskeleton) of the body?

Vertebrate				Invertebrate
Amphibian	Bird	Fish	Mammal	Insect
 hellbender salamander	 flamingo	 hardhead catfish	 bat-eared fox	 giant water bug
 midwife toad	 rhea	 seahorse	 golden jackal	
	 swan	 weedy sea dragon	 golden lion tamarin	
			 gray wolf	

Which group has the most animals?

To what animal class does a seahorse belong?

Does an insect have a backbone?

Is a midwife toad a reptile or an amphibian?

## Animal Fathers—Matching

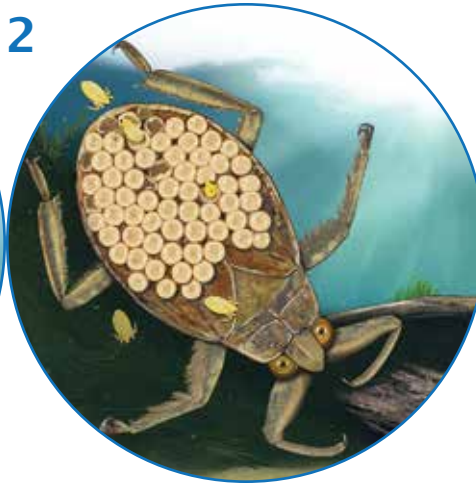
Use the information you read in the book to match the animal dad to how it helps to raise its young.

1



flamingo

2



giant water bug

3



hardhead catfish

4



midwife toad

5



rhea

6



seahorse

- A. This fish dad carries the eggs in his mouth and doesn't eat until the eggs hatch.
- B. This amphibian dad wraps the long egg strands around his waist and legs. When the eggs are ready, dad gets into the water so the tadpoles can emerge from their eggs.
- C. This bird dad builds a large nest. After moms have laid their eggs, they leave. Dad protects the eggs and raises the chicks.
- D. Both bird dad and mom make a special crop milk to feed their chick after it hatches.
- E. This fish dad carries the eggs inside a special pouch. The young emerge from the pouch.
- F. This insect dad carries the eggs on his wings and keeps them clean and free from algae.

Answers: 1-D; 2-F; 3-A; 4-B; 5-C; 6-E

## Fun Facts Matching

See if you can match the animal to the fun fact.

1



bat-eared fox

2



golden lion tamarin

3



gray wolf

4



hellbender salamander

5



swan

6



weedy sea dragon

- A. These amphibians are the largest salamanders in the Americas. Adults can range in size from 12 to 30 inches.
- B. Unlike their seahorse cousins, these fish do not have prehensile tails.
- C. Once these birds pair up, they'll stay together their whole lives.
- D. These monkeys are really small, usually measuring 6 to 10 inches (plus tail).
- E. These mammals howl to communicate with their pack.
- F. These mammals' big ears are great for hearing insects underground and for keeping them cool in the heat.

Answers: 1-F; 2-D; 3-E; 4-A; 5-C; 6-B