ADAPTABLE NECKS ACTIVITY

Mammals:	Humans, Giraffes and Swans (non-mammal)
Concepts Addressed:	Classification, Habitats, Anatomy, Adaptations
Materials	Wooden Spools, Beads, Pipe Cleaners
Sources:	spools available at www.woodparts.biz; pipe cleaners at www.officemart.com, beads are available at craft stores
Shopping List: for each student:	7 small (.4") spools, 7 larger (.75") spools, 25 (.25") beads, 3 pipe cleaners (approx. 10")

Background Information:

All mammals have backbones, but even more interesting is the structure of the neck. While birds, amphibians, and reptiles have large variations in number, in mammals it is fixed at 7. The long neck of the swan is composed of 22 to 25 cervical vertebrae, while ducks have 16. In contrast, the long necks of the giraffe and camel have 7 cervical vertebrae, the same number as humans, mice, and whales. With just two exceptions (the manatee and the sloth), the number is constant for all mammals.

If a giraffe and a mouse have the same number of vertebrae, how are they different? How would the size of the vertebrae help an animal to survive? Let's see…

Instructions:

Tie a knot in a pipe cleaner, string 25 beads on it.
Tie a knot in another pipe cleaner, string 7 small spools on it.
Tie a knot in a third pipe cleaner, string 7 larger spools on it.

Compare the necks for stiffness and flexibility.

Discussion:

Not all necks are the same. A human neck has 7 vertebrae, the same as a giraffe neck. Both giraffes and swans have very long necks, but a giraffe's neck is stiff and a swan's is flexible. Giraffes have only 7 necks bones, but each bone may be up to a foot long. This provides stiffness for an animal that feeds from the tops of trees. A swan has 23-25 small neck bones, this provides for flexibility for an animal that fishes for its food and requires quick, precise movements. How does a human neck compare. Each of our vertebrae is about 1" long, compared to a giraffe vertebra which is about a foot long.

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