

Name _____

Dog Variety

Have you noticed how many different types of dogs there are? Why is that? Read this transcript of a podcast talking about dog breeds.

Introduction

Recently, designer mutts like the Labradoodle—a cross between a Labrador retriever and a poodle—have become popular. A listener wanted to know if some kinds of dogs are just too different to make puppies.

Are there some dogs that don't mix? I'm Bob Hirshon and this is Science Update.

Perhaps hoping to cross-breed a Chihuahua and a pit bull, Mary Beckman of Idaho Falls, Idaho recently called the Why Is It line.

Beckman: Species are partly defined by the ability to interbreed. With all the dog breeds in the world, are there any two dog breeds that could be considered different species?

We asked Gregory Acland, of Cornell University's Center for Canine Genetics and Reproduction. He says you're right to use the term "partly."

Acland: *But that rule, even if it was true, isn't a rule that divides species anyway, because there are many species of birds for example, or fish, or lots of organisms, that if you put them in captivity and give them the opportunity to do, they will breed. So that you could cross wolves with dogs. You can certainly cross wolves with coyotes.*

That said, he's found that there are certain combinations of dogs that don't cross-breed easily: for example, beagles and Irish setters.

Acland: *These were dogs with family lines, where they routinely produce big litters, and yet when we tried to breed these fertile beagles to fertile setters, we*

got no pups at all, despite many attempts to do so, and then eventually, we were able to produce one litter with two pups in it.

He says subtle genetic incompatibilities between these breeds may get in the way.

Making Sense of the Research

Dogs come in a mind-boggling range of sizes, from tiny ones that fit in your handbag to those that can practically be saddled up like a horse. Strangely, cats don't seem to show the same level of diversity. This Science Update explores how selective breeding - selecting individuals that have a desirable trait and breeding them - will eventually get the population average of a species moving in the direction you've chosen. It also attempts to explain why dogs, more than any other domesticated animal, demonstrate such remarkable differences in size and shape. Researchers are mapping the dog genome to identify the slight genetic variations that account for these differences. Through this research they are also identifying the genes responsible for inherited diseases in dogs, in the hopes of one day eliminating the threat of these illnesses.

As you read or listen to the transcript for this Science Update, and explore the websites below, keep in mind the following questions:

1. What accounts for the vast diversity in the shapes and sizes of dogs?
2. What breeds of dog would you think were bred for appearance? for hunting? for work (sled dogs, rescue dogs, guard dogs, seeing eye dogs, etc.)? What other characteristics or behaviors do you think dogs have been bred for?

3. Why don't cats demonstrate the same level of diversity?

4. Can you think of examples of plants that have been selectively bred for a particular trait?