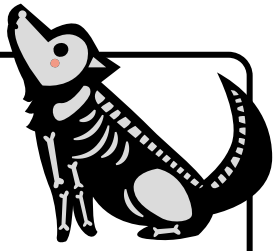
Name: _____ Date: _____

Science Friday Think Big

From "Untangling The History Of Dog Domestication"
Can skulls reveal the secret history of dog breeds?

Known as "Humans' best friend," dogs are the first domesticated animals, but when did the domestication of these creatures begin? And when did dogs start to diversify into the breeds we know today? Bioarchaeologist Carly Ameen joins Science Friday Host Flora Lichtman to discuss her research on how modern dogs were bred from ancient wolves. Discover how scientists study ancient skulls to investigate when and where wolves began to transform into the diverse dog breeds we know today.



1. Look at the skull images above. What observations can you make about these two skulls? What do you notice? What do you wonder?

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2. What other characteristics, besides skull structures, could be observed to determine the differences between dog breeds?

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3. If you were to imagine creating a unique dog breed by combining the traits of two existing breeds, which breeds would you choose, and why?

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The audio for this story and the transcript can be found at:
https://www.sciencefriday.com/segments/dog-domestication-history/
It is the first story. It is roughly 9 minutes 44 seconds long.

This story aligns with the following NGSS standards:

- LS1.B: Growth and Development of Organisms - MS-LS1-5 - Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.
- LS3.A: Inheritance of Traits - MS-LS4-3 - Analyze displays of pictorial data to compare patterns of similarities in the embryological development across multiple species to identify relationships not evident in the fully formed anatomy.
- LS3.B: Variation of Traits - MS-LS3-1 - Develop and use a model to describe why structural changes to genes (mutations) located on chromosomes may affect proteins and may result in harmful, beneficial, or neutral effects to the structure and function of the organism.

Expected answers:

1. I notice that the wolf’s skull is long and narrow and both its upper and lower jaws are the same length. The bulldog's skull is wide and rounded and its lower jaw sticks out further than its upper jaw. I wonder why such these skulls are so different. I wonder if the skull shapes affect the way each dog breathes, eats, or barks.
2. You could look at fur texture and length, body size and shape, ear shape, or tail length and curl. You could also look at behaviors like friendliness or playfulness.
3. Answers may vary.