

Understanding Natural Selection

The concept of Fitness

Below are descriptions of four male lions. Which lion would biologists consider the “fittest”? Have a dialogue about this problem in you group. Use the “Talking Sticks” to structure your conversation. Be prepared to explain your thinking about which is the “fittest” lion.

| Name | George | Dwayne | Spot | Tyrone |
|----------------------------------|---|---|---|---|
| Age at Death | 13 years | 16 years | 12 years | 10 years |
| # of cubs fathered | 19 | 25 | 20 | 20 |
| # of cubs surviving to adulthood | 15 | 14 | 14 | 19 |
| Size (length) | 10 feet` | 8.5 feet | 9 feet | 9 feet |
| Other information | George drove away more male lions trying to take over his family group than the other males did | Dwayne had the most lionesses in his family group | A fire burned Spot's home territory and he moved his family to a new area | Tyronne's family group included four lionesses. |

Adapted from Sacramento Area Science Project.

<http://sasp.ucdavis.edu>

Talking Stick Protocol

1. Each person places his or her pen/pencil in the middle of the table
2. Once you are finished with your comments and explanation, keep your pencil/pen and you are not allowed to comment again until all the other group members have had a turn. (group members may pass and remove their talking sticks).
3. After everyone in the group has had chance to comment, repeat the process.

Writing Prompt:

You are a wildlife biologist working in Africa. Another biologist makes the statement that “George was the largest lion, so he had the best chance of fighting off enemies. George must have the most evolutionary fitness. Write a letter to your colleague either agreeing or disagreeing with her. In your letter make sure you support your position with evidence from the data, from your text book, and from your own thinking.