Name _____ Per _____

Fantastic Fins: Diving into Diversity in Guppies

Guppies Galore, morphological variability

Study the pictures on your table. The fish belong to the species *Poecilia reticulata,* more commonly known as Guppies. As you see, there is a lot of variability within the species.

1. <u>In detail</u>, describe your favorite guppy. Explain what you like about it.

2. Is your favorite guppy male or female? What evidence supports your selection?

Guppy Camouflage

Design your own guppy! You will color your guppy to hide in our river (classroom). The teacher will act as the predator and look for your guppy, so be sure to camouflage it well.

3. Summarize why you designed your guppy with the characteristics you chose.

4. How many guppies were found by the predator?

5. How many guppies remained unfound?

6. What changes would you make to your guppy to increase the likelihood of survival?

Guppy Simulation

Go to the Guppy Simulation link and explore the simulation. Notice the "Guppy Settings" on the left. These parameters need to be adjusted according to the KEY card.

Init Guppy = 200 and Guppy K = 200. These are your "control" settings.

Run the simulation and record your data.

*Any time you change a variable, you must click "setup" (to restart the generations) and run the simulation through at least 100 generations. Record your results below.

		Dependent Variables (results)	
Independent Variable	Variable value(s)	Av. # of Spots	Percent Female
Initial Settings (control)			
Female Preference			
Pike predators			
Female Preference And Pike Predators (answer 7, 8, & 9 <u>FIRST</u>)			

7. Analyze the data you collected and explain what patterns you see.

8. As the proportion of predators to guppies increases, what trends in the average number of spots do you observe?

9. In a simulation with female preference AND Pike predators, what do you predict will happen to the average number of spots after 100 generations?

Article: Variation and Natural Selection in Guppies

Underline the information in the article that describes the guppy habitat. <mark>Highlight</mark> the information relating to male guppy morphology (how the male guppies look) in different habitats. Summarize what you learned about guppy habitat and male morphology.

Guppy habitat	Male morphology

10. What are the advantages of being brightly colored?

11. What are the disadvantages of being brightly colored?

12. Why would the proportion of females to males ever be significantly different than 50%?

13. Predict what male guppies would look like in an environment with no predators. Explain your reasoning.

14. How would you change your design if you were to color a guppy to attract a mate rather than remain hidden from predators?