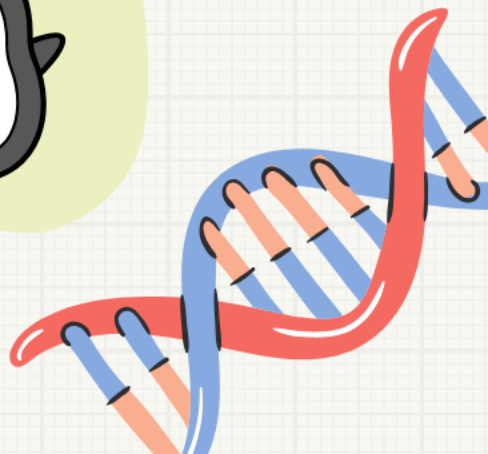
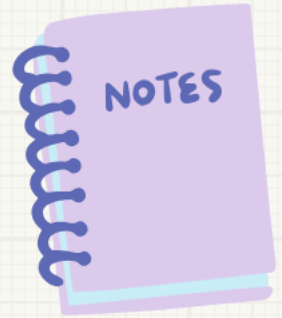
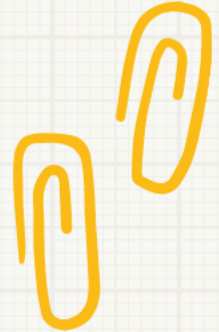
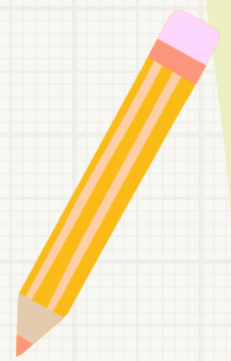


# AP Bio FRQ Fridays

2017 #4  
Food Webs



# FRQ Friday #24

2017 #4

The table above shows how much each organism in an aquatic ecosystem relies on various food sources. The rows represent the organisms in the ecosystem, and the columns represent the food source. The percentages indicate the proportional dietary composition of each organism. High percentages indicate strong dependence of an organism on a food source.

DIETARY COMPOSITION OF ORGANISMS IN AN AQUATIC ECOSYSTEM

Organism	Food Source (% of diet)				
	Algae	Stoneflies	Midges	Hellgrammites	Caddisflies
Algae					
Stoneflies			90		10
Midges	100				
Hellgrammites		20	10		70
Caddisflies	70		30		



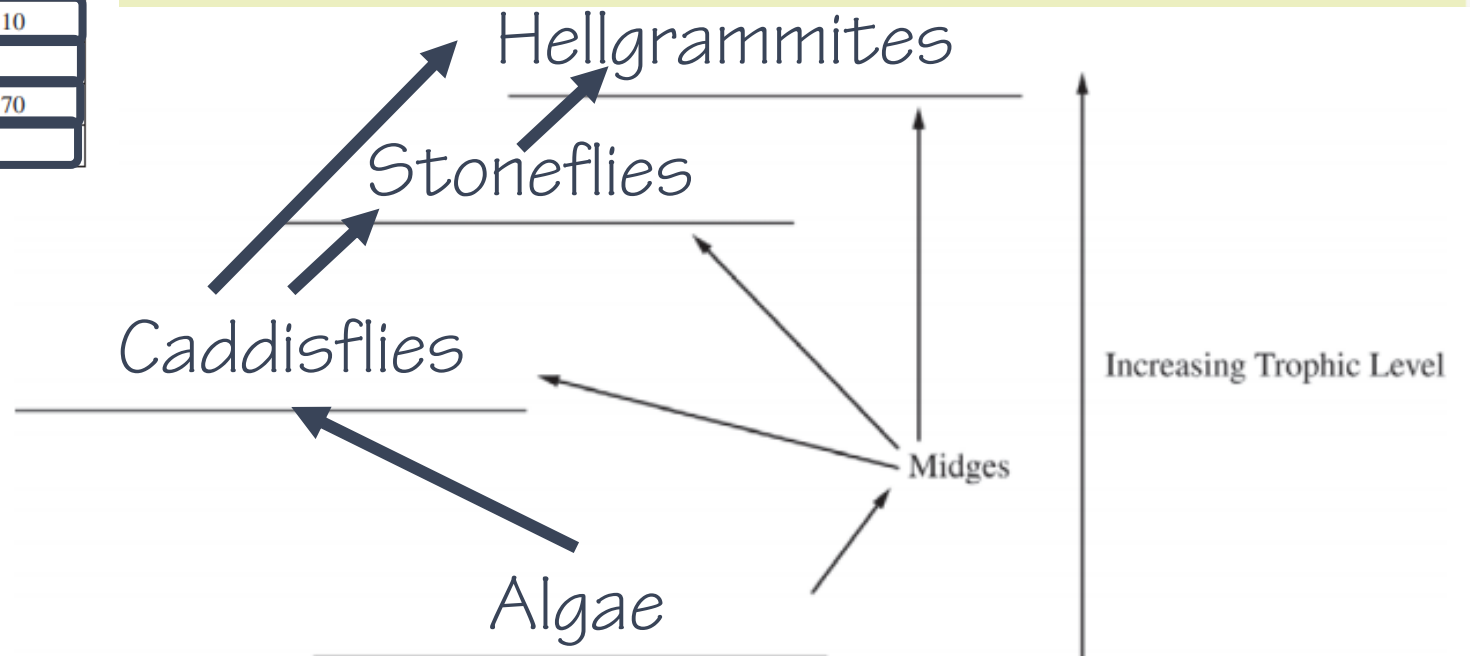
# FRQ Friday #24

2017 #4

(a) Based on the food sources indicated in the data table, **construct** a food web in the template below. Write the organism names on the appropriate lines AND draw the arrows necessary to indicate the energy flow between organisms in the ecosystem.

DIETARY COMPOSITION OF ORGANISMS IN AN AQUATIC ECOSYSTEM

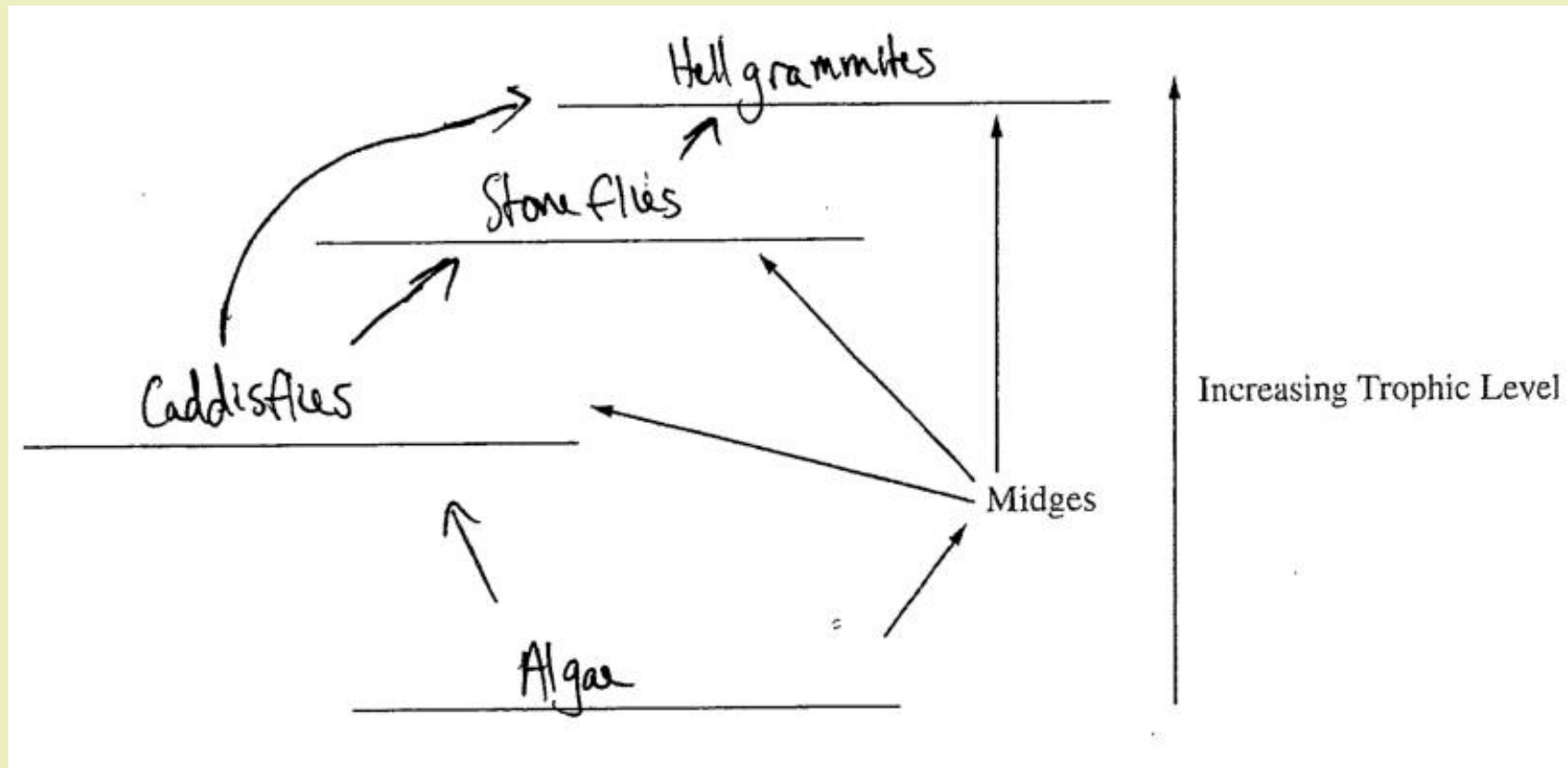
Organism	Food Source (% of diet)				
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# FRQ Friday #24

2017 #4

(a) Based on the food sources indicated in the data table, **construct** a food web in the template below. Write the organism names on the appropriate lines AND draw the arrows necessary to indicate the energy flow between organisms in the ecosystem.



# FRQ Friday #24

2017 #4

(b) In an effort to control the number of midges, an area within the ecosystem was sprayed with the fungus *Metarhizium anisopliae*, which significantly decreased the midge population. Based on the data in the table, **predict** whether the spraying of the fungus will have the greatest short-term impact on the population of the stoneflies, the caddisflies, or the hellgrammites. **Justify** your prediction.

DIETARY COMPOSITION OF ORGANISMS IN AN AQUATIC ECOSYSTEM

Organism	Food Source (% of diet)				
	Algae	Stoneflies	Midges	Hellgrammites	Caddisflies
Algae					
Stoneflies			90		10
Midges	100				
Hellgrammites		20	10		70
Caddisflies	70		30		

## Prediction (1 point)

- Stoneflies

## Justification (1 point)

- Stoneflies have a higher dependence on the midges than do the hellgrammites and caddisflies.
- Midges are 90 percent of the stonefly diet, while 30 percent of the caddisfly and 10 percent of the hellgrammite diet are midges.

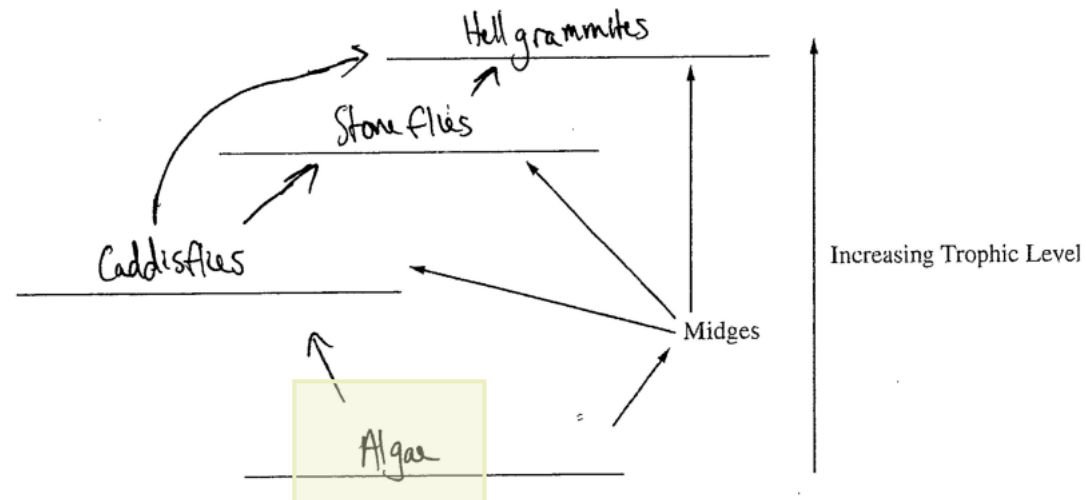


# FRQ Friday #24

2017 #4

(b) In an effort to control the number of midges, an area within the ecosystem was sprayed with the fungus *Metarhizium anisopliae*, which significantly decreased the midge population. Based on the data in the table, **predict** whether the spraying of the fungus will have the greatest short-term impact on the population of the stoneflies, the caddisflies, or the hellgrammites. **Justify** your prediction.

PAGE FOR ANSWERING QUESTION 4



### Justification (1 point)

- Stoneflies have a higher dependence on the midges than do the hellgrammites and caddisflies.
- Midges are 90 percent of the stonefly diet, while 30 percent of the caddisfly and 10 percent of the hellgrammite diet are midges.



# FRQ Friday #24

2017 #4

ADDITIONAL PAGE FOR ANSWERING QUESTION 4

b) The spraying of the fungus would have the greatest short-term impact on the stoneflies. This is because 90% of the stoneflies' diet uses the midges as ~~the~~ the food source. So, the stoneflies are more dependent on midges than either the caddisflies (30%) or the hellgrammites (10%).

