



**Science Grade 8
Scoring Guide for
Released Item 20
Pumpkinseed Fish
Fall 2007**



ANSWER THE FOLLOWING CONSTRUCTED-RESPONSE ITEM IN YOUR ANSWER DOCUMENT.**20 Constructed Response
(3 points)**

One predator of the zebra mussel is a fish called the pumpkinseed. One possible way of controlling the amount of zebra mussels would be to introduce more pumpkinseed fish in some areas affected by the zebra mussels.

- Develop a hypothesis that a scientist should use as an argument in favor of introducing pumpkinseed fish into areas affected by zebra mussels.
- Describe one risk involved with introducing more pumpkinseed fish into the affected area.
- Describe one benefit involved with introducing more pumpkinseed fish into the affected area.

NOTHING WRITTEN IN THIS TEST BOOKLET WILL BE SCORED.

Science Rubric for Pumpkinseed Fish

Scoring Guide:

Bullet 1: (0 to 1 points)

A statement similar to the idea that:

An increase in the pumpkinseed population will decrease the zebra mussel population.

Note: The hypothesis must be an independent statement.

Bullet 2: (0 to 1 points)

Statements similar to these ideas:

- The pumpkinseed fish will affect other food sources (e.g., minnows) consumed by other fish in the ecosystem.
- Pumpkinseeds will overpopulate.

Note: If the student mis-identifies the pumpkinseed fish as a non-native species it is acceptable as a risk.

Bullet 3: (0 to 1 points)

Statements similar to these ideas:

- Reduced zebra mussels.
- Increase the catch opportunity for pumpkinseed fishing
- Increase foods, otherwise consumed by zebra mussels, for other organisms in the ecosystem.

Anchor Paper 1 – Score Point 3

A hypothesis for this "experiment" would be: I think introducing pumpkinseed fish to an area where there are zebra mussels would reduce the amount of zebra mussels in that area because pumpkinseed fish are predators of the zebra mussel.

One risk that there would be with introducing more pumpkinseed fish into an area of zebra mussels would be that the pumpkinseed fish might start eating other animals.

One benefit with introducing more pumpkinseed fish into an area of zebra mussels would be that there would be less zebra mussels.

**Anchor Paper 1
Score Point 3**

The student correctly develops a hypothesis that a scientist should use as an argument in favor of introducing pumpkinseed fish into areas affected by zebra mussels (*I think introducing pumpkinseed fish to an area where there are zebra mussels would reduce the amount of zebra mussels in that area because pumpkinseed fish are predators of the zebra mussel*), correctly describes one risk involved with introducing more pumpkinseed fish into the affected area (*the pumpkinseed fish might start eating other animals*), and correctly describes one benefit involved with introducing more pumpkinseed fish into the affected area (*there would be less zebra mussels*).

Note: In addition to being an independent statement, a hypothesis must also be a declarative statement. In this response, "*introducing pumpkinseed fish to an area where there are zebra mussels would reduce the amount of zebra mussels in that area*," is a declarative statement. Leading a declarative statement with the words, "*I think*" or "*I believe*," is acceptable and does not detract from the demonstration of understanding.

Anchor Paper 2 – Score Point 2

A hypothesis a scientist should state regarding introducing pumpkinseed fish into areas affected by zebra fish is, How will the zebra mussel population be affected when exposed to thier predator, the pumpkinseed fish? One risk involved with introducing pumpkinseed fish is that the pumpkin seed fish would over populate. One benefit involved with introducing more pumpkin seed fish into the infected area would be that the zebra mussel population would decrease.

**Anchor Paper 2
Score Point 2**

The student correctly describes one risk (*the pumpkin seed fish would over populate*) and one benefit (*the zebra mussel population would decrease*) involved with introducing more pumpkinseed fish into the affected area. The response, "How will the zebra mussel population be affected when exposed to thier predator, the pumpkinseed fish?" is a question, not a declarative statement, so it is not acceptable as a hypothesis.

Anchor Paper 3 – Score Point 1

If pumpkinseed fish are introduced into areas affected by zebra mussels, the population of zebra mussels would most likely go down. A risk of doing this is that introducing pumpkinseed fish could change the ecosystem also. However, if there were less zebra mussels in lakes, beaches would be a lot nicer. That would definitely be a benefit of introducing pumpkinseed fish into areas affected by zebra mussels.

**Anchor Paper 3
Score Point 1**

The student correctly describes one benefit involved with introducing more pumpkinseed fish into the affected area (*if there were less zebra mussels in lakes, beaches would be a lot nicer*). The response, *“if pumpkinseed fish are introduced into areas affected by zebra mussels, the population of zebra mussels would most likely go down,”* is not a declarative statement (*“most likely”* is not acceptable in a hypothesis). The response, *“introducing pumpkinseed fish could change the ecosystem,”* does not explain how the ecosystem would be changed so it is not specific enough to receive credit as a risk. Compare with risk in Anchor Paper 2.

Anchor Paper 4 – Score Point 1

Would introducing more pumpkinseed fish into the lakes help reduce the amount of zebra mussels?

One risk involved would be that it wouldn't work. One benefit involved would be that there will be more food for the other animals.

**Anchor Paper 4
Score Point 1**

The student correctly describes one benefit involved with introducing more pumpkinseed fish into the affected area (*there will be more food for the other animals*). The response, "Would introducing more pumpkinseed fish into the lakes help reduce the amount of zebra mussels?" is a question, not a declarative statement, so it is not acceptable as a hypothesis. The response, "it wouldn't work," is not acceptable on its own as a risk. Since the zebra mussels are already a problem, trying something that does not work is not a risk.

Anchor Paper 5 – Score Point 0

I think that the Zebra fish wont affect the pumpkinseed fish Because there both fish. I think that the pumpkinseed fish would get infected from the area and If people ate them they would get sick. I think one benefit would be they'd get used to the area.

**Anchor Paper 5
Score Point 0**

The response demonstrates no understanding of the task. The response, "I think that the Zebra fish wont affect the pumpkinseed fish Because there both fish," reverses the predator-prey relationship and is a statement against introducing pumpkinseed fish so it is not a valid hypothesis for this item and is unacceptable. The response, "the pumpkinseed fish would get infected from the area and If people ate them they would get sick," is not an acceptable risk. The response, "they'd get used to the area," is not a benefit, regardless of who "they" are.