The Endangered Food Chain

GOAL:
Demonstrate the effects of environmental hazards on the food chain and environment.

ORGANIZATION:
Class of 30 = 20 grasshoppers (green cups)
7 lizards (purple cups)
3 hawks (blue cups)

METHOD OF MOVEMENT:
- All animals will walk slowly! We are not competing for survival!

PROCEDURE

1. Students stand around the OUTSIDE of the green rectangle in the center of the classroom.
2. The "farmer" (teacher) plants the "corn" (elbow pasta) inside the rectangle.
3. The "grasshoppers" have 20 seconds to "eat" as much corn as possible by picking it up and placing it into their cup in the allowed time.
4. Students answer questions in part 1 – The Herbivores with their tablemates; record answers INDIVIDUALLY.
5. Class discussion facilitated by teacher.

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6. Farmer replants the "corn" using both elbow and spiral pasta.
7. Grasshoppers eat for 20 seconds.
8. Lizards sent to "eat" (tag) grasshoppers for 10 sec. Lizards walk tagged grasshoppers back to YOUR table before tagging another grasshopper!
9. Hawks released to "eat" (tag) the lizards for 10 sec. Hawks walk tagged lizards back to your table before tagging another lizard!

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10. Tagged grasshoppers MUST give 10% of the elbow pasta AND ALL of the spiral pasta to the lizard that tagged you.
11. Tagged lizards MUST then give 10% of the elbow pasta AND ALL of the spiral pasta to the hawk that tagged you.
12. Teacher surveys the classroom and tells the grasshoppers, lizards, and hawks whether they survived or died based on their food, energy, and predator.
13. Students answer question 1 in Part 2 – The Infected Food Chain.
14. Class discussion facilitated by teacher.

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15. Students collaborate to answer ALL remaining questions in part 2, 3, and 4
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Name:_____

Part 1: The Herbivores

1. What happened to the corn?

    a. **Predict:** What does this will mean to the farmer?

2. **Provide an example** of who else depends on the corn crop.

    a. **Describe** how/why they depend on it.

3. **Predict** the economic impact of grasshoppers ruining a crop?

    a. **Explain** how that makes sense.

4. **Describe** a method that could be used to prevent grasshopper damage.
   (What is the *most economical way, most effective way, most environmentally sound way?)*

Part 2:The Infected Food Chain

Individual Data:

	Elbow Pasta	Spiral Pasta	Grasshoppers	Lizards
Number Consumed:				

1. **Predict** what the two types of pasta could represent.

    a. Explain your reasoning.

2. **Predict** what would happen to the grasshoppers that ate the affected corn?

    a. **Why**?

3. **Predict** what would happen to the lizards that ate the infected grasshoppers?

    a. Why?

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4. **Predict** what would happen to the hawks that ate the infected lizards.

    a. **Why?**

5. **Explain** how the farmer's "solution" affected the food chain.

    a. **Would this be true every time?**

6. What happens as the affected corn traveled through the food chain?

    a. **Describe how this makes sense**.

7. **Draw a picture** to represent your understanding of what "biological accumulation" is.

8. **Hypothesize** about what would happen to the hawk population over time.

Part 3: Food Chain Connections

1. Write a QUALITY conclusion paragraph describing the **connections** you can make between the "Catch Me If You Can" food chain activity and today's food chain activity? Include:
    a. What role does the number of organisms play in the activity (**why** more grasshoppers than lizards and more lizards than hawks, etc.)?
    b. What happens to energy through the food chain? **Provide an example.**
    c. What happens to biological accumulation through the food chain? **Justify your response!**