Mary Beth Armstrong

Fish Kill Unit Week 4

Sept. 2-5 2014

Monday (1st) Labor Day Holiday

Tuesday (2nd)

Standard: MS – ESS3 – 3 Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.

MS-LS2 – construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations

Learning Target: I can define invasive species and can give examples of invasive species as well as describe specific issues associated with each species. Finally, I can explain two methods that can be used to control the spread of invasive species.

Students will

• Review an article on invasive species in Kentucky
• Complete 4-thought organizer
• Discuss the article and species in Kentucky
• Complete writer’s frame (summary) in journal
• Review Riverside Map
• Write a scientific explanation about what caused the fish kill in riverside
• Discuss class thoughts about causes of fish kill

Formative Assessment: Writer’s frame summary, scientific explanations

Homework: LT – 1 Ecosystem Services Article

Wednesday (3rd)

Standard: Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.

Learning Target: I can distinguish between density dependent and density independent limiting factors.
Students will:

- Review invasive species by completing a fist list/discuss homework
- Discuss the meaning of population density and the terms density dependent and density independent.
- Copy and pre-assess the learning target in journal
- Work in small groups to sort examples into density dependent and density independent categories. We will not go over the answers yet.
- Jigsaw a note page about density dependent and density independent limiting factors.
- Share out the information with each group member
- Re-sort the cards they sorted at the beginning of class. Once students have the cards sorted correctly, they will copy the examples into their journals.

Thursday (4)

Standard: Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.

Learning Target: I can distinguish between density dependent and density independent limiting factors.

Students will:

- Take a test over learning targets 1-3
- Complete a bell work review of density dependent and density independent limiting factors.
- Write definitions of the terms: density dependent, density independent and limiting factor on their vocabulary note page. (icon, word, and definition)
- Read the “Lake Winnipeg Article” which contains information about density dependent and density independent limiting factors in the lake ecosystem.
- Answer questions in which they must apply what they know about density dependent and density independent limiting factors.

Formative Assessment: Students will play “Limiting Fish Factors” Game to practice distinguishing between the density dependent and density independent limiting factors.

Friday (5)

Standard: Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.
Learning Target: I can explain the growth of a population based on the shape of the graph line. I can accurately use terms such as carrying capacity, exponential growth, logistic growth, lag phase, and equilibrium in my explanation.

Students will:

- Review limiting factors
- Be introduced to Population dynamics graphs such as exponential growth, logistic growth and delayed density dependent graphs. Students will receive a handout with the basic information on it for their journals.
- Explore how big a population can get by working on a large group activity, “Box Lake”. Students will be asked to construct graphs based on a variety of scenarios. Students will be able to see that populations are affected by resource limits, predation, and even competition.
- Respond to questions about Box Lake and each graph. Students will use the Population Dynamics handout to help them explain each part of the graph line.
- Review each type of graph just before the bell rings.

Formative assessment: Thumbs Up/Down to get a sense of where students are in their understanding of carrying capacity and exponential and logistic growth.

Monday (8)
Standard:

Learning Target:

- Construct growth graphs using simulation from biologycorner.com
- Predict shapes of the graph lines based on the birthrate and resources