Creek Geek Knowledgy - Wetlands Version

Grade Level: Intermediate

Duration: 35-45 minutes

Setting: Classroom

Summary: Students play a Creek Connections version of Jeopardy to review the main concepts/facts presented in the Wetlands Module.

Objectives:
Students will review what they have learned in other module activities by answering a series of game show questions.

Vocabulary:

Related Module Resources:
- Other Module activities
- Posters and visual aids
- Fact sheets

Materials (Included in Module):
- Link to game website
- Paper version of Creek Geek Knowledgy (envelope)
- "Question" key

Additional Materials (NOT Included in Module):
- Computer with Internet access and optional volume
- Projector or Smart Board
- Tape and/or thumbtacks
- Watch or clock w/ second hand

ACADEMIC STANDARDS (ENVIRONMENT AND ECOLOGY)

7th Grade
4.1.7.B Understand the role of the watershed.
- Explain factors that affect water quality and flow through a watershed.
4.1.7.C Explain the effects of water on the life of organisms in a watershed.
- Explain how the physical components of aquatic systems influence the organisms that live there in terms of size, shape and physical adaptations
4.1.7.D. Explain and describe characteristics of a wetland.
- Identify specific characteristics of wetland plants and soils.
- Recognize the common types of plants and animals.
- Describe different types of wetlands.
4.1.7.E Describe the impact of watersheds and wetlands on people.
- Explain the impact of watersheds and wetlands in flood control, wildlife habitats and pollution abatement.
4.6.7.A Explain the flows of energy and matter from organism to organism within an ecosystem.
- Describe and explain the adaptations of plants and animals to their environment
4.7.7.A Describe diversity of plants and animals in ecosystems.
- Identify adaptations in plants and animals
4.8.7.D. Explain the importance of maintaining the natural resources at the local, state and national levels.
- Define the roles of Pennsylvania agencies that deal with natural resources.
4.9.7.A. Explain the role of environmental laws and regulations.
- Identify and explain environmental laws and regulations (e.g., Clean Air Act, Clean Water Act, Recycling and Waste Reduction Act, Act 26 on Agricultural Education)
- Explain the role of local and state agencies in enforcing environmental laws and regulations (e.g., Department of Environmental Protection, Department of Agriculture, Game Commission)

10th Grade
4.1.10.B Explain the relationship among landforms, vegetation and the amount and speed of water.
- Explain how vegetation affects storm water runoff.
4.1.10.D Describe the multiple functions of wetlands.
- Describe wetlands in terms of their effects (e.g., habitat, flood, buffer zones, prevention areas, nurseries, food production areas).
- Explain how a wetland influences water quality, wildlife and water retention.
- Analyze wetlands through their indicators (e. g., soils, plants, hydrology).
4.7.10.B Explain how structure, function and behavior of plants and animals affect their ability to survive.
- Describe an organism's adaptations for survival in its habitat

12th Grade
4.1.12.B. Explain the relationships that exist within watersheds in the United States.
- Understand that various ecosystems may be contained in a watershed.
- Examine and describe the ecosystems contained within a specific watershed.
4.1.12.D. Analyze the complex and diverse ecosystems of wetlands.
- Explain the functions of habitat, nutrient production, migration stopover and groundwater recharge as it relates to wetlands.
- Describe and analyze different types of wetlands.

BACKGROUND:
The other activities in this module have given an opportunity to learn what a wetland is and about protection and regulation of wetlands in Pennsylvania.

Wetlands provide many valuable services to both animal life and humans; therefore, it is essential that we understand and protect them. A fun, interactive, and educational way to review and wrap up this unit theme is to play Creek Geek Knowledgy, the Creek Connections version of Jeopardy. In Creek Geek Knowledgy, as with the TV show Jeopardy, student teams try to guess the question that corresponds to a given statement about a wetland related topic.

OVERVIEW:

Students work in pairs or teams to play Creek Geek Knowledgy, the Creek Connections version of Jeopardy. During the game, the students review what they've learned in other module activities and through their research about wetlands.

PROCEDURE:

There are two versions of Creek Geek Knowledgy: a computer-based version that requires that you have access to a computer with Internet capabilities and a projection unit to show the game on a screen, and a paper-based version that you need only have a wall or chalkboard and tape to play. The computer-based version is more reminiscent of the real Jeopardy TV game show and is a bit more exciting. If you have access to a computer with Internet capabilities and a projection unit, proceed to "Computer-Based Creek Geek Knowledgy" below. If you don't have this equipment or simply prefer to play the paper-based version, go to "Paper-Based Creek Geek Knowledgy" below.

Computer-Based Creek Geek Knowledgy

Teacher Preparation:

1. Procure and set up a computer with Internet access and projection unit. Turn up the volume on the computer because there are some sounds to this game.

2. Go to the Creek Geek Knowledgy website by going to http://creekconnections.allegheny.edu →Classroom Resources→Scroll down to "Contests/Games" and click on Creek Geek Knowledgy (Wetlands version). Have the computer on at this point when you proceed to the student activity. CAUTION: do not click on any of the game's links ahead of time. The game is designed so that when a category question is selected, the link disappears so you know it was used. To get these links to reappear, you may have to reboot the computer and clear the history on your web browser. You will have to do this between classes if using this game with multiple classes.

Student Activity:

1. Explain to students that they will be playing a Jeopardy-like game called Creek Geek Knowledgy to review some of the major concepts and facts that they learned in other wetlands module activities.

2. Select one person to be the official score keeper and divide the rest of the class into teams. Have the scorekeeper draw a score table on the board.

3. Click on the "Begin" link below the Creek Connections logo to proceed.

4. If desired, click on "Read Rules" and quickly go over the rules with your students. You can set any rules you would like, but keep in mind:

   a) You must find a way to have full groups to "buzz in" rather than just individuals. The best way is to have an entire group raise their hands. When all hands are up in a group, they have successfully buzzed in first. Call on them. If they are incorrect, say incorrect and other groups who know should raise their hands immediately. Pick on the next group to have all hands raised.

   b) Decide if you will be reading the questions like Alex does on the show. Regardless of whether or not you read the cards, students should be allowed to "buzz in" as soon as they want.

   c) You can decide how strict you want to be on whether the students responses need to be in the form of a question.

   d) Set an official (get your watch out) or unofficial (wing it) time limit for buzzing in. If no one gets the answer correct or if no one buzzes in, the team with the previous correct answer should pick the next category and amount.

   e) There are daily doubles in the game. Indicate that any amount a team has can be wagered. A maximum of $500.00 can be wagered for teams with insufficient funds (< $500.00).

   f) Establish rules for final jeopardy. For the real game show, only those teams with positive amounts of money can play. A category for the question will be revealed and based on their feelings about this category, teams can wager any amount of money, but only of what money amount they actually have. They should write down their answers on a sheet of paper - no changing answers.

   Make sure students understand the rules well before proceeding with the game.

5. Scroll down to the bottom of the screen and click on "Play Knowledgy" to begin the game.

6. Have the scorekeeper read the categories of the Creek Geek Knowledgy game.

7. You, the teacher, will be the game show host and should select the first "answer" to start the game. Click on this square. Read the question or have students will read the question on their own. You should watch for the team that buzzes in first.

8. To return to the category page, you simply click the "Back" button on your computer.

9. Play the game according to the rules until all the "answers" have been used or time is running out. Allow for 3 minutes to play "Final Knowledgy."

10. The team with the most points at the end of the game wins.

Paper-Based Creek Geek Knowledgy
Teacher Preparation:
1. Locate the Wetlands Creek Geek Knowledgy activity envelope in the module. Inside the envelope are six sets of answers, each set containing five answers and a category title card. Answers within a given category are connected with yarn. There is also a small envelope in the activity envelope labeled "Used Questions Covers". These will be used to cover up questions/answers that have already been used so that they are not duplicated. The other item in the activity envelope is the Final Knowledgy question card.

2. Determine where you will set up the game. (The chalkboard, a wall, or a bulletin board will work well.)

3. Find some tape or thumbtacks from *your* office supplies.

4. Each of the six categories has six folded 8.5x11 pieces of card stock paper in it, five of which correspond to the five dollar amount "answers" ($100, $200, $300, $400, and $500), and one of which is the category title. These pieces of paper are attached together on a string. Simply tape the top of the string securely to the wall or chalkboard or secure with thumbtacks to a bulletin board. The dollar amounts should show. Use the diagram below to help you set up the game on the board or wall (the answer key is arranged in this category order!!!).

Wetland Characteristics	Wetland Soils and Water Regimes	Wetland Plants & Indicator Status	Wetlands Policy and Protection	Wetlands Function	Types of Wetlands
$100	$100	$100	$100	$100	$100
$200	$200	$200	$200	$200	$200
$300	$300	$300	$300	$300	$300
$400	$400	$400	$400	$400	$400
$500	$500	$500	$500	$500	$500

Student Activity:

1. Explain to students that they will be playing a Jeopardy-like game called Creek Geek Knowledgy to review some of the major concepts they learned in other module activities. Quickly brainstorm some of these concepts/topics.

2. Select one person to be the official score keeper and divide the rest of the class into teams of two or more students. Have the scorekeeper draw a score table on the board.

3. Go over the rules at the end of this activity write-up. Also look at instruction #4 from the above computer-based version instructions. Make sure students understand the rules well before proceeding with the game.

4. Have the scorekeeper read the categories of the Creek Geek Knowledgy game.

5. You, the teacher, will be the game show host and you should select the first "answer" to start the game. Flip up the folded piece of paper. It will be up to the students to read the text on the card on their own - unless the room setting is too big and students cannot read the print, then you will need to read the card. As soon as a team knows the answer, they can "buzz in". You should watch for the team that buzzes in first. Since you will be reading, you might want the scorekeeper to watch for the team who buzzed in first or have some other student be the official reader while you remain the judge.

6. Once a given "answer" has been used, cover the dollar amount with a "Used Question Cover".

7. Play the game according to the rules until all the "answers" have been used or time is running out. Allow for 3 minutes to play "Final Knowledgy."

8. The team with the most points at the end of the game wins.

DISCUSSION:
Discuss any questions or unclear concepts as they arise during the course of the game.

EVALUATION:
• Students have accurately answered most of the Creek Geek Knowledgy questions.

EXTENSIONS AND MODIFICATIONS:
• Have students create even more Creek Geek Knowledgy categories and questions.
• Use Creek Geek Knowledgy as a quiz or exam and have students work individually and right down their answers on pieces of paper.

<div style="border:1px solid;">Activity Version: Fall 2003</div>

NOTES (PLEASE WRITE ANY SUGGESTIONS YOU HAVE FOR TEACHERS USING THIS ACTIVITY IN THE FUTURE):

Knowledgy Rules

- All answers must be in the form of questions (optional).
- The teacher will <u>not</u> be reading the questions like Alex does on the show, so teams can "buzz in" as soon as they want.
- There will be a time limit for a team to "buzz in".
- To "buzz in" will be defined as follows: ALL team members must raise their hand. The first team with all members with hands raised will be picked to answer the question.   Judgment of who is first is at the discretion of the teacher.
- Once a team buzzes in, they will only have 10 seconds to respond to the question. You can talk it over with your team before responding, but once a response has been "shouted out," that response will be considered the team's answer.
- If a response is incorrect, the teacher will say "incorrect" and another group can buzz in (first group to have ALL team members hands raised).   Your team can only "buzz in" once per every answer screen.
- Correct responses are awarded the amount of points that the screen shows.   The scorekeeper will add this amount to your score.
- Incorrect responses will result in the amount shown on the screen being subtracted from your score.   The scorekeeper will do this.
- If nobody buzzes in or if nobody responds correctly, selection of the next category and amount goes to the team that responded correctly to the previous question.
- There are two daily doubles. Any amount a team has can be wagered. A maximum of $500.00 can be wagered for teams with insufficient funds (< $500.00).   If the answer is incorrect, no other team can buzz in.   The team that participated in the daily double picks the next category/amount.

Final Knowledgy

- Only those teams with positive amounts of money can play.
- A category for the question will be revealed and based on their feelings about this category, teams can wager any amount of money, but only of what money amount they actually have.   Write this amount on a piece of paper.
- You will have roughly 30 seconds (until the song stops playing) to come up with a correct response written on paper, in the form of a question.   You will not be able to change your answer after the 30 seconds has elapsed.
- Incorrect responses lose the amount wagered.
- Correct responses are awarded the amount wagered.

WINNER:
The team with the most money/points at the end of the game wins.

Wetland Characteristics	Wetland Soils and Water Regimes	Wetland Plants & Indicator Status	Wetlands Policy and Protection	Wetlands Function	Types of Wetlands
What are wetlands?	What is hydrology?	What is hydrophytic?	What is the PA Department of Environmental Protection?	What is water retention or flood prevention?	What is a marsh?
What is 3?	What is color? (chroma)	What are obligate wetland plants? (OBL)	What is a stakeholder?	What is sequestration?	What is a swamp or forested wetlands?
What are hydrology, hydrophytic plant community, and hydric soils?	What are hydric soils?	What are obligate upland plants? (UPL)	What is chapter 105?	What is wastewater or sewage treatment?	What are bogs?
What is none? (all wetlands filled must be replaced by an equal or larger area)	*What is lack of oxygen or anaerobic conditions.*	What are facultative plants? (FAC)	Who are farmers?	What are transients?	What are fens?
What is ice age, glaciation?	What are vernal pools or temporary wetlands?	What is aerenchyma tissue?	What is the Clean Water Act (Section 404)	What is bioaccumulation?	What are estuaries?

FINAL CREEK GEEK KNOWLEDGY ANSWER: No, removing the vegetation does not make a wetlands drier it actually makes it wetter because evapotranspiration, water lost to the atmosphere through opening in plant tissue, is greatly reduced when the vegetation is removed.