

# Kansas Ponds, Lakes & Reservoirs

### ***Science, Technology***

#### **Materials**

Copies of Worksheet A, Worksheet B and Worksheet C for each student  
Computers equipped with Google Earth

**Grade Level: 5-6**

**Time: 1 hour**

**Standards:  
Science**

#### **Overview**

Students will use Google Earth to study the ponds, lakes, and reservoirs in Kansas. They will examine the characteristics, such as similarities and differences, and the geographical distribution of each. Students will come to understand that the majority of ponds and lakes in Kansas are not natural but rather are made by humans, which may lead to the discussion of the importance of constructing such bodies of water.

#### **Objectives**

1. Students will learn the similarities and differences between ponds, lakes, and reservoirs.
2. Students will understand how reservoirs are distributed across Kansas and learn the names of several of them.
3. Students will understand that most ponds and lakes in Kansas are man-made, and they will learn the various uses for natural and human-made ponds and lakes.
4. Students will realize how prevalent pond/small lakes are in their county or area and their importance.

#### **Instant Expert**

*Exploring Kansas Natural Resources Educator's Guide*. Unit 8 – Ponds & Lakes (133-144). Kansas Foundation for Agriculture in the Classroom. *To order, visit [www.ksagclassroom.org](http://www.ksagclassroom.org).*

#### **Background Information**

Almost all ponds and lakes in Kansas are the result of human efforts. These water bodies have been built to meet a variety of human needs, including the needs for drinking water, water to irrigate crops, and water for recreational activities, as well as to reduce flood damages and the impact on human lives due to flooding. Simultaneously, ponds and lakes provide wildlife habitat and enhance the natural environment. Bodies of water, no matter the size, can have a significant impact on the homes, communities and natural areas that surround them.

What is the difference between a pond, a lake, and a reservoir? There are many definitions of each body of water, and while there is not clear-cut way to identify beyond debate what the

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difference is, there are some general guiding factors.

A **lake** is larger and deeper than a pond. Lakes are usually over ten acres in size, while **ponds** are smaller than ten acres. Lakes are too deep for plants to grow to the surface except around the shore, while ponds are shallow enough to allow sunlight to reach the bottom so rooted plants may grow in even the deepest sections. There are also differences in water temperatures between lakes and ponds. Ponds generally have a uniform water temperature from top to bottom that may change with air temperature. Lakes, however, have more stable water temperatures, but they may develop distinct layers with different water temperatures. In addition, ponds experience very little wave action while lakes have enough surface water exposed to the wind to develop waves.

A **reservoir** is a man-made body of water, typically formed by building a dam on a river or stream and used for the collection and storage of water. By definition, then, a small man-made farm pond can be called a reservoir, but generally the term “reservoir” is used to describe large lakes built for multiple purposes: flood control, drinking water, irrigation, and recreational activities.

Kansas has hundreds of public and private lakes within its borders, including 26 large reservoirs, 40 state fishing lakes and more than 200 community lakes owned by local governments. According to the Kansas Department of Wildlife and Parks, there are over 150,000 privately owned farm ponds in the state of Kansas.

*Information adapted from Exploring Kansas Natural Resources Educator’s Guide. Unit 8 – Ponds & Lakes (133-144). Kansas Foundation for Agriculture in the Classroom. To order, visit [www.ksagclassroom.org](http://www.ksagclassroom.org).*

### **Instructional Format**

1. Share background information with students.
2. Students will complete Worksheet A and Worksheet B, and then they will follow the procedures and answer questions as described in Worksheet C.
3. Upon completing the lesson, students will discuss the activity.

### **Procedures**

Students will follow procedures for the activity outlined in Worksheet C.

### **Conclusion Questions (Assessments)**

Conclusion questions are included in Worksheet A, Worksheet B, and Worksheet C.

### **Resources**

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Name: \_\_\_\_\_

## **Kansas Ponds, Lakes & Reservoirs**

*Is it a pond or a lake?*

Ponds, lakes, and reservoirs are all standing bodies of water but they each possess characteristics that make them different from each other. Each statement below describes either a pond or a lake. Write either a "P" for pond or an "L" for lake at the end of each statement.

1. Less than 10 acres in surface size. \_\_\_\_\_
2. Too deep for plants to grow at the surface except around the shore. \_\_\_\_\_
3. Waves can develop on the surface. \_\_\_\_\_
4. Have a uniform water temperature from top to bottom that changes with the air temperature. \_\_\_\_\_
5. Wave generally do not develop on the surface. \_\_\_\_\_
6. Over 150,000 in Kansas, mostly privately owned. \_\_\_\_\_
7. More than 10 acres in surface size. \_\_\_\_\_
8. Have a stable water temperature from top to bottom that does not change with the air temperature. \_\_\_\_\_
9. Shallow enough for plant to grow throughout. \_\_\_\_\_
10. More than 240 in Kansas, mostly publicly owned. \_\_\_\_\_

Brainstorm reasons why a human would want to build a pond or lake and list them below.

What are ways that a pond or lake could form naturally?

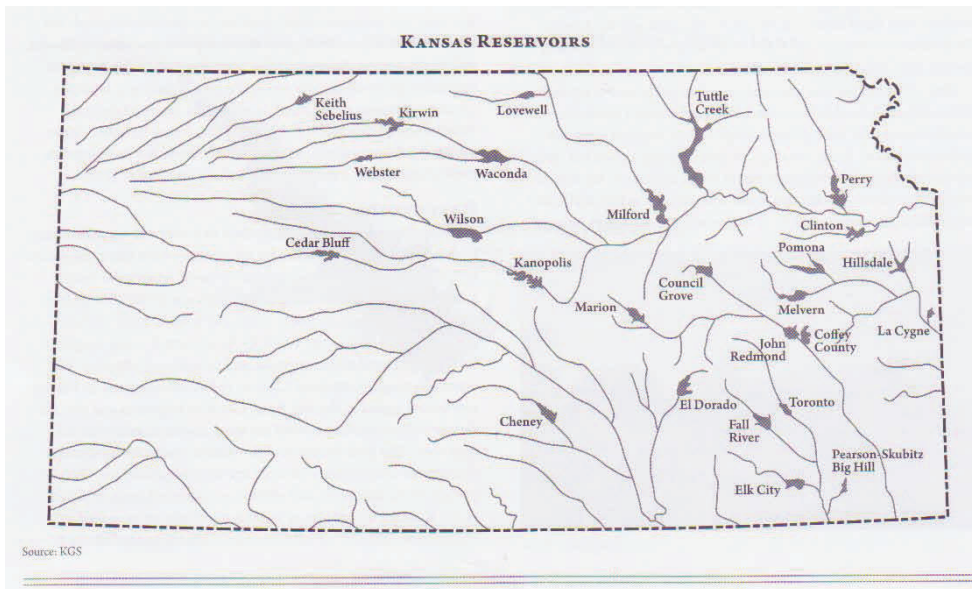
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## Kansas Ponds, Lakes & Reservoirs

### Kansas Reservoirs

Technically, a reservoir is any human-made body of water that stores water for future use. Therefore, most ponds and lakes in Kansas could be called reservoirs. However, when most people refer to a reservoir in Kansas, they mean one of the 26 largest lakes created by dams built on a major river.

Below is a map of Kansas that shows all 26 reservoirs. Use the map to answer the following questions.



1. Which reservoir is closest to your home town?
  
2. List all the reservoirs that you have visited.
  
3. Which part(s) of the state has the most reservoirs? Which part(s) of the state has the least reservoirs?
  
4. Give a possible reason for the unequal distribution of reservoirs across the state.

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### ***Activity Procedures***

Open Google Earth and zoom into the state of Kansas to an elevation of about 600 km. If you can, identify all 26 reservoirs on the map. Place an X by each reservoir you can identify. You may need to zoom in closer to identify several of the reservoirs.

Zoom in to the reservoir that is closest to your home or any reservoir that you have visited before.

**1. Are there any landmarks that you can recognize, such as a dam, spillway, campground, etc.?**

Go to Marion County and zoom to an elevation of 30 km and place the city of Marion in the center of your screen. You should be able to see the large Marion Reservoir (6,200 acres) in the upper left part of the screen and the smaller Marion County Lake (150 acres) to the southeast of the town.

Zoom into about 10 km and identify the smaller ponds located between Marion Reservoir and Marion County Lake.

**2. How many ponds did you identify?**

**3. Estimate the average size of these ponds in acres.**

Go to Shawnee County and zoom to an elevation of 10 km and find Silver Lake. The long, slender lake southwest of the town is an example of a naturally formed lake called an ox bow lake. It was at one time part of the Kansas River channel. When the river channel moved, like it constantly does, it created a natural lake. Notice that there is no dam. See if you can find another ox bow lake along the Kansas River.

**4. Did you find a second ox bow lake? If so, what town is it closest to?**

Go back to Shawnee County and zoom to an elevation of 10 to 15 km. Pan around the county and try to count the number of ponds, lakes, and reservoirs.

**5. How many bodies of water are in Shawnee County? (you may estimate if you need to)**

Find your house. At whatever elevation works best, look around and find the closest pond to your house.

**6. Which direction and how far away is the closest pond to your house?**

**7. Did you know this pond was there? If so, have you ever been there?**