Objective:
Students will recognize Aldo Leopold as a famous conservationist as they distinguish between observations he used to collect data, which included the use of his senses, and through the use of standard and non-standard measurement.

Materials:
- Provided
  - Observations with Leopold Activity Sheet, K-5
  - C.A.R.E. Stewardship Acronym page
- Not Provided
  - Journals
  - Pencils
  - Hand lenses
  - Metric rulers
  - String or yarn
  - Balance or triple beam balance scales

Vocabulary:
Please reference the Glossary for definitions.

conservation, environment, land stewardship, living, nonliving, observations, senses, wildlife

Activity Preparation:
- Make copies of the Observations with Leopold activity sheet, K-5, for each student, or project the activity sheet on the screen for students to reference if writing the data in their journal.
- Identify an outside area on the school grounds that students can visit with limited distractions as a class during the activity.

Background:
There are many ways and methods to observe the world around us. An observation can be something as simple as using our senses as a learning tool, to more scientific methods of data collection. Aldo Leopold, a famous conservationist and writer, born in Wisconsin in 1887, used many types of observations as he observed the natural world. To many, he is considered the father of wildlife management and is known for taking his time to discover the wonder of the world around him. Leopold believed in keeping accurate records of his observations and relied heavily upon his senses. He wanted people to discover the beauty of nature including places such as a schoolyard or a playground. Leopold believed that life’s greatest possessions were those things found in nature. One of his many quotes referring to nature is as follows.

“Teach the student to see the land, to understand what he sees and enjoy what he understands.”

Throughout this lesson, stress the importance of stewardship by taking care of living and nonliving things, such as keeping water free of pollutants so that it will remain healthy for wildlife to drink. Post and review the following acronym with students.

C Care for the protection of wildlife and their habitats.
A Act to become a steward of water, land, and wildlife.
R Represent stewardship by being a positive role model for others.
E Educate others about stewardship and conservation.
Procedure and Activity:

1. Engage students by showing the following YouTube video about the life and legacy of Aldo Leopold, *Aldo Leopold Nature Center - Foxfires & Fireflies, KelleyVanEgeren* (3:25)

Ask students the following questions, sharing their answers with the class.
- Why do you think Aldo Leopold cared about the world around him?
- Why do you think Leopold made sure his children experienced nature just as he had?
- Do you care about the world, including its wildlife, around you? Why?
- Do you think you are capable of making and recording observations like Leopold?

2. Arrange students in groups.

3. Ask students how scientists such as Aldo Leopold gather information about an object. Allow time for students to share their thoughts with their group and then direct them to take turns sharing with the class.

4. Guide students to an understanding that scientists use observations to collect information to learn about the natural world. Explain that Aldo Leopold was a famous scientist that used observations to help him to answer questions. There are two basic types of observations used by Leopold and are still used today. One observation type is using one (1) or several of the five (5) senses, the other is collecting numerical data by measuring or counting.

5. Instruct students to place their journals on their desks or tables. Provide students with hand lenses.
- Ask students if they can recall the names of their five (5) senses.
- Use the board to record each of the senses.
- Instruct students to make observations about their journal. Encourage students to use descriptive words, as if they were an artist painting a picture. Example: The journal is black and white. Better Example: The journal is black with white speckles distributed throughout. If feels smooth. It is a solid.
- Remind students of necessary safety procedures for observing with their nose and mouth. When they smell any object, they should be “wafting.” In addition, students are not to taste an object without permission from the teacher.

6. Next, provide students with metric rulers, string, or yarn.
   **Note:** For students lacking measurement skills, use items such as string or yarn to take non-standard measurements.
- Tell students that making observations includes taking measurements of objects such as the length, width, height, volume, or mass, and write these words on the board. The United States uses a different standard unit of measure than the rest of the world. The worldwide unit of measure is the International System of Units (SI), which is as known as the metric system. The United States’ system uses miles (versus kilometers), feet (versus meters), and inches (versus) centimeters. Leopold made observations using standard measurement units as well as non-standard measurements using string or yarn.
- Instruct students to use the rulers, yarn, or string to measure the length and width of their journals. If time allows, provide groups of older students with a balance scale or triple beam balance to find the mass of one journal.
- Observations may also be determined by collecting numerical data to determine how many objects there are by counting. Leopold also used this method for making observations.
7. After practicing the different methods of observation, tell the students they are going outdoors for an observation hike. Take hand lenses, string, yarn, or metric rulers along with copies of the Observations with Leopold activity sheet to be distributed, and guide students outdoors with their journals.

Note: Have students copy the chart from the activity sheet into their journal as an alternative to making copies.

Note: Discuss safety issues related to the outdoor learning environment.

8. Tell the class they are to pretend they are students of Aldo Leopold. Explain that Leopold kept a pace, known as a saunter, when making observations. To model Leopold’s saunter, instruct students to walk in a slow, relaxed manner, without hurry or effort, at a pace that allows them to look around and observe nature.

- Once outside, take the students to a location where they can spread out and sit. Allow students to sit very quietly and listen for noises made by nature for several minutes. Students can write in their journal the noises they heard, or after quiet time is over take turns sharing what they heard with the class. Encourage students to use descriptive words or adjectives.
- While seated, ask students to locate either a living or nonliving an object such as a tree, flower, bush, or rock. Take turns letting students share observations of the object on which they have focused. Ask how many senses they used to observe the object. Ask how many of them made an observation using accuracy, such as counting.

For younger students:

Note: If students lack writing skills, initiate a conversation with them about using their senses to observe their objects. Review each of the five (5) senses again, by asking students to take turns sharing their findings with the class. Allow them to practice wafting, as they smell their object. Remind students not to place the object in their mouth. These students may use the activity sheet or journal to draw their object.

- Distribute hand lenses, metric rulers, string, or yarn as requested. Direct students to make observations using one of two methods: standard measurement or counting, or using non-standard measurements such as measuring with string or yarn.
- Tell students that Leopold once wrote an essay and entitled it, “Great Possessions.” The essay included the making of good observations. Ask students it they know what Leopold was referring to by naming it “Great Possessions.”

For older students:

- Students will need a copy of the activity sheet chart, either printed or in their journal.
- Distribute hand lenses, metric rulers, string, or yarn as requested.
- Instruct students to record their observations in the chart, using their senses or by using numerical data.
- Give students time to make their observations and record their data, just as Leopold once did. Ask students to draw and label the object, in their journal or on the back of the activity sheet. Instruct students to identify their object as a living or a nonliving thing.
- Tell students that Leopold once wrote an essay and entitled it, “Great Possessions.” The essay included the making of good observations. Ask students it they know what Leopold was referring to by naming it “Great Possessions.”
9. Close the lesson by asking students the following questions.
   - What can you do to make the schoolyard a better place?
   - Why are Leopold’s types of observations important?
   - How often do you use his types of observations?
   - How can using Leopold’s teachings make the world a better place?

Extension:
For older students, refer to the quote in the Background Section of this lesson and ask students to interpret its meaning.