Lesson Plan: Decimal Place Value

Common Core Standard: 5.NBT.A.3 – Understand decimal place value up to thousandths.
Grade Level: 4th–5th Grade
Subject: STEM/Mathematics
Duration: 3 Days
Lesson Focus: Decimal System – Understanding Decimal Place Value up to Thousandths
Project Description: In this lesson, students will learn about decimal place value, focusing on the thousandths place. They will practice reading, writing, and comparing decimals up to thousandths and apply this knowledge to real-world situations like money and measurement.

Materials Needed:

- Whiteboard and markers
- Decimal Place Value Chart (printed for students)
- Place value blocks or base-ten blocks
- Chart paper for group work
- Rulers (for measurement activities)
- Real-world decimal scenarios (e.g., money, measurements)
- Calculators (optional, for checking work)
- Decimal Place Value Worksheet
- Interactive Decimal Apps (optional)

Lesson Objectives:

- Students will identify the place value of decimals up to the thousandths.
- Students will read, write, and compare decimals to the thousandths place.
- Students will apply decimal place value concepts in real-world contexts, such as money and measurements.

Lesson Procedures:

Day 1: Introduction to Decimal Place Value

1. **Introduction**:
   Begin by explaining that decimals are used to represent values less than one. Use money as an example: $1.25 means 1 whole dollar and 25 cents. Introduce the decimal point as a separator between the whole number part and the fractional part of a number.
2. **Decimal Place Value Chart**:
   Show students a place value chart with tenths, hundredths, and thousandths.
   Example:
   ```
   csharp
   Copy code
   1.234 →
   1 is the ones place,
   2 is the tenths place,
   3 is the hundredths place,
   4 is the thousandths place.
   ```
3. **Hands-on Activity**:
   Have students use base-ten blocks or place value blocks to represent decimals. For example, if you have 1.235, students will show one whole block for 1, two-tenths blocks for 0.2, three-hundredths blocks for 0.03, and five-thousandths blocks for 0.005.

4. **Practice**:
   Provide students with a few decimal numbers and ask them to identify the value of each digit in the number. For example, in 3.072, students should identify that the 7 is in the hundredths place and the 2 is in the thousandths place.

Day 2: Reading, Writing, and Comparing Decimals

1. **Review and Practice**:
   Begin by reviewing the concepts from Day 1. Ask students to write some decimals and then read them aloud (e.g., 4.053, 2.9, 6.803).
2. **Decimal Comparison**:
   Teach students how to compare decimals by using place value. Show examples of how to compare decimals like 2.85 and 2.9 (2.85 is smaller because the hundredths place comes before the tenths place).
3. **Real-World Applications**:
   Provide students with real-world decimal scenarios like money and measurements. For example:
   - How much money is 0.75? (75 cents)
   - If a person's height is 5.647 feet, what is the height in feet and inches?
4. **Group Work**:
   Divide students into small groups and provide them with a set of decimal numbers to compare. Each group will need to determine which decimal is greater, using their understanding of place value.
5. **Practice Problems**:
   Hand out a **Decimal Place Value Worksheet** that includes a mix of reading, writing, and comparing decimal numbers. Have students complete the worksheet independently.

Day 3: Applying Decimal Place Value

1. **Introduction to Measurement**:
   Review how decimals are used in measurements, such as length, mass, and time. Show examples of decimals in measurements: 5.6 meters, 3.22 kilograms, or 9.875 inches.
2. **Decimal Word Problems**:
   Provide students with real-world word problems that involve decimals:
   - If you have $2.45 and buy a toy for $1.75, how much money do you have left?
   - A piece of fabric is 4.876 meters long. If you cut off 2.500 meters, how much fabric is left?
3. **Interactive Activity**:
   Use an interactive app or an online decimal game where students practice placing decimals in the correct spots on a number line or comparing them. Encourage students to check their answers using calculators.
4. **Review and Assessment**:
   Review the key concepts learned in the past days. Have a class discussion where students can share their answers to the word problems and explain their reasoning.
5. **Exit Ticket**:
   For quick formative assessment, ask students to solve a problem on a small piece of paper or on an exit ticket:
   - Write the decimal 0.625 in words.
   - Compare the decimals: 0.7 and 0.75 (which is greater?).

Assessment:

- Observe student participation in group activities and discussions to gauge understanding of decimal place value.
- Review the **Decimal Place Value Worksheet** to assess individual student understanding.
- Use the **Exit Ticket** to check for immediate comprehension and identify areas that may need further review.

Extensions and Challenges:

- Challenge students to work with decimals greater than 1, like 1.456 or 2.789, and represent them on a number line.
- For advanced students, introduce the concept of rounding decimals to the nearest tenth or hundredth.

Safety Note:

Ensure students are using rulers and other measurement tools safely, especially when measuring with precision. Encourage careful handling of materials to avoid distractions during hands-on activities.

Accommodations for ELL and ESE Students:

For ELL students, provide visual aids, like decimal place value charts, and use interactive tools that allow them to see decimals in real-world contexts. For ESE students, allow extra time for tasks and use hands-on materials like base-ten blocks for a more concrete understanding of decimal place value. Provide verbal instructions and support as needed.