Project Guide: Understanding Decimal Place Value – Real-Life Application

Project Title: **Decimal Place Value in Real-Life Applications**

Grade Level: 4th-5th Grade
Subject: STEM/Mathematics
Duration: 3 Days
Common Core Standard: 5.NBT.A.3 – Understand decimal place value up to thousandths.

Project Overview:

In this project, students will apply their understanding of decimal place value in real-life situations, such as calculating money, measuring lengths, and comparing decimals. Through engaging hands-on activities, students will develop a practical understanding of decimal place value up to the thousandths place and its importance in everyday life.

Project Objectives:

- **Understand** and **apply** the place value of decimals up to thousandths.
- **Use** decimals to solve real-life problems involving money and measurements.
- **Represent** decimals on a number line and compare them.
- **Work** collaboratively in groups to solve decimal-related problems and present findings.

Materials Needed:

- Whiteboard and markers
- Decimal Place Value Chart (printed for students)
- Rulers (for measuring activities)
- Base-ten blocks or place value blocks
- Calculators (optional, for checking work)
- Printable worksheets with decimal problems
- Real-life decimal problems (money, measurements, etc.)
- Chart paper for group presentations
- Computers or tablets (optional for interactive decimal games)

Project Procedures:

Day 1: Introduction to Decimal Place Value

1. **Warm-Up**:
   Review the basic concept of decimals, focusing on the place value chart (tenths, hundredths, thousandths).
   Example: 1.234
   - 1 is in the ones place
   - 2 is in the tenths place
   - 3 is in the hundredths place
   - 4 is in the thousandths place
2. **Hands-On Activity**:
   Use base-ten blocks to show decimal numbers. For example, 0.35 could be represented by three-tenths blocks and five-hundredths blocks.
3. **Interactive Discussion**:
   Ask students to think of real-world examples where decimals are used, such as money (e.g., $1.25) or measurements (e.g., 5.6 meters).
4. **Group Work**:
   Students work in small groups to identify decimals in various real-world contexts and present their findings.

Day 2: Applying Decimal Place Value in Real-Life Scenarios

1. **Money Problem Solving**:
   Provide students with fictional shopping scenarios. Example:
   - If you have $10.50 and buy an item that costs $3.75, how much change will you get back?
2. **Measurement Problems**:
   Use rulers and provide students with length measurements in decimals. Example:
   - A piece of fabric is 3.25 meters long. If you cut off 1.5 meters, how much fabric is left?
3. **Comparison and Ordering**:
   Have students compare decimals in different contexts. Example:
   - Which is greater: 4.6 or 4.45? How do you know?
4. **Group Activity**:
   In their groups, students will solve multiple decimal problems related to shopping, measuring, and other real-life applications. They will work together to compare decimals and show their answers on a number line.

Day 3: Group Presentations and Project Reflection

1. **Final Project Presentation**:
   Students present their group's findings on decimal problems, sharing how they solved the problems and what they learned about decimal place value. Use chart paper to show their solutions and highlight important points.
2. **Class Discussion**:
   Discuss the importance of decimal place value in everyday life and review key concepts. Ask students to reflect on how decimal place value affects their daily activities, such as handling money, measuring objects, and comparing values.

3. **Wrap-Up and Assessment**:
   Complete a quick formative assessment by asking students to solve a short decimal problem individually. Example:
   - Write the decimal number for 5 dollars and 80 cents (5.80).

Safety Note:

Ensure that students are safely using rulers and other measuring tools. While measuring lengths or handling any sharp materials, students should be reminded to work with care and focus. Encourage students to follow classroom rules to prevent accidents during hands-on activities.

Accommodations for ELL and ESE Students:

- For **ELL students**, provide visual aids such as charts and examples to help understand decimal place value. Use gestures and slow, clear language to ensure understanding.
- For **ESE students**, provide additional support by using hands-on materials like base-ten blocks. Allow extra time to complete activities, and break tasks into smaller, more manageable steps.
- Use group work to foster collaborative learning, where students can help each other solve decimal problems.

Assessment and Evaluation:

- Observe students during group activities to assess their ability to apply decimal place value in real-life situations.
- Review the **Decimal Problem Worksheet** to assess each student's understanding of decimal operations.
- Evaluate group presentations to determine how well students explain their problem-solving process and understand the concepts.
- Use the **final assessment** (e.g., solving a decimal problem individually) to evaluate each student's grasp of the concept.

Extension Activities:

- Challenge students to create their own decimal word problems based on their daily life experiences.
- Have students work with decimals beyond the thousandths place, such as tenths and hundredths, to extend their learning.