3rd Grade Math Lesson: Using Bar Models to Solve Real-World Problems -Addition and Subtraction

Objective:

Students will learn how to use bar models (also known as tape diagrams) to represent and solve real-world problems involving addition and subtraction.

1. Introduction to Bar Models

What is a Bar Model?

- A bar model is a visual tool used to represent relationships between numbers in word problems.
- It helps break down complex problems into simpler parts by visually representing the information.

Why Use Bar Models?

- They help students understand the structure of addition and subtraction problems.
- They provide a clear, visual way to solve problems without jumping straight to calculations.

2. Using Bar Models for Addition

Addition Problem Example:

• **Problem:** Lisa has 24 apples. Her friend gives her 13 more. How many apples does Lisa have now?

Steps to Solve with a Bar Model:

- 1. **Identify the parts:** Lisa starts with 24 apples, and she receives 13 more. These are two parts.
- 2. Draw the bar model:
 - Draw a bar and divide it into two sections, one representing 24 apples and the other representing 13 apples.
- 3. Label the sections: Write "24" and "13" in the respective parts.
- 4. Find the total: Combine the two parts to find the total number of apples (24 + 13).
- 5. Answer: Lisa has 37 apples.

Bar Model Representation:



3. Using Bar Models for Subtraction

Subtraction Problem Example:

• **Problem:** Jack has 50 marbles. He gives 18 to his friend. How many marbles does Jack have left?

Steps to Solve with a Bar Model:

- 1. **Identify the total and part:** Jack starts with 50 marbles, and he gives away 18. The remaining marbles are unknown.
- 2. Draw the bar model:
 - Draw a long bar representing the total (50), and then draw a smaller section representing the part given away (18).
- 3. Label the sections: Write "50" for the total and "18" for the part.
- 4. Find the difference: Subtract 18 from 50 to find how many marbles are left (50 18).
- 5. Answer: Jack has 32 marbles left.

Bar Model Representation:



4. Guided Practice

Real-World Problem 1 (Addition):

• **Problem:** Sarah has 15 candies. Her mother buys her 25 more. How many candies does Sarah have in total?

Steps:

- 1. Identify the parts: 15 candies and 25 more.
- 2. Draw the bar model.
- 3. Add the two parts to find the total.

Bar Model:

Solution: 15 + 25 = 40 candies

Real-World Problem 2 (Subtraction):

 Problem: A class has 42 students. After a field trip, 17 students leave early. How many students are left?

Steps:

- 1. Identify the total and the part leaving: 42 students, 17 leaving.
- 2. Draw the bar model.
- 3. Subtract to find the remaining students.

Bar Model:



Solution: 42 - 17 = 25 students left

5. Group Activity: Solving Real-World Problems Using Bar Models

Problem 1:

• Mark has 65 stickers. He gives 28 to his brother. How many stickers does Mark have left?

Problem 2:

• There are 85 books in the library. The librarian buys 35 more books. How many books are there in total?

Problem 3:

• A bakery sells 120 cupcakes. They sell 47 in the morning. How many cupcakes are left?

6. Independent Practice

Real-World Problem 1:

• Ben has 38 toy cars. His friend gives him 16 more cars. How many toy cars does Ben have now?

Real-World Problem 2:

• A farmer has 90 apples. He sells 34 apples at the market. How many apples does the farmer have left?

Real-World Problem 3:

• In a class of 50 students, 19 went on a field trip. How many students stayed behind?

7. Conclusion and Review

Key Takeaways:

- Bar models are useful for visually solving addition and subtraction problems.
- They help organize information and provide clarity when solving real-world problems.

Exit Problem:

• There are 60 seats in a theater. 25 people are seated. How many seats are still available?