Teacher Preparation Lesson Plan

Subject Area: Mathematics
Unit Title: Mastering Fractions: Adding and Subtracting with Different Denominators
Grade Level: 7
Lesson Number: 1 of 10

Duration: 60 minutes
Date: 2024-02-20
Teacher: Ms. Smith
Room: 101

Curriculum Standards Alignment

Content Standards:

- Understand the concept of equivalent fractions
- Apply the concept of adding and subtracting fractions with different denominators

Skills Standards:

- Use mental math strategies to solve problems
- Apply problem-solving skills to real-world scenarios

Cross-Curricular Links:

- Science: measuring ingredients for a recipe
- Real-world applications: dividing a pizza or sharing a toy

Essential Questions & Big Ideas

Essential Questions:

- What is the concept of equivalent fractions?
- How can we add and subtract fractions with different denominators?

Enduring Understandings:

- Equivalent fractions have the same value but different numerators and denominators
- Adding and subtracting fractions with different denominators requires finding the least common multiple (LCM)

Student Context Analysis

Class Profile:

- Total Students: 25
- ELL Students: 5
- IEP/504 Plans: 3
- Gifted: 2

Learning Styles Distribution:

- Visual: 40%
- Auditory: 30%
- Kinesthetic: 30%

Teacher Preparation Lesson Plan

Pre-Lesson Preparation

Room Setup:

- Arrange desks in pairs
- Prepare whiteboard and markers

Technology Needs:

- Computer with internet access
- Mathematical software

Materials Preparation:

- Fraction strips
- Worksheets

Safety Considerations:

- Ensure students use scissors and glue safely

Detailed Lesson Flow

Pre-Class Setup (15 mins before)

- Prepare room setup
- Prepare technology and materials

Bell Work / Entry Task (5-7 mins)

- Review previous lesson on fractions
- Introduce the concept of equivalent fractions

Opening/Hook (10 mins)

- Introduce the concept of adding and subtracting fractions with different denominators
- Use real-world scenarios to illustrate the concept

> **Engagement Strategies:**
>
> - Think-pair-share
> - Group discussion

Direct Instruction (20-25 mins)

- Explain the concept of equivalent fractions
- Explain how to add and subtract fractions with different denominators

> **Checking for Understanding:**
>
> - Formative assessment
> - Summative assessment

Guided Practice (25-30 mins)

- Provide worksheets with problems involving adding and subtracting fractions with different denominators
- Have students work in pairs to complete the worksheets

> **Scaffolding Strategies:**
>
> - Provide visual aids
> - Provide extra support for struggling students

Independent Practice (20-25 mins)

- Provide worksheets with problems involving adding and subtracting fractions with different denominators
- Have students work individually to complete the worksheets

Closure (10 mins)

- Review key concepts
- Provide feedback to students

Differentiation & Support Strategies

For Struggling Learners:

- Provide extra support and practice
- Use visual aids to illustrate concepts

For Advanced Learners:

- Provide extension activities
- Encourage students to create their own worksheets

ELL Support Strategies:

- Provide visual aids to illustrate concepts
- Use simple language to explain concepts

Social-Emotional Learning Integration:

- Encourage students to work in pairs and groups
- Encourage students to share their thoughts and ideas

Assessment & Feedback Plan

Formative Assessment Strategies:

- Quizzes
- Class discussions

Success Criteria:

- Students can explain the concept of equivalent fractions
- Students can add and subtract fractions with different denominators

Feedback Methods:

- Verbal feedback
- Written feedback

Homework & Extension Activities

Homework Assignment:

Complete the worksheet on adding and subtracting fractions with different denominators

Extension Activities:

- Create a real-world scenario that involves adding and subtracting fractions with different denominators
- Research and present on a topic related to fractions

Parent/Guardian Connection:

Encourage parents/guardians to ask their child about the lesson and provide feedback

Teacher Reflection Space

Pre-Lesson Reflection:

- What challenges do I anticipate?
- Which students might need extra support?
- What backup plans should I have ready?

Post-Lesson Reflection:

- What went well?
- What would I change?
- Next steps for instruction?

Introduction to Fractions

What is a Fraction?

A fraction is a way of showing part of a whole, using a numerator and a denominator.

- Numerator: the number of equal parts being referred to
- Denominator: the number of equal parts the whole is divided into

Types of Fractions

- Proper fractions: the numerator is less than the denominator
- Improper fractions: the numerator is greater than or equal to the denominator
- Mixed numbers: a combination of a whole number and a proper fraction

Equivalent Fractions

Equivalent fractions are fractions that have the same value, but with different numerators and denominators.

- Example: 1/2 = 2/4 = 3/6

Adding and Subtracting Fractions

Adding Fractions with Different Denominators

To add fractions with different denominators, we need to find the least common multiple (LCM) of the denominators.

- Example: 1/4 + 1/6 = ?
- LCM of 4 and 6 is 12
- Convert fractions to have a denominator of 12: 3/12 + 2/12 = 5/12

Subtracting Fractions with Different Denominators

To subtract fractions with different denominators, we need to find the least common multiple (LCM) of the denominators.

- Example: 2/3 - 1/4 = ?
- LCM of 3 and 4 is 12
- Convert fractions to have a denominator of 12: 8/12 - 3/12 = 5/12

Real-World Applications

- Measuring ingredients for a recipe
- Dividing a pizza or sharing a toy

Differentiated Activities

For Struggling Learners

- Provide extra support and practice
- Use visual aids to illustrate concepts

For Advanced Learners

- Provide extension activities
- Encourage students to create their own worksheets

For ELL Students

- Provide visual aids to illustrate concepts
- Use simple language to explain concepts

Formative Assessment Strategies

- Quizzes
- Class discussions

Summative Assessment Strategies

- Tests
- Projects

Success Criteria

- Students can explain the concept of equivalent fractions
- Students can add and subtract fractions with different denominators

Summary of Key Concepts

- Equivalent fractions
- Adding and subtracting fractions with different denominators

Importance of Fractions in Real-World Scenarios

- Measuring ingredients for a recipe
- Dividing a pizza or sharing a toy

Future Lessons

- Multiplying and dividing fractions
- Converting between fractions and decimals

Glossary of Terms

- Fraction: a way of showing part of a whole, using a numerator and a denominator
- Denominator: the number at the bottom of a fraction, which shows how many equal parts the whole is divided into
- Numerator: the number at the top of a fraction, which shows how many equal parts are being referred to

Resources

- Fraction walls
- Mathematical software
- Real-world scenario worksheets

References

- National Council of Teachers of Mathematics (NCTM)
- Mathematics Education Research

National Council of Teachers of Mathematics (NCTM)

The National Council of Teachers of Mathematics (NCTM) is a professional organization that provides resources and support for mathematics teachers.

Mathematics Education Research

Mathematics Education Research is a journal that publishes research on mathematics education.