Mastering Fractions: Adding and Subtracting with Unlike Denominators

Introduction (5 minutes)

Welcome to this worksheet on adding and subtracting fractions with unlike denominators! This activity is designed for 12-year-old students to practice and apply their knowledge of fractions in a fun and engaging way.

Section 1: Understanding Equivalent Fractions (15 minutes)

Equivalent fractions are fractions that have the same value, but with different denominators. For example, 1/2 and 2/4 are equivalent fractions.

1. What is the equivalent fraction of 3/6?

2. Which of the following fractions are equivalent to 2/3?
   - a) 4/6
   - b) 6/9
   - c) 8/12
   - d) All of the above

Section 2: Adding Fractions with Unlike Denominators (20 minutes)

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

1. What is the sum of 1/4 and 1/6?

2. A recipe calls for 3/4 cup of flour and 1/6 cup of sugar. What is the total amount of ingredients needed?

Visual Aid Activity (15 minutes)

Group Task:

Use visual aids such as diagrams or charts to represent the addition of fractions with unlike denominators.

[Space for visual aid]

Section 3: Subtracting Fractions with Unlike Denominators (20 minutes)

To subtract fractions with unlike denominators, we need to find the LCM of the denominators.

1. What is the difference of 2/3 and 1/4?

2. A bookshelf has 5 shelves, and each shelf can hold 3/4 of a box of books. If 1/4 of a box of books is already on the shelf, how much more can be added?

Technology Integration (15 minutes)

Group Task:

Use online tools or software to practice subtracting fractions with unlike denominators.

[Space for technology integration]

Section 4: Real-World Applications (20 minutes)

Fractions are used in many real-world applications, such as cooking, measuring ingredients, and dividing a pizza.

1. A pizza has 12 slices, and 1/4 of it has been eaten. If 1/6 of the remaining pizza is eaten, what fraction of the pizza is left?

2. A recipe calls for 2/3 cup of sugar. If you only have a 1/4 cup measuring cup, how many times will you need to fill it to get 2/3 cup?

Differentiated Activity (15 minutes)

Group Task:

Provide differentiated activities for mixed-ability groups, such as:

- For struggling students: Simplify the fractions and provide additional support
- For advanced students: Increase the complexity of the fractions and provide additional challenges

[Space for differentiated activity]

Section 5: Word Problems (20 minutes)

Word problems are a great way to apply fraction concepts to real-world scenarios.

1. Tom has 1/2 of a bag of candy, and his friend has 1/4 of a bag. If they combine their candy, what fraction of a bag do they have in total?

2. A group of friends want to share some candy equally. If they have 3/4 of a bag of candy and there are 5 friends, how much candy will each friend get?

Conclusion (10 minutes)

Individual Reflection:

1. What was the most challenging part of this activity for you?

2. What did you learn about adding and subtracting fractions with unlike denominators?

Answer Key

Section 1:

1. 1/2
2. d) All of the above

Section 2:

1. 5/12
2. 1 1/12 cups

Section 3:

1. 5/12
2. 2 1/4 boxes

Section 4:

1. 7/12
2. 3 times

Section 5:

1. 3/4
2. 3/20 of a bag