

MATH IS SWEET

Chocolate Fractions

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Math is Sweet

Chocolate Fractions

Skill Level

Beginner, 4th Grade

Learner Outcomes

The learner will be able to:

- Explain parts to wholes in fraction form.
- Identify and use common fractions.
- Add and subtract like denominator fractions.

Educational Standard(s) Supported

Math 4.NF.B.3

Success Indicator

Learners will be successful if they:

- Explain fraction relationships to whole numbers and perform mathematical operations.

Time Needed

30 Minutes

Materials List

- One blocked chocolate bar per student (keep student allergies in mind)
- Paper Plates or Napkins
- Whiteboard or Chalkboard

Introduction to Content

This lesson includes a hands-on demonstration of fractions with chocolate blocks. Students will group, add and subtract fractions with the manipulatives.

Introduction to Methodology

This lesson uses modeling and hands-on approaches to aid students' comprehension. The lesson begins with assessing students' prior knowledge of fractions before progressing to independent addition and subtraction with like denominators.

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Terms and Concepts Introduction

Denominator – the bottom number of a fraction representing the whole

Numerator – the top number of a fraction representing the part

Fraction – a number with a numerator and denominator, usually expressing a part to a whole

Setting the Stage and Opening Questions

Ask students, “**If you were sharing a chocolate bar with three friends, how would you decide how much each person gets? What if you were just sharing with one friend?**” Explain this is just one example of fractions in our everyday lives.

Ask, “**Can you think of other fractions we use every day?**”

Answers could include pizza, cake and pie.

Discuss how we observe fractions. Point out that fractions simply represent parts of a number or part in between numbers.

Ask questions to assess prior knowledge.

- What is a fraction?
- What is a denominator?
- What is a numerator?

Tell students, “**By the end of this lesson, you will be able to explain parts to wholes in fraction form, identify and use common fractions, and add and subtract like denominator fractions.**”

Experience

With the students’ help, label parts of a fraction using the whiteboard or chalkboard. Ask for questions about the information to check for comprehension.

Place the chocolate bars on paper plates or napkins and distribute to the students. Each student gets one bar. Instruct and periodically remind the students not to eat their chocolate until the exercises are over. Explain to the students that each block represents a part, the numerator, of the chocolate bar and the total number of pieces, or the whole bar, represents the denominator.

Instruct students to break apart their chocolate bars into the blocks. Ask them to model the following fractions with their chocolate bars: $\frac{1}{2}$, $\frac{3}{4}$, $\frac{2}{3}$, $\frac{2}{5}$ and $\frac{1}{6}$. You can add other fractions for students to model as time allows.

Give the students different numbers of denominators to group pieces into to represent new bars. Then, have them show different fractions of the new bars. Continue this process until students verbally confirm and visually show comprehension.

Next, have the students show two fractions at a time with like denominators, with which they will then represent addition and subtraction. Remember to take this process slowly, checking for comprehension throughout the exercise to keep everyone on track. Use the whiteboard or chalkboard to give example problems for the students to work out with their sweet manipulatives.

Tips for Engagement

Important: make sure all student allergies are taken into consideration when choosing the chocolate.

Involve the students in the experiment. Have them group into different numbers to show multiple denominators, add and subtract with like terms.

Remember to be comfortable with this content to put students at ease and instill confidence in your lesson instruction.

Share

Ask the students the following questions:

- Why did we use chocolate with scored blocks?
- What other materials would be easy to represent fractions with?

Process

- What did you notice when grouping about the denominator?
- What do the parts represent?

Generalize

- Where would you find or use fractions in your everyday life?
- Could fractions be used to express other numbers?

Apply

Depending on the comprehension level of students, show them real-world applications of fractions. Then, divide students into groups and ask them to show examples of the fractions from the real-world examples using the manipulatives.

If comprehension is higher, introduce the relationship of fractions to percentages and ask students to use the manipulatives to represent the percentages.

Life Skill(s) 4th Grade

Participate in 4-H club meetings by saying pledges, completing activities, and being engaged. (Head)

Follow instructions. (Heart)

Gather relevant information for decision-making. (Hands)

Communicate information effectively about a given topic. (Hands)

Supplemental Information

Educational Standards Met

4th Grade Math Number and Operations

4.NF.B.3 (a-d) Understand a fraction with a > 1 as the sum of fractions.