

Math – 4th Grade

Multiplication Lesson Plan

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Description

The goal of this lesson plan is to enable students to practice and develop their multiplication skills through using real life examples. Grade 4 students will be working on developing the following:

Connection to Curriculum

Big Idea

- Development of computational fluency and multiplicative thinking requires analysis of patterns and relations in multiplication and division

Curricular Competencies

- Develop mental math strategies and abilities to make sense of quantities
- Model mathematics in contextualized experiences
- Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving
- Develop and use multiple strategies to engage in problem solving

Content

- Multiplication and division of two- or three-digit numbers by one-digit numbers
- Multiplication and division facts to 100 (introductory computational strategies)

Key Terms

- Array: an arrangement of rows and columns that match a multiplication equation.
- Repeated addition: a multiplication equation where the same number is added repeatedly.

Materials Needed

Story Props

- Cookies, Food alternatives for people with dietary restrictions, Chocolate chips, Cookie Monster Puppet

Learning Materials/Resources

- Manipulatives: Chocolate chips
- Chocolate chip cookies

Timeline

- 1) Multiplication introduction involving classroom desks- 10 minutes
- 2) Cookie recipe story scenario- 30 minutes
- 3) Chocolate chip group work- 10 minutes

Learning Activities

Introductory Activity (Involving Classroom Desks)

- Ask students to organize their desks into rows of 5.
- Ask, then discuss: “What are some ways to calculate how many students we have in this class?” Facilitate conversation and encourage students to think up multiple strategies.
- When students refer to repeated addition and array forms of multiplication, draw a diagram using dots (in columns and rows for array, and groups of the same number repeated for repeated addition) on the board. Explain that “it is these two methods we will be focusing on today.”

Cookie Recipe Scenario

- Begin by introducing activity in a fun way, either by using a puppet who is hungry for cookies or simply by asking students if they would like to make some cookies.
- Once this question is asked, tell them you have an excellent chocolate chip recipe and write it down onto the board. Tell them this recipe makes 12 cookies.
- Then ask students if this recipe will make enough for everyone in the class to have at least one cookie?
- Instruct students to get into pairs and discuss what must be done in order for the class to make enough cookies for everyone
- Come back together as a class and facilitate an open discussion about how multiplication (repeated addition) can be used to triple the recipe.

Cookie Recipe	
○	1 cup of butter
○	2 eggs
○	3 cups flour
○	2 tsp vanilla
○	1 cup brown sugar
○	1 cup white sugar
○	1/2 tsp salt
○	1 tsp baking soda
○	2 cups chocolate chips
○	2 tsp hot water

Chocolate Chip Group Work

- Ask students to get into groups of 2 or 3.
- Provide each group with a pile of chocolate chips.
- Explain to students (perhaps by using puppet) that each cookie must contain exactly 10 chocolate chips.
- Ask them to organize their chocolate chips in any manner they wish but encourage them to practice using the multiplication methods array and repeated addition. Afterwards, come together as a class and discuss the different ways students calculated how many chips they had.

Connection to Indigenous Knowledge

This lesson plan connects to Indigenous knowledge and learning in that it involves problem-solving through story in a community context (the students are working together to ensure there are enough cookies for everyone to share).

This lesson plan connects to the First Peoples Principles of Learning regarding the following:

- Learning is holistic, reflexive, reflective, experiential and relational (focused on connectedness, on reciprocal relationships, and a sense of place)
- Learning is embedded in memory, history, and story

Accommodations

Students will have the opportunity to work with manipulatives as needed, and can use their notebooks to work out equations. Students have the opportunity to explain their thought process to other students in partner or group discussion and potentially with the whole class. Students who need more of a challenge could also extend themselves by working with more advanced numbers to bake cookies for an even larger number of people.

Assessment

In regards to formative assessment, there are many opportunities in this lesson for the teacher to ask the students questions and discuss key concepts with the entire class, as well as by walking around and checking in while students are working in groups, partners, or individually. The teacher could have a checklist where they take note if they have heard every student speak at some point during the entire class, and make notes of relevant, descriptive comments when possible. As this lesson involves a visually engaging story, teachers could use photo documentation to document student learning. If desired, students can share their thought processes and different multiplication strategies on the projector for other students to follow along with, or the teacher could even set up fish bowl demonstrations. Finally, students could be asked to reflect on their learning in their math journals or on exit-slips, describing what they learned during the lesson and any further questions they might have.


Possible follow-up activities/Integration with other subject areas

This lesson plan could be integrated with the Grade 4 BC science curriculum through looking at the content “the effect of temperature on particle movement” (2016). This lesson could also be applied to Grade 4 Applied Design Skills and Technology in that it addresses the Curricular Competency ‘Prototyping’ which asks students to “outline general plan, identifying tools and materials” (2016). For the purposes of Physical and Health Education, this lesson could be referred to when discussing moderation and explaining the “relationship between healthy eating and overall well-being” (2016).

Personalized learning

Students are given the opportunity to work alone, with a partner or small group, and as an entire class throughout this lesson. Students are encouraged to use the strategies that work best for them in practicing their multiplication skills. One way to both extend and personalize student learning would be to ask students to bring in a family recipe that is meaningful to them in some way and then use the recipe to work through some multiplication problems. In this way, students are able to connect their learning to something personal and meaningful and have a say in the numbers they want to work with.

Appendix



Exit Slip

Name: _____ Date: _____

Draw 2 different ways we can figure out 4×10

Chocolate Chip Cookies Recipe

Prep: 20 mins
Cook: 10 mins

Ingredients

- ❖ 1 cup butter, softened
- ❖ 1 cup white sugar
- ❖ 1 cup packed brown sugar
- ❖ 2 eggs
- ❖ 2 teaspoons vanilla extract
- ❖ 1 teaspoon baking soda
- ❖ 2 teaspoons hot water
- ❖ 1/2 teaspoon salt
- ❖ 3 cups all-purpose flour
- ❖ 2 cups semisweet chocolate chips
- ❖ 1 cup chopped walnuts (optional)

1. Preheat oven to 350 degrees F (175 degrees C).
2. Cream together the butter, white sugar, and brown sugar until smooth. Beat in the eggs one at a time, then stir in the vanilla. Dissolve baking soda in hot water. Add to batter along with salt. Stir in flour, chocolate chips, and nuts. Drop by large spoonfuls onto ungreased pans.
3. Bake for about 10 minutes in the preheated oven, or until edges are nicely browned.