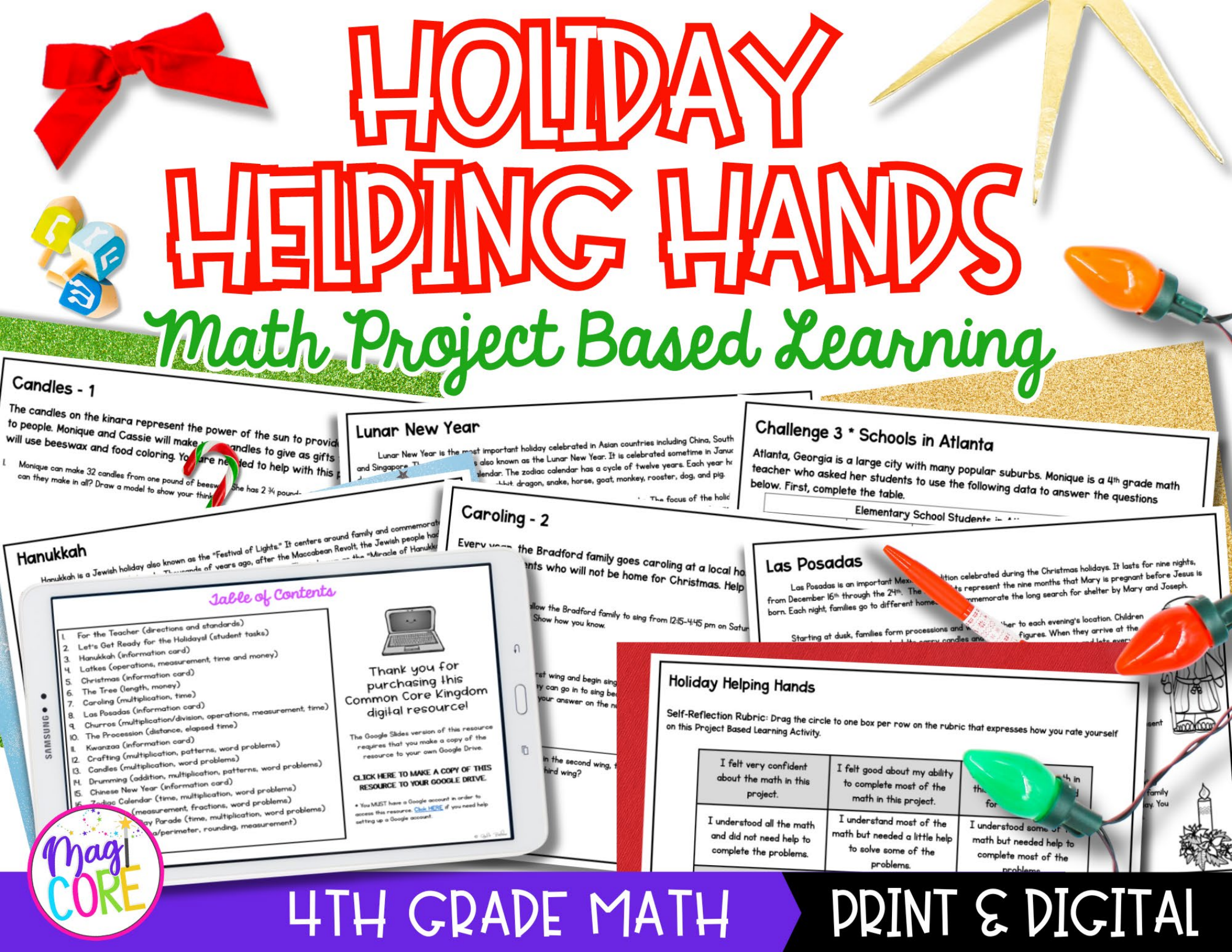
HOLIDAY HELPING HANDS

Math Project Based Learning



4TH GRADE MATH

PRINT & DIGITAL

For the Teacher

Celebrating Winter Holidays is a Project Based Learning activity that provides students with a variety of engaging and fun math challenges as they help different families prepare for their special winter holidays. Your students will practice the following math standards:

- 4.OA.A.3 Solve multistep word problems posed with whole numbers and having whole-number answers using the 4 operations, including problems with remainders.
- 4.NBT.A.3 Use place value understanding to round multi-digit whole numbers to any place.
- 4.NBT.B.4 Fluently add and subtract multi-digit whole numbers using the standard algorithm.
- 4.NBT.B.5 Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations.
- 4.NBT.B.6 Find whole number quotients and remainders with up to 4-digit dividends and 1-digit divisors based on place value, properties of operations, and relationship between multiplication and division.
- 4.NF.B.3 Understand a fraction a/b with a > 1 as a sum of fractions 1/b. Solve word problems involving addition and subtractions of fractions.
- 4.NF.B.4 Apply and extend previous understandings of multiplication to multiply a fraction by a whole number. Solve word problems involving multiplication of a fraction by a whole number.
- 4.MD.A.1 Know relative sizes of measurement units within one system of units.
- 4.MD.A.2 Use the 4 operations to solve word problems, including problems involving single fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as a number line that feature a measurement scale.
- 4.MD.A.3 Apply the area and perimeter formulas for rectangles in real world and mathematical problems.

Directions:

1. Decide if your class will complete the project as a whole group, in small groups, or independently.
2. Copy packets and provide students with materials necessary to complete the packet.
3. Students should complete the project over several days.
4. Preview the activity with your students.
5. Challenge activities can be assigned or can be optional.
6. Students will complete the self-evaluation reflection rubric.
7. Allow students an opportunity to share their completed projects.



© Julie Bochoso

Table of Contents

1. For the Teacher (directions and standards)
2. Let's Get Ready for the Holidays! (student tasks)
3. Hanukkah (information card)
4. Latkes (operations, measurement, time and money)
5. Christmas (information card)
6. The Tree (length, money)
7. Caroling (multiplication, time)
8. Las Posadas (information card)
9. Churros (multiplication/division, operations, measurement, time)
10. The Procession (distance, elapsed time)
11. Kwanzaa (information card)
12. Crafting (multiplication, patterns, word problems)
13. Candles (multiplication, word problems)
14. Drumming (addition, multiplication, patterns, word problems)
15. Chinese New Year (information card)
16. Zodiac Calendar (time, multiplication, word problems)
17. Dumplings (measurement, fractions, word problems)
18. New Year's Day Parade (time, multiplication, word problems)
19. Challenges (area/perimeter, rounding, measurement)
20. Self-Reflection



Thank you for purchasing this MagiCore Learning digital resource!

The Google Slides version of this resource requires that you make a copy of the resource to your own Google Drive.

CLICK HERE TO MAKE A COPY OF THIS RESOURCE TO YOUR GOOGLE DRIVE.

* You MUST have a Google account in order to access this resource. Click HERE if you need help setting up a Google account.

© Julie Bacheso

Let's Get Ready for the Holidays!

Who doesn't love celebrating holidays? All the fun and excitement we experience takes a lot of time and energy to plan. Usually, it is the parents of the family who do the planning. In this project, you will meet five families who celebrate different winter holidays. They all need your help to prepare to celebrate. So, let's get started!

Here are your tasks:

- Read through the entire packet before beginning.
- Read the holiday informational slides one at a time.
- Read the questions to become familiar with the types of math problems you will be solving.
- Complete each section before moving on to the next.
- (Optional) Complete the challenge pages.
- Complete the self-reflection and evaluation rubric.



Hanukkah

Hanukkah is a Jewish holiday also known as the "Festival of Lights." It centers around family and commemorates the rededication of the Jewish temple. Thousands of years ago, after the Maccabean Revolt, the Jewish people had just enough oil to burn for one day, but the lamp burned for eight days. This is known as the "Miracle of Hanukkah."



The holiday lasts for eight days and usually occurs sometime in December. Jewish families celebrate many traditions and rituals during the eight days of Hanukkah. Lighting the menorah is a very big part of the celebration. A menorah is a candelabrum with nine candles. Each day after sunset, a candle is lit using only the middle candle, called the "shammash," or helper candle. By the final night of Hanukkah, all nine candles are lit.



Children play the Dreidel game. They spin the top and follow the directions as they pass gold coins called Gelt. Families also enjoy singing songs each evening and exchanging small gifts.

Families share traditional foods during Hanukkah. They eat foods that are fried in oil to represent the miracle of the burning oil lamp. Some favorites are potato latkes, doughnuts, and fritters.

Now, let's meet the Abrams family. Mr. Abrams is a single dad who will be celebrating Hanukkah with his two children, 7-year-old Naomi and 10-year-old Micah. They are a Jewish family living in New York City, and they love celebrating Hanukkah. You will be helping them prepare latkes for this year's holiday.

© Julia Bacheso

Latkes - 1

The Abrams will make latkes each night of Hanukkah. The first six nights they will make 4 servings, but on the 7th and 8th nights they will celebrate with relatives, so they will make more. The Abrams will make 8 servings on the 7th night and 16 servings on the 8th night. Use the table to answer the questions below.

Ingredients	4 servings	8 servings	16 servings
potatoes	3	6	12
eggs	1	2	4
chopped onions	¼ cup	½ cup	1 cup
flour	1 tablespoon	2 tablespoons	4 tablespoons
oil	1 ½ cup	3 cups	6 cups

1. How many latkes will the Abrams make during the eight nights of Hannukah? Show how you know.

2. How many potatoes will the Abrams need to buy to make enough latkes for the 8 nights of Hanukkah? Show your thinking using the number line.

3. Micah thinks that to make 20 servings they would need 6 eggs. Is he correct? Explain.



Chai CORE

© Julie Bochorsa

Christmas

Christmas is a holiday celebrated by Christians all around the world. It celebrates the birth of Jesus Christ. No one really knows the exact day Jesus was born, but it is believed to be sometime in December or January. Often, the celebration takes place from the beginning of December until after New Year's Day on January 1st.



Traditional decorations and festivities can be observed around the globe. Many people decorate a Christmas tree in their home with lights and ornaments. Some decorate the outsides of their homes with lights or place lights in their windows. Families often go caroling, and children may participate in Christmas pageants. They display nativity sets and hang stockings in their homes. It is customary to send Christmas cards to friends and family, especially to those who live far away.

Baking cookies, stringing popcorn garland, and hanging evergreen wreaths on front doors are Christmas traditions loved by many people during the Christmas season. Singing Christmas carols is a favorite pastime of families. Christmas music can be heard in homes, schools, and on the radio during the holiday season, and many families watch Christmas movies together.



On Christmas Eve or Christmas Day, families wake early to open gifts. Some families attend church services. Later, they get together with extended family and exchange gifts and eat a festive meal.

Let's meet the Bradford family. Mr. and Mrs. Bradford live in a small town in central Indiana with their daughters, Mia, who is 13, Ana, who is 10, and Kira, who is 7. They love celebrating Christmas with family and friends. You will be helping the Bradford family prepare for the busy Christmas holiday.

© Julie Bochorsa

The Tree - 1

The Bradford family loves to cut down their own Christmas tree. Each year, they go to their local tree farm and pick out their favorite tree. Help the Bradford family pick the best tree.

	5 – 5 ½ feet tall	5 ½ – 6 feet tall	6 – 6 ½ feet tall	6 ½ – 7 feet tall	Above 7 feet
Blue Spruce	$41.77	$49.59	$57.33	$64.12	Add 45 cents per inch

1. The ceiling in the living room is 8 feet from the floor. The tree will sit 4 inches off the floor in a tree stand. Mrs. Bradford wants to be sure that they buy a tree that will allow her to use the new star topper she purchased. The star is 7 inches tall. What is the largest tree the Bradfords can purchase? Draw a model to show your work.

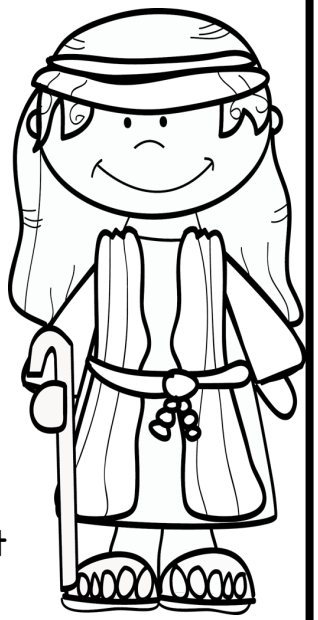
2. Mia found a tree she loves that is 8 ½ feet tall. What is the smallest number of inches Mr. Bradford can cut off the bottom of the tree so that it will fit in their living room? Draw a model to show your work.



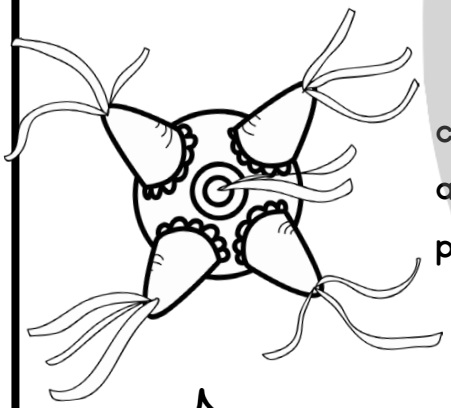
© Julie Bochose

Las Posadas

Las Posadas is an important Mexican tradition celebrated during the Christmas holidays. It lasts for nine nights, from December 16th through the 24th. The nine nights represent the nine months that Mary was pregnant before Jesus was born. Each night families go to different homes and commemorate the long search for shelter by Mary and Joseph.

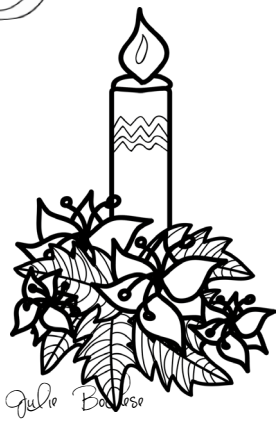


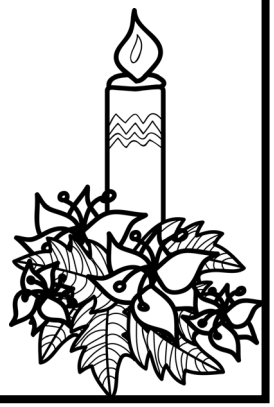
Starting at dusk, families form processions and walk together to each evening's location. Children dress as shepherds or angels, and adults carry candles and religious figures. When they arrive at the home, they ask the owner if they can have shelter. The owner of the home says yes and lets everyone inside. Together, they celebrate with prayers, festive songs, and traditional food. The evening ends with the breaking of a piñata, which is in the shape of a star. Children put on blindfolds and take turns hitting the piñata until it breaks and spills out goodies!



This nine-night tradition ends on Christmas Eve. On this evening, the celebration continues with a Christmas church service. The processions represent a pilgrimage, which is a journey to find meaning or a religious devotion. All participants share their love for Christmas.

Let's meet the Garcia family. Mr. and Mrs. Garcia live with their three children in southern New Mexico. Pedro is 12, Luis is 9, and Maria is 6. Also living with the family is Abuela and Abuelo, or grandmother and grandfather. The family loves celebrating Las Posadas more than any other holiday. You will be helping the Garcias prepare to host the last evening of Las Posadas.





© Julie Bodrose

Churros - 1

The Garcias are hosting the last night of Las Posadas. Mrs. Garcia and Abuela are known for making the best churros in the neighborhood. Churros are deep-fried pastries coated in cinnamon-sugar or chocolate. You will be helping the family make enough churros to feed the neighbors.

1. They need to make enough churros for 42 people to have three each. How many churros do Mrs. Garcia and Abuela need to make? Show how you know.

2. The recipe makes 18 churros. Luis says he knows that they need to make 6 batches of churros. What mistake did Luis make? What is the correct number of batches? Explain.

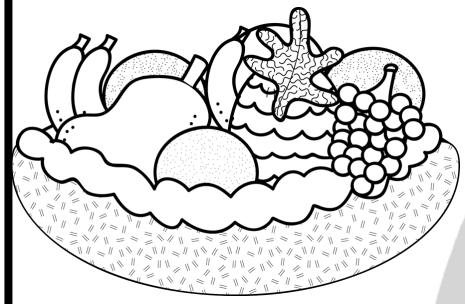
3. Abuela says it is always best to make one extra batch so that they can save a few to eat over the Christmas holidays. What is the total number of churros they will make to prepare for Las Posadas? Show how you know.



© Julie Bathasar

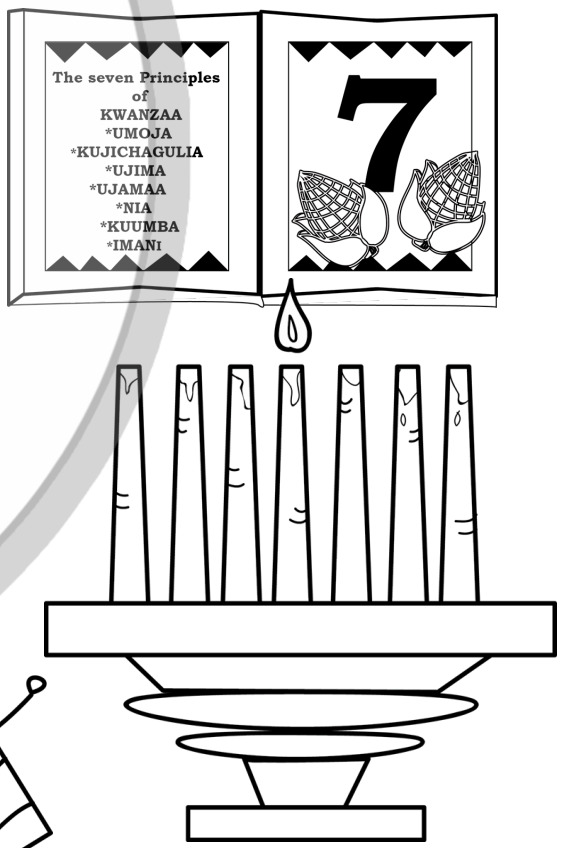
Kwanzaa

Kwanzaa is a celebration that honors African-American beliefs and traditions. It begins the day after Christmas and lasts until January 1st. After a week of celebrations, the holiday ends with a big feast and an exchange of gifts.

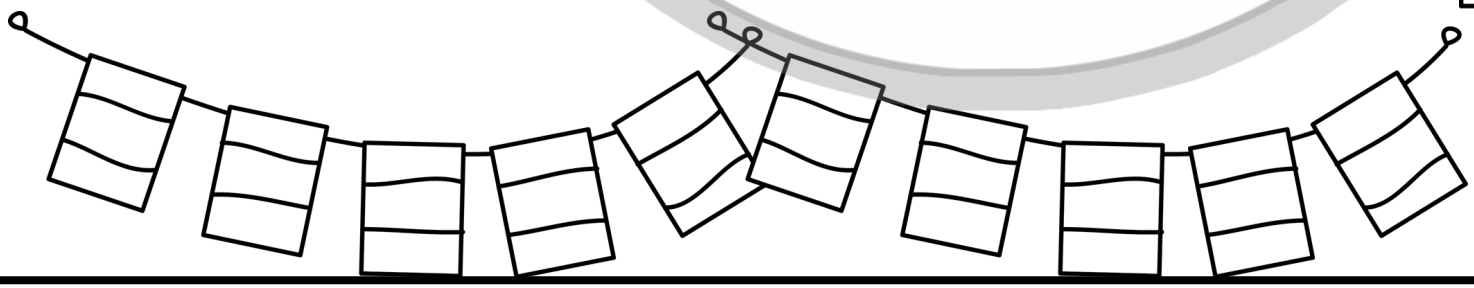


Dr. Karenga, a college professor of African studies, introduced the holiday in California around 1965. His idea was to create a celebration that unites the African-American community. The word Kwanzaa means "first fruits" or "harvest." People enjoy the holiday with singing, drumming, dancing, storytelling, crafting, and feasting. One common tradition of Kwanzaa is gift giving. Families focus less on spending money on gifts in order to avoid making the holiday mostly about gifts. Instead, people often make presents for loved ones.

There are seven principles that represent African values and are central to the celebration of Kwanzaa. Each day, the family focuses on a different value. A candle is lit on a holder called a kinara. It holds seven candles, one for each day, and is a lot like a Jewish menorah. On the first day, families enjoy a sense of unity that is discussed throughout the week. On the final day of Kwanzaa, people gather to share an African feast, called karamu.



Kenisha and Monique Williams live in Atlanta, Georgia, with their children, Arianna, age 8, and Cassie, age 9. They are proud to celebrate Kwanzaa with their friends and families. Your task is to help the family prepare for the holiday.



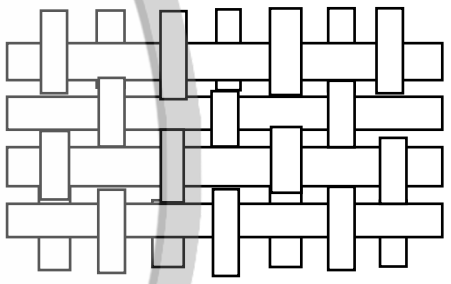
© Julie Bochorse

Crafting - 2

Kenisha loves doing crafts with her daughters. This year, they will weave placemats for their table to use on the final night of Kwanzaa. Placemats represent the traditional foundation for people. It reminds them that they can stand tall to build their lives.

3. Ariana drew a sketch of a placemat she wants to make. She wants it to look like a kinara. Complete the table below to help her determine how many strips of each color she needs so she can make different quantities of placemats.

STRIPS	One	Five	Ten	Fifteen	Twenty
Gold	4	20			
Red	3		30		
Black	1			15	
Green	3				60



4. Use the completed table to calculate how many strips of each color Kenisha and Ariana will need to make the correct number of placemats for their Kwanzaa feast. Show with equations.

GOLD =

RED =

BLACK =

GREEN =

© Julie Bochorse

Drumming

Kenisha and Monique bought 18 small drums for guests to use at the feast. Cassie and Ariana practiced drumming games to play. Cassie started a drumming game called "Echo." First, she will play a pattern on the drum. Then, each person, one at a time, will repeat the pattern.

1. Here is Cassie's first pattern: XXX-XX-XXX-XX-XXX. Each X represents one beat of the drum. If everyone in the drumming circle plays the pattern correctly, how many beats will be played in total? Use an area model to solve.

2. Ariana is next to create a beat. Here is her pattern: X-XX-XXXX-XXXXXX-XXXXXX-XXXX-XX-X. Kenisha is the 13th drummer in the circle. How many beats will be played after Kenisha has her turn? Use doubling and halving to solve.

3. The drumming circle lasts for 57 minutes. If it ended at 4:14, what time did it begin? Show how you know.



© Julie Bacheso

Chinese New Year

Lunar New Year is the most important holiday celebrated in Asian countries, including China, South Korea, Vietnam, and Singapore. The celebration is also known as the Chinese New Year. It is celebrated sometime in January or February and depends on the Chinese zodiac calendar. The zodiac calendar has a cycle of 12 years. Each year honors one of the 12 zodiac animals: rat, ox, tiger, rabbit, dragon, snake, horse, goat, monkey, rooster, dog, and pig.

The celebration is filled with many festivities and lasts for two weeks. The focus of the holiday is to celebrate a year of hard work and to look forward to a lucky and prosperous year ahead. It is thought that a good start to the lunar year will lead to a lucky year.

Gifts of money are exchanged during Chinese New Year in red envelopes. Red is a symbol of hope and luck. Eating fish is a must for the celebrations. It is believed that fish will bring a surplus of money and luck in the coming year. Other traditional foods eaten during this celebration include dumplings, spring rolls, and rice.

At midnight on New Year's Eve, it is tradition to set off firecrackers as a way of sending out the old year and bringing in the new one. Two traditional dances are performed on New Year's Day. One is the dragon dance, and the other is the lion dance. Families visit temples on New Year's Day and believe it will help smooth the way for a good year ahead.

Let's meet the Wei family. Mr. and Mrs. Wei live in Portland, Oregon, and have two children, Kevin, who is 13, and Ruby, who is 8. You will help the Wei family plan for this year's Chinese New Year.



© Julie Bochorse

Zodiac Calendar

The Chinese believe that each zodiac animal has specific personality traits, and that people will have similar personalities to the zodiac animal of their birth year. People do not celebrate their actual birthday, but instead, they celebrate the year they were born.

1. Ruby will turn 8 years old this year just before Chinese New Year. She was born in the Year of the Snake. How many years will it be before she celebrates the Year of the Snake for the second time since she was born? Show how you know.

2. Kevin was born in the Year of the Dragon. He will be thirteen years old when his family celebrates this new year. He thinks there are ten more years before it will be the Year of Dragon again. Is he correct? Explain.

3. Mr. and Mrs. Wei were born in the same year, the Year of the Tiger. This year, they will celebrate the Year of the Tiger again. Circle two possible ages Mr. and Mrs. Wei could be this year. How do you know?

a. 36 b. 44 c. 38 d. 48 e. 40 f. 42



© Julie Bochose

New Year's Day Parade - 2

The Wei family loves to go to downtown Portland for their annual Chinese New Year Parade. This year's parade is on a Sunday and begins at 2:30 pm. Help them plan their trip to the city.

4. The parade route is 1.25 miles long. The dragon will take about 56 minutes to get from the beginning of Main Street to the end. The Wei family found a good viewing spot that is located at the half-way point on the parade route. If they get to their viewing spot at 2:19 pm, how long will they wait to see the the dragon pass by? Explain how you know.

5. The parade lasts for 93 minutes. At about what time did the parade end? Show your thinking.

6. At 4:15 pm, the Wei family began the 27-minute walk back to their car. They had to wait for 33 minutes before they could exit the parking lot due to all the cars. What time did they leave the parking lot? Use the number line to show your thinking.



© Julie Bochorst

Challenge 1 * Wrapping Gifts

Mr. Bradford loves to wrap gifts. He precisely measures the paper and ribbon and creates beautiful packages to put under the Christmas tree. Help Mr. Bradford wrap the gifts this year.

1. Mr. Bradford bought a new roll of wrapping paper that is 25 feet long and 20 inches wide. He will wrap 5 clothing boxes that are 3.5 inches tall, 12 inches wide, and 24 inches long. He knows the paper can only fit completely around each box in one direction in order to cover all the sides. If he precuts the paper for the 5 boxes and adds one inch to each length to allow for overlap, how many inches long will each piece be? Draw a sketch to illustrate your thinking.

2. Ana made her mother a bracelet for Christmas. She put it in a small jewelry box and wants to wrap it. How much leftover wrapping paper will there be on the roll for her to use? Write your answer in inches.

3. Mr. Bradford adds fabric ribbon to his packages. He needs 108 inches of ribbon for each box. He buys ribbon by the inch at the fabric store. He wants to buy enough ribbon to decorate the 5 boxes he wrapped. Plus, he wants to buy one extra foot of ribbon just to be sure he has enough. How many feet of ribbon does he need to buy?



© Julie Bochese

Holiday Helping Hands

Self-Reflection: Write a reflection of your experience with this project. How did you feel about the math problems and activities? Explain what you found easy to do and any difficulties you had while working on this project. Did you enjoy this activity? Why or why not?

Rate this project.

Drag the checkmark to the statement you most agree with.

I am ready for something harder | It was just right | I found this challenging

© Julie Bochorse

Holiday Helping Hands

Self Reflection Rubric: Drag the circle to one box per row on the rubric that expresses how you rate yourself on this Project Based Learning Activity.

I felt very confident about the math in this project.	I felt good about my ability to complete most of the math in this project.	I felt a lot of the math in this project was too hard for me to do alone.
I understood all the math and did not need help to complete the problems.	I understand most of the math but needed a little help to solve some of the problems.	I understood some of the math but needed help to complete most of the problems.
I easily used many strategies to solve the math problems efficiently.	I needed some help to use the best strategies for solving the math problems.	I had trouble understanding the best way to solve many of the math problems.
I feel I am ready for a harder math project.	I feel I would like to spend more time practicing similar math problems.	I feel I need assistance to work on similar math problems.

© Julie Bochorse

Terms of Use

How Can I Use This Resource?

Thank you for trusting MagiCore. Our mission is to create resources that support teachers and promote student success. Please note that this resource is licensed for use by a single teacher in a classroom setting. If you need to use this resource with more than one teacher and/or across multiple classrooms, additional licenses are available at a discount. You can purchase additional licenses by visiting your TPT "Purchases" page and then selecting "Download Additional Licenses" or by contacting me at julie@magicorelearning.com.



Good to Go



Not O.K.

- Use this resource personally or with your own children
- Use this resource in your own classroom with your students.
- Provide this resource to your students to use at your instruction.
- Print and/or copy for use in your own classroom.
- Provide printed pages to a substitute teacher with the sole purpose of instructing your students.
- Share with your students via a secure document portal or electronic learning platform that requires individual user verification and limits access to only the students in your own classroom (e.g. Google Classroom)
- Review this resource with others with the sole purpose of recommending it to others for purchase, provided you share one of the links below:

  https://magicorelearning.com/

  https://www.teacherspayteachers.com/Store/Magicore

- Share with others to use personally.
- Share with others to use in another classroom.
- Print or copy any page(s) and distribute them to other teachers or other classrooms.
- Publish or host online in a manner where any of the material is accessible to anyone who is not a student in your own classroom., including but not limited to personal, classroom, or district websites that are accessible to the general public.
- Use this resource commercially (e.g. Outschool).
- Publish, sell, or otherwise distribute this product to anyone in manner inconsistent with these terms of use.

© Copyright 2021, 2022. All rights reserved. The unlicensed reproduction or distribution of this product is strictly prohibited. Permission is granted to the original purchaser or licensee to make copies to use with students and/or to assign to students digitally providing it is only available to students assigned directly to the purchaser. Placing this product in any manner that makes it accessible to the general public is strictly forbidden. Commercial use, including but not limited to online or in person classes, is prohibited. Contact julie@magicorelearning.com for commercial licensing information. Sharing without permission or hosting online in a public manner is a violation of the Digital Millennium Copyright Act (DMCA). These terms may be updated at any time. You can see the most up to date Terms of Use at https://magicorelearning.com/terms-of-use.

Let's Connect!

www.magicorelearning.com

https://www.teacherspayteachers.com/Store/magicore

https://www.facebook.com/MagiCoreLearning

https://www.instagram.com/magicorelearning

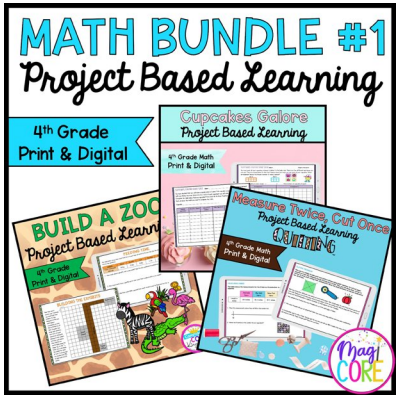
https://www.pinterest.com/magicorelearning/_shop/

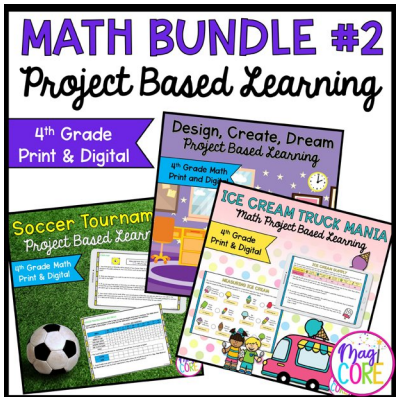
Julie@magicorelearning.com

Looking for more?









Membership Opportunity!

If you love these resources and want access to more, check out my membership opportunity with the MagiCore Club.

[Join my MagiCore Club waitlist!]



MagiCore Club opens its membership doors twice a year to offer teachers all the resources you love, with a membership discount. You can also find support through my custom learning plan.

Find out more https://magicorelearning.com/membership

Credits

Kate Hadfield Designs

graphics from the POND

Whimsy Clips

Sylph Creatives

Artifex
http://www.teacherspayteachers.com/Store/Artifex