RED, WHITE, & BLUE:
PLANNING A PATRIOTIC PARADE
Project Based Learning

PATRIOTIC FESTIVITIES

DUNK TANK

1. To raise money for the Mapleton Police Department, the Chief of Police has agreed to sit in a dunk tank! It costs $3 to get 4 attempts to dunk Police Chief Jefferson. If 6 people try to dunk Police Chief Jefferson in the first hour, how many attempts were made in total? How much money did it cost?

...ief before one was successful. How many

2. Twenty-eight attempts wer...
people tried unsuccessfully...

3. At the beginning of the d...
morning, 22 liters got spl...
refilled with 18 more lite...

4. At the end of the day,...
earnings to pay for th...

PATRIOTIC FESTIVITIES

In addition to the parade, you want to include some other patriotic festivities the townspeople can partake in to celebrate. Answer the following word problems about the different patriotic festivities.

BAKE SALE

1. The Mapleton Elementary School PTA sets up a bake sale. There are 256 red, white, and blue cookies for sale. They are divided onto plates with 8 cookies each. How many plates of cookies are for sale?

32 plates

2. There are 6 blueberry pies for sale. The...

MagiCore

KEEPING TIME

...e table from the previous page to answer the questions below.

...e the T-chart below to determine how long
...kes the local veteran group and scout troop
...complete the parade route. Write your
...swer in the table on the previous page.

Time	Hours/Minutes

KEEPING TIME

Each group marching in the parade takes a different amount of time to complete the para...
to for you to keep track so that groups don't collide mid-parade! Answer the questions be...

Group	Fire Engine #750	Veterans & Scouts	Mapleton HS Cheerleaders	Marching
Start Time	11:47 am	11:54 am	12:02 pm	
End Time	12:32 pm	12:34 pm		12:46 p
Elapsed Time	45 m		...inutes	41 minu

PARADE ARRAYS

...ou have several different groups marching in the parade. The table below shows the different groups who will
...narch in the parade and how many people are in each group. Use the information in the table to answer the
...questions.

	Scout Troop	Mapleton HS ...	Marching Band	Mapleton Police Department
			78	40

...School Cheerleading Squad will

- Realistic learning situations
- Print & Go, Low Prep

PATRIOTIC FESTIVITIES

DUNK TANK

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2. Twenty-eight attempts wer[...] ... f before one was successful. How many people tried unsuccessfully [...]

3. At the beginning of the d[...] morning, 22 liters got sp[...] refilled with 18 more lite[...]

4. At the end of the day[...] earnings to pay for th[...] tank had $59 of dona[...] earn in total today?

PATRIOTIC FESTIVITIES

In addition to the parade, you want to include some other patriotic festivities the townspeople can partake in to celebrate. Answer the following word problems about the different patriotic festivities.

BAKE SALE

1. The Mapleton Elementary School PTA sets up a bake sale. There are 256 red, white, and blue cookies for sale. They are divided onto plates with 8 cookies each. How many plates of cookies are for sale?

   32 plates

2. There are 6 blueberry pies for sale. There are 4 times as many apple pies for sale as blueberry pies. There are 3 times as many apple pies for sale as there are cherry pies. How many cherry pies are for sale?

   8 cherry pies

3. After one hour, the PTA earns $30 at the bake sale. After two hours, they earn $90. After three hours, they earn $270. If the pattern contin[...]

CHALLENGE #1: MARCHING BAND

The marching band consists of several different instruments. The table below shows how much each type of instrument weighs. Make a line plot of the data.

Instrument	Drum	Trumpet	Clarinet	Saxophone
Weight (in kilograms)	$7\frac{1}{2}$	$1\frac{1}{4}$	$1\frac{1}{2}$	$2\frac{1}{4}$
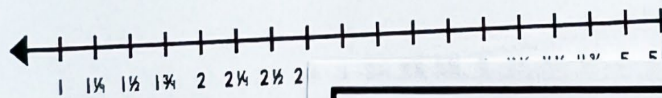
1. Add a title for the line

2. Draw Xs on the line plo

3. What is the difference

   7 3/4 kg

4. How much more does

   5 1/4 kg

CHALLENGE #2: PARADE FLOAT

4. You know that the base of the parade float is rectangular and needs to have an area of 24 squ feet to support all the decorations, but you don't know the exact dimensions. Draw diagrams of four different options for the parade float base. Label the lengths of the sides in feet.

CHALLENGE #2: PARADE FLOAT

You are building a patriotic parade float that will be the grand finale of the parade. The float is made up of many different pieces. Answer the questions below about the parade float's construction.

1. You need to cut these shapes from foam to use on the parade float. Write the name of each shape in the space.
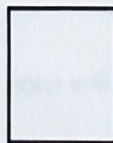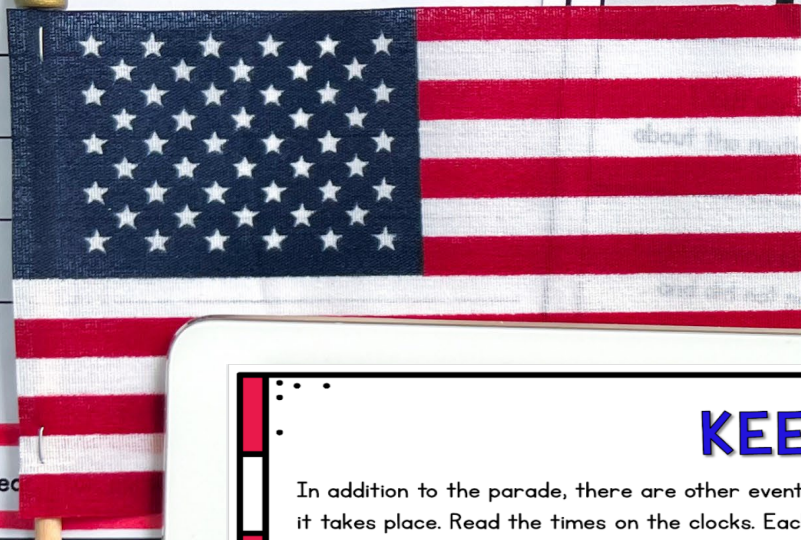
at. You have 22

Miles the Mounta

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 whi... ...this project. Did you enjoy this activity? Why or why not?

I felt very confident about th...

project.

I am rea...

SELF EVALUATION

Circle or shade one box per row on the rubric that expresses how you rate yourself on this Project Based Learning Activity.

+	✓	−
...confident ...in this project.	I felt pretty good about my ability to complete the math in this project.	I felt a lot of the math in this project was too hard for me to do alone.
...of the math ...need help to	I understand most of the math but needed a little help to...	I understood some of the math but...

KEEPING TIME

In addition to the parade, there are other events throughout the day. The shapes below show each event and the time it takes place. Read the times on the clocks. Each time shown is during the PM. Drag and drop the shapes so they are in chronological order.

Pie Eating

6. If you w... ...partici...
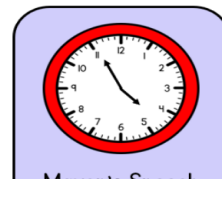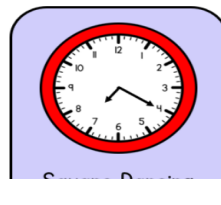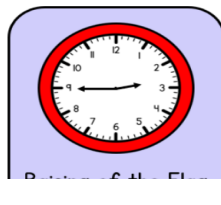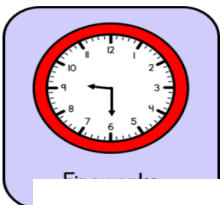
Self Evaluation Reflection & Rubric

KEEPING TIME

Each group marching in the parade takes a different amount of time to complete the parade route. It's important to for you to keep track so that groups don't collide mid-parade! Answer the questions below.

Group	Fire Engine #750	Veterans & Scouts	Mapleton HS Cheerleaders	Marching Band	Mapleton Police Department
Start Time	11:47 am	11:54 am	12:02 pm		12:19 pm
End Time		12:34 pm		12:46 pm	
Elapsed Time			39 minutes	41 minutes	

1. It takes Fire Engine #750 ¾ of an hour to complete the parade route. Fill in the elapsed time in minutes on the table. Then, use the number line below to determine at what time the fire truck finishes the route. Drag the vertical lines to create partitions, the textboxes to label, and the hops to show elapsed time. Write your answer in the table.
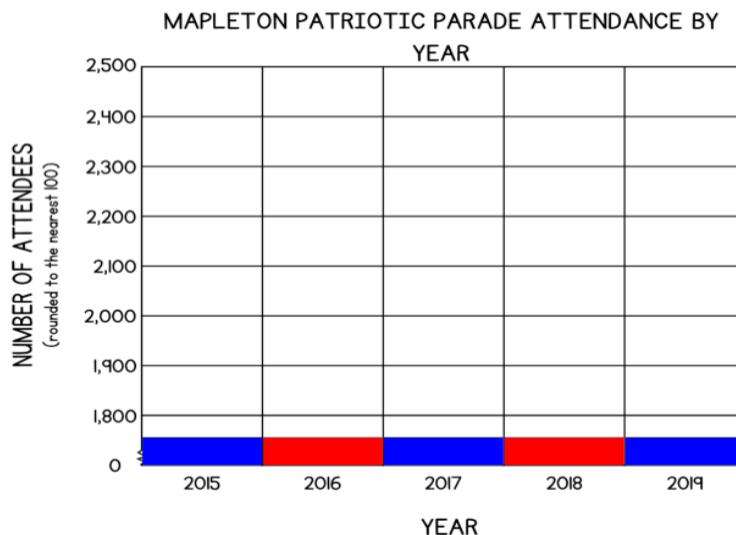
© Julia Beehase

- 4.OA.A.3 Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations
- 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/multiply two two-digit numbers
- 4.NBT.B.6 Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors
- 4.NF.B.3 Understand a fraction a/b with a > 1 as a sum of fractions 1/b.
- 4.NF.C.6 Use decimal notation for fractions with denominators 10 or 100
- 4.NF.C.7 Compare two decimals to hundredths by reasoning about their size
- 4.MD.A.2 Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money
- 4.MD.A.3 Apply the area and perimeter formulas for rectangles in real world and mathematical problems

PARADE ATTENDANCE

You want to determine approximately how many people you can expect to attend the parade. Knowing this will help you organize the parade accordingly and ensure you have enough security and space for everyone to enjoy the parade safely. The table below shows the parade attendance by year. First, round the attendance for each year to the nearest hundred. Then, plot the rounded attendance on the table on the bar graph by clicking on each colored bar and dragging to resize.

Year	Attendance	Attendance (rounded to nearest 100)
2015	1,895	
2016	2,022	
2017	2,170	
2018	2,339	
2019	2,454	

MAPLETON PATRIOTIC PARADE ATTENDANCE BY YEAR

NUMBER OF ATTENDEES (rounded to the nearest 100)

Y-axis: 2,500 / 2,400 / 2,300 / 2,200 / 2,100 / 2,000 / 1,900 / 1,800 / 0

X-axis: 2015 / 2016 / 2017 / 2018 / 2019

YEAR

FOR THE TEACHER

RED, WHITE, AND BLUE: PLANNING A PATRIOTIC PARADE is a project-based learning task that involves using fourth grade math standards to plan a patriotic holiday parade. It was created for students in fourth grade. The following standards are addressed:

- 4.OA.A.3 Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations
- 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
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- 4.MD.A.2 Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money
- 4.MD.A.3 Apply the area and perimeter formulas for rectangles in real world and mathematical problems

DIRECTIONS:

1. Assign students to work alone or in small groups.
2. Preview the activity with your students.
3. Allow students class time to complete the activity. This can span several days.
4. Allow students an opportunity to complete extra challenge activities (optional).
5. Allow students to complete the self-reflection and evaluation rubric.
6. Allow students an opportunity to share their completed projects.

RED, WHITE, AND BLUE:
PLANNING A PATRIOTIC PARADE

You have been hired plan a festive, patriotic parade in your hometown of Mapleton, USA! It is your job to organize the groups marching in the parade, set the course of the parade, analyze parade attendance, plan fun patriotic festivities like a bake sale, dunk tank, and fireworks, and assure everything is timed to perfection!

Here are your tasks:

- Read through the entire packet before beginning.

- Calculate and compare the lengths of possible parade routes.

- Use multiplication and division to organize the groups marching in the parade.

- Answer questions about the schedule and timing of groups marching in the parade.

- Analyze data about how many people attend the parade.

- Solve one- and two-step word problems about patriotic festivities.

- (Optional) Complete the challenge pages.

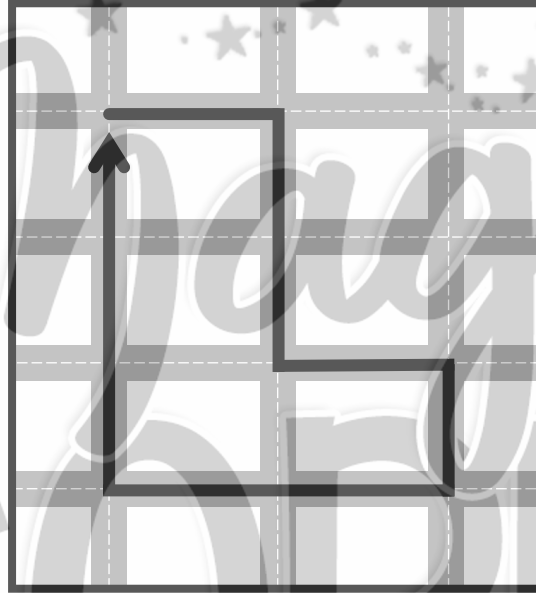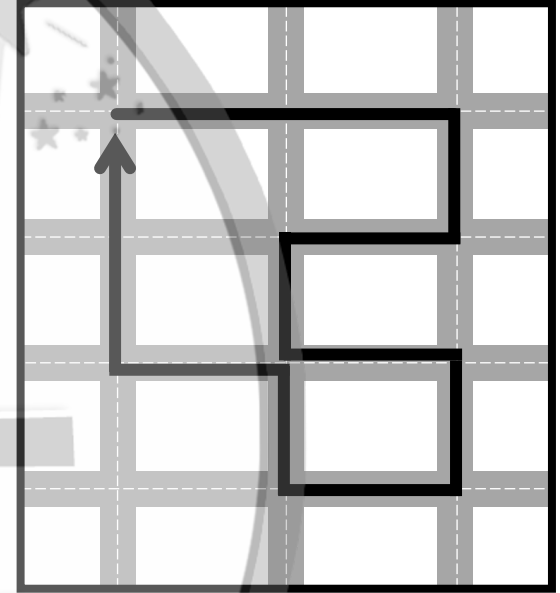- Complete the self-reflection and evaluation rubric.
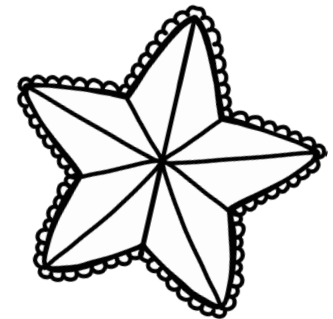
PARADE ROUTE

Your first task is to determine the ideal route for the parade through the streets of Mapleton. Three proposed routes are shown on the maps below. Answer the questions.
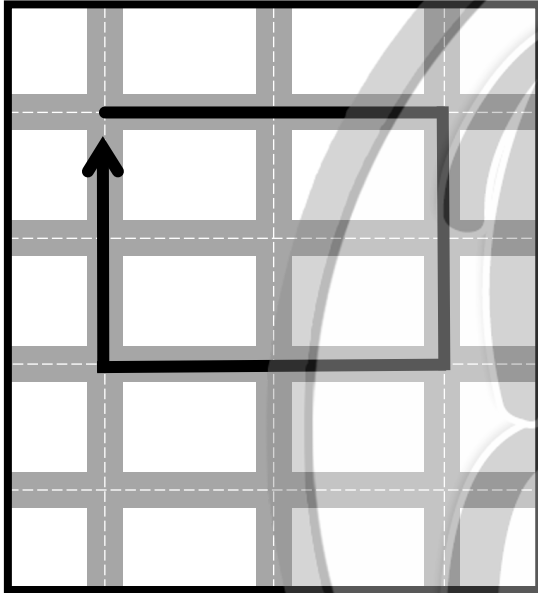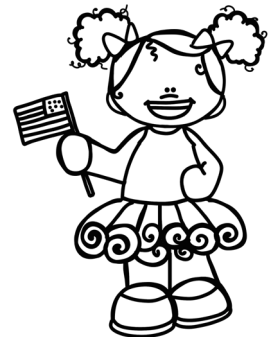

ROUTE A

ROUTE B

ROUTE C

1. You want to determine the length of each possible parade route. To do so, will you find the area or perimeter of the shapes in the maps? Explain.

PARADE ROUTE

Answer the questions about the parade routes below.

5. Compare the lengths of the different parade routes. Fill in the blanks with the correct symbol < , > , = .

Route A ⃝ Route B   Route B ⃝ Route C   Route C ⃝ Route A

6. You want to choose the longest parade route. Which parade route do you choose?

7. Find the difference in length between your chosen parade route and the second longest parade route. Express the difference as a fraction.

8. You know the length of your chosen parade route in miles, but you want to find out how many feet long the parade route is. There are 5,280 feet in each mile. Use multiplication to find the length in feet of your chosen parade route.

PARADE ARRAYS

You have several different groups marching in the parade. The table below shows the different groups who will march in the parade and how many people are in each group. Use the information in the table to answer the questions.

Group	Legion of Local Veterans	Scout Troop #45	Mapleton HS Cheerleaders	Marching Band	Mapleton Police Department
# of People Marching	24	24	22	78	40

1. The marching band needs to march in 6 equal rows. How many people will march in each row? Solve using division.

2. The Mapleton High School Cheerleading Squad will march in 4 equal columns. Any leftover members will walk behind the group and throw candy to the crowd. How many cheerleaders will be candy throwers?

KEEPING TIME

Each group marching in the parade takes a different amount of time to complete the parade route. It's important to for you to keep track so that groups don't collide mid-parade! Answer the questions below.

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1. It takes Fire Engine #750 ¾ of an hour to complete the parade route. Fill in the elapsed time in minutes on the table. Then, use the number line below to determine at what time the fire truck finishes the route. Write your answer in the table.
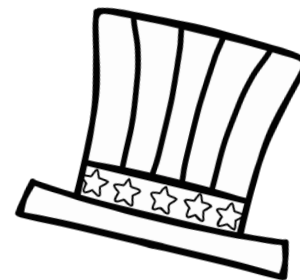
6. The mayor of Mapleton is also participating in the parade. Mayor Montgomery starts riding through the parade route in a convertible 4 minutes after the band begins marching. At what time does Mayor Montgomery begin the parade route?

7. After riding through the parade route for $\frac{1}{4}$ of an hour, Mayor Montgomery stops to take pictures with some local citizens. She spends 23 minutes taking pictures and shaking hands. Then, she finishes the rest of the route $\frac{1}{3}$ of an hour later. How long does it take Mayor Montgomery to finish the parade route?

8. Use the number line below to calculate at what time Mayor Montgomery completes the parade route.
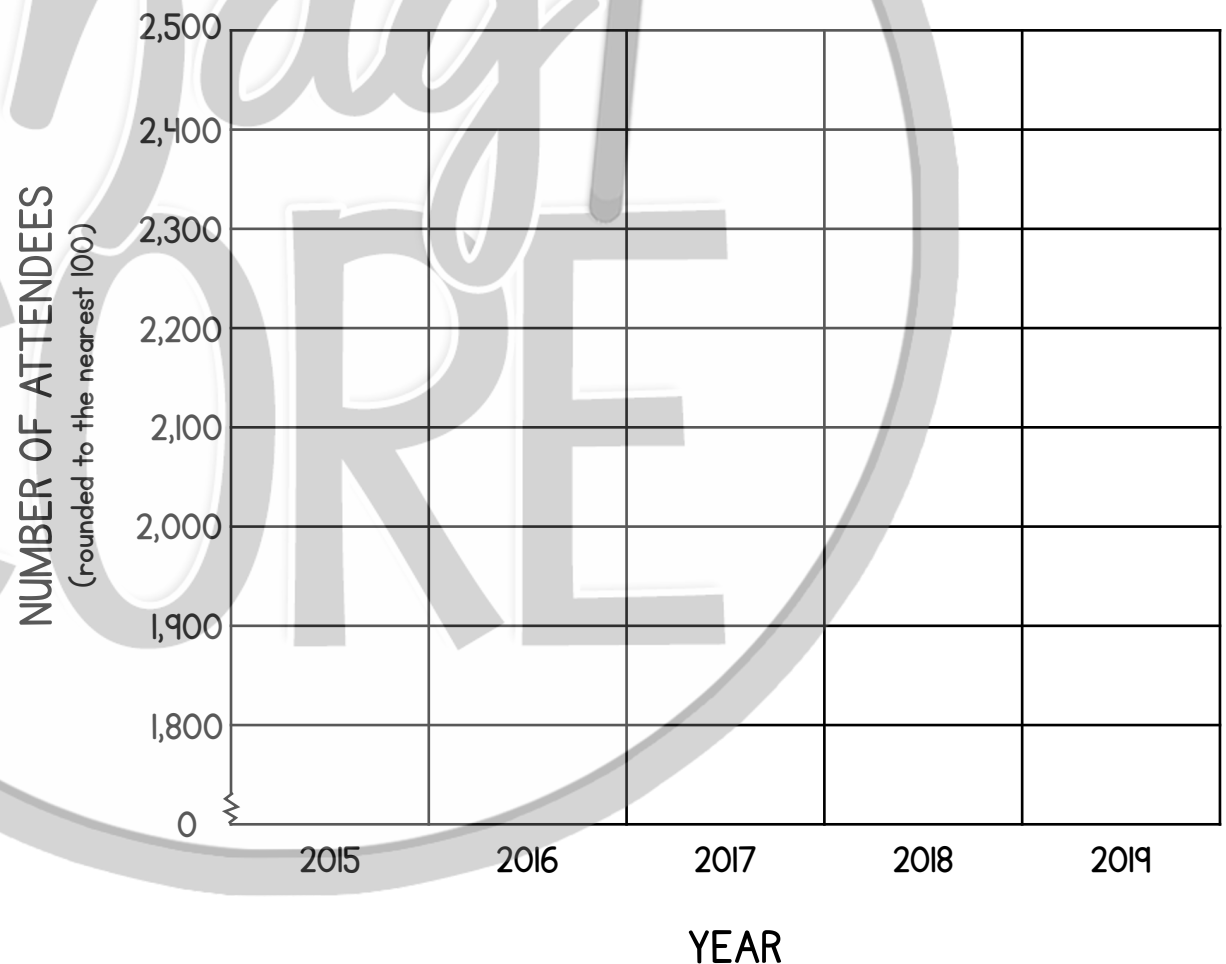
PARADE ATTENDANCE

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MAPLETON PATRIOTIC PARADE ATTENDANCE BY YEAR

NUMBER OF ATTENDEES (rounded to the nearest 100)

2,500
2,400
2,300
2,200
2,100
2,000
1,900
1,800
0

2015 2016 2017 2018 2019

YEAR

PARADE ATTENDANCE

The information on the clipboard below shows how many people of different ages attended the parade in 2019. Round each number on the clipboard to the nearest ten and hundred. Fill in the table with your rounded numbers.
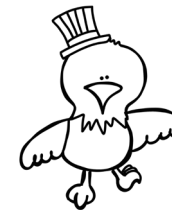
Age (in years)	# of People
0-12	445
13-18	698
19-30	243
31-64	507
65+	561

| Age (in years)	Rounded to Nearest Ten	Rounded to Nearest Hundred
0 – 12		
13– 18		
19 – 30		
31 – 64		
65+		

PATRIOTIC FESTIVITIES

PIE EATING CONTEST

The people of Mapleton are invited to participate in the annual pie eating contest! Contestants compete to see who can eat the most apple pie in 5 minutes. The table below shows each contestant and how much pie they ate.

| Contestant	Amy	Jeremy	Khalid	Meredith	Paolo
# of Pies Consumed	$1\frac{1}{8}$	$1\frac{3}{8}$	$1\frac{2}{8}$	$\frac{7}{8}$	$\frac{5}{8}$

1. Write the names of the contestants in order of the amount of pie they ate from least to greatest.

2. How much more pie did Khalid eat than Meredith?

3. How many pies did all the contestants eat in total?

4. The winner last year was named Peter, and he ate $1\frac{2}{3}$ pies. Did Peter eat more or less pie than this year's winner? Show with a model.

PATRIOTIC FESTIVITIES
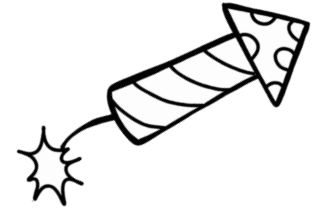
FIREWORKS

1. For a grand conclusion to the day, there will be a fireworks show after sundown. You have a choice between hiring Fernando's Fireworks Emporium or Fire-Tastic Fireworks to be in charge of the fireworks show. Fernando's charges a flat rate of $1,000 per fireworks show. Fire-Tastic Fireworks charges $135 per minute. If you want an 8-minute long fireworks show, which is a better deal? Explain.

2. During the 8-minute long show, there will be 48 fireworks set off each minute except for in the last minute, when there will be 124 fireworks set off. How many fireworks will be used in the show in total?

3. There are 9 fireworks in each box. How many boxes of fireworks will be needed for the show? Will there be any leftover fireworks in the last box?

4. To keep the spectators safe, they aren't allowed to be within a certain zone where debris is likely to fall. This is called the "safety zone," as shown in the diagram. What is the area of the "safety zone"? What is the perimeter of the "safety zone"?
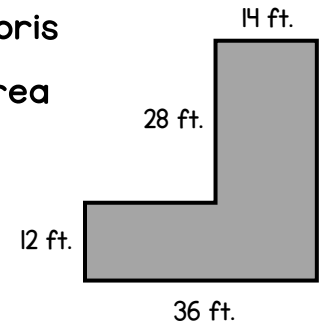
14 ft.

28 ft.

12 ft.

36 ft.

CHALLENGE #1: MARCHING BAND

The marching band consists of several different instruments. The table below shows how much each type of instrument weighs. Make a line plot of the data.

Instrument	Drum	Trumpet	Clarinet	Saxophone	Flute	Trombone	French Horn	Cymbal	Tuba
Weight (in kilograms)	$7\frac{1}{2}$	$1\frac{1}{4}$	$1\frac{1}{2}$	$2\frac{1}{4}$	1	$2\frac{3}{4}$	8	2	$8\frac{3}{4}$

1 1¼ 1½ 1¾ 2 2¼ 2½ 2¾ 3 3¼ 3½ 3¾ 4 4¼ 4½ 4¾ 5 5¼ 5½ 5¾ 6 6¼ 6½ 6¾ 7 7¼ 7½ 7¾ 8 8¼ 8½ 8¾ 9

_____

1. Add a title for the line plot on the line below it.

2. Draw Xs on the line plot to plot the data in the table.

3. What is the difference in weight between the lightest instrument and the heaviest?

4. How much more does a French horn weigh than a trombone?

© Julie Bochese

CHALLENGE #2: PARADE FLOAT

You are building a patriotic parade float that will be the grand finale of the parade. The float is made up of many different pieces. Answer the questions below about the parade float's construction.

1. You need to cut these shapes from foam to use on the parade float. Write the name of each shape in the space.

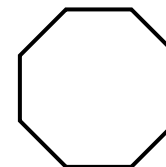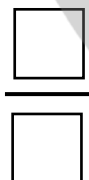_____   _____   _____   _____   _____   _____   _____
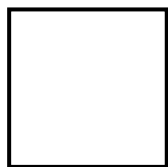
2. To fit in with the patriotic theme, you want to paint all the shapes above half in red and half in blue. Draw a line of symmetry in each shape above.

3. You paint $\frac{1}{2}$ of each shape red and $\frac{1}{2}$ blue. Write three equivalent fractions for $\frac{1}{2}$ and the decimal form.

equivalent fractions   decimal

CHALLENGE #2: PARADE FLOAT

4. You know that the base of the parade float is rectangular and needs to have an area of 24 square feet to support all the decorations, but you don't know the exact dimensions. Draw diagrams of four different options for the parade float base. Label the lengths of the sides in feet.

5. You have some flag-patterned trim you want to wrap around the base of the float. You have 22 feet of trim. Which of your diagrams above would this trim fit around?

6. You decide to add a small platform at the front of the parade float base where Miles the Mountain Lion, Mapleton's town mascot, can ride. The platform measures 3 feet wide by 2 feet deep. If this is affixed to the parade float base, what is the new area of the base?

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

Circle the statement you most agree with.

I am ready for something harder.   This was just right.   I found this very challenging.

SELF EVALUATION

Circle or shade 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 pretty good about my ability to complete 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 of 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

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Not O.K.

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

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- Share with others to use in another classroom.
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Julie@magicorelearning.com

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ESCAPE ROOM BUNDLE
Reading Comprehension
4th – 5th Grade
Main Idea
Wizarding Escape Room
Context Clues
Pirate Themed Escape Room
Text Features
Print and Digital

MATH BUNDLE #1
Project Based Learning
4th Grade
Print & Digital
Cupcakes Galore
Project Based Learning
BUILD A ZOO
Project Based Learning
Measure Twice, Cut Once
Project Based Learning

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Project Based Learning
4th Grade
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