

NORTH POLE

MATH PROJECT

THE NORTH POLE CAFETERIA

It's lunch time at the North Pole Cafeteria! Take a look at today's menu.



THE NORTH POLE CAFETERIA
Lunch Specials

<p>Lunch Items</p> <p>grilled cheese sandwich.....\$1.50</p> <p>peppermint pizza (1 slice)\$3.25</p> <p>pancakes with syrup.....\$2.75</p> <p>spaghetti.....\$4.50</p> <p>peanut butter and jelly sandwich.....\$2.80</p> <p>veggies and dip.....\$1.15</p> <p>hamburger soup.....\$3.25</p>	<p>Desserts</p> <p>sugar cookie75¢</p> <p>candy cane cake.....\$1.80</p> <p>fruit salad\$2.75</p> <p>Beverages</p> <p>hot chocolate\$1.25</p> <p>orange juice\$1.50</p> <p>apple juice\$1.50</p>
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Four elves arrive at the cafeteria for lunch. They all want at least one lunch item, one dessert, and one beverage, but they need your help to decide! In each box, write the items that you would choose for each elf.

Holly Elf

- has \$10.00 to spend
- doesn't like fruit or vegetables

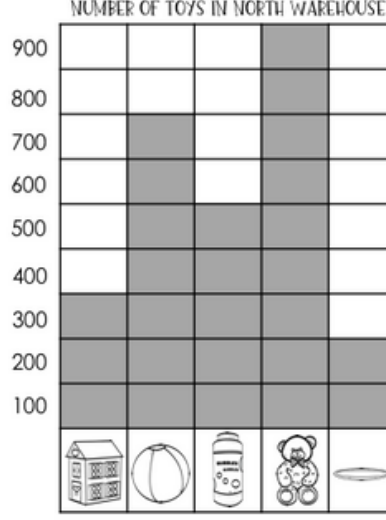
Draw the bills and coins that she could use to pay:

How much change will she get back?

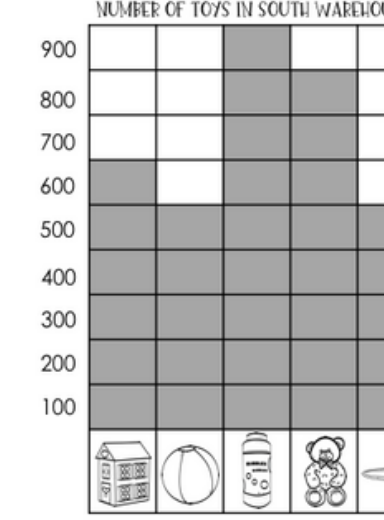
TOY INVENTORY

The elves are doing inventory of the toys. These graphs show the total number of toys in the North Warehouse and the South Warehouse.

NUMBER OF TOYS IN NORTH WAREHOUSE




NUMBER OF TOYS IN SOUTH WAREHOUSE



Use this data to fill in the chart below.

TOTAL TOYS AT NORTH AND SOUTH WAREHOUSES	
doll houses	
beach balls	
bubbles	

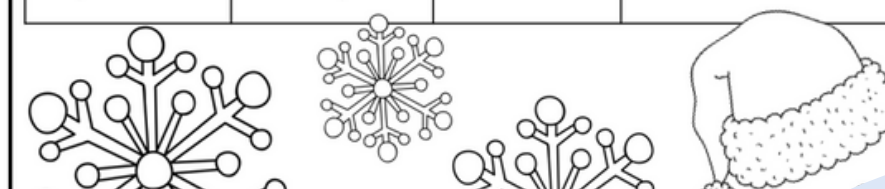
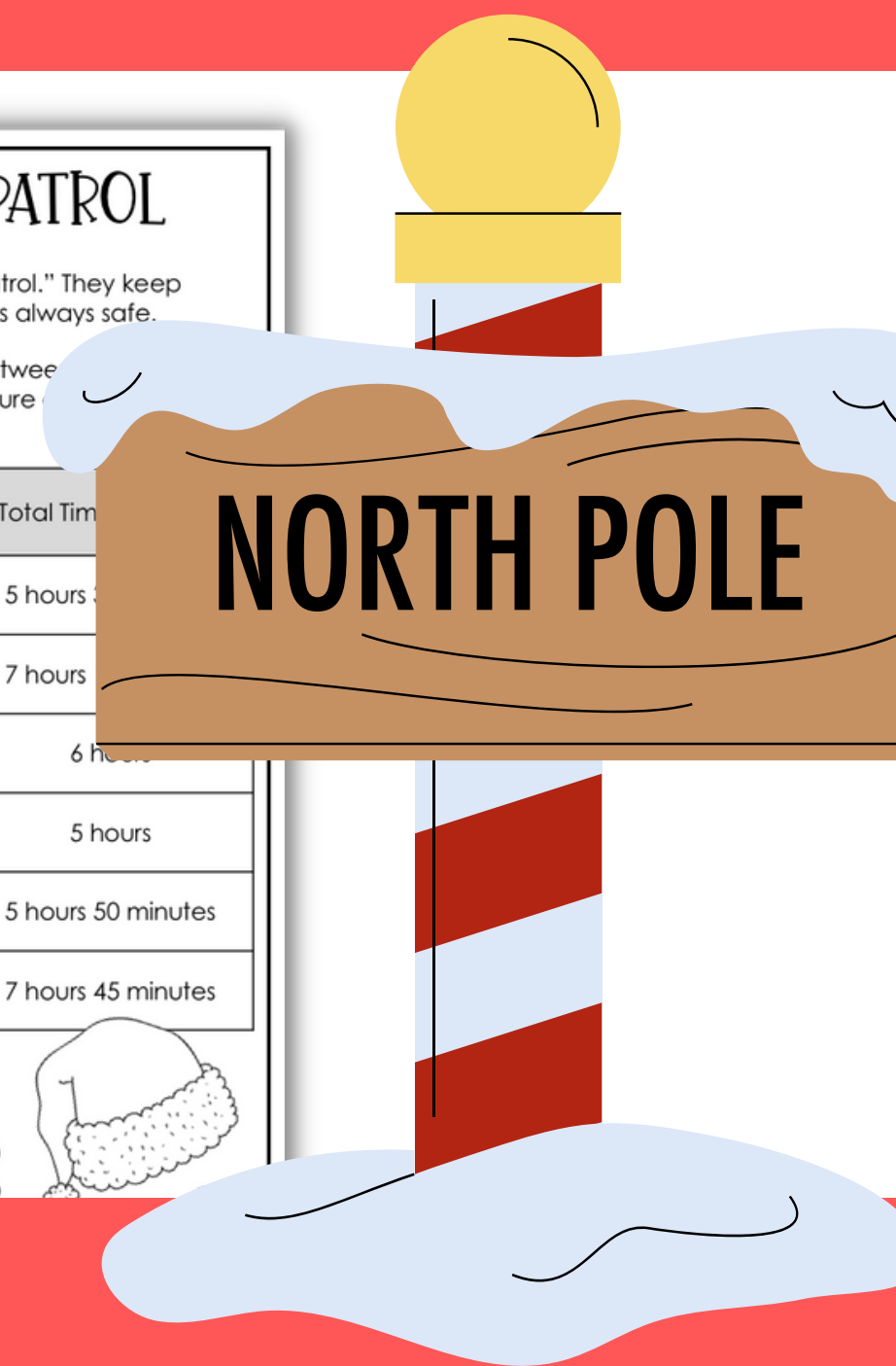


THE NORTH POLE PATROL

A small group of elves is known as "The North Pole Patrol." They keep watch over Santa's Workshop and make sure that it is always safe.

This chart shows the six elves that will be patrolling between 9:00 pm today. All of their shifts are a bit different. Figure out the total patrol time for each elf.

Name	Patrol Start Time	Patrol End Time	Total Time
Jingles	9:00 am		5 hours
Chippy	12:00 pm		7 hours
Elfie	3:00 pm		6 hours
Max	4:00 pm		5 hours
Tinsel	11:00 am		5 hours 50 minutes
Jolly	1:00 pm		7 hours 45 minutes

This **Christmas Math Project** is designed to help your students practice essential skills like

skip counting

area & perimeter

graphing & data interpretation

elapsed time

basic operations

money

and much more

with a fun holiday theme that will keep them begging for more!



THE NORTH POLE CAFETERIA

It's lunch time at the North Pole Cafeteria! Take a look at today's menu.

THE NORTH POLE CAFETERIA Lunch Specials	
Lunch Items	Desserts
grilled cheese sandwich..... \$1.50	sugar cookie..... 75¢
peppermint pizza (1 slice)	
pancakes with syrup.....	
spaghetti.....	
peanut butter and jelly sandwich	
veggies and dip.....	
hamburger soup.....	

Another group of 5 elves arrive at the cafeteria! Each of them has decided to try something different from the menu. Use the clues to figure out which elf ordered which lunch item!

	Peppermint Pizza	Grilled Cheese Sandwich	Spaghetti	Pancakes with Syrup	Peanut Butter and Jelly Sandwich
Blizzard					
Jack					
Scout					
Buddy					
Coco					

Four elves arrive at the cafeteria, one dessert, and one beverage box. Write the items that you would order.

Holly Elf

- has \$10.00 to spend
- doesn't like fruit or vegetables

Clues:

- Buddy doesn't like pizza.
- Blizzard and Coco don't want a sandwich.
- Coco only has \$3.00 to spend.
- Scout would like to have a sandwich.
- Jack only has \$2.00 to spend.

THE NORTH POLE EXPRESS ROUTE

The North Pole Express travels around the North Pole, taking passengers from one place to the next. Use the instructions on the next page to mark the route for the North Pole Express.

THE ANNUAL MYSTERY PICTURE

Every Christmas, the elves make a special mystery picture in the snow for Santa. Then when Santa takes flight on Christmas Eve, he gets to see it from up in the air! It's one of Santa's favorite parts of Christmas Eve!

Use the clues below to shade the elves' mystery picture. What could it be?

You'll need:

Figure out the missing numbers. Shade those numbers.

$6 \times __ = 60$	$54 \div __ = 72$	$39 \div __ = 13$
$100 - 15 = __$	$6 \times 6 = __$	$20 \div __ = 4$
$257 - 240 = __$	$2 \times 10 = __$	$99 \div __ = 9$
$225 - 190 = __$	$128 - 91 = __$	

Figure out the missing numbers. Shade those numbers.

$7 \times __ = 42$	$10 \times __ = 70$	$119 \div __ = 7$
$29 + 16 = __$	$12 \times 4 = __$	$56 \div __ = 8$
$5 \times 5 = __$	$19 \div __ = 62$	$97 - __ = 38$
$__ - 3 = 9$	$89 - __ = 30$	$3 \times 8 = __$

Figure out the missing numbers. Shade those numbers.

$100 - __ = 46$	$200 - __ = 143$	$25 \div __ = 5$
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THE NORTH POLE PATROL SCHEDULE

A small group of elves is known as "The North Pole Patrol" and they watch over Santa's Workshop and make sure that everything is running smoothly. This chart shows the six elves that will be patrolling the workshop from 9:00 am to 9:00 pm today. All of their shifts are a bit different. How long is each elf's shift?

Name	Patrol Start Time	Patrol End Time
Jingles	9:00 am	
Chippy	12:00 pm	
Elfie	3:00 pm	
Max	4:00 pm	
Tinsel	11:00 am	
Jolly	1:00 pm	

Use the schedule from the last page to make a timeline. How can you show all of the elves' shifts on this timeline? One is done for you.

Answer the questions:

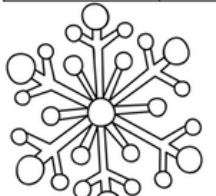
- What time of the day has the most elves on patrol?
- How much longer is Jolly's shift than Jingles' shift?
- The elves take a short break every 2 hours. During his shift, how many breaks will Chippy take?

How about Tinsel?

LETTERS TO SANTA

Each day in December, a big truck load of letters to Santa is delivered to the North Pole. The chart below shows how many letters were delivered each day. Transfer this data to the bar graph.

Day	Number of Letters
Sunday	1500
Monday	3300
Tuesday	2500
Wednesday	3400
Thursday	1000
Friday	2250
Saturday	2000



Nine different math tasks are included.

Your students will...



Help Santa with the new toy room design

Skills: area, perimeter

REINDEER TRAINING


The reindeer spend all year getting ready for Christmas Eve. It's a long trip and requires them to be in excellent shape! December is when things really get serious!

Rudolph will need to train the hardest, since he is the lead reindeer. He will need to **double** the distance that he flies. He will also **double** the weight that he carries. Complete the chart.

TRAINING SCHEDULE:

- RUDOLPH

Day	Distance to Fly
December 13	150 km
December 14	
December 15	
December 16	
December 17	
December 18	
December 19	
December 20	
December 21	
December 22	
December 23	



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The other reindeer also must train for the big night, but they won't need to be quite as strong as Rudolph.

The other reindeer will increase their flight distance by 350 km each day. They will increase the weight that they carry by 125 kg per day. Complete the chart.

TRAINING SCHEDULE:

- DASHER
- DANCER
- PRANCER
- VIXEN
- COMET
- CUPID
- DONDER
- BLITZEN

Day	Distance to Fly	Weight to Carry
December 13	250 km	35 kg
December 14		
December 15		
December 16		
December 17		
December 18		
December 19		
December 20		



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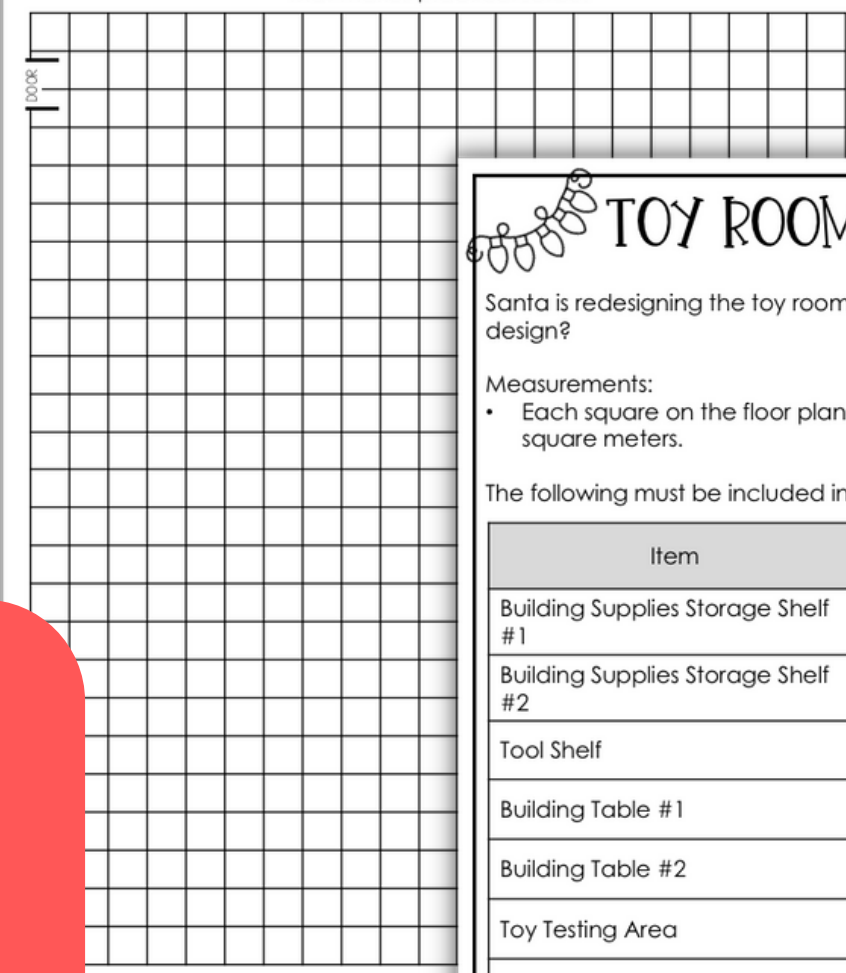
Help the reindeer plan their December training schedule

Skills: increasing patterns, skip counting

TOY ROOM FLOOR PLAN

1 square = 2 meters by 2 meters

Paste the items on the floor plan. Be sure that they are arranged in a way that makes practical sense!



TOY ROOM FLOOR PLAN

Santa is redesigning the toy room in his workshop. Can you help him with a design?

Measurements:

- Each square on the floor plan is 2 meters by 2 meters and represents 4 square meters.

The following must be included in the workshop:

Item	Length (in meters)	Width (in meters)	Total Area
Building Supplies Storage Shelf #1	20 m	2 m	
Building Supplies Storage Shelf #2	20 m	2 m	
Tool Shelf	10 m	1 m	
Building Table #1	10 m	4 m	
Building Table #2	10 m	4 m	
Toy Testing Area	30 m	6 m	
Supervisor's Corner	6 m	6 m	
Toy Loading Area	10 m	4 m	

Be sure that you leave enough space for the elves to move between tables and shelves.

Think about layout – where does it make sense for things to go?

"Back to work!" the elf supervisor called. "We have a lot of toys to make and not much time to make them!"

Luckily, the elves could work fast. Within the hour, those 50 elves made 100 skateboards, 125 kitchen sets, 63 pogo sticks, 218 miniature trains, and 209 doll dresses!

Over the next hour, they had never worked that amount of toys.

They had never worked that amount of toys.

Near the end of the count up the toys still needed to make.

"Okay," he called. "We have 460 in good!"

"We need 430 pogo Dash made 87, and need a few more."

"Now let's check the hand if you were how many you made."

"I made 75!" yelled Peppermint. "Five of us!" said Ruby.

"Perfect!" said the we will have enough.

All of the elves checked great day in Santa's workshop.

How many toys did they make in all within the hour?

How many elves are there?

HOW MANY TOYS?

There are 5 groups of 10 elves hard at work in Santa's Workshop.

How many toys did they make in all within the hour?

TOY CALCULATOR

Now the elves must figure out how many more to make before Christmas. Transfer the data that you have into the chart below.

Item	How many do we have?	How many do we need in all?
doll houses		1400
beach balls		2005
bubbles		1875
teddy bears		2500
hula hoops		1385

Altogether, how many more toys need to be made?

There are 10 elves who will work together to make the toys needed. If they can each make 100 toys per day, how long will it take them to make all of the toys that are needed?

TOY INVENTORY

The elves are doing inventory of the toys. These graphs show the total number of toys in the North Warehouse and the South Warehouse.

NUMBER OF TOYS IN NORTH WAREHOUSE

NUMBER OF TOYS IN SOUTH WAREHOUSE

Use this data to fill in the chart below.

TOTAL TOYS AT NORTH AND SOUTH WAREHOUSES	
doll houses	
beach balls	
bubbles	
teddy bears	
hula hoops	

Help Mrs. Claus plan the ingredient list for the Christmas Eve meal

Skills: fractions

Work along with the elves to figure out toy inventory

Skills: graphing and data interpretation, addition, subtraction, problem-solving

CHRISTMAS EVE MEAL

Mrs. Claus has invited some guests over for the annual Christmas Eve meal. Counting her and Mr. Claus, there will be 20 people in all. Figure out how much of each item she will need to cook. Use the next page to help you figure it out.

Item	Amount Needed Per Person	Amount Needed In All
Turkey	200 grams	
Mashed Potatoes	1 1/2 cups	
Gravy	100 milliliters	
Cranberry Sauce	1/4 cup	
Stuffing	3/4 cup	
Mixed Vegetables	1/2 cup	
Cranberry Spinach Salad	2 cups	
Cherry Cheesecake (1 cheesecake = 8 pieces)	1 piece	

Need help figuring out the amounts for 20 people? Use this space to help.

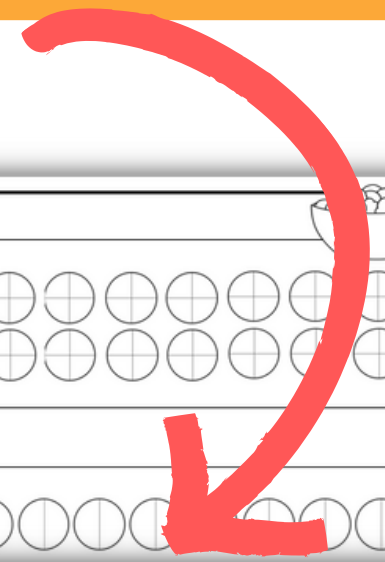
Stuffing

Mixed Vegetables

Turkey

Mashed Potatoes

Gravy




Organize and interpret the Christmas letter data

Skills: graphing and data

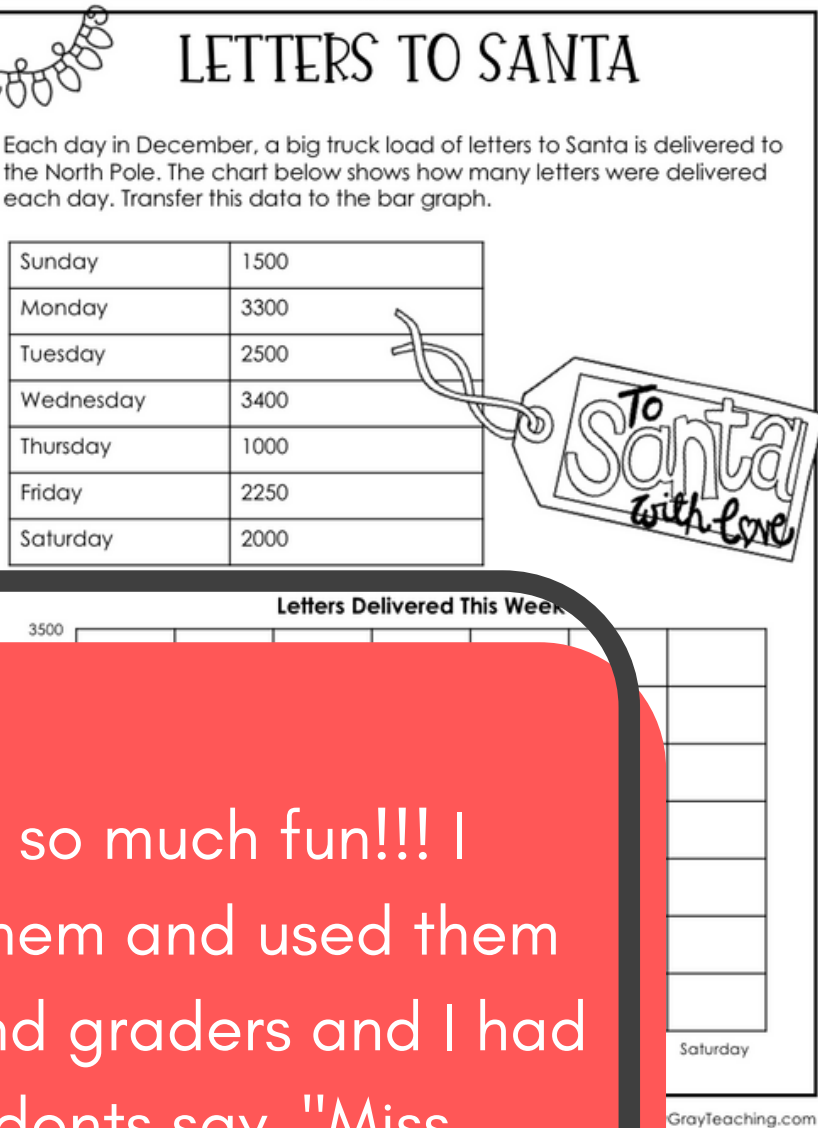
Answer the questions :

1. How many letters were delivered from Tuesday to Thursday?
2. How many more letters were delivered on Friday and Saturday than on Wednesday?
3. When the letters arrive at Santa's Workshop, they are sorted into bins. Each bin holds 5000 letters. How many bins will be needed for the letters from this week?

Now transfer the data to the picture graph. Each small square represents 400 letters.  = 400

Day	Letters Delivered
Sunday	1500
Monday	3300
Tuesday	2500
Wednesday	3400
Thursday	1000
Friday	2250
Saturday	2000

Letters Delivered This Week

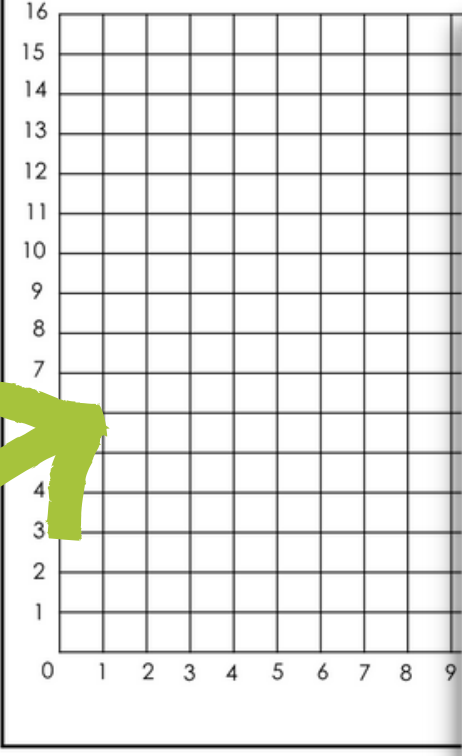


GrayTeaching.com

These are so much fun!!! I scaffolded them and used them with my second graders and I had many students say, "Miss Lampshire, why can't math be like this everyday?"

THE NORTH POLE EXPRESS ROUTE

The North Pole Express travels around the North Pole, taking passengers from one place to the next. Use the instructions on the next page to mark the route for the North Pole Express.



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THE NORTH POLE PATROL

A small group of elves is known as "The North Pole Patrol." They keep watch over Santa's Workshop and make sure that it is always safe.

This chart shows the six elves that will be patrolling between 9:00 am and 9:00 pm today. All of their shifts are a bit different. Figure out the patrol end time for each elf.

Name	Patrol Start Time	Patrol End Time	Total Time on Patrol
Jingles	9:00 am		5 hours 35 minutes
Chippy	12:00 pm		7 hours 15 minutes
Elfie	3:00 pm		6 hours
Max	4:00 pm		5 hours
Tinsel	11:00 am		5 hours 50 minutes
Jolly	1:00 pm		7 hours 45 minutes

Plan the elves' patrol schedule

Skills: elapsed time, converting minutes to hours

Help each person decide what to have for lunch at the North Pole Cafeteria

Skills: money, operations

THE NORTH POLE CAFETERIA
It's lunch time at the North Pole Cafeteria! Take a look at today's menu.

THE NORTH POLE CAFETERIA Lunch Specials

Lunch Items	Desserts
grilled cheese sandwich.....\$1.50	sugar cookie.....75¢
peppermint pizza (1 slice).....\$3.25	candy cane cake.....\$1.80
pancakes with syrup.....\$2.75	fruit salad.....\$2.75
spaghetti.....	
peanut butter and jelly.....	
veggies and dip.....	
hamburger soup.....	

Four elves arrive at the cafeteria. Each elf has decided to order one dessert, and one beverage. Write the items that each elf ordered in the box.

Holly Elf
• has \$10.00 to spend
• doesn't like fruit or vegetables

Another group of 5 elves arrive at the cafeteria! Each of them has decided to try something different from the menu. Use the clues to figure out which elf ordered which lunch item!

	Peppermint Pizza	Grilled Cheese Sandwich	Spaghetti	Pancakes with Syrup	Peanut Butter and Jelly Sandwich
Blizzard					
Jack					
Scout					
Buddy					
Coco					

- Buddy doesn't like pizza.
- Blizzard and Coco don't want a sandwich for lunch.
- Coco only has \$3.00 to spend.
- Scout would like to have a sandwich.
- Jack only has \$2.00 to spend.

THINK FAST!
Can you think of two other menu items that would be perfect for the North Pole Cafeteria?

Figure out the missing numbers. Shade those boxes **LIGHT GREEN**:

$10 \times 10 =$ _____	$25 + 26 =$ _____	$45 + 46 =$ _____	$45 - 6 =$ _____
$9 \times 8 =$ _____	$250 - 160 =$ _____	$110 - 11 =$ _____	$21 + _____ = 100$
$25 + _____ = 36$	$39 + _____ = 109$	$_____ \times 8 = 24$	$50 - 22 =$ _____
$200 - _____ = 119$	$13 \times _____ = 13$	$11 \times 2 =$ _____	$50 + 48 =$ _____
$6 \times 2 =$ _____	$132 - 100 =$ _____		
$35 + 45 =$ _____	$6 \times _____ =$ _____		
$8 \times _____ = 16$	$30 - _____ =$ _____		
$100 - 71 =$ _____	$38 + 33 =$ _____		
$11 + 12 =$ _____	$50 + _____ =$ _____		
$3 \times 10 =$ _____	$100 - _____ =$ _____		

Figure out the missing numbers. Shade those boxes **LIGHT GREEN** and **DARK GREEN**:

$12 + _____ = 107$	$150 + _____ =$ _____
$31 + 34 =$ _____	$43 + 23 =$ _____
$_____ - 15 = 53$	$146 - _____ =$ _____

Shade the following boxes **LIGHT GREEN** and **DARK GREEN**:

42	43	44
45	46	47
48	49	50

THE ANNUAL MYSTERY PICTURE

Every Christmas, the elves make a special mystery picture in the snow for Santa. Then when Santa takes flight on Christmas Eve, he gets to see it from up in the air! It's one of Santa's favorite parts of Christmas Eve!

Use the clues below to shade the elves' mystery picture on the next page. What could it be?

You'll need:

- light green crayon
- dark green crayon
- yellow crayon
- black crayon
- dark green crayon
- orange crayon
- beige crayon

Figure out the missing numbers. Shade those boxes **RED**:

$6 \times _____ = 60$	$54 + _____ = 72$	$39 + _____ = 72$	$2 \times 8 =$ _____
$100 - 15 =$ _____	$6 \times 6 =$ _____	$20 + _____ = 58$	$120 - 34 =$ _____
$257 - 240 =$ _____	$2 \times 10 =$ _____	$99 + _____ = 133$	$5 \times 3 =$ _____
$225 - 190 =$ _____	$128 - 91 =$ _____		

Figure out the missing numbers. Shade those boxes **DARK GREEN**:

$7 \times _____ = 42$	$10 \times _____ = 70$	$119 + _____ = 128$	$8 \times _____ = 64$
$56 - _____ = 30$	$20 + _____ = 72$		
$97 - _____ = 50$	$4 \times 11 =$ _____		
$3 \times 8 =$ _____	$100 - 54 =$ _____		

Shade those boxes **YELLOW**:

$25 + 31 =$ _____	$250 + _____ = 305$
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Help the elves create their mystery picture

Skills: basic operations, hundred chart

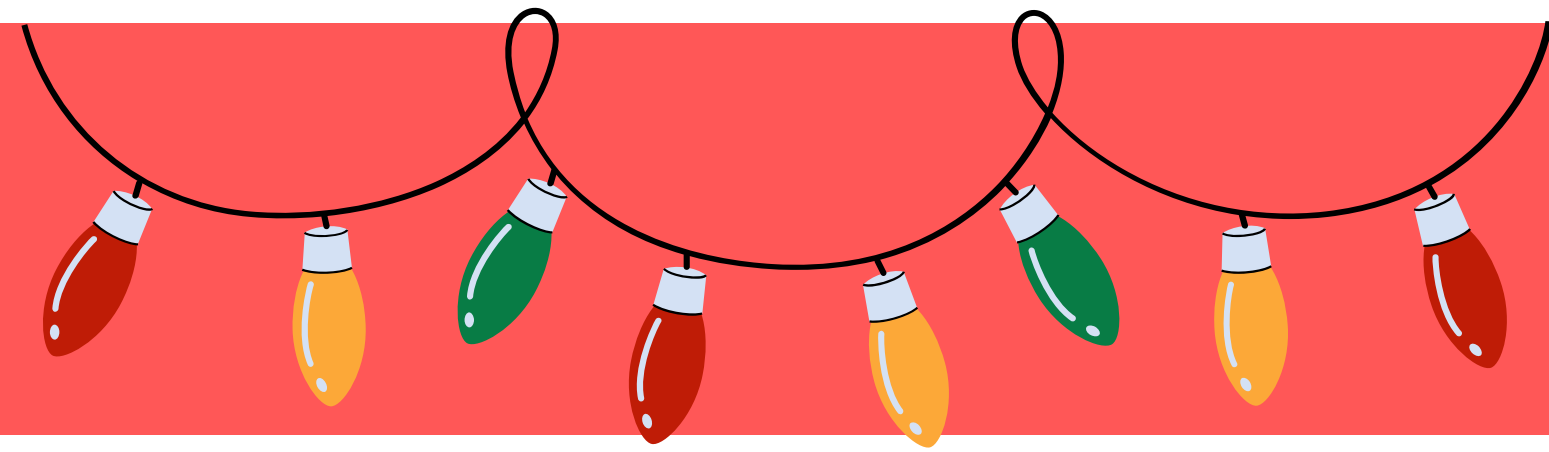


And more!

My class loves all of your real-life math products! I love hearing the collaboration when they are working on these in groups. Thank you for bringing a "purpose" to what they are learning!

I will use this every year ! my students loved it, it had tons of stuff!! I picked through what I wanted to use, was able to give some extra challenges to students that were ready for it and leave out parts that wouldn't fit where some students were at. They liked the theme and were having so much fun.

Ideas for Use



Make a Christmas project booklet for each student. Have students use the tasks as early finisher activities throughout December.

Use the individual tasks as center activities throughout the month. Place one task at each center.

Use as activities for a substitute teacher.

Keep your students engaged and motivated during that chaotic last week before holidays by allowing them to work on these activities in partners.

Ready to **simplify**
 your **Christmas**
 math planning this
 year?



NORTH POLE MATH PROJECT



THE NORTH POLE CAFETERIA
 It's lunch time at the North Pole Cafeteria! Take a look at today's menu.

**THE NORTH POLE CAFETERIA
 Lunch Specials**

Lunch Items	Price	Desserts	Price
grilled cheese sandwich	\$1.50	sugar cookie	75¢
peppermint pizza (1 slice)	\$3.25	candy cane cake	\$1.80
pancakes with syrup	\$2.75	fruit salad	\$2.95
spaghetti	\$4.50		
peanut butter and jelly sandwich	\$2.80	Beverages	Price
veggies and dip	\$1.15	hot chocolate	\$1.25
hamburger soup	\$3.25	orange juice	\$1.50
		apple juice	\$1.25

TOY INVENTORY
 The elves are doing inventory of the toys. These graphs show the total number of toys in the North Warehouse and the South Warehouse.

NUMBER OF TOYS IN NORTH WAREHOUSE

NUMBER OF TOYS IN SOUTH WAREHOUSE

THE NORTH POLE
 A small group of elves is known as "The North Pole Patrol" and they watch over Santa's Workshop and make sure everything is ready for Christmas.

This chart shows the six elves that will be on duty from 9:00 pm today. All of their shifts are a bit different time for each elf.

Name	Patrol Start Time	Patrol End Time
Jingles	9:00 am	12:00 pm
Chippy	12:00 pm	3:00 pm
Elfie	3:00 pm	6:00 pm
Max	4:00 pm	7:00 pm
Tinsel	11:00 am	2:00 pm
Jolly	1:00 pm	4:00 pm

**BEST SUITED
 TO GRADES
 3-5**

Use this data to fill in the chart below.

TOTAL TOYS AT NORTH AND SOUTH WAREHOUSES	
doll houses	1700
beach balls	1300
bubbles	900
teddy bears	500
hula hoops	200

SHELLEY GRAY

Or see it as part of a bundle here.