THIRD SPACE LEARNING

Christmas Math Activities

14 Festive and Fun Math Activities

K to 5th Grade

Note to Teachers

Here are 14 low-prep Christmas math activities for kindergarten to 5th grade. Each one has a grade level, a suggested time, the Common Core standard it practices and ideas to adapt it. You know your class best, so use the grade as a guide and pick what suits your students.

#	Activity	Grade	Common Core
1	Christmas Decoration Counting	Kindergarten	K.CC.A.3, K.CC.B.4
2	Santa's Reindeer Addition Race	1st grade	1.OA.C.6
3	Christmas Pattern Ornaments	K to 2nd grade	K.G.A.2, 1.G.A.1, 2.G.A.1
4	Christmas Estimations	2nd grade	2.MD.A.1, 2.MD.A.3
5	Christmas Magic Squares	2nd grade	2.NBT.B.6, 2.NBT.B.7
6	Festive Area and Perimeter	3rd grade	3.MD.C.7d, 3.MD.D.8
7	Christmas Graphs	3rd grade	3.MD.B.3
8	Christmas Time Zone Challenge	4th grade	4.MD.A.2
9	Holiday Budgeting Exercise	4th grade	4.MD.A.2
10	Christmas Tree Symmetry Art	4th grade	4.G.A.3
11	Reindeer Relay Race Fractions	4th grade	4.NF.B.3d
12	Festive Algebra Word Problems	4th grade	4.OA.A.3
13	Gingerbread House Scale Drawing	5th grade	5.NF.B.5
14	Christmas Sale Presents	5th grade	5.NF.B.4, 5.NF.B.6

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1 Christmas Decoration Counting

Grade: Kindergarten
Duration: 30 minutes
Topic: Counting and Cardinality (counting to 10 and number recognition)
Common Core standard: K.CC.A.3, K.CC.B.4

You will need

- Decoration Counting Resource Sheet
- Scissors and glue sticks
- Colored pencils

Summary: Students decorate a Christmas tree by placing numbered ornaments in order while they practice counting.

What to do:

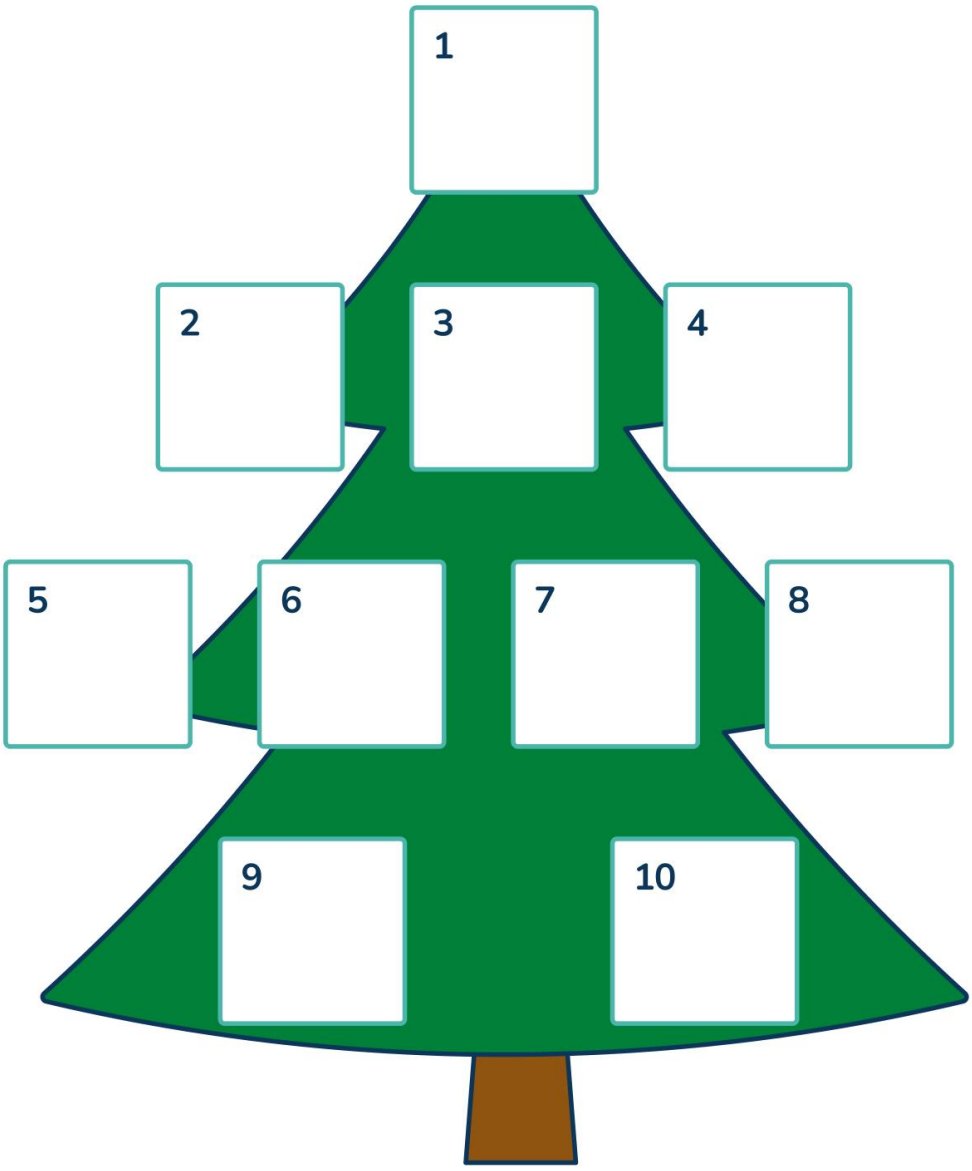
1. Hand out the Decoration Counting Resource Sheet to each student.
2. Students cut out the ornaments along the bottom of the sheet.
3. Tell students to place each ornament on the square with the same number (ornament 1 goes on square 1).
4. Once every ornament is in place, students can color them in.
5. Encourage students to count out loud in order as they work.

Alternative:

- Make a version that uses the numbers 11 to 20.
- Mix the numbers up on the tree so students have to find each one.

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Activity 1: Decoration Counting Sheet





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2 Santa's Reindeer Addition Race

Grade: 1st grade
Duration: 25 minutes
Topic: Operations and Algebraic Thinking (addition and subtraction within 20)
Common Core standard: 1.OA.C.6

You will need

- Reindeer Race Board
- Question Cards
- A die and a counter for each student

Summary: Students solve addition and subtraction problems to help Santa's reindeer reach the finish line in a race-style math game.

What to do:

1. Put students into pairs or small groups.
2. Each student uses a counter as their reindeer.
3. Students take turns rolling the die and moving that number of spaces. They follow the instruction on the space they land on or, if it says "Draw a card," answer a question card.
4. Students must answer the question correctly to roll again. If they get it wrong, they can try the same question on their next turn or draw a new card.
5. The first reindeer to reach the finish line wins.

Alternative:

- Use one kind of fact on the cards, such as number bonds to 10, all addition or all subtraction.
- Make a giant race track around the classroom or gym for a more hands-on version.

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Activity 2: Reindeer Race Board

Roll the die and move your reindeer from START to FINISH. Follow the instructions on the shaded spaces. On every other space, draw a card and answer the question.

START Reindeer line up here	**1** Draw a card	**2** Draw a card	**3** Move forward 2 spaces
7 Draw a card	**6** Lose a turn	**5** Draw a card	**4** Draw a card
8 Draw a card	**9** Go back 1 space	**10** Draw a card	**11** Draw a card
15 Lose a turn	**14** Draw a card	**13** Draw a card	**12** Answer 2 questions to move on
16 Draw a card	**17** Move forward 2 spaces	**18** Draw a card	**19** Draw a card
FINISH Santa's sleigh	**22** Draw a card	**21** Draw a card	**20** Go back 1 space

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Activity 2: Question Cards

Cut out the cards and place them face down in a pile.

7 + 3	10 – 4	4 + ? = 10	10 = 6 + ?	8 + 2
9 + 5	13 – 6	8 + ? = 15	12 = ? + 5	17 – 9
6 + 7	14 – 8	11 – ? = 4	16 = 8 + ?	15 – 7
9 + 9	20 – 10	? + 6 = 13	18 – 9	7 + 8
12 + 5	19 – 4	5 + 6 + 4	16 – ? = 9	11 + 7
20 – 6	8 + 8	13 = ? + 7	14 + 3	17 – 12

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Activity 2: Answers

Card	Answer	Card	Answer	Card	Answer
7 + 3	**10**	10 – 4	**6**	4 + ? = 10	**6**
10 = 6 + ?	**4**	8 + 2	**10**	9 + 5	**14**
13 – 6	**7**	8 + ? = 15	**7**	12 = ? + 5	**7**
17 – 9	**8**	6 + 7	**13**	14 – 8	**6**
11 – ? = 4	**7**	16 = 8 + ?	**8**	15 – 7	**8**
9 + 9	**18**	20 – 10	**10**	? + 6 = 13	**7**
18 – 9	**9**	7 + 8	**15**	12 + 5	**17**
19 – 4	**15**	5 + 6 + 4	**15**	16 – ? = 9	**7**
11 + 7	**18**	20 – 6	**14**	8 + 8	**16**
13 = ? + 7	**6**	14 + 3	**17**	17 – 12	**5**

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3 Christmas Pattern Ornaments

Grade: Kindergarten to 2nd grade
Duration: 1 hour
Topic: Geometry (2D shapes and patterns)
Common Core standard: K.G.A.2, 1.G.A.1, 2.G.A.1

You will need

- Christmas Pattern Ornaments Sheet, or plain paper
- Colored pencils

Summary: Students design Christmas ornaments using 2D shapes and lines.

What to do:

1. As a class, list the names of different 2D shapes and talk about their attributes, such as the number of sides and corners.
2. Explain that students will design ornament patterns using 2D shapes and lines.
3. Hand out the sheet and let students design their ornaments.

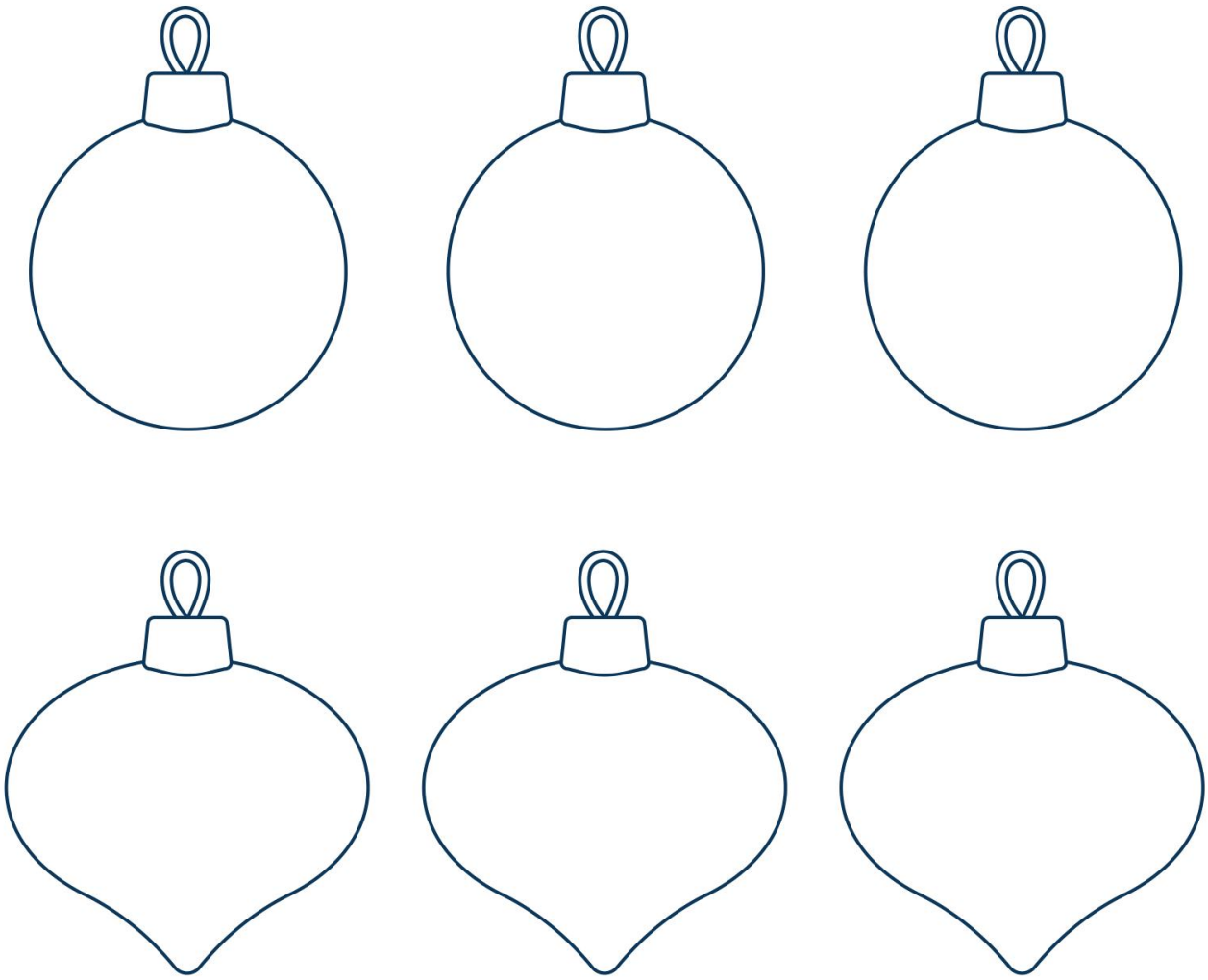
Alternative:

- Add rules, such as “include 1 triangle and 1 circle,” then ask students to color specific shapes in specific colors.
- Ask students to make one pattern and find how many different ways they could color it.
- Students create a Christmas picture using only the shapes and lines you give them.
- With older students, talk about the angles in their shapes.

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Activity 3: Pattern Ornaments Sheet

Decorate each ornament using 2D shapes and lines.



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4 Christmas Estimations

Grade: 2nd grade
Duration: 1 hour
Topic: Measurement and Data (estimating and measuring length)
Common Core standard: 2.MD.A.1, 2.MD.A.3

You will need

- Christmas items such as ornaments, cards, candy canes or an Advent calendar (measure each one before the lesson)
- Rulers and measuring tapes

Summary: Students estimate, then measure, the length or height of Christmas objects.

What to do:

1. Remind students how to measure items with a ruler, starting from zero.
2. Put students into teams.
3. Explain that each team will estimate the length or height of the Christmas objects at the front of the class.
4. One student from each team can look at the objects, without touching them, and report back to their team.
5. Each team agrees on its estimates.
6. As a class or in teams, students then measure each item accurately.
7. Award points for each estimate: exact = 3 points, within 1 inch = 2 points, within 2 inches = 1 point, more than 2 inches away = 0 points.
8. The team with the most points wins.

Alternative:

- Measure in centimeters instead of inches.
- With 3rd graders, estimate the mass of each item in grams as well.

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5 Christmas Magic Squares

Grade: 2nd grade
Duration: 1 hour
Topic: Number and Operations in Base Ten (adding within 1,000)
Common Core standard: 2.NBT.B.6, 2.NBT.B.7

You will need

- Christmas Magic Squares Sheet

Summary: Students solve Christmas-themed magic square puzzles that practice addition, reasoning and problem solving.

What to do:

1. Explain what a magic square is: a grid where the numbers in each row, column and diagonal add up to the same total.
2. Solve the first square together so students understand how to find a missing number.
3. Hand out the puzzles and answer questions as students work.

Alternative:

- Students design their own Christmas magic squares for a partner to solve.
- Make magic squares that review number bonds or multiplication facts.

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Activity 5: Magic Squares Sheet

Complete each magic square so that every row, column and diagonal adds up to the same total.

24	9		= 60
	20		= 60
		16	= 60
= 60	= 60	= 60	

60		75	= 150
	50		= 150
	85		= 150
= 150	= 150	= 150	

	71		= 234
	78		= 234
74			= 234
= 234	= 234	= 234	

140			= 300
	100	110	= 300
			= 300
= 300	= 300	= 300	

		162	= 450
	150		= 450
	196		= 450
= 450	= 450	= 450	

322	138		= 750
	250		= 750
			= 750
= 750	= 750	= 750	

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Activity 5: Magic Squares Answers

24	9	27	= 60
23	20	17	= 60
13	31	16	= 60
= 60	= 60	= 60	

60	15	75	= 150
65	50	35	= 150
25	85	40	= 150
= 150	= 150	= 150	

81	71	82	= 234
79	78	77	= 234
74	85	75	= 234
= 234	= 234	= 234	

140	30	130	= 300
90	100	110	= 300
70	170	60	= 300
= 300	= 300	= 300	

184	104	162	= 450
128	150	172	= 450
138	196	116	= 450
= 450	= 450	= 450	

322	138	290	= 750
218	250	282	= 750
210	362	178	= 750
= 750	= 750	= 750	

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6 Festive Area and Perimeter

Grade: 3rd grade
Duration: 1 hour
Topic: Measurement and Data (area and perimeter)
Common Core standard: 3.MD.C.7d, 3.MD.D.8

You will need

- Graph paper
- Colored pencils

Summary: Students design Christmas decorations or presents on graph paper and work out their area and perimeter.

What to do:

1. Review area and perimeter and how to find them, including for shapes made of more than one rectangle.
2. On graph paper, students design a Christmas decoration or picture using only shapes made of rectangles.
3. Students find the area and perimeter of each shape in their design.

Alternative:

- Give students rules, such as “include two shapes with the same area but different perimeters” or “include three shapes with a perimeter of 24 units.”

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7 Christmas Graphs

Grade: 3rd grade
Duration: 1 hour 30 minutes
Topic: Measurement and Data (picture graphs and bar graphs)
Common Core standard: 3.MD.B.3

You will need

- Christmas Graphs Sheet
- Rulers and colored pencils

Summary: Students collect festive data from their classmates and present it in a scaled picture graph or bar graph.

What to do:

1. Explain that the class is going to collect festive data and answer questions about it.
2. Put students into small groups.
3. Each group picks a festive survey question, such as “What is your favorite Christmas cookie?” or “What is your favorite holiday song?”
4. Once you have approved the question, students collect their data with a tally chart, then draw a scaled bar graph where each square stands for 2 votes.
5. Students write two or three “how many more” and “how many fewer” questions about their graph for another group to answer.

Alternative:

- Students choose how to present their data and explain why they picked that type of graph.
- Hold a short presentation session where each group shares what it found.

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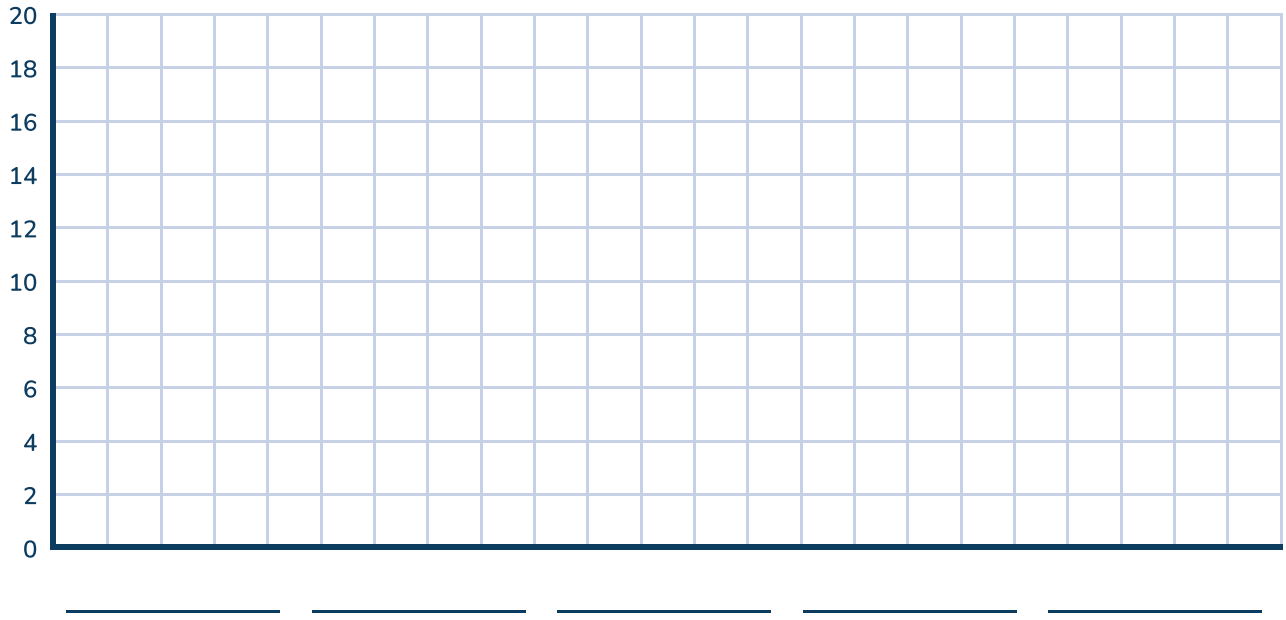
Activity 7: Christmas Graphs Sheet

Our survey question: _____

1. Tally chart

Choice	Tally	Total

2. Bar graph (each square stands for 2 votes) Title: _____



_____ _____ _____ _____ _____

3. Questions about our graph

How many more students chose _____ than _____? _____

How many fewer students chose _____ than _____? _____

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8 Christmas Time Zone Challenge

Grade: 4th grade
Duration: 1 hour 30 minutes
Topic: Measurement and Data (elapsed time)
Common Core standard: 4.MD.A.2

You will need

- Time Zone Challenge Sheet
- (Optional) A world time zone map

Summary: Students practice elapsed time by working out when Christmas Day flights from New York land in cities around the world.

What to do:

1. Discuss what a time zone is and how it affects Santa's journey on Christmas Eve. Look at a world time zone map together.
2. Explain that students will work out when an ordinary traveler flying from New York on Christmas Day would land in different cities.
3. As a class, choose a departure time from New York. The answer sheet uses 9:00 a.m.
4. Students add the flight time to the departure time, then use the time difference to find the local time when each plane lands.

Alternative:

- Let students choose their own cities.
- Give students the flight times only and ask them to research the time differences.
- Students plan a route for Santa that visits every city, then find the total journey time.

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Activity 8: Time Zone Challenge Sheet

You leave New York on Christmas morning at _____. What time is it where you land?

New York to...	Approximate flight time	Time difference from New York	Local time at touchdown
Chicago	2 hours 45 mins	1 hour behind	
Mexico City	5 hours	1 hour behind	
Denver	4 hours 30 mins	2 hours behind	
Los Angeles	6 hours 30 mins	3 hours behind	
Honolulu	11 hours 30 mins	5 hours behind	
São Paulo	10 hours	2 hours ahead	
Reykjavik	5 hours 45 mins	5 hours ahead	
London	7 hours	5 hours ahead	
Paris	7 hours 15 mins	6 hours ahead	
Rome	9 hours	6 hours ahead	
Dubai	12 hours 30 mins	9 hours ahead	
Tokyo	14 hours	14 hours ahead	

Time differences are for December, when New York is on Eastern Standard Time. Flight times are rounded.

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Activity 8: Time Zone Challenge Answers

These answers use a 9:00 a.m. departure from New York.

New York to...	Flight time	Time difference	Local time at touchdown
Chicago	2 hours 45 mins	1 hour behind	**10:45 a.m.**
Mexico City	5 hours	1 hour behind	**1:00 p.m.**
Denver	4 hours 30 mins	2 hours behind	**11:30 a.m.**
Los Angeles	6 hours 30 mins	3 hours behind	**12:30 p.m.**
Honolulu	11 hours 30 mins	5 hours behind	**3:30 p.m.**
São Paulo	10 hours	2 hours ahead	**9:00 p.m.**
Reykjavik	5 hours 45 mins	5 hours ahead	**7:45 p.m.**
London	7 hours	5 hours ahead	**9:00 p.m.**
Paris	7 hours 15 mins	6 hours ahead	**10:15 p.m.**
Rome	9 hours	6 hours ahead	**12:00 midnight (Dec 26)**
Dubai	12 hours 30 mins	9 hours ahead	**6:30 a.m. (Dec 26)**
Tokyo	14 hours	14 hours ahead	**1:00 p.m. (Dec 26)**

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9 Holiday Budgeting Exercise

Grade: 4th grade
Duration: 1 hour 30 minutes
Topic: Measurement and Data (money word problems)
Common Core standard: 4.MD.A.2

You will need

- Holiday Budgeting Sheet

Summary: Students plan a Christmas shopping budget and use addition and subtraction with money to stay within it.

What to do:

1. Talk about what a budget is and how it helps when shopping for presents.
2. Give students a pretend budget, such as $50, and decide how many people they need to buy presents for.
3. Hand out the price list on the Holiday Budgeting Sheet.
4. Students choose presents to “buy” and add up the cost, making sure they do not go over budget.
5. Encourage students to find different combinations of presents that stay within the budget.

Alternative:

- Use real prices from a store flyer and a larger budget.
- Students write a letter to Santa that includes a breakdown of their budget.

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Activity 9: Holiday Budgeting Sheet

My budget: $_____ **Number of people to buy for: _____**

Holiday store price list

Puzzle	$12.50	Book	$7.99
Toy car	$4.75	Art kit	$15.25
Board game	$18.99	Fuzzy socks	$3.50
Mug	$6.25	Slime kit	$9.40
Stuffed animal	$11.80	Soccer ball	$14.60
Hat and mittens	$8.35	Hot chocolate set	$5.65

Present for...	What I chose	Cost
	Total spent	
	Money left over	

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10 Christmas Tree Symmetry Art

Grade: 4th grade
Duration: 1 hour
Topic: Geometry (lines of symmetry)
Common Core standard: 4.G.A.3

You will need

- Graph paper
- Scissors and colored pencils

Summary: Students make symmetrical Christmas tree designs and find their lines of symmetry.

What to do:

1. Review line symmetry and show a line of symmetry on a simple shape.
2. Show students how to make a symmetrical Christmas tree on graph paper: fold the paper in half, draw half a tree along the fold and cut it out.
3. Students color squares or draw shapes to make a symmetrical pattern inside their tree, checking the line of symmetry as they go.

Alternative:

- Students make a symmetrical tree on plain paper and check it with a mirror, then compare the two methods.

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11 Reindeer Relay Race Fractions

Grade: 4th grade
Duration: 1 hour
Topic: Number and Operations – Fractions (adding and subtracting fractions with like denominators)
Common Core standard: 4.NF.B.3d

You will need

- Relay Race Question Cards
- A large space, such as the gym or playground

Summary: Students solve Christmas fraction word problems in a team relay race.

What to do:

1. Put students into teams.
2. Explain that each student runs to a table at the front, answers a fraction word problem, then runs back to tag the next person.
3. Students choose which question to answer when they reach the table.
4. Each correct answer earns the team a point.
5. On their turn, a teammate can check an answer that has already been given instead of answering a new question.
6. Set a timer for the race.
7. Check the answers together as a class at the end.

Alternative:

- Change the questions to decimal word problems for 5th graders.

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Activity 11: Relay Race Question Cards

Question 1 Dasher has 3/8 of his magic dust left. He uses 1/8 to sprinkle on presents. How much magic dust does he have left?	**Question 2** Dancer collected 2/5 of the Christmas berries. Prancer collected 1/5 more than Dancer. How much of the berries did Prancer collect?	**Question 3** Comet decorates 1/3 of a tree and Cupid decorates 2/3 of the tree. How much of the tree has been decorated?
Question 4 Donner has 5/6 of a roll of ribbon. He uses 2/6 on one tree and 1/6 on another. How much ribbon does he have left?	**Question 5** Blitzen eats 2/8 of a candy cane in the morning and 3/8 in the afternoon. How much has he eaten altogether?	**Question 6** Rudolph has run 4/5 of the race. How much of the race does he have left to run?
Question 7 Vixen has 7/10 of her energy left. She uses 2/10 to guide Santa through the fog. What fraction of her energy is left?	**Question 8** Cupid bakes 1 1/2 batches of cookies. Dasher bakes 2 1/2 batches. How many batches have they baked altogether?	**Question 9** Prancer has 3/4 of a roll of wrapping paper. He uses 1/4 of a roll for each of 2 reindeer. How much paper does he use in total?
Question 10 Comet has 9/12 of a bag of magic dust. He sprinkles 4/12 of the bag on the rooftops. How much of the bag is left?	**Question 11** Donner wraps 3/10 of the presents on Monday, 2/10 on Tuesday and 4/10 on Wednesday. How much of the presents has he wrapped?	**Question 12** Rudolph's nose glows for 2 3/4 hours on Christmas Eve and 1 1/4 hours on Christmas Day. How long does it glow altogether?
Question 13 Rudolph and Vixen have 1 3/4 pounds of magic dust together. Rudolph has 3/4 of a pound. How much does Vixen have?	**Question 14** Dancer decorates 2 1/4 Christmas trees and Prancer decorates 1 3/4 trees. How many trees have they decorated altogether?	**Question 15** Cupid has 3 1/3 cups of hot chocolate. He drinks 1 2/3 cups. How much hot chocolate is left?

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Activity 11: Relay Race Answers

#	Question	Answer
1	Dasher has 3/8 of his magic dust left. He uses 1/8 to sprinkle on presents. How much magic dust does he have left?	**2/8 or 1/4**
2	Dancer collected 2/5 of the Christmas berries. Prancer collected 1/5 more than Dancer. How much of the berries did Prancer collect?	**3/5**
3	Comet decorates 1/3 of a tree and Cupid decorates 2/3 of the tree. How much of the tree has been decorated?	**The whole tree (1)**
4	Donner has 5/6 of a roll of ribbon. He uses 2/6 on one tree and 1/6 on another. How much ribbon does he have left?	**2/6 or 1/3**
5	Blitzen eats 2/8 of a candy cane in the morning and 3/8 in the afternoon. How much has he eaten altogether?	**5/8**
6	Rudolph has run 4/5 of the race. How much of the race does he have left to run?	**1/5**
7	Vixen has 7/10 of her energy left. She uses 2/10 to guide Santa through the fog. What fraction of her energy is left?	**5/10 or 1/2**
8	Cupid bakes 1 1/2 batches of cookies. Dasher bakes 2 1/2 batches. How many batches have they baked altogether?	**4 batches**
9	Prancer has 3/4 of a roll of wrapping paper. He uses 1/4 of a roll for each of 2 reindeer. How much paper does he use in total?	**2/4 or 1/2 of a roll**
10	Comet has 9/12 of a bag of magic dust. He sprinkles 4/12 of the bag on the rooftops. How much of the bag is left?	**5/12**
11	Donner wraps 3/10 of the presents on Monday, 2/10 on Tuesday and 4/10 on Wednesday. How much of the presents has he wrapped?	**9/10**
12	Rudolph's nose glows for 2 3/4 hours on Christmas Eve and 1 1/4 hours on Christmas Day. How long does it glow altogether?	**4 hours**
13	Rudolph and Vixen have 1 3/4 pounds of magic dust together. Rudolph has 3/4 of a pound. How much does Vixen have?	**1 pound**
14	Dancer decorates 2 1/4 Christmas trees and Prancer decorates 1 3/4 trees. How many trees have they decorated altogether?	**4 trees**
15	Cupid has 3 1/3 cups of hot chocolate. He drinks 1 2/3 cups. How much hot chocolate is left?	**1 2/3 cups**

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12 Festive Algebra Word Problems

Grade: 4th grade
Duration: 1 hour
Topic: Operations and Algebraic Thinking (equations with a letter for the unknown)
Common Core standard: 4.OA.A.3

You will need

- Treasure Hunt Cards, cut out
- A space such as the classroom or hallway

Summary: Students build algebraic thinking by solving Christmas word problems in a treasure hunt around the room.

What to do:

1. Place the cards around the room.
2. Explain that students solve the problem on a card, then look for the card with that answer at the top and solve the next problem.
3. Students can start at any card and keep going until they get back to where they started.
4. Students can work on their own or in pairs.

Alternative:

- Students can solve these problems without formal algebra, so you can write similar cards on any topic, such as multiplication word problems.

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Activity 12: Treasure Hunt Cards (1 of 2)

55

There are 50 candy canes in a jar. x candy canes were eaten, leaving 20 candy canes. How many candy canes were eaten?

30

Santa has 80 elves. x elves went on vacation, leaving 65 elves working. How many elves went on vacation?

15

Mrs. Claus baked x cookies. She gave 30 cookies to the children and now has 10 cookies left. How many cookies did she bake?

40

There are 85 snowflakes on a window. x snowflakes melted, leaving 60 snowflakes. How many snowflakes melted?

25

There are 60 ornaments on the Christmas tree. x ornaments broke, leaving 40 ornaments. How many ornaments broke?

20

Santa has 200 presents to deliver. He has delivered x presents and has 150 presents left to deliver. How many presents has he delivered?

50

A group of carolers sang x songs on Christmas Eve and collected $30. Each song earned $3. How many songs did they sing?

10

Santa needs 9 reindeer to pull his sleigh. He has x reindeer. He finds 3 more and now has all 9. How many reindeer did he have to start with?

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Activity 12: Treasure Hunt Cards (2 of 2)

6

The elves' workshop has 150 toys to make. They have made x toys and need to make 90 more. How many toys have they made so far?

60

Santa got x letters from children. He sent 120 to the elves, leaving 80 letters still to read. How many letters did Santa get?

200

There are x gingerbread men in a jar. Santa ate 25 of them, leaving 75. How many gingerbread men were in the jar to start with?

100

The school winter play has x actors. If 6 more actors join the play, there will be 20 actors in total. How many actors are in the play now?

14

Each Christmas card costs x cents. Sarah spends 80 cents on 20 Christmas cards. How much does each card cost?

4

A holiday market sells x kinds of Christmas cookies. It sells 6 cookies of each kind, 72 cookies in total. How many kinds of cookies are there?

12

Santa has x reindeer. If he adds 2 more reindeer, he has 9 in total. How many reindeer did Santa have to start with?

7

Sarah has x Christmas cards to send. She has already sent 45 cards and has 10 left to send. How many cards does she have in total?

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Activity 12: Answers

#	Question	x =
1	There are 50 candy canes in a jar. x candy canes were eaten, leaving 20 candy canes. How many candy canes were eaten?	30
2	Santa has 80 elves. x elves went on vacation, leaving 65 elves working. How many elves went on vacation?	15
3	Mrs. Claus baked x cookies. She gave 30 cookies to the children and now has 10 cookies left. How many cookies did she bake?	40
4	There are 85 snowflakes on a window. x snowflakes melted, leaving 60 snowflakes. How many snowflakes melted?	25
5	There are 60 ornaments on the Christmas tree. x ornaments broke, leaving 40 ornaments. How many ornaments broke?	20
6	Santa has 200 presents to deliver. He has delivered x presents and has 150 presents left to deliver. How many presents has he delivered?	50
7	A group of carolers sang x songs on Christmas Eve and collected $30. Each song earned $3. How many songs did they sing?	10
8	Santa needs 9 reindeer to pull his sleigh. He has x reindeer. He finds 3 more and now has all 9. How many reindeer did he have to start with?	6
9	The elves' workshop has 150 toys to make. They have made x toys and need to make 90 more. How many toys have they made so far?	60
10	Santa got x letters from children. He sent 120 to the elves, leaving 80 letters still to read. How many letters did Santa get?	200
11	There are x gingerbread men in a jar. Santa ate 25 of them, leaving 75. How many gingerbread men were in the jar to start with?	100
12	The school winter play has x actors. If 6 more actors join the play, there will be 20 actors in total. How many actors are in the play now?	14
13	Each Christmas card costs x cents. Sarah spends 80 cents on 20 Christmas cards. How much does each card cost?	4
14	A holiday market sells x kinds of Christmas cookies. It sells 6 cookies of each kind, 72 cookies in total. How many kinds of cookies are there?	12
15	Santa has x reindeer. If he adds 2 more reindeer, he has 9 in total. How many reindeer did Santa have to start with?	7
16	Sarah has x Christmas cards to send. She has already sent 45 cards and has 10 left to send. How many cards does she have in total?	55

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13 Gingerbread House Scale Drawing

Grade: 5th grade
Duration: 2 hours
Topic: Number and Operations – Fractions (multiplication as scaling)
Common Core standard: 5.NF.B.5

You will need

- Graph paper
- Rulers

Summary: Students design a gingerbread house, then scale their design up and down to see how multiplying changes the size.

What to do:

1. Discuss why builders and designers draw plans to scale.
2. Students draw a simple gingerbread house on graph paper and label the length of each side.
3. Students make a second drawing where every length is doubled, and a third where every length is halved.
4. Ask students what they notice: what happens to a length when you multiply it by a number greater than 1, and by a number less than 1?

Additional activity:

- Students build their gingerbread house from card, or bake it at home, using their scale drawing.

Alternative:

- Students find the volume of a box-shaped gingerbread house by counting cubes or using length × width × height.

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14 Christmas Sale Presents

Grade: 5th grade
Duration: 1 hour
Topic: Number and Operations – Fractions (finding a fraction of an amount)
Common Core standard: 5.NF.B.4, 5.NF.B.6

You will need

- Christmas Sale Presents Sheet

Summary: Students use fractions to work out discounts and sale prices on Christmas presents.

What to do:

1. Review how to find a fraction of an amount, for example 1/4 of $40.
2. Talk about where students see discounts in real life. Around the holiday season, Black Friday and Cyber Monday are full of them.
3. Hand out the questions for students to complete.
4. Share the answers at the end of the lesson.

Alternative:

- Give students a budget and a list of full-price presents. During the lesson, change the prices with new discounts and ask students to work out each new price. They can "buy" at any point, but cannot return anything. At the end, share who got the best deal.
- For 6th graders, write the discounts as percentages, such as 25% off.

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Activity 14: Christmas Sale Presents Sheet

1 A toy train costs $40. In the Christmas sale, it is 1/4 off.

a How much is the discount? _____

b What is the sale price? _____

2 A board game costs $24. In the Christmas sale, it is 1/3 off.

a How much is the discount? _____

b What is the sale price? _____

3 A sled costs $60. In the Christmas sale, it is 1/5 off.

a How much is the discount? _____

b What is the sale price? _____

4 A box of ornaments costs $18. It is 1/6 off.

a How much is the discount? _____

b What is the sale price? _____

5 A pair of ice skates costs $45. It is 2/5 off.

a How much is the discount? _____

b What is the sale price? _____

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Activity 14: Christmas Sale Presents Sheet

6 A teddy bear costs $32. It is 3/8 off.

a How much is the discount? _____

b What is the sale price? _____

7 A pair of headphones costs $50. It is 3/10 off.

a How much is the discount? _____

b What is the sale price? _____

8 A video game costs $56. On Black Friday, it is 1/4 off. On Christmas Eve, the store takes 1/2 off the Black Friday price.

a What is the Black Friday price? _____

b What is the Christmas Eve price? _____

9 A scarf is 1/3 off. The discount is $5.

a What was the full price of the scarf? _____

b What is the sale price? _____

10 Store A sells a jacket for $40 with 1/4 off. Store B sells the same jacket for $36 with 1/6 off.

a What is the sale price at each store? _____

b Which store is cheaper? _____

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Activity 14: Answers

#	Question	Answer
1	A toy train costs $40. In the Christmas sale, it is 1/4 off.	a) $40 × 1/4 = $10 b) $40 – $10 = $30
2	A board game costs $24. In the Christmas sale, it is 1/3 off.	a) $24 × 1/3 = $8 b) $24 – $8 = $16
3	A sled costs $60. In the Christmas sale, it is 1/5 off.	a) $60 × 1/5 = $12 b) $60 – $12 = $48
4	A box of ornaments costs $18. It is 1/6 off.	a) $18 × 1/6 = $3 b) $18 – $3 = $15
5	A pair of ice skates costs $45. It is 2/5 off.	a) $45 × 2/5 = $18 b) $45 – $18 = $27
6	A teddy bear costs $32. It is 3/8 off.	a) $32 × 3/8 = $12 b) $32 – $12 = $20
7	A pair of headphones costs $50. It is 3/10 off.	a) $50 × 3/10 = $15 b) $50 – $15 = $35
8	A video game costs $56. On Black Friday, it is 1/4 off. On Christmas Eve, the store takes 1/2 off the Black Friday price.	a) $56 – $14 = $42 b) $42 × 1/2 = $21
9	A scarf is 1/3 off. The discount is $5.	a) $5 × 3 = $15 b) $15 – $5 = $10
10	Store A sells a jacket for $40 with 1/4 off. Store B sells the same jacket for $36 with 1/6 off.	a) Store A: $30. Store B: $30 b) Neither: they cost the same

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