Summer Math Packet

Children Entering Grade 4

Hebrew Academy of Long Beach

June 2011

Dear Parents,

In order to succeed at mastering a skill, a person must practice. For example, both musicians and athletes practice on a regular basis. The same is true for a student. Although students need and deserve some "down time," a great deal of information can be forgotten during the summer.

By fostering a positive approach to the completion of this math packet, you will help your child learn and retain important math skills and concepts. Your cooperation in assuring that the summer work is completed will contribute to your child's future success in school.

This year's summer math program consists of a packet of materials. This packet was created to align with the math curriculum taught during the school year. The packet provides additional practice in math during the summer. There are between 15 and 20 key topics that will be addressed in the packet. The problems are set up to review, maintain and deepen the skills and concepts learned this year. Each student is **required** to complete the green pages in the packet. These pages are meant to assess each student's ability to apply the concepts that have been learned. When a child has difficulty with a concept while working on a green page, he/she can refer to the blue pages that correspond to the topic in question. The blue pages can also serve as additional review if you feel that your child would benefit from it. They are **not required.** The gold pages will serve as enrichment for the students who seek a challenge throughout the summer. Finally, the pink pages are basic-fact sheets. Many of our students have difficulty remembering number facts, especially in multiplication. As a result, other topics that relate to multiplication become problematic for them. You may want to use these sheets as mental math reviews or set a timer and have your child work to correctly solve as many problems as he/she can within 3 minutes. We would also like to recommend **Timez Attack,** a highly motivational computer game for multiplication and division facts. The free downloadable version of this game can be found at www.bigbrainz.com.

Thank you for your support. We are looking forward to an exciting and enriching year with your child. Enjoy the summer!

Sincerely,

Angela Monda Gail Rusgo

Angela Monda and Gail Rusgo
Directors of General Studies

REQUIRED MATH WORK

Name ______________________ Topic 1

Use the information in the table to plan a vacation trip.

Distance Between Cities

City 1	City 2	Number of Miles Between Citites
San Francisco, CA	Denver, CO	1,241
Denver, CO	St. Louis, MO	871
Indianapolis, IN	Washington, D.C.	605
Dallas, TX	Boston, MA	1,867

1. Write the names of two cities that you would like to travel between. How far apart are the two cities? Write the distance in standard form, word form, and expanded form.

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2. On a separate sheet of paper, draw place-value blocks to show the distance between the two cities you chose. Label and explain your drawing.

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3. Put the distances in the table in order from greatest to least. Is the distance between the cities you chose either the greatest distance or the least distance? Explain how you know.

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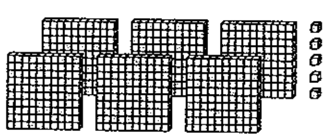
4. The distance between which two cities is shown below?



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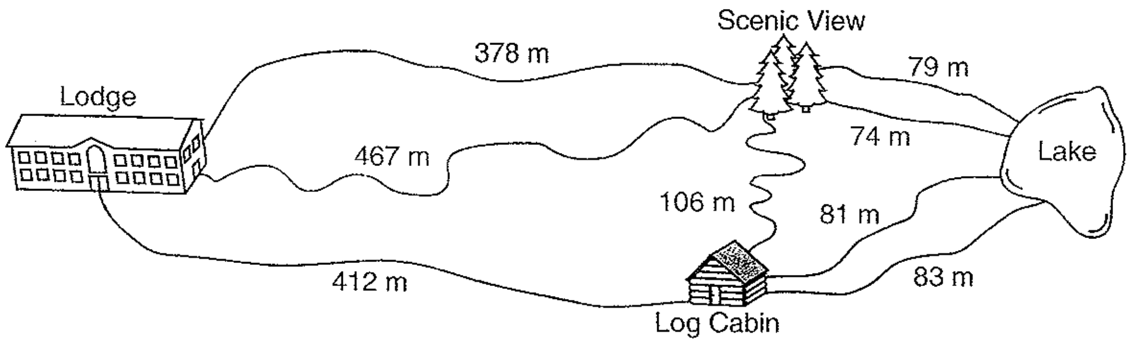
Name ______________________________

Your class is visiting a local park. The map below shows some of the paths in the park. The distances of the paths are measured in meters.



1. Choose two ways to walk from the log cabin to the lake and then to the scenic view. On a separate sheet of paper, draw place-value blocks to show the total distance for each way. Then write and solve a number sentence to find the total distance.

2. Choose a way to walk from the log cabin to the scenic view and then to the lodge. On a separate sheet of paper, draw place-value blocks to show the total distance. Then write and solve a number sentence to find the total distance.

3. Write and solve a number sentence to show the shortest way from the lodge to the lake. Explain how you decided which paths to choose.

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4. Choose a way to walk from the lodge to the log cabin, to the scenic view, and back to the lodge. Estimate the distance. Then find the exact distance. Explain how you can use your estimate to check that your answer is reasonable.

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Name ______________________

Topic 3

Mrs. Carlton is in charge of the school carnival. She bought all the items shown on the shopping list.

School Carnival Shopping List

5 rolls of tickets
18 sheets of poster board
84 balloons
364 small prizes
248 large prizes

1. Meg used 6 of the poster board sheets to make signs for the carnival. How many sheets of poster board are left? On a separate piece of paper, draw and label a picture and write a number sentence to explain.

2. There are 75 tickets on each roll of tickets. The first hour of the carnival, 30 tickets were sold from one roll. Use mental math to find how many tickets were left on the roll. Explain your thinking.

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3. Miguel used all the balloons to decorate the booths. But 18 of the balloons broke when he blew them up. Use mental math to find how many balloons did not break. Then explain your thinking.

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4. Estimate how many more small prizes were bought than large prizes. Explain the method you used to estimate.

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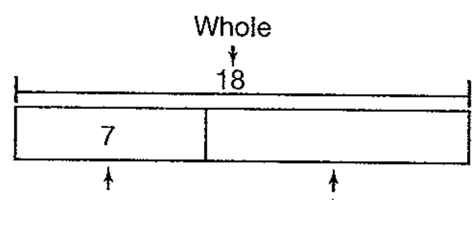
5. Complete this drawing. Explain how it shows how addition and subtraction are related. Then write a fact family for the drawing.



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Name ____________________

You have won 500 tickets at a video arcade. You can cash in the tickets for prizes. You plan on using as many tickets as possible to get lots of prizes.

The table below shows the prizes that are available at the arcade. Use the information in the table to choose your prizes.

Arcade Prizes

Prize	Number of Tickets	Prize	Number of Tickets
Clock Radio	138	Calculator	36
CD Player	162	China Doll	94
Action Figures	75	Wristwatch	159
Comic Books	14	Cell Phone	83
Desk Set	27	Mystery Book	22
Model Airplane	46	Photo Album	40

1. Make a Prize Log like the one shown below to record your choices and how many tickets you will have left.

Prize	Number of Tickets	Tickets Left
CD Player	162	500 − 162 = 338
China Doll	94	338 − 94 = 244
Cell Phone	83	244 − 83 = 161

2. Choose one subtraction you made in your chart under "Tickets Left." On a separate sheet of paper, draw place-value blocks to show how you subtracted. Did you regroup? Explain.

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3. Use a diagram to solve the subtraction you modeled in question 2.

Name ____________________

Topic 5

You are selling boxes of cards to raise money for your soccer team. Cards come in boxes of 5, 9, and 10. Each soccer player wants to sell at least $100 worth of boxes.

Boxes of Cards	Price of Box
Set of 5	$2
Set of 9	$5
Set of 10	$6

1. Decide how many of each box of cards you would like to sell.

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2. Make a chart to show how many cards in all for each set you will sell, and the total cost for each set of boxes.

3. Explain how you decided how many of each kind of box to sell.

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4. Suppose you counted the total number of cards for each set of boxes in multiples. Write a list of the numbers you would name for each set of boxes.

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Name ______________________

Topic 5

Write your answer in the space provided.

1. Write a repeated addition sentence for 8×6.

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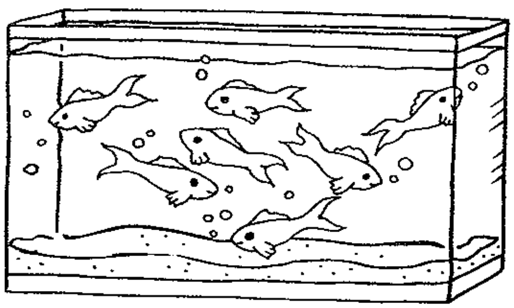
2. Shane had the fish shown below. Write a number sentence to find 3 times as many fish as Shane had.



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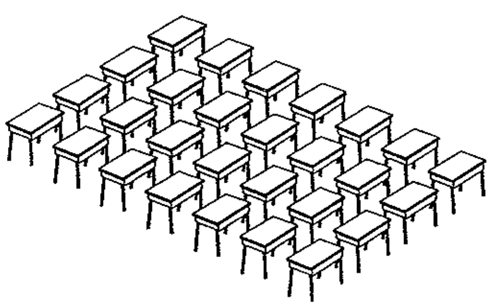
3. Mr. Ruiz arranged the desks in his classroom as shown below. Write a number sentence to find how many desks Mr. Ruiz has in his classroom.



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4. Alberto has 9 bags. Each bag has 9 balls of yarn. How many balls of yarn does Alberto have?

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5. Write the number that makes the second number sentence true.

$5 \times 4 = 20$

$4 \times \blacksquare = 20$

____

6. Melvin stacked boxes in 3 groups of 10. How many boxes did Melvin stack?

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7. Hamid is putting books on shelves. Each shelf holds 9 books. How does the number of books change as the number of shelves increase by 1?

Shelves	1	2	3	4	5
Books	9	18	27	36	45

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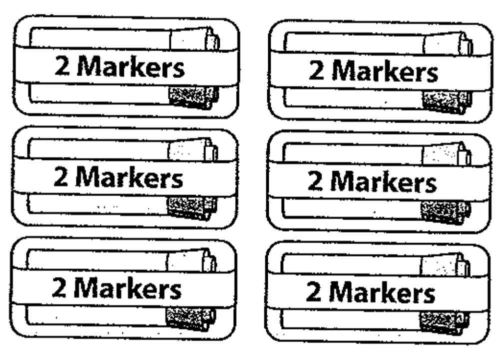
8. How many markers does Dwight have?



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Name ______________________

Topic 6

You and some friends are making baked goods for a school bake sale. The chart shows the number of trays and the number of baked goods on each tray.

Baked Goods	Number of Trays	Number on Each Tray
Blueberry Muffins	4	6
Strawberry Tarts	6	5
Granola Bars	8	4

1. Choose one of the items that you will bring to the bake sale. For that item, draw an array to show the number of baked goods in all.

2. Write a multiplication number sentence for the array that you drew.

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3. Explain two different ways you could break apart the arrays to solve your number sentence. Draw a picture of the arrays.

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4. Suppose 2 of your friends make blueberry muffins as shown in the chart. Write a number sentence to show the number of muffins in all.

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Name ______________________

Topic 7

James needs help setting up his rock collection. James has collected 36 rocks. He can set the rocks up in different-sized display boxes. The boxes hold 5, 6, or 8 rocks each.

Use the information in the table to draw how each display will look. Use arrays of rocks to show equal groups. Draw any rocks that are left over.

Display Boxes

Box 1 **5 rocks per box**	**Box 2** **6 rocks per box**	**Box 3** **8 rocks per box**

1. In which box can James divide the rocks in equal groups? Write a division sentence to show how the rocks are divided. Then write a repeated subtraction to show how to find the quotient.

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2. In which boxes will James have rocks left over?

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3. How many total boxes will James need if he uses box 3 to display the rocks? Explain.

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4. Suppose you have a rock collection of 24 rocks. Which box would you use to display the rocks? Write a division story to explain how you would display the rocks.

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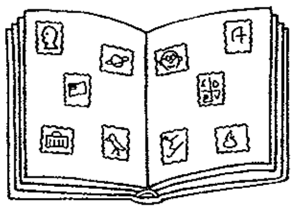
Name ______________________________

You have 36 stamps that you want to put into a stamp album. Stamp albums are made with either 4 or 6 pages. You need to decide which album you will use in order to have an equal number of stamps on each page.



1. How can you arrange the stamps into equal amounts? Draw a picture of the different arrangements you can make for each album.

2. Choose one album that you will use for your collection. Show how your choice of album and stamps will work using repeated subtraction.

3. Look at the repeated subtraction sentence that you wrote. Write the repeated subtraction as a division sentence.

4. Write a division story that uses the number sentence from Problem 3.

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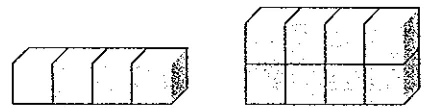
Name ________________________________

Topic 9

You are making a pattern of block towers like the one shown.

1. Choose a number of blocks in each story.

______ blocks in each story



2. Draw the first four block towers in your pattern.
Add one story each time.

3. Complete the table for your pattern.

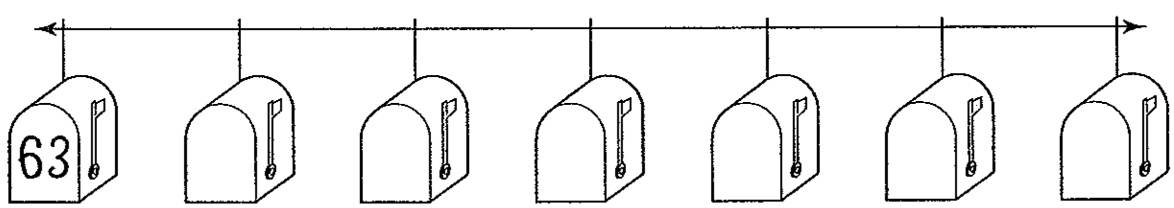
Number of Stories	1	2	3	4	5
Number of Blocks					

4. How many blocks would you need for a 6-story tower in your pattern?

______ blocks

You are making a pattern of house numbers beginning with 63.

5. Write the numbers of your pattern on the number line.



6. Write the rule for your number pattern.

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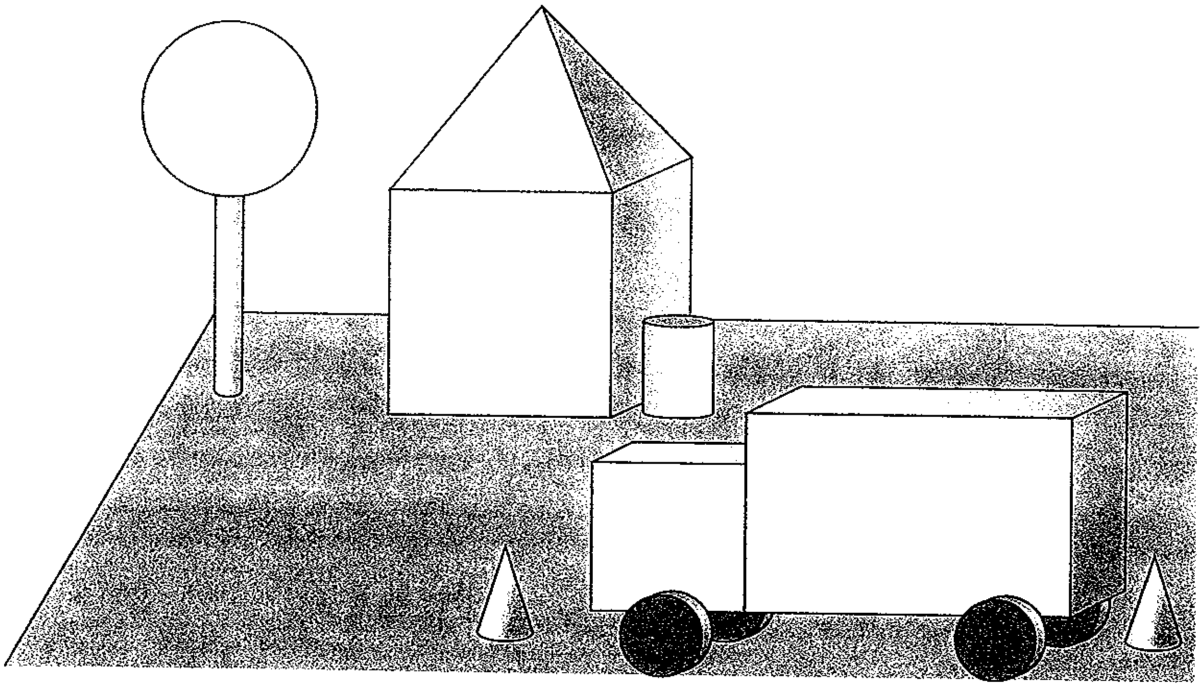
Name ______________________

Topic 10

Sandi made this design using blocks.



For **1** and **2**, use a separate sheet of paper to make a table for each.

1. Name the solid figures used in the design. How many flat surfaces, edges, and vertices does each solid figure have?

2. Name as many shapes as you can that are flat surfaces of the solid figures. List which solid figure has each shape. How many sides and vertices does each shape have?

3. Choose 3 of the solids from the picture. Draw them. Write one generalization about all the figures you chose.

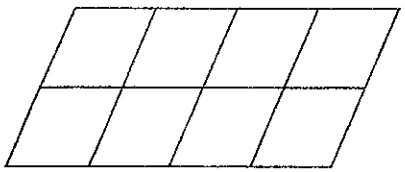
Name ______________________________

Topic
11

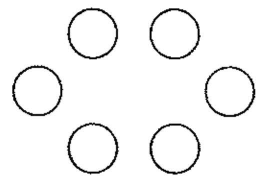
Part A

You are making tile designs to hang on your wall. There are 4 different designs below. Follow the directions for each design.

Design A: Color a fraction of the tiles blue.



Design B: Color a fraction of the design yellow.



1. Below each design, write the fraction that you colored.

2. Choose one design. Write an equivalent fraction for that design. Explain how you know the fraction is equivalent.

Part B

The chart below shows the shirt colors of all the students in two different classrooms.

Shirt Color	Classroom A	Classroom B
Red	$\frac{4}{12}$	$\frac{3}{8}$
Blue	$\frac{6}{12}$	$\frac{4}{8}$
Yellow	$\frac{2}{12}$	$\frac{1}{8}$

Write a number sentence to solve each problem. You may draw a picture to help you. Then write the answer in simplest form.

1. What part of the students in Classroom A wore either a yellow shirt or a red shirt?

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2. How many more students in Classroom B wore a blue shirt than a yellow shirt?

____

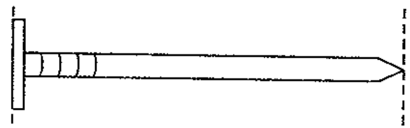
Name ____________________

Topic 12

You are collecting materials to build a fence for your dog's play area. You need nails that are less than $2\frac{1}{2}$ inches in length.

1. Measure the length of the nail to the nearest $\frac{1}{4}$ inch.

   _______ in.



2. Can you use this nail?

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3. Which unit would be best to use to measure the length of the fence—inch, foot, or mile? Explain your choice.

   ____

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4. Name something you would measure in miles. ____________________

5. A recipe for pasta salad is shown. Which weighs more—the Swiss cheese cubes or the pasta?

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6. The box of pasta is shaped like a rectangular prism. Which is the better estimate of the number of unit cubes you will need to model the box, 80 cubic inches or 800 cubic inches?

   ____

7. The recipe for fruit punch is shown. Which container would be best to use to hold the fruit punch—1 cup, 1 pint, 1 quart, 3 quarts, or 5 quarts? Why?

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   ____

Pasta Salad
1 lb of elbow pasta
4 ounces cheddar cheese cubes
6 ounces Swiss cheese cubes
2 cups spinach leaves
1 cup tomatoes, chopped
$\frac{1}{3}$ cup Italian dressing

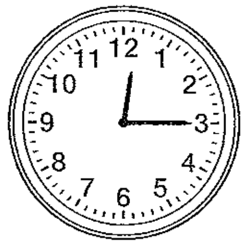
Fruit Punch
1 quart orange juice
1 quart hot tea
1 quart ginger ale
1 pint apple juice
1 cup lemon juice
$\frac{1}{2}$ cup honey

Name ____________________

You need to arrive at the theater at exactly 12:15 P.M. for a movie. It takes you 30 minutes to walk to the theater, 40 minutes to get ready, and 30 minutes to walk your dog.

1. Draw clock hands to show the time you should start each activity. Write the time in two ways.

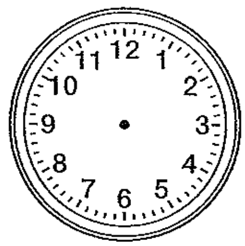
Arrive at theater



12:15 P.M.

a quarter after twelve

Start walking to theater



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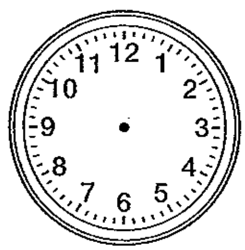
Start getting ready



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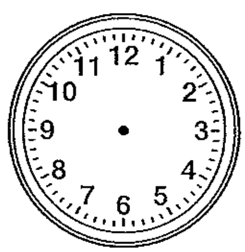
Start walking dog



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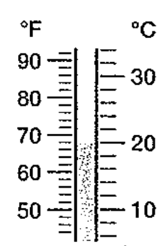
2. The temperature outside is shown on the thermometer. Write the temperature in °F and °C.



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3. Explain what this outdoor temperature might feel like.

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Name ________________________________

Topic
14

Drew's family is planning a trip to a dude ranch. The chart below shows some of the activities at the ranch.

Activity	Cost of One Ticket
Horseback riding	$16
Canoeing	$26
Rock Climbing	$12
Water Park	$32
Walking Cave Tour	$17
White Water Rafting	$44

There are 4 members in Drew's family. The family has $350 to spend on activities. Choose three things that Drew and his family can do at the ranch.

1. Make a chart to show the events you selected, the cost per ticket, an estimate for the entire family, and the exact cost for the family. For each of the three activities, choose a different method of multiplication to find the exact cost. Methods include drawing an array to solve, using partial products, using an expanded algorithm, and drawing a diagram. Show your work for each method you choose and explain the process.

2. Decide if your choices fall under the $350 limit. Explain what other activities could be added to your list and still fall under that amount.

3. Which method of multiplication works the best for you? Explain why you think so.

Name ________________________________

Topic 15

You will ask your classmates a question like the one shown.

Which of these fruits do you like best— apple, banana, orange, or peach?

1. Think of a question to ask your classmates. Write the question and 4 answer choices below.

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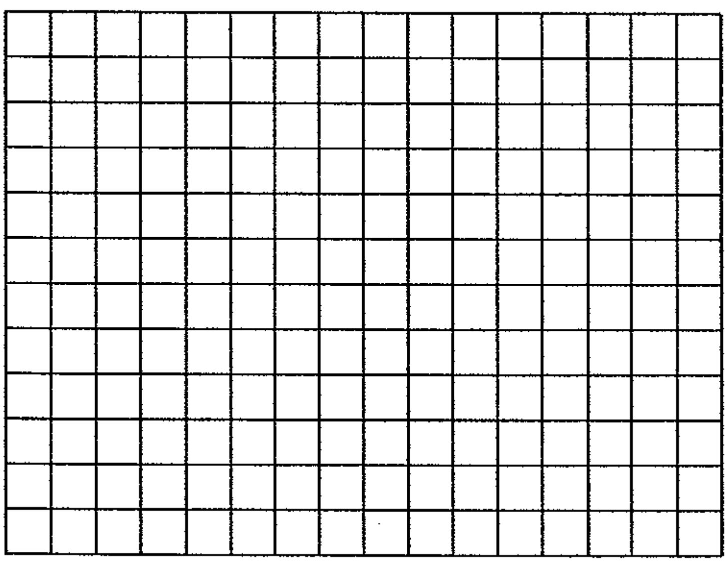
2. Ask 20 classmates your question. Draw tally marks to record the answers.

Answer Choice	Tally	Number

3. Make a bar graph to show your survey results.



For **4** and **5**, use a separate sheet of paper.

4. Write two statements that compare the data in your graph.

5. If you ask 20 more students your question, which answer choice will students likely pick? Explain.