

BEST-SUITED TO GRADE 5

RUN A SPORTS STORE

A REAL-LIFE MATH PROJECT

DECIMALS • MONEY • OPERATIONS • ESTIMATION • FRACTIONS • PATTERNS
SINGLE VARIABLE EQUATIONS • VOLUME • AREA • AND MORE!



CREATED BY SHELLEY GRAY

about this resource

You've always loved sports, and you've decided to open your very own sports store! It will be a lot of work, but it will be worth it!

In this engaging, real-life math project, your students will work with all the processes involved in opening and running a sports store. Kids LOVE these projects because they are high interest, relevant, and help them see that math really is all around them!

Here's what's included in "Run a Sports Store."

TASK
#1

A DREAM COME TRUE

You've always loved sports, and you've decided to open your very own sports store! It will be a lot of work, but it will be worth it!

First, you need to think of a name for your new business. You'll be selling all types of sporting equipment for all seasons. Write **three different options** for business names. Then circle the one you like the best.

You'll be holding a Grand Opening to get your community excited about the new business. The Grand Opening will be exactly **5 weeks from today**. What will the date of the Grand Opening be?

Design a poster for the Grand Opening. You'll be putting this poster up all over town, so be sure it catches peoples' attention and includes all the important information.

TASK #1: A DREAM COME TRUE

In this fun introductory task, students will brainstorm a name for their new business, set the open date, and design a poster to advertise.

TASK #2: FIND A BUILDING

There are three buildings for sale in town right now. Each one needs some renovations, and you'll need to decide which one will work the best for your needs.

Skills: addition/subtraction within 1,000,000, decreasing patterns

TASK
#2

FINDING A BUILDING

There are three buildings for sale in town right now. Each one needs some renovations, and you'll need to decide which one will work the best for your needs.

Building #1

Price: \$250,000

Renovations Needed and Estimated Costs:

- New flooring: \$15,000
- New paint: \$5,000
- Take out a wall: \$3,500

What is the **total cost** of buying the building **and** doing renovations?

Building #2

Price: \$160,000

Renovations Needed and Estimated Costs:

- New drywall: \$18,000
- New flooring: \$15,000
- New paint: \$7,000
- Add walls to create rooms: \$12,000
- New electrical throughout building: \$19,000
- New air conditioning: \$18,000
- Repair ceiling: \$2,000
- Repair two leaks: \$2,000

What is the **total cost** of buying the building **and** doing renovations?

List the buildings in order from least expensive to most expensive.

You've decided to purchase the building that is the least expensive. Which one will you purchase? What is the total cost of that building (with renovations included)?

You do some quick calculating. You have saved up \$50,000 to use as a **down payment**. You will be taking out a loan for the rest – but your goal is to pay it off as quickly as possible. Let's figure out how many years it will take to pay the loan off if you can pay enough to decrease the loan by \$30,000 each year.

First, how much will the loan be (*total cost minus down payment*)? _____

Next, complete the table to show how the amount of the loan decreases over time. (You may not need all the lines in the table.)

End of Year	Total Amount Owning on Loan
STARTING AMOUNT	\$186,950
Year 1	
Year 2	
Year 3	
Year 4	
Year 5	
Year 6	
Year 7	

About how many years will it take to completely pay off the building?

Paying off the building will be so exciting! Once it is paid off, what will you do with that extra money?

Building #3

Price: \$220,000

Renovations Needed and Estimated Costs:

- New public bathroom: \$13,450
- New paint: \$3,500

What is the **total cost** of buying the building **and** doing renovations?

Trophies and Engraving Section

Approximate Area Required:

Two Different Options for Dimensions:

Summer Sports Section

Approximate Area Required:

Two Different Options for Dimensions:

Before you plan the building layout, you'll need to plan each section. Give two possible options for the dimensions of each section. Use the area measurements from the "round to the nearest ten" column.

Example:

The cash register section needs to be about 50 square units. **As long as you're close to this area, that is okay.** To create a section with an area **close to 50 square units**, we could make it 5 units by 10 units, or 6 units by 8 units.

**Winter Sports Section**

Approximate Area Required:

Two Different Options for Dimensions:

TASK #3 PLAN THE LAYOUT

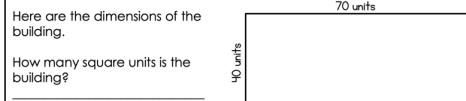
This is the part you've been waiting for! Now you get to plan the layout of your store!

Provide two different options for each section.

Shoe Section

Approximate Area Required:

Two Different Options for Dimensions:



Here are the dimensions of the building.

How many square units is the building?

Now it's time to plan the layout. Here are the sections you will need. Round each one to the nearest ten to help your planning:

Section	Approximate Area Needed	Round to the Nearest Ten
Cash Register and Check Out Desk	45 units ²	
Shoes	428 units ²	
Clothing	632 units ²	
Trophies and Engraving	35 units ²	
Summer Sports	456 units ²	
Winter Sports	425 units ²	
Sale Racks	317 units ²	
Total Area (Rounded to Nearest Ten) of All Sections		

Will all these sections fit inside your store? How do you know?

About how much space will be leftover?

TASK #3: PLAN THE LAYOUT

This is the part you've been waiting for! Now you get to plan the layout of your store!

Skills: multiplication, area

TASK #4: SUPPLIES ARE ARRIVING!

Now that you have the store layout figured out, it's time to start stocking the shelves! Today is a busy day with boxes and boxes of new inventory arriving. Let's see what's inside the boxes!

Skills: volume

TASK

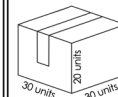
#4

SUPPLIES ARE ARRIVING!

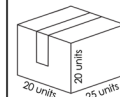
Now that you have the store layout figured out, it's time to start stocking the shelves! Today is a busy day with boxes and boxes of new inventory arriving. Let's see what's inside the boxes!

Use the clues to figure out what is in each box.

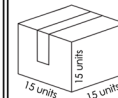
- The box with a volume of 10,000 units³ contains baseball gloves.
- The box with a volume of 5,000 units³ contains shoes.
- The box with a volume of 18,000 units³ contains tennis balls.
- The box with a volume of 3,375 units³ contains t-shirts.



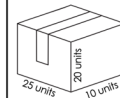
This box contains _____



This box contains _____



This box contains _____



This box contains _____

TASK

#5

THE GRAND OPENING

It's been weeks of preparing, and you are finally ready for the Grand Opening! Today is going to be a big day!

Your goal for the Grand Opening is to build relationships with the community. You want them to feel welcome in your store, and hope that they will shop with you for all their sporting needs.

Cookies For the Guests

For the Grand Opening, you've ordered cookies from a local bakery. They come in boxes of 100 and each box contains 25 oatmeal raisin, 35 chocolate chip, 30 shortbread, and 10 vanilla fudge.

Represent the cookies as a fraction and a decimal of the entire box of 100.

Cookie Type	Fraction	Decimal
Oatmeal Raisin		
Chocolate Chip		
Shortbread		
Vanilla Fudge		

Now represent the cookies

oatmeal
chocolate
shortbread
vanilla

Grand Opening Specials

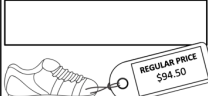
For the Grand Opening, you're running amazing deals!

All shoes are half price!

Write an equation to represent the sale price of these shoes.



SALE PRICE:



SALE PRICE:

All hats - buy two, get one free!

A customer purchases two hats. His total bill is \$47.00. He then gets a third one free. He says to his friend, "Wow! What a deal! I only paid \$14 per hat!"

Is he correct? How do you know?

Free Engraving (up to 20 characters) on all trophy purchases!
All additional letters are 35 cents per letter.

A customer purchases a trophy and wants the following phrase engraved on it:

ANNUAL SLO PITCH TOURNAMENT CHAMPIONS

What will the cost of the engraving be? Show your work.

All baseball gloves are discounted by \$9.50!

If the regular price is...	The sale price will be...
\$50	
\$36.25	
\$101.30	
\$78	

Workspace:

Free mittens with every ski goggle purchase!

You have 10 boxes of ski goggles, with 23 goggles in each box. You have 12 boxes of mittens, with 20 pairs in each box. If you sell all the ski goggles, will you have enough pairs of free mittens?

TASK #5: THE GRAND OPENING

It's been weeks of preparing, and you are finally ready for the Grand Opening! Today is going to be a big day!

Skills: fractions, decimals, money, problem-solving, addition/subtraction

TASK #6: TOO MANY WATER BOTTLES

Woah! A new delivery just arrived, but you have WAY MORE water bottles than you ordered!

Skills: operations, decreasing patterns

TASK

#6

TOO MANY WATER BOTTLES!

Woah! A new delivery just arrived, but you have WAY MORE water bottles than you ordered!

You ordered 250 green water bottles and 150 red water bottles, but the company accidentally sent you **three times that amount!** (That represents the number of water bottles you were sent.)

$$(3 \times 250) + 150 \quad 3 \times (250 + 150) \quad 3$$

Use the expression you circled to calculate the total number you were sent.

When you called the company to let them know about the "Sorry about that! You've been such a good customer that the extra water bottles. We won't charge you for them!" They **had to pay for one-third of the water bottles you received!**

How many water bottles did you have to pay for?

Let's figure out the **profit** you are going to make on this shipment. Here is all the important information:

- Your cost for a water bottle is \$2. (This is what you pay.)
- You charge your customers \$8 for a water bottle.

What is your total cost for the water bottles? (Remember, you pay for all of them.)

If you sell all the water bottles, how much money will you make?

To calculate your profit from the water bottles, subtract your total cost from the money you made. What is your profit?

Now you need to sell these water bottles! You decide to run a special and predict that you can sell about 30 water bottles per day.

How many water bottles will you sell in one week? Your store is open 5 days per week.

Now use the table to find how long it will take to sell all the water bottles.

Week Number	Number of Water Bottles Left to Sell
1	1,200
2	
3	
4	
5	
6	
7	
8	
9	

Look at the pattern in the second column of this chart. Is it increasing or decreasing?

What is the pattern rule in the second column of this chart? _____

You could have used division to figure out how many weeks it would take to sell all the water bottles. Write the division equation.

What if you can sell 40 water bottles per day instead of 30? Now how many weeks would it take to sell them all? Remember to show how you solved it.



TASK

#7

INVENTORY DAY!

Today is inventory day! You will have to count all the inventory that's on display, as well as everything that is stored in the back.



It's been a productive morning and you've made a chart to show what you've counted. Complete the chart.

Item	Number on Display	Number in Storage	Total Number (Display + Storage)
Golf clubs	180	360	
Tennis balls		1,243	4,065
Pairs of shoes	89	98	
Badminton birdies	330		2,503
Water bottles	119	237	
Hockey pucks		2,500	3,281

Use the table to complete the tasks.

Are **more than half** the water bottles in storage? Or **less than half**? Use a number line to prove your answer.



The hockey pucks that are in storage are stored in boxes of 50. How many boxes of pucks are there?

The badminton birdies are sold in packages of 6. How many packages are on display?

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TASK #7: INVENTORY DAY!

Today is inventory day! You will have to count all the inventory that's on display, as well as everything that is stored in the back.

Skills: basic operations

TASK #8: WORKING WITH PRICES

It has been a busy day at the store! Let's look at a few of the orders you've had today.

Skills: money, addition, ordering, multiplying a decimal number by 10

TASK

#8

WORKING WITH PRICES

It has been a busy day at the store! Let's look at a few of the orders you've had today.



Shoes: \$54.45



Ball Glove: \$65.79

Medals:
10 for
\$25.00Baseballs:
3 for
\$10.00

Whistle: \$0.75



Hat: \$20.99



Calculate the total for each order.

ORDER #1

ITEM	QUANTITY	TOTAL COST
Basketball	1	
Whistle	1	
Shoes	1	
TOTAL ORDER COST		

Workspace:

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Tennis balls come in 3 different packages.

 3 balls for \$9.50

 10 balls for \$27.00

 15 balls for \$37.50

Which package is the **best deal**? How do you know? Show your work to prove it.

A few of the orders in the last hour have been really close in total cost! Order them from least to greatest.

\$25.45 \$24.95 \$25.54 \$25.94 \$24.25 \$25.55

Ten of Each

A customer comes in and wants 10 of each of the following items. What is the total cost per item?

Explain the easiest way to multiply a decimal number by 10.

ITEM	COST FOR ONE	COST FOR 10
Package of tennis balls	\$37.50	
Helmet	\$42.50	
Whistle	\$0.75	
Ball glove	\$65.79	

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TASK

#9

MONTHLY SUMMARY

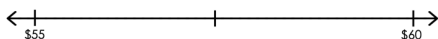
You track your orders carefully so you can make sure your business is profitable.



First, round each of the orders below to the nearest tenth of a dollar.

\$22.11 _____	\$110.56 _____	\$99.12 _____
\$187.92 _____	\$57.49 _____	\$87.87 _____
\$55.84 _____	\$37.99 _____	\$8.26 _____
\$76.18 _____	\$78.87 _____	\$59.23 _____
\$52.55 _____	\$58.75 _____	\$17.08 _____

Now highlight the rounded amounts that are between \$55 and \$60. When you are finished highlighting, write each of the amounts on the number line below.



Next, use the rounded amounts above to shade spaces on the bar graph.

NUMBER OF ORDERS BY ORDER COST

ORDER COST (ROUNDED)									
\$0 to \$20									
\$21 to \$40									
\$41 to \$60									
\$61 to \$80									
\$81 to \$100									
Over \$100									

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TASK #9: MONTHLY SUMMARY

You track your orders carefully so you can make sure your business is profitable.

Skills: rounding to nearest tenth, bar graphs

TASK #10 THE SALE RACK

When something doesn't sell for a long time, you discount it and add it to the sale rack. Let's get discounting!


We will use these letters to represent the variables (the things that might change).
R = regular price of item
S = sale price of item
D = discount

This soccer ball has got to go! You will be **reducing the price** by \$5. The **sale price** of the soccer ball is \$18.50.

Fill in the variables that you know. Circle the variable that you need to figure out.
 R = S = D =

Which equation makes sense for this discount?
 $\$18.50 = R - \5 $R - \$18.50 = \5

Now solve this equation. **What does the variable R represent?**




This pair of shoes has been here for months! You've decided to add them to the sale rack. You will be **discounting these shoes** by \$15. The **regular price** for these shoes is \$56.

Fill in the variables that you know. Circle the variable that you need to figure out.
 R = S = D =

Which equation makes sense for this discount?
 $S - \$15 = \56 $\$56 - \$15 = S$

Now solve this equation. **What does the variable S represent?**



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TASK #10: THE SALE RACK

When something doesn't sell for a long time, you discount it and add it to the sale rack. Let's get discounting!

Skills: single variable equations, operations

TASK #11 WRAP IT UP

This project has taught you all about running your own sports store! Let's reflect.

Now that you've completed this project, what do you think the best part of running a sports store would be?

What do you think the most difficult part of running a sports store would be?

Is running a sports store something you'd like to do in real life? Why or why not?

What was your favorite task in this project? Why did you like it?

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TASK #11: WRAP IT UP!

This project has taught you all about running your own sports store! Let's reflect.

digital version included

This math project is also included in a digital Google Slides format. The slides are optimized for digital use with text boxes, lots of color, and moveable pieces.

TASK #9 MONTHLY SUMMARY

You track your orders carefully so you can make sure your business is profitable.

First, round each of the orders below to the nearest tenth.

\$22.11 \$110.56 \$99.11
 \$187.92 \$57.49 \$87.88
 \$55.84 \$37.99 \$8.24

Now highlight the rounded amounts that are between \$50 and \$100.

When you are finished highlighting, write each of the amounts on the number line.

Drag the text box to the number line and type inside.



TASK #8 WORKING WITH ORDERS

It has been a busy day at the store! Let's look at the orders.

Calculate the total for each order. Show your work.

ORDER #1		
ITEM	QUANTITY	TOTAL COST
Basketball	1	
Whistle	1	
Shoes	1	
TOTAL ORDER COST		


- Shoes: \$54.45
- Ball Glove: \$65.79
- Whistle: \$0.75
- Hat: \$20.99
- Medals: 10 for \$25.00
- Baseballs: 3 for \$10.00
- Helmet: \$42.50
- Basketball: \$27.65

Grand Opening Specials

For the Grand Opening, you're running a lot of specials. Check out these amazing deals!


All shoes are half price!

Write an equation to represent the sale price of these shoes.



REGULAR PRICE: \$45.00

SALE PRICE: _____



REGULAR PRICE: \$94.50

SALE PRICE: _____

Free basketball with every basketball hoop purchase!

A basketball hoop costs \$250.00. Throughout the day, you made \$3,500 from basketball hoops. How many free basketballs did you give away today?

All hats - buy two, get one free!

A customer purchases two hats. His total bill is \$47.00. He then gets a third one free. He says to his friend, "Wow! What a deal! I only paid \$14 per hat!"

Is he correct? How do you know?

Ball Glove	2	
TOTAL ORDER COST		