

## Math Is a Chef's Friend

Fill in the circle by the correct answer. Then write the answers to numbers 3, 4, and 5.

1. Math is important in the area of giant foods because \_\_\_\_\_.  
 (A) people enjoy using a lot of ingredients  
 (B) the flavors of giant foods can be measured  
 (C) it is used to measure and compare ratios of ingredients  
 (D) it helps determine which ingredients are needed
  2. Math is helpful in adjusting recipes because \_\_\_\_\_.  
 (A) there are so many ingredients in all recipes  
 (B) most people don't use recipes or measurements  
 (C) it's not necessary to use accurate ingredients in most recipes  
 (D) recipes have measurements that can be multiplied
  3. Explain why ratios are important when chefs adjust recipes or make giant foods.
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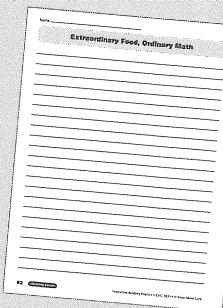
4. Could you apply the information in the text if you were trying to make a smaller version of a food? Explain why or why not.
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5. Do you agree with the title "Math Is a Chef's Friend"? Explain your answer.
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### Write About the Topic

Use the Writing Form to write about what you read.

Think of a food you can make. Explain the steps and the math operations you would use to make it for one hundred people.



# A Business Uses Math

**Level 1** ■

## Words to Know list, Reading Selection, and Reading Comprehension questions

	<b>Running a Business</b>
Fill in the circle by the correct answer(s).  <b>Running a Business</b> 	
and S.	
<b>Words to Know</b> <b>Business</b>	
<b>Income</b> <b>expenses</b> <b>cash register</b> <b>receipts</b> <b>invoices</b> <b>profit</b> <b>employees</b> <b>salary</b> <b>excess</b>	
<p><b>Business</b> is a term used to make money in order to earn a living. Businesses need to know how much money they're making so they can plan their expenses. Some businesses have systems that help them keep track of their money and expenses. These businesses use receipts to tell them exactly what a customer's purchase cost and how much profit it made. Businesses never expect to make a profit. They expect to make just enough. Some kinds of expenses are sometimes necessary for a business, like advertising fees. Some kinds of expenses are unnecessary.</p> <p><b>Excessive Expenses</b> are those that are not necessary for a business to run. Examples of these would be:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> location (from telephone, repair)</li> <li><input type="checkbox"/> making the product (machines or machinery)</li> <li><input type="checkbox"/> employees (hourly wage)</li> </ul> <p>All business owners need to make a profit, or a gain in income. A business needs to make enough money to not lose money or to break even. A business loses money if it is spending more money to run than it is making. It is not profitable.</p> <p><b>Quality and Quantity of Product</b></p> <p>Business owners must make decisions about their products and services. An ice cream shop owner must decide about his/her expenses vs his/her profit.</p> <p><b>Business Owners should always edit.</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Should be the one responsible for editing the tone, money, even though it doesn't look good.</li> <li><input type="checkbox"/> Should be the one responsible for changing the taste better.</li> <li><input type="checkbox"/> Should be the one responsible for employees at the register at all times?</li> <li><input type="checkbox"/> Should be the one responsible for the quality of the product, the taste, and the price of the product the ice cream shop's owner makes.</li> </ul> <p>The owners in these cases affect the quality of the product, the taste, and the price of the product the ice cream shop's owner makes.</p>	
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A Business Vocabulary 101	

**Level 2** ■ ■

## Words to Know list, Reading Selection, and Reading Comprehension questions

**Level 3** ■ ■ ■

## Words to Know list, Reading Selection, and Reading Comprehension questions

**Making a Profit**

Fill in the circle by the correct answer.

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## Making a Profit

There are many kinds of business, and each can have different purposes. They are similar in that they all try to make a profit.

**Businesses Help to Make Products**

Businesses help to make things. First, brick and mortar business owners usually buy or rent a property to sell products. Owners usually must invest their own money to start a business. They also must pay taxes and fees that are paid to the government on wages and electricity and heat. Most businesses sell products or services to other businesses. For this, they often create special sales slips, checks, and payment methods. These are called "accounts receivable." Account receivable business owners pay expenses for that service and time.

A business's income should cover its expenses. The goal of most business owners is to make a profit. Business owners may make money after expenses are paid. So, how do business owners decide what to charge?

**Business Owners Make Decisions Based on Costs**

Business owners must consider the time and cost of many things, including labor, raw materials, and equipment. They must also consider transportation costs. Some businesses have an opportunity to make more money if they keep track of their expenses and record them in financial records. An experienced business owner keeps records of all expenses so that he or she knows exactly where each regular item, like a telephone bill, fits into the budget. Business owners calculate the amount of money they expect to receive from selling goods or services over a period of time. This is called "revenue."

Business owners must know when a business is losing money and the owner doesn't know why. That's where a "balance sheet," or "income statement," comes in. It shows a company's merchandise and stock levels, as well as its expenses and profits. An owner can compare his or her income to his or her expenses to decide to which to the highest profit.

Words to Know

Making a Profit

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profit  
manage  
expenses  
income  
quest  
incur  
brick and mortar  
utilities  
employees  
deliverance  
recipients  
Invoices  
merchandise  
refunds

Using math to calculate profit  
page 10 of a business plan

Ninth-grade Reading • UNIT 1

A Business Unit Plan ■ 83

## **Assemble the Unit**

Reproduce and distribute one copy for each student:

- Visual Literacy page: A Business Uses Math, page 101
  - Level 1, 2, or 3 Reading Selection and Reading Comprehension page and the corresponding Words to Know list
  - Graphic Organizer of your choosing, provided on pages 180–186
  - Writing Form: A Business Uses Math, page 102

## **Introduce the Topic**

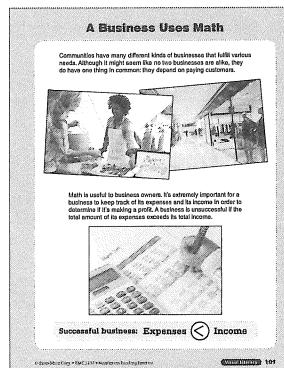
Read aloud the text and discuss the photos on page 101. Point out that there are many kinds of businesses, and ask students what kinds of businesses they have visited. Explain that all businesses depend on money, and they need to make enough money to cover their expenses. Point out that math is useful to business owners.

## **Read and Respond**

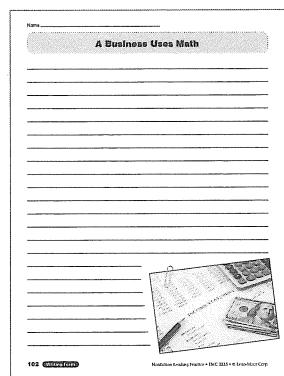
Form leveled groups and review the Words to Know lists with each group of students. Instruct each group to read their selection individually, in pairs, or as a group. Have students complete the Reading Comprehension page for their selection.

## **Write About the Topic**

Read aloud the leveled writing prompt for each group. Tell students to use the Graphic Organizer to plan their writing. Direct students to use their Writing Form to respond to their prompt.



Visual Literacy



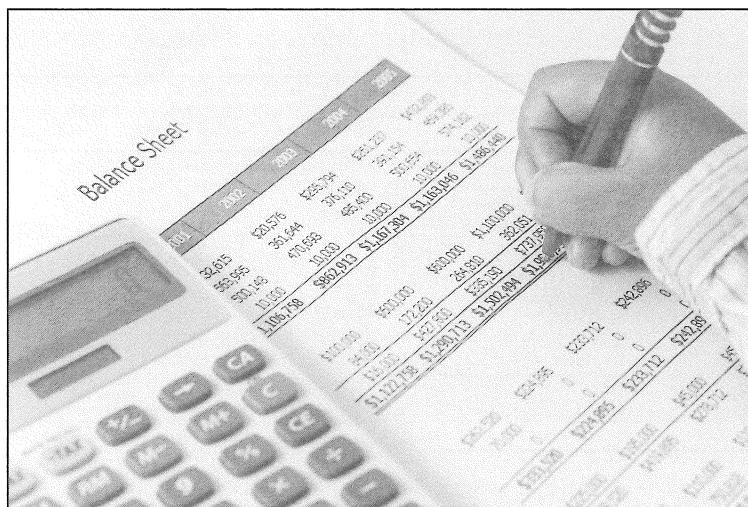
## Writing Form

# A Business Uses Math

Communities have many different kinds of businesses that fulfill various needs. Although it might seem like no two businesses are alike, they do have one thing in common: they depend on paying customers.



Math is useful to business owners. It's extremely important for a business to keep track of its expenses and its income in order to determine if it's making a profit. A business is unsuccessful if the total amount of its expenses exceeds its total income.



## **Successful business: Expenses < Income**

# A Business Uses Math



## **Words to Know**

### **Running a Business**

income  
expenses  
cash register  
receipts  
invoices  
profit  
employees  
salary  
exceed

## **Words to Know**

### **All Businesses Use Math**

sole  
passionate  
car dealerships  
fulfill  
profits  
expenses  
employee  
receipts  
ultimately  
exceeds

## **Words to Know**

### **Making a Profit**

profit  
manage  
expenses  
income  
quest  
incur  
brick and mortar  
utilities  
employees  
deliberate  
satisfaction  
receipts  
invoices  
merchandise  
refunds

**A Business Uses Math ■**

**A Business Uses Math ■■**

**A Business Uses Math ■■■**

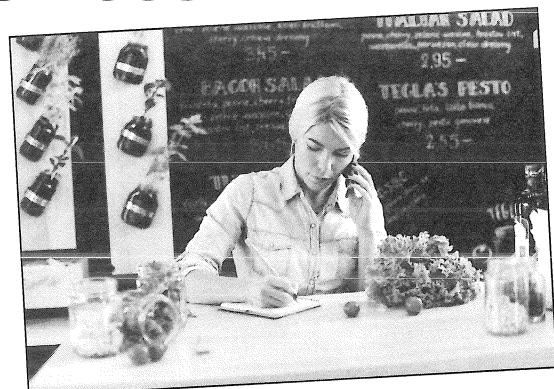


# Running a Business

Most communities have restaurants, grocery stores, clothing shops, bakeries, and more. We spend our money at these businesses. Have you ever reflected on what it takes to run a business? It may seem easy, but business owners have a lot of things to consider. And an important part of their job involves math.

## Money: Income and Expenses

Businesses need to make money in order to continue running. Business owners must keep track of how much money they're making and how much they're spending. Successful owners have a system that helps them keep track of this. Many stores use a cash register. Most businesses use receipts or invoices, which show details of a customer's purchase and the amount paid or owed. Business owners record expenses and income to figure out how much profit the business made. Businesses' expenses can vary depending on the kind of work being done. Some kinds of expenses are common for most businesses.



### Expenses Common to Most Businesses:

- location (rent, electricity, repairs)
- making the product (materials, tools or machinery)
- employees (salary, uniforms)

All business owners want to make a profit, or a gain in money. A business needs to make enough money to at least cover its expenses. If a business loses money, or if expenses exceed income, the business is not profitable.

## Quantity and Quality of Product

Business owners must make decisions about their products and services. An ice cream shop's owner may think about his expenses versus his profits:

### How many flavors should the store offer?

- Should we use the less expensive flavoring to save money, even though it doesn't taste as good?
- Should we use the more expensive flavoring that tastes better?
- Should the store have two employees at the registers at all times?

The answers to these questions affect the quality of the product, the service, and the amount of profit the ice cream shop's owner can make.

## Running a Business

Fill in the circle by the correct answer. Then write the answers to numbers 3, 4, and 5.

1. Business owners can use receipts to \_\_\_\_\_.  
 A calculate total purchases  
 B improve how the cash register functions  
 C provide a service to a customer  
 D create a product to sell
2. Math is useful to business owners because it \_\_\_\_\_.  
 A is the most important school subject  
 B teaches them how to be patient with customers  
 C helps them make decisions that lead to a bigger profit  
 D helps them attract more customers
3. Explain how a business owner can determine whether or not a profit is being made.  


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4. Name a business in your town. Then write a question the owner may have considered.  


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5. List two ways in which an ice cream shop is similar to a sock shop.  


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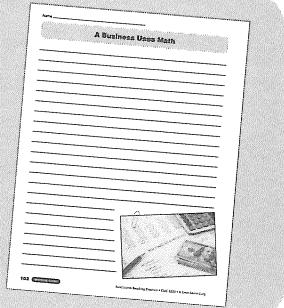
  


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### Write About the Topic

Use the Writing Form to write about what you read.

Explain what would happen if a business owner didn't consider income and expenses. Use text details and your own examples.



# All Businesses Use Math

Some people start a business for the sole purpose of making money. Other people start a business to do what they're passionate about or to help others. No matter what the purpose is, a business depends on money and math.

## Not All Businesses Are Alike

Have you ever noticed the variety of businesses in your community? Restaurants, bakeries, grocery stores, clothing shops, car dealerships, hardware stores, gyms, and salons are some of the businesses found in most towns. Some businesses offer services rather than products. We go to different businesses to fulfill different needs. But there's one thing they all have in common: they depend on customers who spend money.

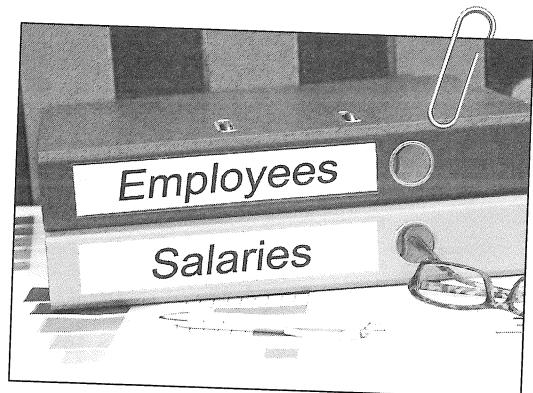
## All Businesses Need to Make Money

Although businesses may have a different focus, all business owners are trying to make money. They make decisions that they believe will lead to higher profits, or gains in money. All businesses have expenses that need to be paid to keep the business running. Business owners make a lot of important decisions.

Owners Make Decisions About...	Questions for Owners to Answer
Staff	How many employees should we hire? How much should each employee be paid per hour?
Products	Should we use more expensive materials that are better quality or cheaper materials to save money? Should we offer more choices?
Time	Should the business be open or closed on weekends? Are there additional expenses when the business is open, such as electricity usage?

## Math Is Useful to a Business Owner

Business owners can use receipts, invoices, and other records to determine their business's income. They can save their own purchase receipts to keep track of their expenses. Ultimately, owners need to ensure that their income exceeds their expenses. They can figure out how much money was spent or gained in one day, for example, if they know how many employees were working, how many hours the business was open, how much each employee makes per hour, and how to tally sales receipts that show customers' purchases.



## All Businesses Use Math

Fill in the circle by the correct answer. Then write the answers to numbers 3, 4, and 5.

1. Which is a similarity between a restaurant and a bookstore?
    - (A) Its main expense has an expiration date.
    - (B) The business uses equipment to make its products.
    - (C) Customers purchase a product they can use for years.
    - (D) Customers pay to receive a product.
  
  2. Business owners could \_\_\_\_\_ if they notice that their expenses exceed their income.
    - (A) change their purpose
    - (B) cut expenses by using cheaper materials
    - (C) hire more staff and give them a raise in pay
    - (D) change the store's hours to a time that's less busy
  
  3. Describe some math operations a business owner could use to calculate a day's income.
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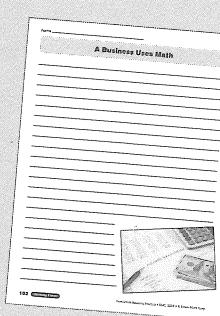
4. Why would owners choose to keep a business open for fewer hours?
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5. Why are profits significant for a business?
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### Write About the Topic

Use the Writing Form to write about what you read.

Do math and money affect every decision a business owner makes? Write an argument for why or why not. Use text details.



# Making a Profit

There are many kinds of businesses, and they all serve different purposes. They are similar in that all business owners use math to manage expenses and income in their quest to make a profit.

## Businesses Need to Make Money

Businesses incur many expenses. First, brick and mortar business owners either have to buy or rent a property to conduct business. Renting usually means that fees are paid monthly. Utilities such as water and electricity are additional monthly expenses. Next, business owners must buy materials and equipment so they can create the product they're selling or perform services for customers. For example, a hair salon needs special sinks, chairs, scissors, and hair dryers. These are expenses for that business. Another expense is staff. Business owners pay employees for their work and time.

A business's income should cover expenses. The goal of most business owners is to make a profit so they have extra money after all expenses are paid. So, how do owners make business decisions that will result in healthy profits?

## Business Owners Make Deliberate Decisions

Business owners consider the time and cost of many things, including location, staff, required materials and equipment, and customer satisfaction. For every hour that a business is open, there is an opportunity to make more money. An organized business owner keeps receipts, invoices, and other financial records that keep track of outgoing and incoming money. Some businesses have a specific process for closing the cash register every night. Many businesses spend money on advertising to attract more customers. Some business owners calculate the amount of money they make at specific times and close their businesses or reduce their hours during slow times.

It can be frustrating when a business is losing money and the owner doesn't know why. Some businesses experience a "slow season," when fewer customers want their product or service. Sometimes, customers return merchandise and ask for refunds. An owner is constantly balancing expenses and income to reach for the highest profit.



Using math to total income and expenses is part of running a successful business.