

## Unit 4

# Paying Taxes

### Lesson 4B:

## Understanding Taxes

### Rule 4: Contribute your share.

The difference between gross income and net income is the money that must be paid in taxes to various levels of government. People have a say in how taxes are collected and spent primarily through the people they elect to run the government. These lessons look at what the government does with tax revenue—spends it on goods and services—and how taxes are structured and collected.

### Lesson Description

Students discuss factors that make various taxes different: bases, rates, structures, methods of collection, and the level of government imposing the tax. They learn a simple tax formula and information about four common types of taxes (income, payroll, sales, and property). Students apply this knowledge to calculate for three households the total taxes paid and net income based on gross income and expenditures.

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### Standards and Benchmarks (see page 99)

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### Grade Level

9-12

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### Concepts

Gross income

Net income (disposable income)

Tax base

Tax rate

Tax structures (progressive, proportional, and regressive)

Types of taxes (income, payroll, sales, and property)

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### Making Personal Finance Decisions

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## Compelling Question

How do various types of taxes affect people differently?

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## Objectives

Students will be able to

- define and use a simple tax formula (tax base  $\times$  tax rate) to determine the amount of taxes paid;
  - explain and recognize tax structures;
  - describe the most common types of taxes—income, payroll, sales, and property; and
  - calculate a household's total taxes and net income based on that household's gross income and expenditures.
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## Materials

- Visuals 4.B1: Tax Structures
  - Visual 4.B2: Characteristics of Common Taxes (Optional: One copy of Visual 4B.2 for each student)
  - Handout 4B.1: Calculating Taxes and Net Income, one copy for each student and one copy for the teacher to use as a visual
  - Handout 4B.1 Calculating Taxes and Net Income—Part B Answer Key
  - Handout 4B.2 Assessment, one copy for each student
  - Handout 4B.2 Assessment—Answer Key
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## Time Required

45 minutes

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## Procedure

1. Begin the class by discussing the following:
    - What taxes do people, including yourself, have to pay? (*Answers will vary, but students will likely note sales taxes or many other taxes such as income taxes, excise taxes, tariffs, property taxes, or payroll taxes.*)
    - Are all these taxes the same? (*No*)
    - What makes them different from each other? (*Answers will vary but will likely focus on the tax rate, what the tax is collected for, or how and when the taxes are paid.*)
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2. Explain that this lesson will look at the most common taxes people pay and how these taxes differ. For most taxes, the dollar amount paid is determined by multiplying the **tax base** by a **tax rate**.
3. Display *Visual 4B.1: Tax Structures* and refer to the equation at the top. Explain the following:
  - Capital B is the tax base—typically, the dollar value of something such as income, property, or an amount spent for a good or service.
  - Lowercase t is the tax rate—usually expressed as a percentage or decimal, for example, 6 percent or 0.06.
  - Capital T is the amount of taxes paid. For example, if the tax base is \$10,000 and the tax rate is 5 percent (or 0.05), the taxes paid would be \$500 ( $\$10,000 \times 0.05$ ). Note that when writing the formula, the decimal expression of the tax rate is used.
  - Taxes paid may differ based on the tax base and the tax rate.
  - The **tax structure** describes how the tax rate changes as the size of the tax base changes.
4. Refer to the three tax structures on Visual 4B.1: progressive, proportional (flat), and regressive. Explain each as follows:

**Progressive Tax**

- With a progressive tax, the tax rate increases as the base increases—People with higher base amounts pay a larger percentage of the base in taxes than those with lower base amounts.

**Proportional (Flat) Tax**

- With a proportional tax, the tax rate stays the same for all tax base amounts.
- A proportional tax is also called a flat tax—everyone pays the same tax rate regardless of the amount of the tax base.

**Regressive Tax**

- With a regressive tax, the tax rate decreases as the tax base increases. That is, people with higher base amounts pay a lower percentage of the base in taxes than those with lower base amounts.
- With a regressive tax, although those with higher bases pay a lower tax rate, they still pay more taxes in terms of dollars.
- The structure of the tax does not depend on the amount of taxes paid *in dollars* but on how the tax rate changes as the size of the tax base changes. (In each example on *Visual 4B.2: Characteristics of Common Taxes*, those with the higher tax base pay more taxes *in terms of dollars*).

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5. Display Visual 4B.2. (Option: Distribute a copy of Visual 4B.2 to each student.) Explain that the chart summarizes characteristics of four common taxes people pay with respect to the tax base, the tax structure (described in Step 4), how the tax is collected, and which level of government imposes the tax. Discuss each as follows:

**Income Tax**

- The tax base for income tax is the income, or money, people earn from any source.
- Most people earn income by working (providing their human resources in the marketplace), which is called wage or salary income. People can also earn income in the form of interest on their savings, dividends from their stocks, rents on property owned, royalties on copyrighted material, profits from a small business, and other ways.
- Federal incomes taxes have a progressive rate structure, as do most state income taxes.

**Payroll Tax**

- The tax base for payroll taxes is *only* wage and salary income—*not* all income. For example, income earned from interest is not subject to payroll taxes.
- Typically, both the wage earner—the employee—and his or her employer pay payroll taxes on the wages earned (and usually the tax rate paid by both is the same, although it doesn't have to be). For example, if a wage earner earned \$400 during a pay period and the payroll tax was 6 percent, \$24 ( $\$400 \times 0.06$ ) would be deducted for payroll taxes from the employee's check, and the employer would also have to pay \$24. The government would thus receive \$48 in payroll taxes (which is 12 percent of the employee's wages).
- Payroll taxes may be capped at a certain income level. Beyond that cap, neither the wage earner nor the employer pays any additional payroll taxes. For example, in 2016, the income cap on the Social Security portion of payroll taxes was \$118,500. So, this tax would be proportional below \$118,500 but regressive at wage levels above \$118,500 (the tax rate would fall as wages earned exceeded the cap). For example, a person with wages of \$237,000, which is twice the cap, would be paying half the stated payroll tax rate since only half of that person's income would be subject to the tax.
- In 2016, the Medicare portion of payroll taxes was uncapped and had a tax rate of 1.45 percent, making it a proportional tax.

**Sales Tax**

- The tax base for sales taxes is the purchase amount of the good and service.
- Sales tax is usually a fixed percentage. It is a proportional tax based on the purchase amount.
- Relative to income, however, sales taxes tend to be regressive because people with lower incomes spend a larger percentage of their incomes on goods and services.

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- For example, consider a 5 percent sales tax. A household with a \$25,000 income might spend 80 percent of that income (\$20,000) on goods and services and thus pay \$1,000 ( $\$20,000 \times 0.05$ ) in sales tax. In contrast, a household with a \$100,000 income might spend 60 percent of that income (\$60,000) on goods and services and pay \$3,000 ( $\$60,000 \times 0.05$ ) in sales tax. Relative to their incomes, the lower-income household would be paying 4 percent of its income ( $\$1,000/\$25,000$ ) in sales taxes, while the higher-income household would be paying only 3 percent ( $\$3,000/\$100,000$ ).
- Many states recognize that sales taxes are regressive and thus exclude some items (those most often purchased by lower-income households, such as food and clothing) from sales tax to make the tax less regressive.
- The federal government also collects taxes on the purchase of certain items, such as cigarettes, tires, and gasoline. Such sales taxes on specific items are called excise taxes and have different tax rates for different items.

### Property Tax

- The base for a property tax (also called a real estate or personal property tax) is typically the assessed value of the land and house a household owns.
  - The assessed value is often based on the “market value,” which is the estimated price that the property would sell for. Property taxes are usually proportional.
6. Distribute a copy of *Handout 4B.1: Calculating Taxes and Net Income* to each student. Give the following example to show how to use the income tax table on the handout to calculate taxes owed:
- Suppose a household has an income of \$76,000.
  - This amount is “over \$40,000 but not over \$100,000,” so the tax should be calculated using line 3 of the table.
  - The income tax owed would be \$7,000 plus 25 percent of the amount over \$40,000.
  - The amount over \$40,000 is \$36,000 ( $\$76,000 - \$40,000 = \$36,000$ ).
  - $\$36,000 \times 0.25 = \$9,000$ .
  - The total tax owed is \$16,000 ( $\$7,000 + \$9,000$ ).
7. Arrange students in small groups and instruct them to complete Part A of Handout 4B.1. Allow time for students to complete the activity and then review their answers.

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**Handout 4B.1—Part A Answer Key**

- a. *Proportional and progressive: The income tax is proportional up to \$10,000 and then progressive for all remaining income levels.*
  - b. *Proportional and regressive: The payroll tax is proportional for wage/salary income up to \$100,000 and then regressive for wage/salary above \$100,000.*
  - c. *Regressive: The payroll tax is regressive if the household has any non-wage income (e.g., interest and dividends).*
  - d. *Proportional*
  - e. *Regressive: The sales tax is regressive relative to income, assuming lower-income households spend a larger portion of their income on goods and services.*
  - f. *Proportional*
8. Explain the following:
- **Gross income** is the amount people earn before any deductions or taxes are paid.
  - **Net (or disposable) income** is all income received (gross income) minus taxes.
  - Households can basically do two things with their net income: spend it on goods and services (including contributions to others to purchase goods and services) or save it.
  - A household's gross income is the sum of the taxes it pays, the amount it spends, and the amount it saves.
9. Choose one of the following options for students to complete Part B of Handout 4B.1:
- Have students work in groups of three, with one student assigned to each household and students assisting each other as necessary. Allow time for students to work and then display Handout 4B.1—Part B Answer Key and review the answers.
  - Assign Handout 4B.1 as homework. Discuss the answers the next day in class using Handout 4B.1—Part B Answer Key.

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**Closure**

10. Explain the following:
- The government imposes many different types of taxes.
  - It is important to understand different tax types because they determine the net income you have available to spend and/or save.
  - Because of taxes, your net income will generally be less than the income you receive from working and other sources.

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- The various levels of government set taxes, including what is taxed, and the tax base, and tax rates. As such, the government determines the tax structure.
  - Households choose the taxes they pay primarily through the people they elect to run the government.
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## Assessment

11. Distribute a copy of *Handout 4B.2: Assessment* to each student. Review the directions and allow time for students to work (or assign as homework). Review the answers with *Handout 4B.2—Answer Key*.

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## Visual 4B.1: Tax Structures

$$B \times t = T$$

(Tax Base  $\times$  Tax Rate = Taxes Paid)

**Progressive taxes**

The tax rate increases as the tax base increases.

Tax base	Tax rate	Taxes paid
\$ 20,000	10% (0.10)	\$ 2,000
\$ 60,000	20% (0.20)	\$12,000
\$250,000	30% (0.30)	\$75,000

**Proportional (flat) taxes**

The tax rate stays the same for all amounts of the tax base.

Tax base	Tax rate	Taxes paid
\$ 20,000	10% (0.10)	\$ 2,000
\$ 60,000	10% (0.10)	\$ 6,000
\$250,000	10% (0.10)	\$25,000

**Regressive taxes**

The tax rate decreases as the tax base increases.

Tax base	Tax rate	Taxes paid
\$ 20,000	10% (0.10)	\$2,000
\$ 60,000	8% (0.08)	\$4,800
\$250,000	5% (0.05)	\$7,500

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## Visual 4B.2: Characteristics of Common Taxes

Tax	Base	Rate structure	How collected	Government level(s)
<b>Income tax</b>	All income	Progressive	Withheld over the year; file tax form once a year	Federal, most states, some local
<b>Payroll tax</b>	Wage/salary income	Social Security: regressive due to income cap; Medicare: proportional	Withheld from each paycheck	Federal
<b>Sales tax</b>	Value of goods and services purchased	Proportional based on purchase price; regressive relative to income	Paid at time of purchase	Most states, some local
<b>Property tax</b>	Property value (house/land)	Proportional based on property value	Paid in one or two payments per year or as part of the owner's mortgage payment	Mostly local

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**Handout 4B.1: Calculating Taxes and Net Income (page 1 of 2)**

Name: \_\_\_\_\_

**Part A**

Suppose the following describes the various taxes in an economy:

**Income Tax**

If income is over...	but not over...	the income tax owed is...	of the amount over...
\$ 0	\$ 10,000	10%	\$ 0
\$ 10,000	\$ 40,000	\$1,000 + 20%	\$ 10,000
\$ 40,000	\$100,000	\$7,000 + 25%	\$ 40,000
\$100,000	\$300,000	\$22,000 + 30%	\$100,000
\$300,000	...	\$82,000 + 40%	\$300,000

**Payroll Tax:** 6% of wage/salary income earned up to \$100,000 (wage/salary income earned in excess of \$100,000 is taxed at 0%)

**Sales Tax:** 5% on all goods and services purchased

**Property Tax:** 1% of the assessed value of the land and house

**Directions:** Based on the tax rates noted above, determine whether the tax structure of each tax noted below is progressive, proportional, regressive, or a combination of two tax structures.

- \_\_\_\_\_ The income tax based on all income
- \_\_\_\_\_ The payroll tax based on wage or salary income
- \_\_\_\_\_ The payroll tax based on all income
- \_\_\_\_\_ Sales tax based on purchases of goods and services
- \_\_\_\_\_ Sales tax relative to all income
- \_\_\_\_\_ The property tax based on property values

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**Handout 4B.1: Calculating Taxes and Net Income (page 2 of 2)****Part B**

Directions: For each of the following households, calculate each tax owed based on the rates in Part A, the total taxes owed, net income, and savings.

**Hultstrom Household**

Wage and salary income: \$20,000  
 Other income: \$0  
 Purchases of goods and services: \$15,000  
 Value of land and house: \$0 (They rent.)

**Income tax:** \_\_\_\_\_  
**Payroll tax:** \_\_\_\_\_  
**Sales tax:** \_\_\_\_\_  
**Property tax:** \_\_\_\_\_  
**Total taxes:** \_\_\_\_\_  
**Net income:** \_\_\_\_\_  
**Savings:** \_\_\_\_\_

**Rodriguez Household**

Wage and salary income: \$60,000  
 Other income: \$0  
 Purchases of goods and services: \$36,000  
 Value of land and house: \$100,000

**Income tax:** \_\_\_\_\_  
**Payroll tax:** \_\_\_\_\_  
**Sales tax:** \_\_\_\_\_  
**Property tax:** \_\_\_\_\_  
**Total taxes:** \_\_\_\_\_  
**Net income:** \_\_\_\_\_  
**Savings:** \_\_\_\_\_

**Jones Household**

Wage and salary income: \$200,000  
 Other income: \$50,000 (interest and dividend income)  
 Purchases of goods and services: \$140,000  
 Value of land and house: \$1,000,000

**Income tax:** \_\_\_\_\_  
**Payroll tax:** \_\_\_\_\_  
**Sales tax:** \_\_\_\_\_  
**Property tax:** \_\_\_\_\_  
**Total taxes:** \_\_\_\_\_  
**Net income:** \_\_\_\_\_  
**Savings:** \_\_\_\_\_

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## Handout 4B.1: Calculating Taxes and Net Income—Part B Answer Key

### Part B

Directions: For each of the following households, calculate each tax owed based on the rates in Part A, the total taxes owed, net income, and savings.

#### Hultstrom Household

Wage and salary income: \$20,000

Other income: \$0

Purchases of goods and services: \$15,000

Value of land and house: \$0 (They rent.)

**Income tax:**  $\$1,000 + (\$10,000 \times 0.20) = \$3,000$

**Payroll tax:**  $\$20,000 \times 0.06 = \$1,200$

**Sales tax:**  $\$15,000 \times 0.05 = \$750$

**Property tax:**  $\$0 \times 0.01 = \$0$

**Total taxes:**  $\$3,000 + \$1,200 + \$750 + \$0 = \$4,950$

**Net income:**  $\$20,000 - \$4,950 = \$15,050$

**Savings:**  $\$15,050 - \$15,000 = \$50$

#### Rodriguez Household

Wage and salary income: \$60,000

Other income: \$0

Purchases of goods and services: \$36,000

Value of land and house: \$100,000

**Income tax:**  $\$7,000 + (\$20,000 \times 0.25) = \$12,000$

**Payroll tax:**  $\$60,000 \times 0.06 = \$3,600$

**Sales tax:**  $\$36,000 \times 0.05 = \$1,800$

**Property tax:**  $\$100,000 \times 0.01 = \$1,000$

**Total taxes:**  $\$12,000 + \$3,600 + \$1,800 + \$1,000 = \$18,400$

**Net income:**  $\$60,000 - \$18,400 = \$41,600$

**Savings:**  $\$41,600 - \$36,000 = \$5,600$

#### Jones Household

Wage and salary income: \$200,000

Other income: \$50,000 (interest and dividend income)

Purchases of goods and services: \$140,000

Value of land and house: \$1,000,000

**Income tax:**  $\$22,000 + (\$150,000 \times 0.30) = \$67,000$

**Payroll tax:**  $\$100,000 \times 0.06 = \$6,000$

**Sales tax:**  $\$140,000 \times 0.05 = \$7,000$

**Property tax:**  $\$1,000,000 \times 0.01 = \$10,000$

**Total taxes:**  $\$67,000 + \$6,000 + \$7,000 + \$10,000 = \$90,000$

**Net income:**  $\$250,000 - \$90,000 = \$160,000$

**Savings:**  $\$160,000 - \$140,000 = \$20,000$

### Making Personal Finance Decisions

**Handout 4B.2: Assessment**

Name: \_\_\_\_\_

Directions: Use the information on Handout 4B.1 to calculate for each taxpayer the taxes paid, total tax rates, and net income.

**Taxpayer A** has a gross income of \$200,000 and spends 50 percent of her income on goods and services taxable under the sales tax.

**Taxpayer B** has a gross income of \$40,000 and spends 70 percent of his income on goods and services taxable under the sales tax.

Taxes	Taxpayer A		Taxpayer B	
	\$ Paid	% Paid	\$ Paid	% Paid
Income tax				
Payroll tax				
Sales tax				
Total taxes*				
Net income				

\*Includes income, payroll, and sales taxes.

Write a paragraph that addresses the following:

- Describe each type of tax and use Taxpayers A and B to explain whether each tax is progressive, proportional, or regressive. State the percentages paid in your explanation.
- Explain whether total taxes (as a percentage of income) are progressive, proportional, or regressive.
- State each taxpayer's net income.

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### Handout 4B.2: Assessment—Answer Key

Directions: Use the information on Handout 4B.1 to calculate for each taxpayer the taxes paid, total tax rates, and net income.

**Taxpayer A** has a gross income of \$200,000 and spends 50 percent of her income on goods and services taxable under the sales tax.

**Taxpayer B** has a gross income of \$40,000 and spends 70 percent of his income on goods and services taxable under the sales tax.

Taxes	Taxpayer A		Taxpayer B	
	\$ Paid	% Paid	\$ Paid	% Paid
<b>Income tax</b>	52,000	26	7,000	17.5
<b>Payroll tax</b>	6,000	3	2,400	6
<b>Sales tax</b>	5,000	2.5	1,400	3.5
<b>Total taxes*</b>	63,000	31.5	10,800	27
<b>Net income</b>	137,000		29,200	

\*Includes income, payroll, and sales taxes.

Write a paragraph that addresses the following:

- Describe each type of tax and use Taxpayers A and B to explain whether each tax is progressive, proportional, or regressive. State the percentages paid in your explanation.
- Explain whether total taxes (as a percentage of income) are progressive, proportional, or regressive.
- State each taxpayer's net income.

*The income tax is progressive. Taxpayer A had much higher gross income and paid a higher tax rate (26 percent) than Taxpayer B (17.5 percent). The payroll tax is regressive. Even though Taxpayer A has a much higher income, she paid a lower percentage of income (3 percent) in payroll taxes than Taxpayer B (6 percent). The sales tax is proportional based on purchases of goods and services but regressive relative to income. Even though taxpayer A has a much higher income, she paid a lower percentage of income (2.5 percent) in sales taxes than Taxpayer B (3.5 percent). The total taxes paid by both are progressive. Taxpayer A had a higher income and paid a higher percentage (31.5 percent) of her income in taxes than taxpayer B (27 percent). After the taxes are paid, Taxpayer A has a higher net income (\$137,000) than Taxpayer B (\$29,200).*

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## Standards and Benchmarks

### Voluntary National Content Standards in Economics

**Standard 16: Role of Government and Market Failure.** There is an economic role for government in a market economy whenever the benefits of a government policy outweigh its costs. Governments often provide for national defense, address environmental concerns, define and protect property rights, and attempt to make markets more competitive. Most government policies also have direct or indirect effects on people's incomes.

- **Benchmarks: Grade 8**
  3. Most federal government tax revenue comes from personal income and payroll taxes. Payments to Social Security recipients, the costs of national defense and homeland security, medical expenditures (such as Medicare), transfers to state and local governments, and interest payments on the national debt constitute the bulk of federal government spending.
  4. Most state and local government revenues come from sales taxes, grants from the federal government, personal income taxes, and property taxes. The bulk of state and local government revenue is spent for education, public welfare (including hospitals and health), road construction and repair, and public safety.
- **Benchmark: Grade 12**
  10. Different tax structures affect consumers and producers differently.

### National Standards for Financial Literacy

**Standard 1: Earning Income.** Income for most people is determined by the market value of their labor, paid as wages and salaries. People can increase their income and job opportunities by choosing to acquire more education, work experience, and job skills. The decision to undertake an activity that increases income or job opportunities is affected by the expected benefits and costs of such an activity. Income also is obtained from other sources such as interest, rents, capital gains, dividends, and profits.

- **Benchmarks: Grade 12**
  7. Taxes are paid to federal, state, and local governments to fund government goods and services and transfer payments from government to individuals. The major types of taxes are income taxes, payroll (Social Security) taxes, property taxes, and sales taxes.
  8. People's sources of income, amount of income, as well as the amount and type of spending affect the types and amounts of taxes paid.

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