Dividend-Paying Stocks
Lesson Plan

Objective:
Introduce students to fundamental concepts of investing in dividend-paying stocks as an alternative to low-yield savings accounts and money market accounts.

Students will be able to:

- Understand the vocabulary associated with dividend-paying stocks
- Calculate yield on a stock purchase at any particular value
- Analyze different options for building a portfolio of dividend-paying stocks
- Calculate return on investment including price swings and dividend payouts

Consumer Math Standards and Benchmarks
Common Core State Standards Initiative (CCSSI): The Common Core State Standards Initiative is a state-led effort coordinated by the National Governors Association Center for Best Practices (NGA Center) and the Council of Chief State School Officers (CCSSO), developed to standardize learning practices across the nation and prepare students for college.

CCSSI Mission Statement: Provide a consistent, clear understanding of what students are expected to learn, so teachers and parents know what they need to do to help them. The standards are designed to be robust and relevant to the real world, reflecting the knowledge and skills that our young people need for success in college and careers. With American students fully prepared for the future, our communities will be best positioned to compete successfully in the global economy.

This lesson corresponds with the eight Standards for Mathematical Practice as published by CCSSI:

Mathematical Practices
1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

The National Standards in K-12 Personal Finance Education
The National Standards in K-12 Personal Finance Education were created and are maintained by the Jump$tart Coalition® for Personal Financial Literacy. The Standards outline the personal finance knowledge and skills that K-12 students should possess.

The Jump$tart Coalition asserts that all young people graduating from high school should be able to take individual responsibility for their personal economic well-being. Financially literate high school graduates should know how to:

- Find, evaluate, and apply financial information.
- Set financial goals and plan to achieve them.
- Develop income-earning potential and the ability to save.
- Use financial services effectively.
- Meet financial obligations.
- Build and protect wealth.

Standards Addressed

Financial Responsibility and Decision Making

- Standard 1**:** Take responsibility for personal financial decisions.
- Standard 2**:** Find and evaluate financial information from a variety of sources.
- Standard 4**:** Make financial decisions by systematically considering alternatives and consequences.

Planning and Money Management

- Standard 2**:** Develop a system for keeping and using financial records.
- Standard 6**:** Develop a personal financial plan.

Risk Management and Insurance

- Standard 1**:** Identify common types of risks and basic risk management methods.

Saving and Investing

- Standard 2**:** Explain how investing builds wealth and helps meet financial goals.
- Standard 3**:** Evaluate investment alternatives.
- Standard 4**:** Describe how to buy and sell investments.

Teaching Materials

- Lesson plan
- Student content document
- Analytical examples with pre-calculated examples
- Assessment/evaluation worksheet

Lesson Activity

Determine prior knowledge: suggested questions to ask the group to determine prior knowledge of fundamental vocabulary and concepts.

- How many of you have a savings account?
    - Do you know the interest rate on the account?
- How have interest rates changed in the last 10 years?
    - How do rates change, who changes them, and why do they change?
    - What economic environments cause rates to rise and fall?
- Have you heard of a dividend? If so, what is it?

Introduce/Present Student Content Document (see attachment)

- Read pages one and two.
- Ask the class to answer the questions on page two
    - What do you do with your extra money?
        - If you spend, what do you buy?
        - If you save, how do you do it?

- Would you put it in a bank savings account? Why or why not?
    - Would you be open to a different savings method?
- Are there any alternatives available that would bring you a 4% to 6% return?

Dividend-Paying Stocks (page two of content document)

- A share of stock is ownership in a corporation.
- Stocks trade on stock markets.
- Stock prices fluctuate, meaning they go up and down.
- Dividends are sums of money paid by a corporation to shareholders.
    - Yield = Annual Dividend / Current Stock Price

$$\frac{\$1.60}{\$25} = 0.064 = 6.4\%$$

Student Practice (page three of content document)

Stock Price	Dividend	Yield
$20.00	80 cents	.04 = 4%
$40.00	$1.20	.03 = 3%
$58.50	$2.10	.0358 = 3.6%
$82.00	$1.55	.0189 = 1.9%

Ask students:

- What effect on a stock's price would you expect after a company announces it is raising its dividend?
    - It would make the stock more attractive and therefore tend to give the stock price a boost.
- Do you think raising a dividend always signals strength in a company?
    - Could a struggling company raise its dividend to get its stock price to rise?
- What is stock price appreciation?

Comprehension Check (page four of content document)

You invested $1,000 in a dividend paying stock that cost $20 per share and paid 80 cents per year in a dividend. Exactly one year later you sold that same stock at $23 per share, what would be your return on investment?

- How many shares of stock did you purchase?
    - $1,000 / $20 = 50 shares
- What was the dividend yield expected at the time of purchase?
    - $0.80/$20 = 0.04 = 4%
- How much money did you collect in dividends?
    - $0.80 x 50 = $40.00
- When you sold, did you make a profit? How much?
    - Yes: ($23 - $20) = $3 x 50 = $150.00
- What percent of your investment does that profit yield?
    - $150/$1000 = 0.15 = 15%

- How much money did you collect in excess of your initial $1,000 investment?
    - $150 + $40 = $190
- What is the total yield return on your one-year investment?
    - $190 / $1000 = 0.19 = 19%

Commission costs were not addressed. If the commission was $10/trade (buy and sell) then the cost would rise to $1,020 instead of $1,000. This would affect the eventual yield:

- $190 / $1,020 = 18.6%

Page five discusses information about a company students should use as an example to determine if the company with a nice dividend is solid and not an overly risky investment.

1. Solid, mature, well-established companies raise dividends consistently.
2. Consistent dividends will compound over time.
3. Strong companies that pay dividends tend to increase those dividends every year.

Companies with long histories of raising and paying dividends:

- Dividend aristocrat is an S&P 500 company that has raised its dividend every year for the past 25 years.
- Dividend achiever has raised its dividend every year for the past 10 years.

The example on page six illustrates how a rising dividend makes the yield on an existing investment better.

Depreciating Stock Price (page seven of student content document)

As a stock price drops, the yield it returns rises:

- $50 stock with a $2 dividend yields 4%.
- Drop in price to $45 raises yield (if you buy at $45) to 4.44%.

Purchasing more stock at the lower price lowers the average price of an overall holding:

- Purchasing a $45 share after a $50 share averages the yield to 4.21% for both investments combined.
- Average price paid for the shares drops to $47.50/share.

Planning for a possible price drop might be a strategy for improving an investment after the initial purchase.

Strategy for Earning a Desired 10% Return (pages six and seven of content document)

Assuming an investment was made into a $50 stock paying a $2.00 dividend and an overall 10% return was desired:

- This investment has a 4% annual yield or 1% per quarter.
    - Holding the investment for 10 quarters (2.5 years) will result in a 10% return from dividends.
- A rise in stock price to $55 per share is a 10% return on price appreciation, assuming the investment was held for a short term and no dividends had yet been received.
- After one year of receiving dividends, 4% of the desired 10% return has been realized. It would take a $3.00 rise in stock price to $53 to achieve a 6% increase and complete the 10% desired return.

The final page is a printout from Yahoo Finance (Yahoo.com) showing a typical stock quote from IBM Corporation. It is an illustration to point out how students can find pertinent information about currently trading shares of stock. In particular, the 52 week stock price range, dividend, and yield information are highlighted for the students.

Assessment/Evaluation

Following is the Dividend-Paying Stocks Assessment to check students' comprehension:

1. Metro Corp is currently selling at $32.50 per share with a 90 cent dividend. If you purchase 100 shares at the current price, what yield will you expect as a return on your investment?

   $0.90/$32.50 = 0.0276 = 2.8%

2. Metro Corp is currently selling at $32.50 per share with a 90 cent dividend. You invest $1,625 with no brokerage commissions and hold the stock for one year. How much income will you receive?

   $1,625/$32.50 = 50 shares x $0.90 = $45.00

3. After the year is up, Metro Corp is selling for $28 per share. You purchase the same number of shares again at the new price. What is the blended (average) yield you are now earning?

   50 shares x $28.00 = $1,400.00 $1,400 + $1,625 = $3,025 $0.90 x 100 = $90.00

   $90.00 / $3,025 = 0.0297 = 3%

4. Metro Corp is doing well and announces an increase in its dividend to $1.02 per share. The stock price shoots up to $34.25. What is your new annual yield?

   $1.02 x 100 shares = $102 $102/$3,025 = 0.033 = 3.3%

5. How long would you need to hold a $14.00 stock paying a 56 cent annual dividend to achieve a 10% return?

   $0.56/$14.00 = .04 = 4% annually 2 years = 8% 2 ½ years = 10%
   or
   10% of $14.00 = $1.40 1.4/.56=2.5= 2 ½ years

The following table shows the life cycle of a single stock investment.

Date of Transaction	Transaction Executed	Dividend on this date
1/1/2011	Purchase 50 shares at $17.50/share	30 cents
7/8/2011	Purchase 75 shares at $15.00/share	30 cents
4/1/2012	Purchase 75 shares at $22.50/share	35 cents
6/29/2012	Sell entire holding at $24.10/share	

6. What dividend dollar amount was earned in 2011?

   $0.30 x 50 = $15.00
   ($0.30 x 75) / 2 = ($22.50) / 2 = $11.25
   (July purchase received ½ yr dividend [2 quarters])
   $15.00 + $11.25 = $26.25

7. What dividend yield was earned in 2011?

   50 x $17.50 = $875 75 x $15.00 = $1,125
   $0.30 x 50 = $15.00 ($0.30 x 75) / 2 = ($22.50) / 2 = $11.25
   (July purchase received ½ yr dividend (2 quarters))
   ($15.00 + $11.25) / ($875 + $11.25) = $26.25 /2000 = 0.0131 = 1.3%

8. What dividend dollar amount was earned over the life of the investment?

   2011 - $26.25
   2012 - 1 quarter earned on 125 shares @ $0.30 ($0.30 x 125) / 4 = $9.37
   1 quarter earned on 200 shares@ $0.35 ($0.35 x 200) /4 = $70.00/4 = $17.50
   $9.37 + $17.50 = $26.87
   Life of the investment: $26.25 + $26.87 = $53.12

9. What was the dividend yield of this stock on April 1, 2012?

   $0.35 / $22.50 = 0.0155 = 1.6%

10. What was this investment's total return?

    50 x $17.50 = $875.00 75 x $15.00 = $1,125 75 x $22.50 = $1,687.50
    $875 + $1,125 + $1,687.50 = $3,687.50 invested
    200 x $24.10 = $4,820 sale
    $4,820 - $3,687.50 = $1,132.50 price appreciation
    $1,132.50 + $53.12 = $1,185.62 price appreciation + dividends collected
    $1,185.62 / $3,687.50 = 0.3215 = 32.2% total return

Answer Key

Question	Answer
1	2.8%
2	$45.00
3	3%
4	3.3%
5	2.5 years or 10 quarters
6	$26.25
7	1.3%
8	$53.12
9	1.6%
10	32.2% total return