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| About this Lesson |
| In this lesson, students will examine the returns of different savings styles, stocks in companies and regular bank accounts (or GICs), and determine which type of saving they prefer to use. |

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| **Grade Level** | **Course(s)/subject(s)** | **Learning Goal(s)** | **Suggested**  **Timing** |
| 8 | Mathematics, grades 1–8 (2005) | At the end of this lesson, students will:   * create a line graph using data to determine changes in stock prices over time | 75 minutes |

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| Curriculum Links |
| Mathematics, grades 1–8 (2005)  Number Sense and Numeration   * collect and organize categorical, discrete or continuous primary data and secondary data (and display the data in charts, tables and graphs that have appropriate titles, labels (e.g., appropriate units marked on the axes), and scales (e.g., with appropriate increments)) that suit the range and distribution of the data, using a variety of tools (e.g., graph paper, spreadsheets, dynamic statistical software) * identify and describe trends, based on the rate of change of data from tables and graphs, using informal language (e.g., “The steep line going upward on this graph represents rapid growth. The steep line going downward on this other graph represents rapid decline.”) |

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| Inquiry Question |
| In which mode of saving would you rather invest your money, the stock market or a bank account, and why would you choose it? |

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| Materials List |
| * Markers * Chart Paper * Computer graphing software * iPads/computers for looking up stock information * Stock websites (TMX money, Google Finance, Yahoo Finance) * Knowledge of line graphs (taught in a previous lesson) * Sample stock charts * Introduction to buying stocks https://www.ally.com/investing/stocks/stock-basics-an-investors-guide/ * Stock market tracking information sites (e.g. https://www.tmxmoney.com/en/index.html https://www.google.com/finance https://ca.finance.yahoo.com/) * Practise stock market trading accounts (e.g. http://www.marketwatch.com/game/) * Stock market game information http://valuestockguide.com/tools-for-teaching-the-stock-market-game/ * List of companies and stock symbols * Example of stock graph of a company with which they are familiar (e.g., Apple, Amazon) * Examples of calculating total return and stock return (Stock return is the end value minus the starting value. Total return is the return on the stock plus the dividend return.) * Chart Paper (Appendix A) * Exit Card (Appendix B) |

| **Timing**  (Mins.) | **Lesson Sequence** | **Assessment for and as Learning Opportunities** (self/peer/teacher) |
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| MINDS ON | | |
| 5–10 minutes | WHOLE CLASS  (**NOTE:** This lesson assumes that the money is invested at the beginning of the year period and no money is withdrawn or added during the entire course of the year.)  Line graphs are used in everyday life. Line graphs are useful tools for tracking change over time. | Observations/Anecdotal Notes |

| **Timing**  (Mins.) | **Lesson Sequence** | | **Assessment for and as Learning Opportunities** (self/peer/teacher) |
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| MINDS ON (cont’d.) | | | |
|  | Explain that one of the ways these charts and graphs are used are for tracking the increases and decreases in prices of investments, such as stocks, GICs and bank accounts. Explain what stocks are (a piece or fraction of a business saying that you own a portion of that business). Explain that these investments have different levels of safety. For example, if you buy a stock and the company goes broke, you can lose all your money, whereas a bank account is insured by the government. However, while the bank account is safe, it might not make you more money than the stock.  Show students the chart of a stock price of a company that they are familiar with (e.g., Amazon (AMZN), Snapchat (SNAP)). Show them the various parts of the graph, x and y axis.  Introduce concept of total return (Increase in stock price + total dividends received. Dividends are kept and not reinvested.) Run through a couple calculations of stock return and total return. | |  |
|  | Context for Learning   * Ensure that students understand what a stock is (a fraction of a business). You may need to instruct them in what stocks are before beginning this lesson. * Students should have a solid understanding of fractions. * Students should be familiar with constructing line graphs. |  | |

| **Timing**  (Mins.) | **Lesson Sequence** | **Assessment for and as Learning Opportunities** (self/peer/teacher) |
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| ACTION | | |
| 50–60 minutes | SMALL GROUP  Have students choose three publicly traded companies and one bank account or GIC. Explain to the students that you will be comparing the total return for the last year on each company and the bank account (GIC). They will be given a virtual $100,000 to invest in each of the two accounts. They will be comparing the end result over the past year.  Give students sets of data (or have them search for data on one of the recommended sites) for sets of three common stocks and for bank account interest rates for the past 12 months.  Create a rough draft and then transfer onto a large chart paper with markers (or computer graphing programs). The students will make a line graph comparing the returns of stocks and a bank account (GIC) tracking the change in price over time (one year). They will put the lines on the same graph, differentiating the graphs by colour. Calculate the total return of the stocks (including dividends, if any) and the total return of the bank account.  After the graph is finished, have the students write the percentage change in both the bank account (GIC) and the stocks from the initial investment until the end of the year period. Compare the return between investing in stocks and saving in bank accounts.  Have the group members discuss and answer the following three questions on their chart paper:   1. Which of the two investments (average of stocks or bank account (GIC)) had the best return? 2. Which of the two investments is the riskiest? 3. Which would you choose to invest in?   Present findings to other students in the class. Have students present their opinions and justify them using the comparative graph. | Performance task: Create a graph comparing the returns of three stocks and a bank account or GIC. (Appendix A). Answer the following questions:   1. Which of the two investments (average of stocks or bank account (GIC)) had the best return? 2. Which of the two investments is the riskiest?   Which would you choose to invest in?  Self-assessment/ Reflection |

| **Timing**  (Mins.) | | **Lesson Sequence** | | **Assessment for and as Learning Opportunities** (self/peer/teacher) |
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| CONSOLIDATION/DEBRIEF | | | | | |
| 5–10 minutes | | INDIVIDUALLY  **Discussion**  After viewing both your graph and those of your classmates, consider the following questions:   1. Would you rather have as an investment: a bank account that pays out a steady amount, the stocks that you have been looking at or some combination of the two? 2. How has your opinion changed since seeing your classmates’ work? 3. Support your answer using the chart and company information to explain your reasoning. | | Exit Card. Complete the questions. (Appendix B) | |

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| Comparison Graphs |
| Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_         Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Stock Madness: Comparing Returns from Bank Accounts and the Stock Market  (Rough Draft)  Per Cent Return of Stocks vs. Savings Accounts |

**APPENDIX A**

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| Exit Card: Which Type of Saving Would You Choose? |
| 1. Which of the two investments (stocks or bank accounts (GIC)) had the biggest return (increase in money)?   \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   1. Which of the two investments appears to be the riskiest (has the potential to lose the most money)?   \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   1. Which would you choose to put your money in? Why would you choose to put your money in that investment?   \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

**APPENDIX B**