## Interest: Good, Bad, and Compound Sample



<ul> <li>Lesson Objectives</li> <li>➢ Differentiate between interest owed and interest earned.</li> <li>➢ Understand the function of compound interest and compare it to simple interest</li> <li>➢ Estimate the length of time it will take an investment to double using the Rule of 72</li> </ul>	<ul> <li>Assessment</li> <li>➤ Accuracy of Compound Interest Graph on the class handout</li> <li>➤ Wrap Up Question as Exit Ticket</li> </ul>
<ul> <li>Materials</li> <li>Class set of Lesson Handouts: <ul> <li>Interest: Good, Bad, Compound</li> </ul> </li> <li>Display/audio for Lesson Slides and video</li> </ul> <li>Preparation <ul> <li>Display Lesson Slides</li> <li>Print class set of Lesson Handouts</li> </ul> </li>	<ul> <li>Jump\$tart Standards Alignment</li> <li>Saving and Spending: Apply strategies to monitor income and expenses, plan for spending and save for future goals.</li> <li>Investing: Implement a diversified investment strategy compatible with personal financial goals.</li> <li>&gt; Standard 1. Explain how investing may build wealth and help meet financial goals.</li> <li>&gt; a. Explain how rate of return, frequency of compounding, taxes and inflation can affect changes in investment returns.</li> </ul>

## Key Terms/Vocabulary

- > Interest: A percentage of money added as a reward for saving or a charge for borrowing.
- > <u>Compound Interest</u>: Interest paid on both the principal and accumulated unpaid interest.

## PROCEDURE

- 1. **Do Now** (Slide, 5 min): Ask students, "What is interest? Where have you heard about it, how it works or what it does? Is it good or bad?" Students should answer on their own, on paper or in an established notebook, then briefly share their answers.
- 2. **Understanding Interest** (Slide, 10 min): Ask students to share what they know and where they have heard about interest. As students share, list their brainstorm items in either Earned Interest or Owed Interest. When there are sufficient brainstorm items, create a class definition of each term using the information/examples from the brainstorm and have students write it down in their handout. For example:
  - *Earned Interest*: Interest that is paid to you as a reward for investing or saving your money.
  - Owed Interest: Interest that you have to pay as a fee for borrowing money.
- 3. Introducing Compound Interest (Slide, 15 min): Explain that Compound Interest is a very important component of Earned Interest. Share the <u>Compound Interest Video</u> watch once all the way through, then a second time to have students graph growth of interest along with video on the handout, by pausing at the following points. (This is also available as an <u>EdPuzzle</u>.)
  - 0:14: Have students copy or paraphrase the definition of compound interest
  - 0:48: Ask students: at 5% simple interest, how much is your \$10,000 simple interest investment worth after 3 years? (\$11,500)
  - 1:39 Ask students: at 5% compound interest, compounded annually (once a year), how much is your \$10,000 investment worth after 3 years? (\$11,576.25)

Note: A simple definition of compound interest is: Interest paid based on both the principal AND the

interest you've earned so far.

- 4. **Calculating Compound Interest** (Slide, 20 min): Ask students to calculate interest on that \$10,000 investment, both as simple and compound interest, out to 10 years. Use the compound interest algorithm that best suits your students. A simple approach is to instruct them to take each year's total, and multiply it by 1.05 to find the next year's total, then repeat and graph out to 10 years. Or direct your students to use an <u>online graphing calculator</u> from desmos.com. (Note: The slide is animated with an example graph. After students finish the graph you can click to reveal the example graph. Then click on the link in "Let your money grow <u>even more</u>!" that links to the online graphing calculator. Use the zoom to illustrate how the difference between the compounding interest balance and the simple interest balance grows significantly over time.)
- 5. Rule of 72 (Slide, 5 min): Explain "the Rule of 72" that allows you to estimate how long it will take your money to double. <u>Read this article</u> or <u>watch this video</u> (just to the 1:35 mark) to further explain the rule of 72. On their handouts, have students use the rule of 72 to predict how long it would take their original investment of \$10,000 with an interest rate of 5% to double. Then have them check this prediction using the calculator at <u>http://www.helpfulcalculators.com/compound-interest-calculator</u>. If time remains, allow students to extend their timeline to 25, 30 or more years to see how their money would grow (maybe connect this to retirement, which will be a lesson later in this unit).
- 6. Wrap Up (Slide, 5 min): Ask students, "How does investing earlier help you take advantage of compound interest?" Students can answer as a closing discussion, or in writing as an exit ticket.

## Extensions

- Ask students to prove which is a better investment: <u>a penny compounded every day for 30 days or \$1mil now</u>.
- Challenge students to develop a formula using Google Sheets or Excel to calculate compound interest for any amount, time period, interest rate.