FAMILY ACTIVITY 3:

Planning for the Future

Actuaries cannot predict natural events, but they can expect to pay insurance claims to customers living in areas that are affected by natural events. Actuaries have to plan ahead for any natural event. They must estimate how much can be earned by investing premiums collected now for paying future claims. Thanks to *compound interest*, the invested premiums can grow and reduce the effects inflation might have on the cost of future claims. Compound interest is paid on the money you save and the interest you've earned.

Look at the table below and then answer the questions that follow. Use additional paper if needed.

	Amount	5% Interest Earned	Total Amount
Year 1	$100	100 x .05 = $5	$105
Year 2	$105	105 x .05 = $5.25	$110.25

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Questions:

Imagine you have $1,000 to invest, and it earns 5% interest, compounded yearly*:

1. How much interest will you earn the first year? ____________ How much money will you have in total? ____________

*NOTE: We have chosen the simplest method of calculating interest. If you consult interest calculators online, where you can have interest compounded monthly or semiannually, you will get slightly different answers. For this exercise, you should use a regular calculator.

2. How much interest will you earn the second year? ____________ Now how much money will you have in total? ____________ (Round your answers to the nearest cent.)

3. How much will you have after 10 years? ____________ (Round your answers to the nearest cent.)

Answers: 1. You will earn $50 interest the first year. You will have $1,050 in total. 2. You will earn $52.50 interest the second year. You will now have $1,102.50 in total. 3. If students round their answers as they go, their answer will be $1,628.91. If they round at the end, their answer will be $1,628.89. Talk About It: 1. You would have $7.50 after 30 days. You would have $91.25 after one year. Rounding as you go, you would have $116.46 after 5 years at 5% interest compounded annually.

Talk About It

Do you save spare change? If you saved a quarter a day, how much would you have in a 30-day month? If you did that for a year and then put your money in an account earning 5% interest compounded yearly, how much would you have in 5 years even if you added no more money to it?