

Lesson: Home Purchasing and Exponential Growth

Grade Level: High School

Goal:

1. Students will understand the relationship between the principal amount and the total they will pay over the life of a loan.
2. Students will reflect on the ways to save money over time through their investments.

Procedure:

1. Use the companion PowerPoint, "**Home Purchasing and Exponential Growth**" to guide the students through a discussion about exponential growth.

Note: If using this as a distance learning tool – use this as a 3-day learning guide

Day 1 – Send out the **PowerPoint** with a possible **class discussion** planned after to discuss in detail. Have students work through the exponential growth equation as the PowerPoint presents it.

Day 2 – Send students the first hand out, "**Exponential Growth and Home Buying**"

Day 3 – Send out the second hand out, "**Down Payments**". Students should have the first handout completed to use as a comparison tool.

2. As you go through the PowerPoint, guide students through the example equation – each student should do the equation in their own notebook to have it to look back on as they do the worksheets on their own.
3. **Review opportunity:** Students will need to remember the order of operations (PEMDAS) while doing this equation. This is a great opportunity to review the concept with student.
4. Finish reviewing the PowerPoint and allow the students to play with the different mortgage calculators at <https://www.mortgageclick.org/calculators/purchasecalcs.asp?siteId=BADA46B0-6B75-4E28-A519-202641504C18>
5. Assign the first worksheet, "**Exponential Growth and Home Buying**". Give the students a day or two to work on it. Go over the answers, discuss trends students notice.
6. Assign second worksheet, "**Down Payments**". Give students time to complete the worksheet, go over answers and compare with answers from the previous assignment, "**Exponential Growth and Home Buying**".
7. Big Take Away? What is the number one thing you can do to make the home buying process less expensive for you? SAVE!

Home Purchasing and Exponential Growth

$$y = P(1 + r)^t$$



PACIFIC NW
FEDERAL CREDIT UNION

Name _____

Exponential Growth and Home Buying

Use the properties shown below to figure out how much you will pay through the life of the loan. $y = P(1 + r)^t$



Home 1:

1 BR/1 Bath 742 sq. ft. Condo

Located downtown Portland/NW Portland

Sale Price - \$229,000

Calculate what you will pay during the life of the loan with an interest rate of:

3.5% 30 year fixed _____ 15 year fixed _____

4.5% 30 year fixed _____ 15 year fixed _____



Home 2:

3 BR/2 Bath 1,040 sq. ft.

Located in outer SE Portland

Sale Price - \$325,000

Calculate what you will pay during the life of the loan with an interest rate of:

3.5% 30 year fixed _____ 15 year fixed _____

4.5% 30 year fixed _____ 15 year fixed _____



Home 3:

3 BR/3 Bath 2,220 sq. ft.

Located in NE Portland

Sale Price - \$536,900

Calculate what you will pay during the life of the loan with an interest rate of:

3.5% 30 year fixed _____ 15 year fixed _____

4.5% 30 year fixed _____ 15 year fixed _____



Home 4:

5 BR/3.1 Bath 2,878 sq. ft.

Located in inner SE Portland

Sale Price - \$995,950

Calculate what you will pay during the life of the loan with an interest rate of:

3.5% 30 year fixed _____ 15 year fixed _____

4.5% 30 year fixed _____ 15 year fixed _____

Down Payments

A down payment goes directly toward the principal of your home. The larger the down payment, the less interest you will pay. What you will end up paying over the life of the loan if you “put down” a percentage of the principal up front? We will use the same homes from the previous page so you can compare numbers. $y = P(1 + r)^t$

Home 1: Sale Price - \$229,000

You found the perfect place near your downtown office! You will even save money on parking by walking to work so you sold your car for a larger down payment. You made \$22,000 on your car and had another \$24,000 saved by choosing to live cheap with several roommates to save for your new place. That is just over a 20% down payment of \$46,000!

3.5% 30 year fixed _____ 15 year fixed _____

4.5% 30 year fixed _____ 15 year fixed _____

Home 2: Sale Price - \$325,000

You have been living at your parents' house the last 2 years to be able to save up a hefty down payment for your first home. You were able to save over \$2000 a month – giving you a 15% down payment of \$48,750! Recalculate what you will pay over the life of the loan with a \$48,750 down payment.

3.5% 30 year fixed _____ 15 year fixed _____

4.5% 30 year fixed _____ 15 year fixed _____

Home 3: Sale Price - \$536,900

Congratulations! You just got married! You and your partner are blessed with parents who understand that a large down payment will save you big in the long run. Together your parents have come up with \$100,000 as a wedding gift toward your new home. You add another \$7,380 to come up with an even 20% down payment. Recalculate what you will pay over the life of the loan with a \$107,380 down payment.

3.5% 30 year fixed _____ 15 year fixed _____

4.5% 30 year fixed _____ 15 year fixed _____

Home 4: Sale Price - \$995,950

You just received word a long-lost relative died and left you \$100,000! That is just over 10% of the purchase price of your dream home! Recalculate what you will pay over the life of the loan with a \$100,000 down payment.

3.5% 30 year fixed _____ 15 year fixed _____

4.5% 30 year fixed _____ 15 year fixed _____

Review your work: List 3 things you can do to make buying a home more affordable.

1. _____

2. _____

3. _____
