EXPONENTIAL GROWTH & DECAY

A WORD PROBLEM PUZZLE

The value of a car is $30,000. It loses 6.5% of its value each year. What will the value of the car be after 5 years?

Decay | 21,438

A celebrity has 50,000 followers on Instagram. The number of followers increases by 45% each year. How many followers will they have after 8 years?
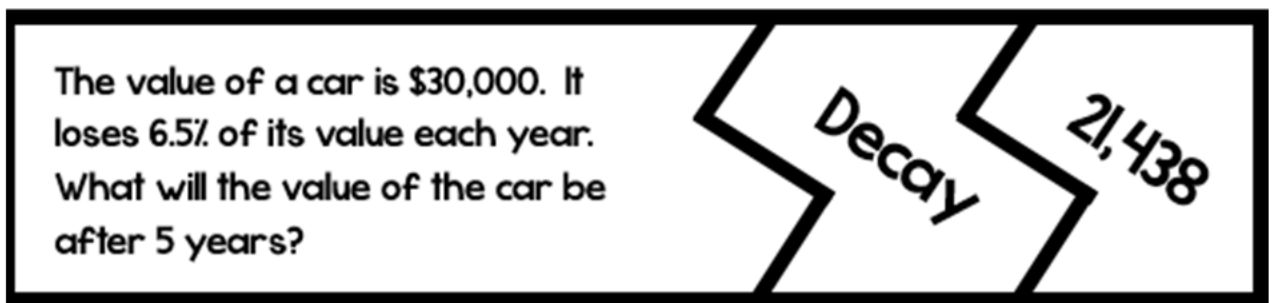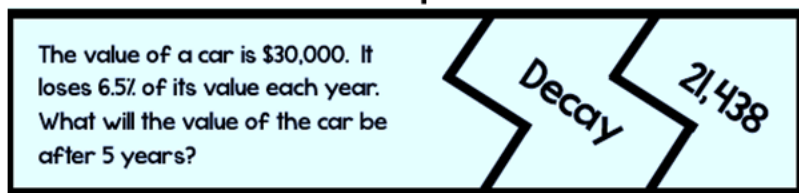
Growth | 977,044

Teacher Directions:

This activity can be used as an individual assignment, partner work, group work, math center, etc. Simply print out the puzzle pieces and answer sheet. Students will cut out the 30 puzzle pieces and tape/paste them on the answer sheets in groups of three. Students should match each word problem to the type of exponential function (growth or decay) and the answer. An example of a completed puzzle is shown below:

The value of a car is $30,000. It loses 6.5% of its value each year. What will the value of the car be after 5 years?

Decay

21,438

An answer key is included at the end of this product.

Exponential Growth and Decay

Directions: Cut out all of the puzzle pieces. Match the pieces together in sets of three. An example is shown below:

Example

4,143

1,567

98

Decay

Beckett purchased a diamond ring in 2012 for $12,000. If the value of the ring increases by 3.2% each year, what will the ring be worth in 2040?

21,438

Ali's starting salary at her new job is $41,300. It is expected to increase by 3% each year. What will Ali's salary be in 10 years?

19,642

A celebrity has 50,000 followers on Instagram. The number of followers increases by 45% each year. How many followers will they have after 8 years?

Jack purchased a new iPhone for $300. It is expected to lose 25% of its value each year. What will his iPhone be worth in 4 years?

Growth

Decay

A house was purchased for $250,000 in the year 2005. Its value increases at a rate of 3% per year. What will the value of the home be in 2030?

Growth

Decay

Puzzle Pieces Continued

523,444

55,504

28,988

Growth

The yearly profits of Sam's Sandwich Shop are $35,000. If the profits decrease by 4.7% each year, what will his profits be in 12 years?

The population of a small town in Ohio was 3,800 people in 1990. It has slowly been decreasing at a rate of 2.5% per year. What will the population of the town be in 2025?

10,205

Mark purchased a new motorcycle for $23,000. If the value of the motorcycle decreases by 15% each year, what will it be worth in 5 years?

977,044

The value of a car is $30,000. It loses 6.5% of its value each year. What will the value of the car be after 5 years?

Growth

Decay

The population of a small town in Idaho was 1,995 people in 2008. If the population increases by 7% each year, what will the population of the town be in 2020?

Growth

Decay

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Name: _____Date: _____

Exponential Growth and Decay Answer Sheet

Directions: Paste or tape your completed puzzles in the boxes below:

Exponential Growth and Decay Answer Sheet
ANSWER KEY

The value of a car is $30,000. It loses 6.5% of its value each year. What will the value of the car be after 5 years?

Decay — 21,438

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Growth — 977,044

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Growth — 523,444

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Decay — 1,567

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Growth — 55,504

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Growth — 4,493

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Growth — 28,988

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Decay — 10,205

Jack purchased a new iPhone for $300. It is expected to lose 25% of its value each year. What will his iPhone be worth in 4 years?

Decay — 95

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