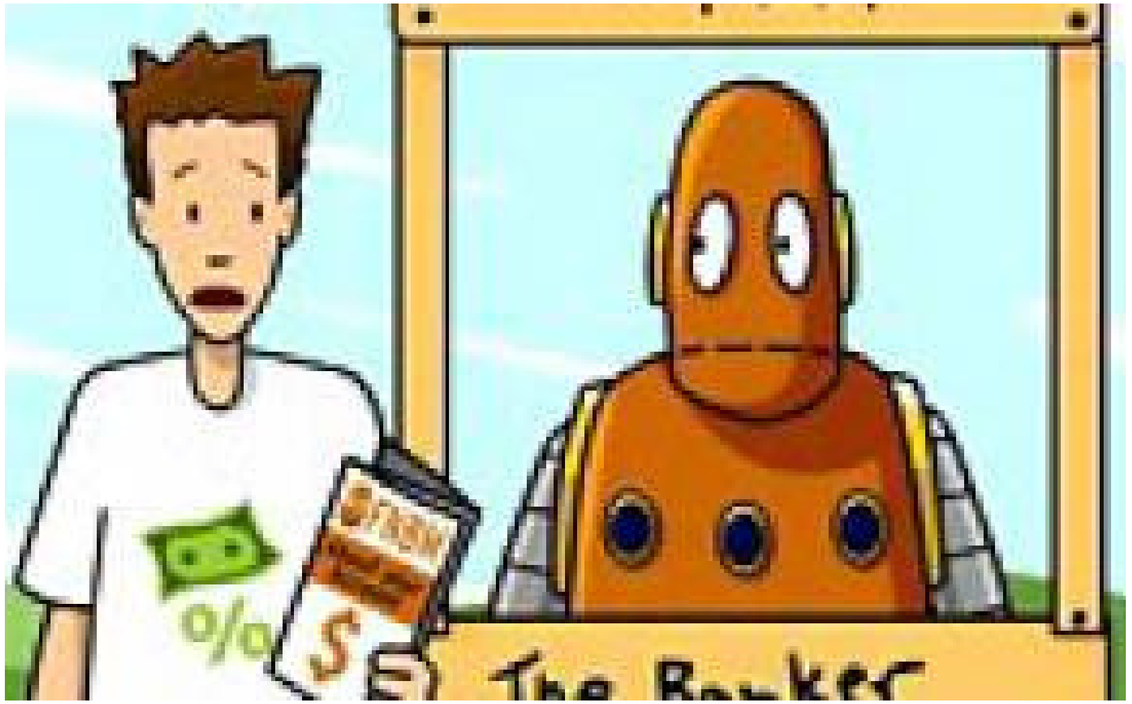
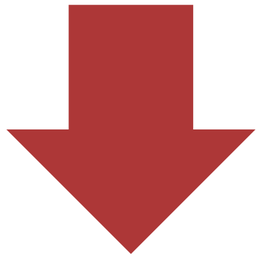
INTEREST

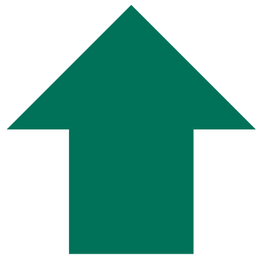
WHAT IS INTEREST?



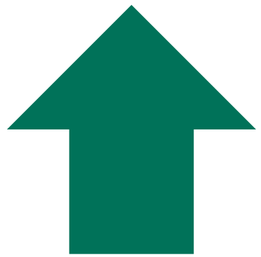
WHAT AFFECTS INTEREST?



Supply

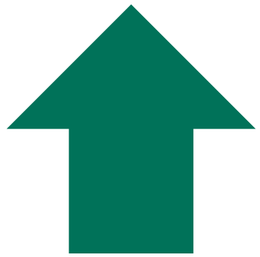


Demand

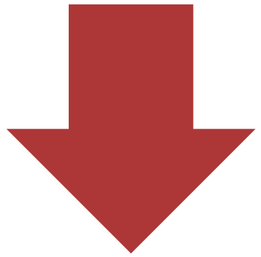


Supply

Demand



Interest rates rise



Interest rates fall

SIMPLE INTEREST

Based on principal amount of a loan (**interest is the same** every time)

$$I = Prt$$

COMPOUND INTEREST

Based on principal plus previous interest (**interest increases** every time)

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

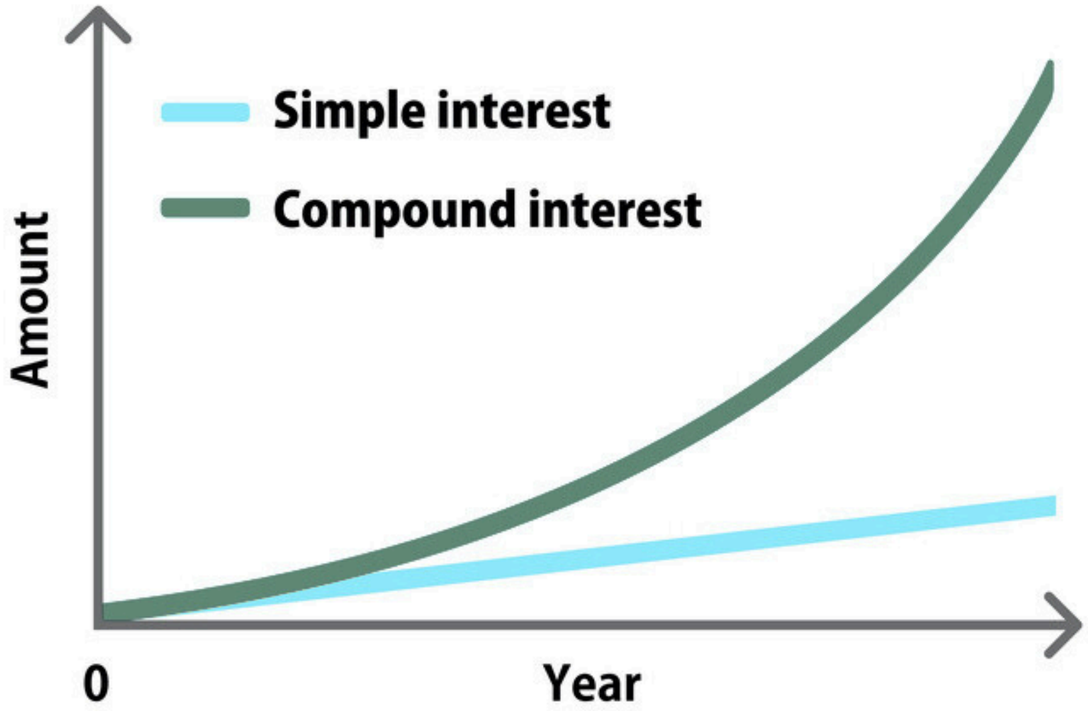
B = balance

I = interest

P = principal

r = annual interest rate (as a decimal)

t = time (in years)



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

$$I = B - P$$

$$I = Prt$$

$$B = I + P$$

COMPOUND INTEREST

Interest can accrue daily, monthly, or quarterly.
Compound interest is the smarter investment!

Ex. principal of $50 with 10% interest

	Simple	Compound
Year 1	$50 + ***$5*** = $55	$50 + ***$5*** = $55
Year 2	$55 + ***$5*** = $60	$55 + ***$5.50*** = $60.50
Year 3	$60 + ***$5*** = $65	$60.50 + ***$6.05*** = $66.55

simple interest = ?

P = $100

r = 20%

t = 5 years

How much will the balance be?

simple interest = ?

P = $100

r = 20%

t = 5 years

How much will the balance be?

$$I = Prt$$
$$= (\$100)(0.20)(5)$$
$$= \$100$$
$$B = P + I$$
$$= \$100 + \$100$$
$$= \$200$$

$\therefore$ I will have $200 after 5 years.

B (compounded annually) = ?

P = $100

r = 20%

t = 5 years

How much will the balance be?

B (compounded annually) = ?

P = $100

r = 20%

t = 5 years

How much will the balance be?

$$B = P(1 + r)^t$$
$$= (\$100)(1 + 0.20)^5$$
$$= \$248.83$$

$\therefore$ I will have $248.83 after 5 years.

compound interest = ?

P = $100

r = 20%

t = 5 years

How much will the interest be?

compound interest = ?

P = $100

r = 20%

t = 5 years

How much will the interest be?

$$I = B - P$$
$$= \$248.83 - \$100$$
$$= \$148.83$$

$\therefore$ The interest will be $148.83 after 5 years.

Carlos has $17 in a savings account. The interest rate is 15% per year and is not compounded. How much will he have in 4 years?

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$$I = Prt$$
$$= (\$17)(0.15)(4)$$
$$= \$10.20$$

$$B = P + I$$
$$= \$17 + \$10.20$$
$$= \$27.20$$

$\therefore$ He will have $27.20 in 4 years.

Owen has $13 in a savings account. The interest rate is 10% per year and is not compounded. How much will he have in 2 years?

Owen has $13 in a savings account. The interest rate is 10% per year and is not compounded. How much will he have in 2 years?

$$I = Prt$$
$$= (\$13)(0.10)(2)$$
$$= \$2.60$$

$$B = P + I$$
$$= \$13 + \$2.60$$
$$= \$15.60$$

$\therefore$ He will have $15.60 in 2 years.

Angela has $10 in a savings account that earns 15% interest, compounded annually. How much will she have in 2 years?

Angela has $10 in a savings account that earns 15% interest, compounded annually. How much will she have in 2 years?

$$B = P(1 + r)^t$$
$$= (\$10)(1 + 0.15)^2$$
$$= \$13.23$$

$\therefore$ She will have $23.23 in 2 years.

Maki deposited $25 in a savings account earning 20% interest, compounded annually. How much will she have in 2 years?

Maki deposited $25 in a savings account earning 20% interest, compounded annually. How much will she have in 2 years?

$$B = P(1 + r)^t$$
$$= (\$25)(1 + 0.20)^2$$
$$= \$36$$

$\therefore$ She will have $36.00 in 2 years.