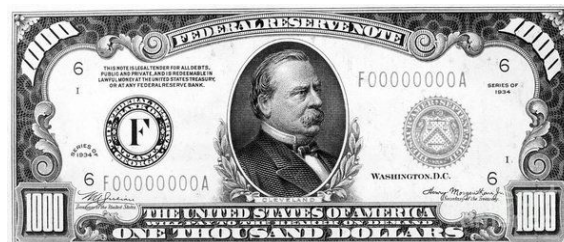


# How Safe is Safe:

## The exponential decay of inflation

### Project Goal:

Students will use functions to explore the effects of inflation on the future value of money.



### Math Standard:

CCSS.MATH.CONTENT.HSF.IF.C.8.B

Use the properties of exponents to interpret expressions for exponential functions. For example, identify percent rate of change in functions such as  $y = (1.02)^t$ ,  $y = (0.97)^t$ ,  $y = (1.01)^{12t}$ ,  $y = (1.2)^t/10$ , and classify them as representing exponential growth or decay.

## Student Guide Link

### Teacher Directions:

Be sure to first complete the student guide yourself as a teacher. If you want to be able to better understand and explain how the base exponent calculator works, we have a teacher guide and video which can be found [here](#).

### Pacing: Two class periods

Day 1: Complete the first two pages of the student guide making sure the students understand the positive exponent calculator and have searched the financial terms emphasizing and discussing inflation and future value.

Day 2: Complete the Compound Interest function and calculate the future value in 5 year increments. Help students with Task 4 Step 2, and we recommend having them write the math out by hand if they're stuck.

# #CSandMath



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## Solutions to Task 4 step 2

```

repeat 5
  add years to Years
  CompoundInterest Amount 1 - Inflation Rate years
  change years by 5
  
```

## Possible Final Solution

```

when clicked
  Initialize
  ask "What amount of money are you putting into your savings account" and wait
  set Amount to answer
  ask "What is the annual rate of inflation? Enter as a decimal (i.e. .05) and wait"
  set Inflation Rate to answer
  set years to 5
  repeat 5
    add years to Years
    CompoundInterest Amount 1 - Inflation Rate years
    change years by 5
  
```

```

define Initialize
  set Amount to 0
  set Inflation Rate to 0
  set years to 0
  set Balance to 0
  delete all of Years
  delete all of Future Vaue

define CompoundInterest principle base power
  set running_product to 1
  repeat power
    set running_product to base * running_product
  set final_product to running_product
  set Balance to principle * final_product
  add join $ round Balance to Future Vaue
  
```