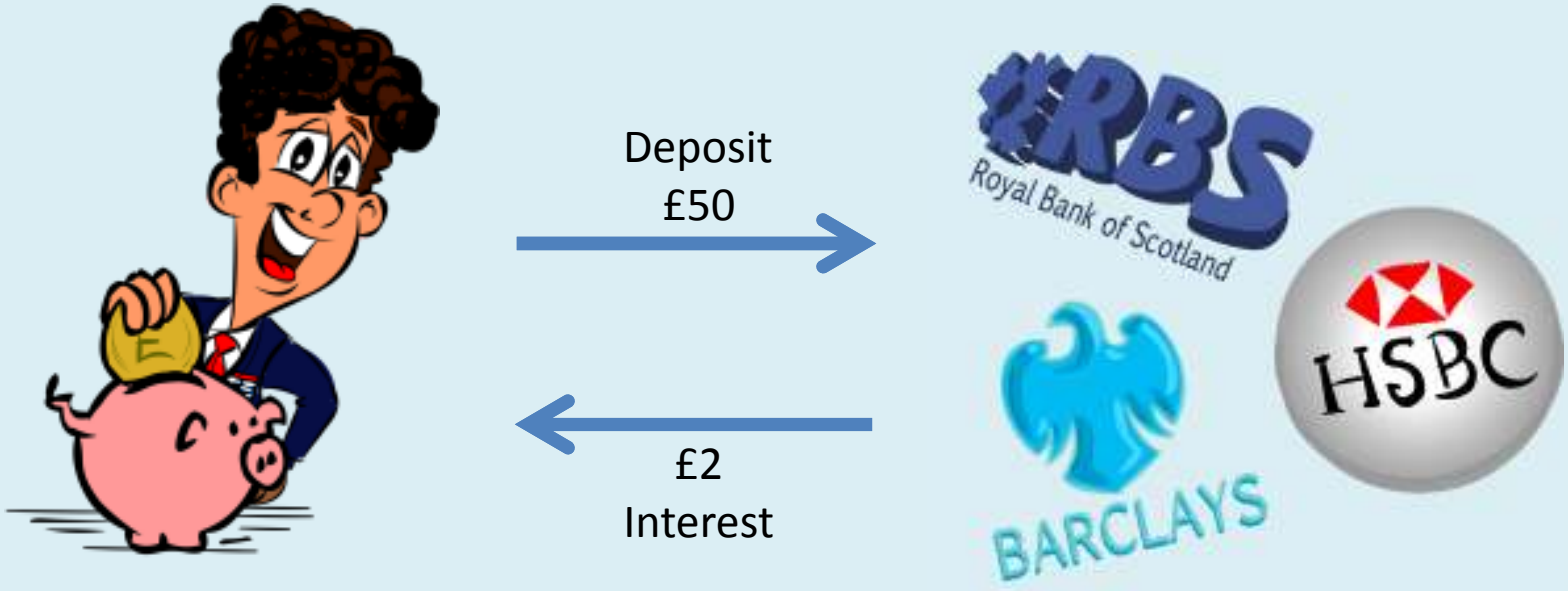
LO: To calculate Interest

- Last lesson we said that by saving money in a bank, people get their money back plus interest…
- Interest is "The amount a bank pays <u>you</u> for depositing money into a savings account".
- How much someone will earn in interest is linked to (a) how much they put into their bank account, (b) how long they keep it there, and (c) how high the interest rate is.
- If you borrow money from the bank, they will also charge you interest. This means you have to pay back what you borrowed PLUS extra charges. This is how banks make money.



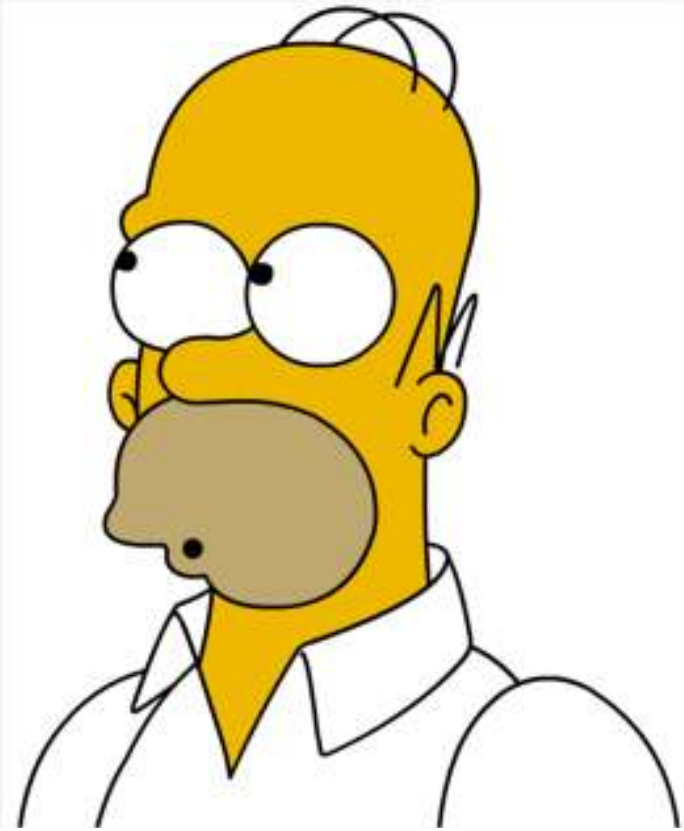
- Banks compete and battle for new savers!
- They do this because the more deposits a bank can attract, the more it can lend to other customers which ultimately means the greater the bank's profit.

- Interest rates are given as percentages. The money you earn in interest will be a certain percentage of the amount you deposited.
- Banks will try to offer savers higher rates of interest to encourage people to save with them.
- A high interest rate is good for savers, but bad for borrowers- a high interest rate means you have to pay back more!
- Interest rates can change lots!
    - Some bank accounts have a "fixed" interest rate, which means it won't change.
    - Some offer deals with higher interest for the first year.
    - The Bank of England sets some interest rates and changes these to encourage people to either spend or save more. Banks will then change their interest rates with this.
- There are two types of interest: simple and compound.

Simple Interest

Homer has 10% simple interest on his £200.
Each year he will get 10% of his £200, which is £20.
Here's how the first 5 years look:

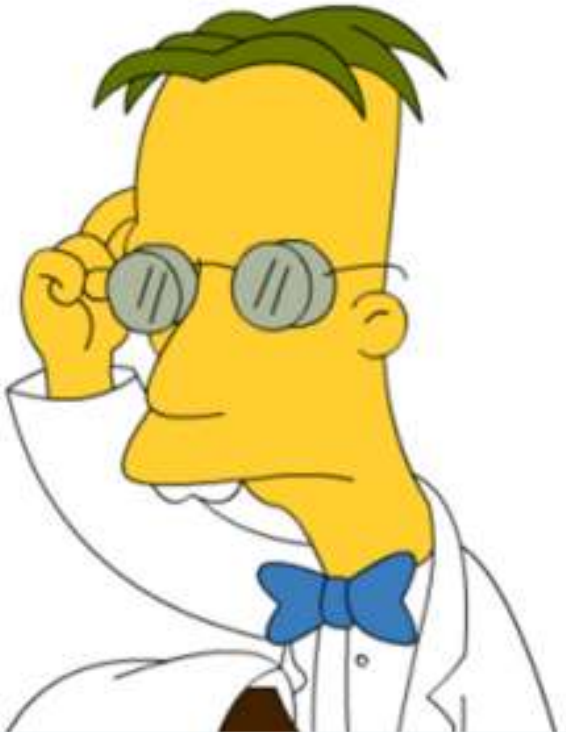
Start (Year 0)=	£200	
Year 1=	£220	+ £20
Year 2=	£240	+ £20
Year 3=	£260	+ £20
Year 4=	£280	+ £20
Year 5=	£300	+ £20



Compound Interest

Professor Frink has 10% compound interest on his £200.
Each year the money in his account will increase by 10%
Here's how the first 5 years look:

Start (Year 0)=	£200	
Year 1=	£220	+ 10%
Year 2=	£242	+ 10%
Year 3=	£266.20	+ 10%
Year 4=	£292.82	+ 10%
Year 5=	£322.10	+ 10%



Let's compare the two:

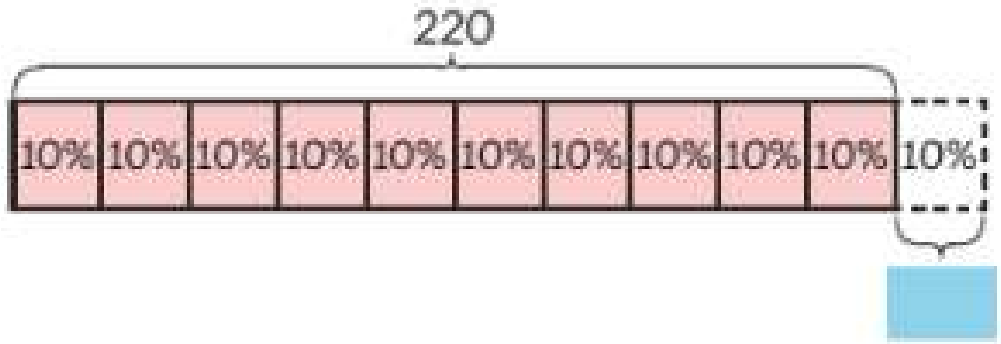
	Homer (simple)	Frink (compound)
Start (Year 0)=	£200	£200
Year 1=	£220	£220
Year 2=	£240	£242
Year 3=	£260	£266.20
Year 4=	£280	£292.82
Year 5=	£300	£322.10

Finding percentage change

In Focus

The number of pupils in a school has been increasing by about 10% each year since 2010. In 2011, the number of pupils was 220.

10% of 220 = ☐



220 ÷ 10 = 22

In 2012, the number of pupils was 220 + 22 or 242.

In this question, 220 is the whole. The bar model shows it being split into 10 pieces. Each one is 10% of the whole.
220 ÷ 10 = 22 so 22 is 10% of 220.

To find the new total, we then have to add 10% (22) onto the original amount.

Remember when finding a percentage, we break it down into chunks to make it easier…

Simple interest

Interest rate: 3%

Amount at start: £50

1. **Find 10% of £50**
   50 ÷ 10 = 5

2. **Find 1% of £50**
   50 ÷ 100 OR 5 ÷ 10 = 0.5 (50p!)

3. **Find 3% of £50**
   3 x 1% = 3 x 0.5 = 1.5 or £1.50

4. **Add 3% onto £50**
   £50 + £1.50 = £51.50

For each extra year, add another £1.50 on, so:

5. Year 2: £51.50 + £1.50 = £53

Compound interest

Interest rate: 3%

Amount at start: £50

1. **Follow steps 1-4 for simple interest.**
   Then…

5. **At the end of Year 1, we have £51.50.**
   Find 3% of £51.50 = £1.55 (rounded to the nearest penny)

6. **Add 3% onto £51.50**
   £51.50 + £1.55 = £53.05

7. **For the end of Year 3, find 3% of £53.05** (£1.59) and add this on…
   £53.05 + £1.59 = £53.64

Your Task

Complete the sheet to compare the different bank accounts. They are all offering compound interest. Look carefully at the interest rates for each bank.
Decide which bank is offering the best deal and explain why. Is it the bank you expected?

*** Gold activity ***
Complete the activity and work out how best to invest your lottery winnings! This will help you see other ways of saving that are not just putting money in the bank.

- If you do not have a dice, write the numbers 1-6 on small pieces of paper and leave them mixed-up, face-down on your table. Instead of rolling a dice, pick a piece of paper at random. Remember to mix them up again each time.
- If you do not have a coin, right “Heads” and “Tails” on 2 pieces of paper. Again, leave them face down on the table and only pick one each time, then mix them up.