THE BARTON SERIES

ON AND ABOUT WITH LITTLE BARTON

BY

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(Ages 5 and over)

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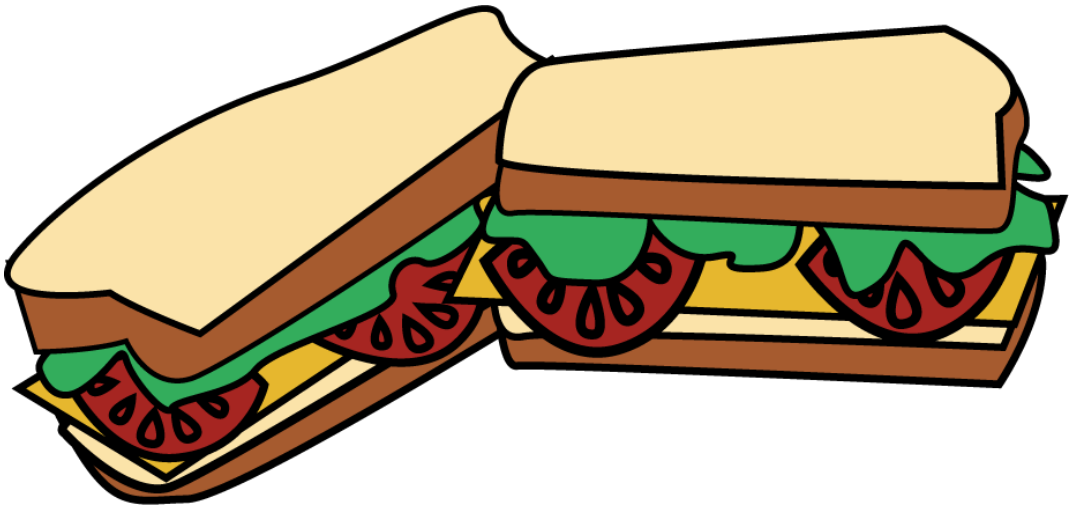
THE INTERESTING INTEREST

Cold lemonade and sandwiches lay temptingly upon the table in the corner of Barton's treehouse. These were the refreshments for the six friends when they meet that evening. Sometimes, when the others arrived, they would add to the collection. A small feast was always anticipated when the friends met at the treehouse.



Barton had a panoramic view from the window that faced the road. In the distance, he could see five figures cycling towards his home. Though he could not yet identify them, he knew them to be Kwame, Shanna, Sian, Malaika, and Alfredo. Kwame wanted to show the group something interesting that he had discovered on the mathematics topic of interest.

The unveiling of Kwame's discovery was initially planned for a lunchtime interval. However, during this period over the last few days, both he and Barton were occupied with the nursing of an injured pigeon. The winged creature, nicknamed 'Lady Grace', eventually regained full strength and the power of flight.

"Welcome, all," greeted Barton, as all five friends climbed up the rope ladder that led to the treehouse.

Each settled down, enjoying the simple comforts of the room. Kwame poured himself a cup of lemonade and sipped slowly.

"It was a long and hot ride," he explained.

Though none of the other riders agreed, no comment was made. They were anxious to share in the discoveries of their kind-hearted and generous friend.

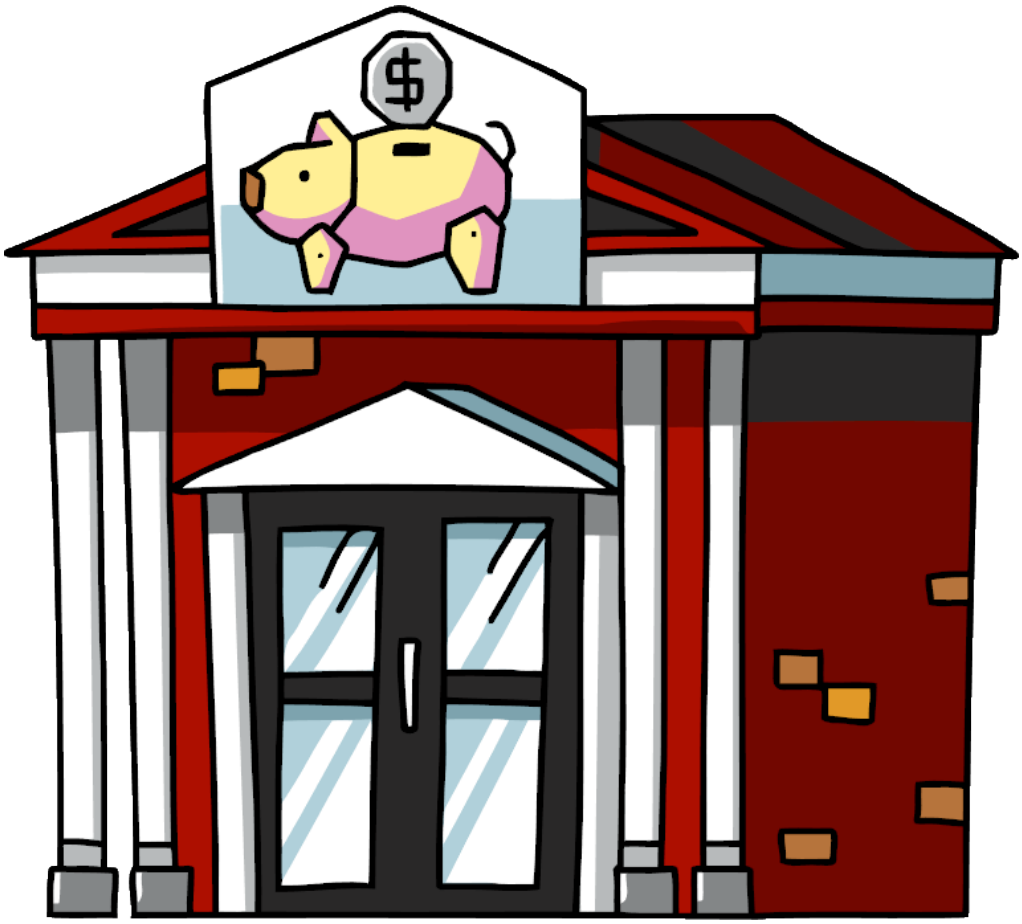
"I shall begin," said Kwame, as the others sat around him.

He placed a blank sheet of paper on the table and held a pencil in his hand.

"Look at what I discovered," he started, "you shall find it quite interesting."

Kwame began to write and speak simultaneously, as five pairs of eyes peered over his pages.

“Suppose a man deposited $4 000 in the bank and he was offered a simple interest rate of 5 percent per year, then what is the interest acquired after one year?” Kwame wrote.



“That’s easy,” replied Barton, as the rest agreed.

“We would find 5 % of $4 000, by first remembering that 5 % is the fraction ($\frac{5}{100}$). And, 5% of $4 000 will be,

$\frac{5}{100} \times \$4\ 000$ and which is $200,” explained Barton.

“Not too much effort required here,” commented Malaika, ribbing Barton, as she often did.

“Suppose the interest rate alone, was altered to 6%, what would the interest now be?” inquired Kwame.

Barton was about to give the whole long explanation, just as he did before. He was, though, going to change the interest rate from 5% to 6%.

But, Shanna stopped him as he started.

“All we need to do is to exchange the number, 5, in Barton’s previous working with the number, 6,” she suggested.

Shanna continued.

“When the rate of interest was 5%, the interest was $\frac{5}{100} \times \$4\ 000$. Since the interest rate changes to 6%, then the simple interest acquired would now be $\frac{6}{100} \times \$4\ 000$,” she concluded.

“Suppose,” started Kwame, with a big smile, “the interest rate is now 7 %, what will be the simple interest acquired?” he asked.

“Kwame, are you toying with us?” asked Sian, poking the plump boy in the side.

“I am not,” swore Kwame, pretending to keel over from Sian’s poke. “Scouts honour.”

“Kwame,” said Shanna, “we need to only change one number when the rate of interest changes.”

“Explain,” requested Kwame, pretending not to understand.

“Well, Kwame, when the principal is \$4 000 and the rate was 5% per annum, then the simple interest acquired at the end of the year would be $\frac{5}{100} \times \$4\ 000$, when the principal is the same amount of

$4 000 and the rate was altered to 6% per annum, then the simple interest acquired at the end of the year would be

$\frac{6}{100} \times \$4\ 000$."

Shanna paused and looked directly at Kwame.

"So too, Kwame, when the principal is the same $4 000 and the rate is again changed, this time to 7% per annum, then the simple interest acquired at the end of the year would now be

$\frac{7}{100} \times \$4\ 000$," she said.

"Therefore, if the rate is changed to any different number, say to 8 or 9 or 10 or anything else, even ugly numbers like 6 ¾ or 5 ¼, all we need to do is to change the number in the numerator of,

$\frac{\quad}{100} \times \$4\ 000$," added Shanna. "Do you understand, Kwame?" she asked jokingly.

But all along, Kwame did understand. He only smiled.

"If the rate can change," said Kwame, "then let us use a symbol for it in, $\frac{\quad}{100} \times \$4\ 000$," he suggested. "I would like to use, 'R' since the word 'RATE' begins with the letter 'R', he offered.

"In that case, we can say that the simple interest earned per year for the sum of $4 000 at R % interest per annum, is $\frac{R}{100} \times \$4\ 000$," suggested Alfredo.

"Then, all we have to do with a question on interest is to replace, R, by the actual rate, be it 7 or 8 or 9 or fractions like 5 ¾, and so on," said Kwame. "This is quite practical," complimented Kwame.

“Indeed it is both practical as well as useful,” agreed the others.

Barton meanwhile, sat with his brow corrugated in a small frown. His silence caused the others to glance in his direction.

“What moves around within your head?” asked Malaika.

Barton sat quietly for a moment again. Then he pointed to Kwame’s paper as he spoke.

“Can the principal value not also change just as the rate can change,” he asked, as though a bit unsure.

“Most certainly it can,” replied Kwame.

“Then why can’t we replace the figure of $4 000 by a symbol, just as we did with the rate?” queried Barton, as the others listened and agreed. All looked directly at Kwame, awaiting an answer.

“Yes, Kwame,” said Sian, “the principal could be $5 000 or $ 6 000 or an ugly figure such as $ 8 684.93, and so on.”

“We may certainly replace the principal with a symbol,” agreed Kwame.

“Let’s use ‘P’ since ‘P’ is the first letter of the word ‘PRINCIPAL’,” suggested Alfredo.

“Not a problem,” replied Kwame. “It is a good choice,” he added. “Let us see what we now have,” he said, inviting the others to look at his script.

“The simple interest earned on $P, at the rate of R % per annum, will in one year, earn an interest of $\frac{R}{100} \times P$,” he wrote.

“This is getting more and more interesting,” cited the others.

“I have a thought,” said the pensive, Malaika.

“Share it,” suggested the excited group, though Kwame remained strangely silent.

“The amount earned as simple interest remains the same for each year,” Malaika began.

The simple interest earned after 1 year is $\frac{R \times P}{100}$ the girl wrote.

Therefore the simple interest earned after 2 years will be $\frac{R \times P}{100} \times 2$, the simple interest earned after 3 years will be $\frac{R \times P}{100} \times 3$, the simple interest earned after 4 years will be $\frac{R \times P}{100} \times 4$, and so on.

“I know what you are thinking,” said Kwame, with a broad grin. “Just go ahead and say it,” he challenged the group.

“We may certainly replace the number of years by a symbol,” they suggested.

“Let’s use ‘T’ since ‘T’ is the first letter of the word ‘Time’,” suggested Alfredo.

“The simple interest earned on the Principal of $P at the rate of R % per annum over T years can be found by using: Simple Interest $= \frac{P \times R \times T}{100}$,” shouted the group. “All we need to do is to replace the symbols with the numerical value,” they sang happily.

“Isn’t this the rule that we were taught in class, for finding simple interest?” asked Kwame.