# Money

*A Scripted Teacher's Classroom Guide*

## Part Five. Saving and Compound Interest

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**One classroom book for the teacher. No textbooks for the pupils.**
This is the teacher's book. The teacher needs only this one copy. The pupils do not need a textbook.

**You need:** this book, a blackboard and chalk.
**Each pupil needs:** a standard school exercise book, a ruler, and a pen or pencil.

In the exercise book, every lesson starts on a new page, with the lesson title, underlined, and the date.

Every lesson guides you: what to say, what to write on the board, and what the pupils write.

# Part Five. Saving and Compound Interest

# Lesson 20. Why Save?

## To the Teacher

**Get these things ready before the lesson:**

- a small tin or box with a hole in the top (a savings box)
- thirty small stones, beans or bottle tops (each one is $5)
- for Exercise 4A: sixty more stones for each group of pupils (here each stone is $100)
- chalk and the blackboard
- an exercise book, a ruler, and a pen or pencil for each pupil

**Time:** about 45 minutes. If your pupils are slow with numbers, do Exercises 4, 4A and 5 in a second meeting.

**In this lesson the pupils learn four things:**

1. To save is to keep some money now, to use later.
2. A little money each day grows into a big amount. $5 a day is $150 in a month.
3. People save for two reasons: for an emergency, and for a goal.
4. Save first, then spend. The savings go into the budget at the top of the OUT side.

**What you must know before you teach.** Read this part two times. Do not read it to the pupils.

Most people who save do not have much money. They save a little, again and again. $5 a day looks too small to matter. But in 30 days it is $150, and in one year it is more than $1,800.

The first reason to save is an emergency: a sick child, a broken roof. A person with savings can pay. A person with no savings must borrow, and often pays back more (Lessons 18 and 19).

The second reason is a goal: a goat, a sewing machine, school fees next year. Find the price of the goal. Then work out how much to save each week, and for how long.

**Money that comes only at harvest.** Many farmers get most of their money once a year, after the harvest. That money must last until the next harvest. Often a family spends a lot in the good months. Then the hungry season comes (Lesson 16), and the family must borrow. So the harvest money is savings too. First keep the money for seeds and school fees. Then share the rest into equal parts, one part for each month until the next harvest. Spend one part each month, and no more. Exercise 4A practises this. The pupils share stones into piles, so they need no new kind of sum.

**Savings in the budget.** Many people save only what is left over, and often nothing is left over. So in this book we save first. We write the savings on the first line of the OUT side of the budget (Lesson 10). The money goes out of the purse into the savings box, but it is still the person's own money.

**Savings in the cash book.** A pupil who keeps a cash book (Lesson 14) writes the money for the savings box in the OUT column: "to savings box". The cash in the purse is now less, so the balance must be less too. When money comes back from the box, it goes in the IN column: "from savings box". Then the cash and the balance still agree (Lesson 15). The savings box has its own record. Lesson 21 shows it.

## Begin the Page

*To the Teacher:* do this at the start of every lesson. Write the lesson title and the date on the board. Each pupil starts a new page in the exercise book. The pupils write the lesson title at the top and underline it with a ruler. Under it they write the date.

## The Talk

Read the teacher's words (**T**) aloud. Wait for the pupils to answer. Accept any answer with the same meaning.

*Hold up the savings box.*

**T.** This is Fatuma's box. Each day she puts one coin of $5 into it. How much is in it after one week?
**P.** $35.

*Put down the stones one at a time. The pupils count aloud in fives: 5, 10, 15 … up to 150.*

**T.** One stone is one day. How much is in the box after 30 days?
**P.** $150.

**T.** Yes. Fatuma does not spend this money. She keeps it for later. This is saving. The money in the box is her savings.

**T.** One day Fatuma's son is sick. She needs $100 for medicine today. What can she do?
**P.** She can take the money from her box.

**T.** And a woman with no savings?
**P.** She must borrow. She must pay back more.

**T.** Yes. A bad thing that comes suddenly and needs money now is an emergency.

**T.** Fatuma also wants a goat. A goat costs $500. After one month she has $150. Is that enough?
**P.** No.

**T.** How much does she have after two months? After three? After four?
**P.** $300. $450. $600.

**T.** After four months she can buy the goat. The goat is her goal.

**T.** Kofi says, "$5 is too small. Saving is only for rich people." What do you say to Kofi?
**P.** Small amounts grow. $5 a day is $150 in a month.

**Then do these steps.**

1. Draw Fatuma's budget for one month on the board. Fatuma grows vegetables and sells them.

| **Fatuma, one month: IN** | **Fatuma, one month: OUT** |
|---|---|
| vegetables sold $900 | savings box $150 |
| | food $400 |
| | school $200 |
| | water $60 |
| | soap $40 |
| **TOTAL IN** $900 | **TOTAL OUT** $850 |

**LEFT OVER** = $900 − $850 = $50

2. Point to *savings box $150*. Say: "Fatuma writes her savings first. She saves first. Then she spends."
3. Ask: "Is the $150 lost?" Expect: "No. It is still Fatuma's money. It is in her box."

**If a pupil says, "I have nothing to save":** look at the OUT side together. Is there a small want, like Kofi's tea in Lesson 9? Even $1 a day is $30 in a month. Say, "Start small. Small amounts grow."

**If a pupil says, "I save in goats, not in money":** say, "Yes. That is saving too. You can sell a goat later." Then ask, "Can a goat die? Can money be stolen?" Every way of saving has good and bad sides.

## New Words

*To the Teacher:* write the four words on the board. Say each word and its meaning. The pupils copy the words into their exercise books.

| Word | Meaning in this book |
|---|---|
| **save** | To keep money now, and not spend it, to use later. |
| **savings** | The money that you save. |
| **goal** | A thing that you save for. |
| **emergency** | A bad thing that comes suddenly and needs money now. |

## Learn by Heart

> **To save is to keep some money now, to use later.**
>
> **Save first. Then spend.**

*To the Teacher:* write the two sentences on the board. Leave them there until the end of the lesson. The pupils say them aloud, all together, three times. Then each pupil says them alone.

## Exercise 1. Answer aloud.

*To the Teacher:* ask each question. The pupils answer aloud. Nobody writes.

1. Fatuma saves $5 a day. How much does she have after 30 days?
2. Name two reasons to save.
3. What is an emergency? Give one example.
4. What is a goal? Give one example.
5. Where does Fatuma write her savings in her budget? Why?

## Exercise 2. Emergency or goal?

*To the Teacher:* write the two letters and their meanings on the board. Read the model aloud. Then read each numbered sentence

aloud two times. After each sentence, the pupils write its number and one letter.

- **E** if it is an emergency.
- **G** if it is a goal.

*Model.* Juma's goat breaks its leg. He needs money for the animal doctor today. — **E.** It comes suddenly, and it needs money now.

1. Grace wants a sewing machine next year.
2. Fire burns Peter's workshop. He needs new tools now.
3. Ama's child is sick. She needs medicine today.
4. Halima wants a new hammer in three months.
5. Thandi wants to visit her mother at the end of the year.
6. A storm breaks the roof of Musa's house. The rain comes in.
7. Kofi saves for a bicycle.
8. A thief takes Grace's needles. She needs new needles for her work tomorrow.
9. Ama saves for a market stall.
10. Peter wants school fees for his daughter next year.

## Exercise 3. How much is in the box?

*To the Teacher:* write the model and the six sentences on the board. The pupils write the sum and the answer for each one. They may add, or count in fives or tens.

*Model.* Fatuma saves $5 a day for 4 days. → 5 + 5 + 5 + 5 = 20. **She has $20.**

1. Kofi saves $5 a day for 6 days.
2. Grace saves $10 a day for 5 days.
3. Halima saves $20 a week for 4 weeks.
4. Peter saves $50 a week for 3 weeks.
5. Musa saves $100 a month for 6 months.
6. Fatuma saves $5 a day for 30 days.

## Exercise 4. When is there enough for the goal?

*To the Teacher:* write the model on the board. Read each sentence aloud and write it on the board. The pupils write the savings day by day (or week by week, or month by month). They stop at the first amount that is enough. Then they write the answer.

*Model.* Fatuma wants a goat. It costs $500. She saves $150 a month.

month 1 — $150 · month 2 — $300 · month 3 — $450 · month 4 — $600 **She can buy the goat in month 4.**

1. Kofi wants an exercise book. It costs $20. He saves $5 a day.
2. Grace wants a chicken. It costs $150. She saves $50 a week.
3. Ama wants a goat. It costs $500. She saves $100 a week.
4. Halima wants a bus ride to town. It costs $30. She saves $10 a day.
5. Juma wants a goat. It costs $500. He saves $200 a month.

## Exercise 4A. Make the harvest money last.

*To the Teacher:* write the model and the four sentences on the board. Give each group of pupils 60 stones. In this exercise each stone is $100. The pupils share the stones into piles, one pile for each month, one stone at a time. Then they count one pile. Quick pupils can try an amount and check it with a sum, like the model.

*Model.* Juma sells his maize in June. He gets $6,000. The next harvest money comes in 12 months.

60 stones in 12 piles: 5 stones in each pile. 5 stones are $500.
Check: 12 × $500 = $6,000.
**Juma can spend $500 each month.**

1. Amos gets $3,000 at harvest. The next harvest money comes in 6 months.
2. Fatuma gets $1,200 for her beans. It must last 4 months.

3. Juma gets $6,000. First he keeps $1,200 for seeds and school fees. The rest must last 12 months.
4. Halima gets $2,400. It must last 12 months. Her family needs $300 each month. Is it enough?

## Exercise 5. Build Thandi's budget. Save first.

*To the Teacher:* write the model line and the facts on the board, in this jumbled order. Read them aloud. The pupils draw the IN and OUT line for Thandi for one month. They put the savings on the first line of OUT. Then they write TOTAL IN, TOTAL OUT and LEFT OVER.

*Model.* The first line of Thandi's OUT side: **savings box $200**

**The facts:** food $800 · wage $2,000 · bus rides $120 · savings box $200 · her room $500 · to her mother $300 · soap $40

Then answer: How much does Thandi save in 6 months?

## Exercise 6. Copy in your best handwriting.

The pupils copy the two sentences from the board (*Learn by Heart*). They write each sentence two times.

*To the Teacher:* the pupils use the handwriting from *Learning to Write*, or the joined handwriting from *Cursive* if they know it. Look at every page. Check three things: a capital letter at the start, a full stop at the end, and the spelling.

## After the Lesson

*To the Teacher:* ask each pupil to choose one goal at home and find its price. Ask them also to find out where people in your village keep their savings. Do some people meet and save together? Lesson 21 begins with their answers. Do not ask any pupil how much money he or she has.

## Answers (for the teacher)

**Exercise 1.** 1. $150. 2. For an emergency, and for a goal. 3. A bad thing that comes suddenly and needs money now (a sick child, a broken roof). 4. A thing that you save for (a goat, school fees). 5. On the first line of the OUT side. She saves first, then she spends.

**Exercise 2.** 1 G · 2 E · 3 E · 4 G · 5 G · 6 E · 7 G · 8 E · 9 G · 10 G

*Number 8:* Grace needs the needles tomorrow for her work. It comes suddenly, so it is an emergency. *Numbers 4, 5 and 10:* the person knows about them months before. So they are goals.

**Exercise 3.** 1. $30 · 2. $50 · 3. $80 · 4. $150 · 5. $600 · 6. $150 (5 × 30 = 150)

**Exercise 4.** 1. 5, 10, 15, 20: day 4. · 2. 50, 100, 150: week 3. · 3. 100, 200, 300, 400, 500: week 5. · 4. 10, 20, 30: day 3. · 5. 200, 400, 600: month 3 (Juma has $100 more than the price).

**Exercise 4A.**

1. 30 stones in 6 piles: 5 in each. $500 each month. (6 × $500 = $3,000)
2. 12 stones in 4 piles: 3 in each. $300 each month. (4 × $300 = $1,200)
3. $6,000 − $1,200 = $4,800. 48 stones in 12 piles: 4 in each. $400 each month. (12 × $400 = $4,800)
4. No. 24 stones in 12 piles: 2 in each, so only $200 each month. Her family needs $300. In 12 months that is $3,600 (12 × $300). She needs $1,200 more. She must make OUT smaller or IN bigger (Lesson 10).

*Number 4:* talk about Halima with the class. She can grow a second crop, sell eggs, or spend less on wants. She must not plan to borrow every hungry season (Lesson 19).

**Exercise 5.**

| Thandi, one month: IN | Thandi, one month: OUT |
|---|---|
| wage $2,000 | savings box $200 |
| | food $800 |
| | her room $500 |
| | to her mother $300 |
| | bus rides $120 |
| | soap $40 |
| **TOTAL IN** $2,000 | **TOTAL OUT** $1,960 |

**LEFT OVER** = $2,000 − $1,960 = $40

The other OUT lines may come in any order. Only the savings must be first. These are Thandi's numbers from Lesson 10, with the savings in place of the new shirt. In 6 months Thandi saves $200 six times = $1,200.

# Lesson 21. Where to Keep Savings

## To the Teacher

**Get these things ready before the lesson:**

- Fatuma's savings box from Lesson 20
- a lock and key, if you have one (it is not necessary)
- chalk and the blackboard
- an exercise book, a ruler, and a pen or pencil for each pupil

**Time:** about 45 minutes. If your pupils have many questions about savings groups, teach the lesson in two meetings.

**In this lesson the pupils learn four things:**

1. Savings at home are not safe. A thief, a fire or rats can take them. Prices rise.
2. A savings group meets, saves, lends to its members and shares out the money.
3. A bank account or a telephone account keeps money for you.
4. Never tell anyone your secret number. Never give your savings to a stranger who promises a big gain.

**What you must know before you teach.** Read this part two times. Do not read it to the pupils.

**At home.** Money at home can be stolen or burnt, and rats eat paper notes. A person sees it every day and wants to spend it. Prices also rise (Lesson 16), so money kept at home for years buys less.

**The savings group.** In many villages 15 to 25 people form a savings group. They meet each week, and each member puts in money. One member writes every amount in the record. The money stays in a box with three locks, and three different members each keep one key.

The group lends money from the box to its members, and the borrower pays back a little more. After about one year the group opens the box and shares out all the money. Each member gets her savings back, and a share of the extra money. (In another kind of group, the members take all the money in turn, and it does not grow.)

**Check the group record.** Each member also keeps her own small book. At each meeting, the member who writes the record writes the amount in the group record and in the member's own book. The member checks that the two agree. A member who cannot read asks a person whom she trusts to check. The money comes back only at the share-out. Each group chooses its own share-out day, so ask it when you join. A savings goal must have a date on or after that day.

**The bank and the telephone account.** A bank keeps money for you and gives you a record of it. In most countries the government checks the banks. But a bank may be far away, may ask for papers with your name, and may take a small amount each month.

In many countries a telephone company also keeps money in an account. You can send and get money with the telephone. A secret number (a PIN) protects the account. The company never asks for this number, so a person who asks for it is a thief. After each payment, the company sends a message. This message is a receipt. Keep it.

**Cheats.** A stranger promises to make your money two times bigger in a few weeks. He pays the first people with the money of later people, then goes away with everything. Teach the rule: if a person promises a very big gain quickly, keep your money.

## Begin the Page

*To the Teacher:* do this at the start of every lesson. Write the lesson title and the date on the board. Each pupil starts a new page in the

exercise book. The pupils write the lesson title at the top and underline it with a ruler. Under it they write the date.

## The Talk

Read the teacher's words (**T**) aloud. Accept any answer with the same meaning. Begin with the pupils' answers from Lesson 20: where do people in your village keep their savings?

**T.** Fatuma keeps her savings box under her bed. What bad things can happen to it?
**P.** A thief can take it. A fire can burn it. Rats can eat the notes.

**T.** Fatuma sees the box every day. What does she want to do?
**P.** She wants to spend the money.

**T.** In Lesson 16, prices rise. What happens to money that stays at home for years?
**P.** It buys less.

**T.** So savings at home are not safe. Now Fatuma joins a savings group. Twenty women meet each week.

**Then do these steps.**

1. Draw a box on the board. Draw three locks on it. Write *Fatuma's savings group* above it.
2. Say: "Each week each member puts $50 into the box. One member writes it in the record."
3. Ask: "Three members keep the three keys. Why?" Expect: "Then one person cannot open the box alone."
4. Say: "Ama needs $200 for her chickens. The group lends it from the box. Later she pays back $220."
5. Say: "At the end of the year the group opens the box. Each member gets her savings back. She also gets a share of the extra money."
6. Say: "Fatuma has her own small book. Each week $50 is written in it, and in the group record. Fatuma checks that the

two agree."

**T.** A bank also keeps money. Fatuma opens an account at the bank. What does the bank give her?
**P.** A record of her money.

**T.** Some people keep money in a telephone account. What must they never tell anyone?
**P.** The secret number.

**T.** A stranger says, "Give me $100. Next month I give you $200." What do you do?
**P.** I keep my money. He is lying.

**If a pupil says, "A bank is only for rich people":** say, "Some banks keep small accounts. First ask how much the bank takes each month. A savings group is for every person."

**If a pupil says, "My cousin got $200 for $100 from that man":** say, "The first people often get money. It is the money of the later people. The later people lose everything."

## New Words

*To the Teacher:* write the four words on the board. Say each word and its meaning. The pupils copy the words into their exercise books.

| Word | Meaning in this book |
|---|---|
| **safe** | Not easy to lose, to steal or to burn. |
| **bank** | A business that keeps money for people and lends money to people. |
| **account** | Your money and the record of it, kept for you by a bank or a telephone company. |
| **savings group** | A group of people who meet, save together and lend to each other. |

## Learn by Heart

> **Keep your savings in a safe place.**
>
> **Never tell anyone your secret number.**

*To the Teacher:* write the two sentences on the board. Leave them there until the end of the lesson. The pupils say them aloud, all together, three times. Then each pupil says them alone.

## Exercise 1. Answer aloud.

*To the Teacher:* ask each question. The pupils answer aloud. Nobody writes.

1. Name three bad things that can happen to money at home.
2. Why does the savings group box have three locks?
3. What does a savings group do with the money at the end of the year?
4. What does a bank give you when you open an account?
5. A man says, "I work for the telephone company. Tell me your secret number." What do you do?

## Exercise 2. Safe or not safe?

*To the Teacher:* write the two letters and their meanings on the board. Read the model aloud. Then read each numbered sentence aloud two times. The pupils write its number and one letter.

- **S** if the savings are safe.
- **N** if the savings are not safe.

*Model.* Fatuma keeps $1,000 in a tin under her bed. — **N**. A thief or a fire can take it.

1. Grace keeps her savings in a savings group. The box has three locks.

2. Musa tells his secret number to a man at the bus stop.
3. Ama keeps $2,000 in a pot in her kitchen.
4. Peter has a bank account. The bank gives him a record of his money.
5. A stranger says, "Give me $500. Next week I give you $1,000." Kofi gives it.
6. Thandi keeps her wage in her telephone account. Nobody knows her secret number.
7. A man calls Juma. "I work for the telephone company. Tell me your secret number." Juma tells him.
8. In Musa's group, one member keeps the box and all three keys.
9. Ama checks her bank record each month.
10. Musa writes his secret number on the back of his telephone.

## Exercise 3. Which place is it?

*To the Teacher:* write the four letters and their meanings on the board. Read the model aloud. Then read each numbered sentence aloud two times. The pupils write its number and one letter.

- **H** for savings at home.
- **G** for a savings group.
- **B** for a bank.
- **T** for a telephone account.

*Model.* Rats can eat the notes. — **H**.

1. Three members keep three keys.
2. You need a secret number.
3. A thief can find it under the bed.
4. You may need to take the bus to town.
5. The members meet each week.
6. The group lends money to its members.
7. It asks for papers with your name.

8. You can send money to your mother in another town.

## Exercise 4. Build Fatuma's savings record.

*To the Teacher:* draw the record on the board with three columns and the first line filled in. Then read the facts aloud, one at a time. The pupils copy the record and write one line for each week.

*Model.*

| WEEK | PUT IN | SAVED |
|---|---|---|
| 1 | $50 | $50 |

**The facts (read aloud):**

- Week 2: Fatuma puts in $50.
- Week 3: she puts in $50.
- Week 4: she sells many vegetables. She puts in $100.
- Week 5: she puts in $50.
- Week 6: she has no money this week. She puts in $0.
- Week 7: she puts in $50.
- Week 8: she puts in $50.

Then answer: Fatuma's goal is a goat for $500. How much more does she need?

Then answer a second question: At week 8 the group record says Fatuma saved $350. What must she do?

## Exercise 5. Put the words in order. Write the sentence.

*To the Teacher:* write the model and the four groups of words on the board. These are rules of a savings group.

*Model.* meet · week · we · each → **We meet each week.**

1. secret · your · number · keep
2. three · the · has · locks · box

3. member · each · $50 · puts in
4. stranger · never · savings · your · give · a · to

## Exercise 6. Copy in your best handwriting.

The pupils copy the two sentences from the board (*Learn by Heart*). They write each sentence two times.

*To the Teacher:* the pupils use the handwriting from *Learning to Write*, or the joined handwriting from *Cursive* if they know it. Look at every page. Check three things: a capital letter at the start, a full stop at the end, and the spelling.

## After the Lesson

*To the Teacher:* ask the pupils to find out one thing at home. A person keeps $100 in a bank for one year. Does the bank give back more than $100? How much more? Lesson 22 begins with their answers.

Before Lesson 22, collect 200 beans or small stones.

## Answers (for the teacher)

**Exercise 1.** 1. A thief can take it; a fire can burn it; rats can eat the notes. (Also: you want to spend it; prices rise.) 2. So that one person cannot open the box alone. 3. It shares out the money. Each member gets her savings back and a share of the extra money. 4. A record of your money. 5. Do not tell him. The company never asks for the number.

**Exercise 2.** 1 S · 2 N · 3 N · 4 S · 5 N · 6 S · 7 N · 8 N · 9 S · 10 N

*Number 8:* one person can open the box alone, so it is not safe. *Number 10:* a thief who takes the telephone finds the number.

**Exercise 3.** 1 G · 2 T · 3 H · 4 B · 5 G · 6 G · 7 B · 8 T

*Number 6:* a bank also lends money, so accept **B** if the pupil explains. *Number 8:* some banks also send money, so accept **B**.

**Exercise 4.**

| WEEK | PUT IN | SAVED |
|---|---|---|
| 1 | $50 | $50 |
| 2 | $50 | $100 |
| 3 | $50 | $150 |
| 4 | $100 | $250 |
| 5 | $50 | $300 |
| 6 | $0 | $300 |
| 7 | $50 | $350 |
| 8 | $50 | $400 |

She needs $500 − $400 = $100 more.

Fatuma's own record says $400, and the group record says $350. The difference is $50 (Lesson 15). She tells the group at the meeting. Together they check the record, week by week, and correct the mistake with one line through it.

**Exercise 5.** 1. Keep your secret number. · 2. The box has three locks. · 3. Each member puts in $50. · 4. Never give your savings to a stranger.

# Lesson 22. Interest

## To the Teacher

**Get these things ready before the lesson:**

- 200 beans or small stones. Before the lesson, make 20 piles of 10.
- chalk and the blackboard
- an exercise book, a ruler, and a pen or pencil for each pupil

**Time:** about 45 minutes. If your pupils find the sums hard, do Exercises 3 and 4 in a second meeting.

**In this lesson the pupils learn four things:**

1. Interest is the price of using another person's money.
2. A bank pays interest to a person who saves. A borrower pays interest to the lender.
3. The rate tells how much interest for every $100. 10 in every 100 is 10 per cent (10%).
4. How to work out 10% of an amount.

**What you must know before you teach.** Read this part two times. Do not read it to the pupils.

A lender cannot use his money while another person has it, and he may lose it. So the lender asks for more money back. This extra money is interest: the price of using another person's money.

A bank pays interest to savers. It lends their money to borrowers, and the borrowers pay the bank more interest. The difference pays for the bank's workers and buildings.

**The rate.** "10 in every 100 each year" is a rate. We also say "10 per cent" and write "10%". Per cent means "in every 100".

A rate always says for how long: each year, each month or each week. 10% each year and 10% each month are very different (Lesson 25).

**Our numbers are for learning.** In this book savings get 10% each year, because the sums are easy. Real banks often pay savers much less: 1, 2 or 5 in every 100 each year, or nothing. Some lenders ask for 10% or more each month. Tell the pupils this.

**How to work out 10%.** Count the hundreds. For each 100, the interest is 10. So 10% of 500 is five tens, which is 50.

A short way for amounts that end in 0: take one 0 from the end. 10% of 300 is 30, and 10% of 150 is 15.

**Faith.** Some faiths and communities forbid interest. Many Muslims do not take or pay it. Jewish law forbids interest between Jews. In the past many Christian teachers forbade it too. Some banks pay no interest; they share the gain of a business with the saver instead. Teach interest as a fact, without judgment, and never press a pupil to take or pay it.

Lesson 23 shows that growth on growth is also true of goats, trees and a business. So the next lesson is useful even to a pupil who never takes interest.

## Begin the Page

*To the Teacher:* do this at the start of every lesson. Write the lesson title and the date on the board. Each pupil starts a new page in the exercise book. The pupils write the lesson title at the top and underline it with a ruler. Under it they write the date.

## The Talk

Read the teacher's words (**T**) aloud. Accept any answer with the same meaning. Begin with the pupils' answers from Lesson 21: does a bank give back more than $100?

**T.** Musa borrows $100 for one year. At the end of the year he pays back $110. Why does he pay $10 more?
**P.** Because he used the lender's money.

**T.** Yes. For one year the lender cannot use his own money. The extra $10 is interest. Interest is the price of using another person's money.

**T.** Now Fatuma keeps $100 in a bank for one year. The bank gives her back $110. Who pays the interest?
**P.** The bank.

**T.** Who gets the interest?
**P.** Fatuma.

**T.** Why can the bank pay her?
**P.** *(Let the pupils guess. Then say:)* The bank lends her money to other people. They pay interest to the bank.

*Put 10 piles of 10 beans on the floor or a desk in front of the class. Count them with the pupils: 10, 20 ... 100.*

**T.** Here are 100 beans. The bank pays 10 in every 100. How many beans is that?
**P.** One pile. 10 beans.

**T.** We call this the rate. We say "10 per cent". Per cent means "in every 100".

*Put down 10 more piles.*

**T.** Fatuma keeps $200 in the bank. How much interest does she get in one year?
**P.** $20. For each 100, she gets 10.

**T.** Some people do not take or pay interest. Their faith forbids it. We respect their choice. Their savings can grow in other ways, like a herd of goats.

**Then do these steps.**

1. Draw the IN and OUT line for Musa and for Fatuma.

| Musa, one year: IN | Musa, one year: OUT |
|---|---|
| loan $100 | pays back $100 |
| | interest $10 |

| Fatuma, one year: IN | Fatuma, one year: OUT |
|---|---|
| takes back her savings $100 | puts savings in the bank $100 |
| interest $10 | |

2. Point to the two lines. Say: "For the borrower, interest is OUT. For the person who saves, interest is IN."
3. Write on the board: **10 in every 100** = **10 per cent** = **10%.** Say: "% is the sign for per cent."
4. Show the short way. Write: 300 → 30 · 500 → 50 · 150 → 15. Say: "Take one 0 from the end."
5. Write on the board, under *Fatuma*: **At the start: $100 · Interest: $10 · At the end: $110.** Say: "Remember these three lines. We use them again in the next lesson."

**If a pupil says, "Interest is wrong":** say, "Some people think so, and some faiths forbid it. In this lesson we learn how it works. Then each person can choose."

**If a pupil says, "10% of 500 is 10":** show five piles of 100 beans, or draw five boxes of 100. Take 10 from each box. Count: 10, 20, 30, 40, 50.

## New Words

*To the Teacher:* write the three words on the board. Say each word and its meaning. The pupils copy the words into their exercise books.

| Word | Meaning in this book |
|---|---|
| **interest** | The price of using another person's money. |
| **rate** | How much interest for every $100, for each year, month or week. |
| **per cent (%)** | In every 100. 10% means 10 in every 100. |

*To the Teacher:* in this book **interest** always means money paid for the use of money. It has no other meaning.

## Learn by Heart

> **Interest is the price of using another person's money.**
>
> **10 per cent means 10 in every 100.**

*To the Teacher:* write the two sentences on the board. Leave them there until the end of the lesson. The pupils say them aloud, all together, three times. Then each pupil says them alone.

## Exercise 1. Answer aloud.

*To the Teacher:* ask each question. The pupils answer aloud. Nobody writes.

1. What is interest?
2. Who pays interest: the borrower or the lender?
3. Fatuma keeps money in a bank. Who pays interest to her?
4. Why can a bank pay interest?
5. What does "per cent" mean?

## Exercise 2. Does this person get interest or pay interest?

*To the Teacher:* write the three letters and their meanings on the board. Read the model aloud. Then read each numbered sentence aloud two times. The pupils write its number and one letter. The letter is always for the **first** person in the sentence.

- **G** if the person gets interest.
- **P** if the person pays interest.
- **X** if there is no interest.

*Model.* Fatuma keeps $100 in a bank for one year. The bank gives her $110. — **G**. She gets $10 more.

1. Musa borrows $200. After one year he pays back $220.
2. Grace keeps $300 in a bank. After one year the bank gives her $330.
3. Kofi borrows $50 from his brother. He pays back $50.
4. Ama keeps $500 in a tin at home. After one year she has $500.
5. Peter borrows $1,000 from a bank. He pays back $1,100.
6. Juma lends $100 to Musa. Musa pays him back $110.
7. Halima borrows $100 from her savings group. She pays back $110.
8. A bank lends $500 to Ama. Ama pays back $550.

## Exercise 3. Work out 10%.

*To the Teacher:* write the model and the seven amounts on the board. The pupils write the answer for each amount. They may count the hundreds, or use the short way.

*Model.* 10% of $300. 300 has 3 hundreds. For each 100, 10. 10 + 10 + 10 = 30. → **$30**

1. 10% of $100
2. 10% of $200
3. 10% of $500
4. 10% of $1,000

5. 10% of $150
6. 10% of $50
7. 10% of $2,000 (Thandi's wage for one month)

## Exercise 4. One year of savings at 10%.

*To the Teacher:* write the model on the board. Then write the five names and amounts. Each person keeps the money in a bank for one year at 10%. The pupils write the three lines for each person.

*Model.* Fatuma, $100.

At the start: $100
Interest: $10
At the end: $110

1. Grace, $200
2. Ama, $500
3. Halima, $300
4. Peter, $1,000
5. Kofi, $150

## Exercise 5. Write the missing word.

*To the Teacher:* write the six sentences on the board, with a line for each missing word. The pupils copy each sentence and write the missing word.

1. Interest is the _____ of using another person's money.
2. The borrower _____ interest to the lender.
3. A bank pays interest to people who _____ money.
4. Per cent means "in every _____".
5. 10 in every 100 is 10 _____.
6. The _____ tells how much interest for every $100.

## Exercise 6. Copy in your best handwriting.

The pupils copy the two sentences from the board (*Learn by Heart*). They write each sentence two times.

*To the Teacher:* the pupils use the handwriting from *Learning to Write*, or the joined handwriting from *Cursive* if they know it. Look at every page. Check three things: a capital letter at the start, a full stop at the end, and the spelling.

## After the Lesson

*To the Teacher:* leave Fatuma's three lines on the board, or copy them into your book. At the end of the lesson, ask the pupils this question. Do not give the answer.

> **Fatuma leaves her $110 in the bank for one more year. After the second year, does the bank pay her $10 or $11?**

The pupils think about it at home. Lesson 23 begins with their answers. Ask also: "Who keeps goats? How many kids does a goat have in one year?"

Before Lesson 23, collect 40 small stones. They are Juma's goats.

## Answers (for the teacher)

**Exercise 1.** 1. The price of using another person's money. 2. The borrower. 3. The bank. 4. The bank lends the money to other people, and they pay interest to the bank. 5. In every 100.

**Exercise 2.** 1 P · 2 G · 3 X · 4 X · 5 P · 6 G · 7 P · 8 G

*Number 4:* money at home gets no interest. *Numbers 6 and 8:* the first person is the lender, so the first person gets the interest. *Number 7:* a savings group also lends; Halima pays $10 more, so she pays interest.

**Exercise 3.** 1. $10 · 2. $20 · 3. $50 · 4. $100 · 5. $15 · 6. $5 · 7. $200

*Number 4:* 1,000 has 10 hundreds, so 10 tens = 100. *Numbers 5 and 6:* use the short way. 150 → 15. 50 → 5.

**Exercise 4.**

| Name | At the start | Interest | At the end |
|---|---|---|---|
| Grace | $200 | $20 | $220 |
| Ama | $500 | $50 | $550 |
| Halima | $300 | $30 | $330 |
| Peter | $1,000 | $100 | $1,100 |
| Kofi | $150 | $15 | $165 |

**Exercise 5.** 1. price · 2. pays · 3. save · 4. 100 (hundred) · 5. per cent (or %) · 6. rate

**The question for Lesson 23 (do not tell the pupils yet).** The bank pays $11, because it pays 10% of $110, not of $100. At the end of the second year Fatuma has $121. This is interest on interest. Lesson 23 teaches it.

# Lesson 23. Compound Interest

## To the Teacher

**Get these things ready before the lesson:**

- about 70 small stones or beans (they stand for goats)
- chalk and the blackboard
- an exercise book, a ruler, and a pen or pencil for each pupil

**Time:** about 60 minutes. You can teach the goats in one meeting and the money in the next.

**In this lesson the pupils learn four things:**

1. When the new goats also have young, the goats grow faster every year.
2. Simple interest is interest on the first amount only.
3. Compound interest is interest on the interest too.
4. How to fill a table, row by row.

**What you must know before you teach.** Read this part two times. Do not read it to the pupils.

In Lesson 22 the bank paid Fatuma 10 in every 100 each year (10%). There are two ways to pay this interest. With **simple interest**, the bank pays interest on the first amount only. So $100 gets $10 every year: 110, 120, 130, 140, 150.

With **compound interest**, the interest stays with the savings. Next year the bank pays interest on the interest too. So $100 becomes 110, 121, 133, 146, 161. After 5 years this is $11 more than simple interest, and the difference grows every year.

This book uses whole dollars only. After 3 years the exact amount is $133 and one tenth of $1 (133.1). We write 133. Teach the pupils this rule for 10 in every 100: **Cover the last figure. If the covered**

**figure is 5 or more, add 1.** So 10% of 133 is 13, and 10% of 146 is 15.

A bank counts parts of a dollar, so its numbers can be different by $1 or $2. In every row, AT THE START is the AT THE END of the row above.

**The goats.** Juma has 8 goats. Each year, every 2 goats give 1 new goat, and next year the new goats have young too: 8, 12, 18, 27, 40. A goat cannot be half, so we leave out the half: 27 goats give 13 new goats. If only the first 8 goats had young, the numbers are 8, 12, 16, 20, 24.

Tell the pupils that this is a picture. Real goats also die, and farmers sell goats. But the idea is true, for goats, for trees and for a small trade.

Some faiths and communities do not allow interest. Some pupils do not take or pay it. Respect this. The goats show the same growth with no interest at all.

## Begin the Page

*To the Teacher:* do this at the start of every lesson. Write the lesson title and the date on the board. Each pupil starts a new page in the exercise book. The pupils write the lesson title at the top and underline it with a ruler. Under it they write the date.

## The Talk

Teach in these steps. Read the **T** lines aloud. The **P** lines show the answers to expect.

1. Put 8 stones in a line on the floor or on a desk. Say: "These are Juma's 8 goats. Each year, every 2 goats give 1 new goat."
2. Write on the board: **Juma's goats**. Draw a table with four columns and four empty rows: YEAR · AT THE START · NEW GOATS · AT THE END.

**T.** How many new goats come in the first year?
**P.** 4 new goats.

**T.** How many goats does Juma have at the end of the year?
**P.** 12 goats.

3. Add 4 stones. Write row 1: 1 · 8 · 4 · 12.

**T.** Next year, which goats have young? Only the first 8 goats?
**P.** No. All 12 goats have young. So 6 new goats come. Juma has 18.

4. Fill rows 2, 3 and 4 with the pupils. Add the stones each time. In year 4, 27 goats give 13 new goats. Say: "A goat cannot be half. We leave out the half."

| YEAR | AT THE START | NEW GOATS | AT THE END |
|---|---|---|---|
| 1 | 8 | 4 | 12 |
| 2 | 12 | 6 | 18 |
| 3 | 18 | 9 | 27 |
| 4 | 27 | 13 | 40 |

5. Draw a second table beside it: **Only the first 8 goats have young.** Say: "On this farm, the young goats never have young." Fill it with the pupils. There are 4 new goats every year.

| YEAR | AT THE START | NEW GOATS | AT THE END |
|---|---|---|---|
| 1 | 8 | 4 | 12 |
| 2 | 12 | 4 | 16 |
| 3 | 16 | 4 | 20 |
| 4 | 20 | 4 | 24 |

**T.** After 4 years, which farm has more goats? Why?
**P.** Juma's farm has 40 goats. The other farm has 24. On Juma's farm

the new goats also have young.

6. Clean the board. Say: "Fatuma saves $100 in the bank. The rate is 10 in every 100 each year." Draw two money tables with the columns YEAR · AT THE START · INTEREST · AT THE END. Fill the simple interest table first. Then fill the compound interest table, row by row, with the pupils. Write the rule on the board and use it in every row.

**Simple interest: interest on the first $100 only**

| YEAR | AT THE START | INTEREST | AT THE END |
|---|---|---|---|
| 1 | 100 | 10 | 110 |
| 2 | 110 | 10 | 120 |
| 3 | 120 | 10 | 130 |
| 4 | 130 | 10 | 140 |
| 5 | 140 | 10 | 150 |

**Compound interest: interest on all the money**

| YEAR | AT THE START | INTEREST | AT THE END |
|---|---|---|---|
| 1 | 100 | 10 | 110 |
| 2 | 110 | 11 | 121 |
| 3 | 121 | 12 | 133 |
| 4 | 133 | 13 | 146 |
| 5 | 146 | 15 | 161 |

**T.** In year 2, why is the compound interest $11, not $10?
**P.** The bank also pays interest on the $10 of interest.

**T.** Which money table is like Juma's goats?
**P.** The compound interest table. The interest also gets interest.

**If a pupil says, "13 and a half goats":** say, "A goat cannot be half. We leave out the half."

**If a pupil says, "My faith does not allow interest":** say, "Follow your faith. The goats show the same growth with no interest."

## New Words

*To the Teacher:* write the four words on the board. Say each word and its meaning. The pupils copy the words into their exercise books.

| Word | Meaning in this book |
|---|---|
| **simple interest** | Interest on the first amount only. |
| **compound interest** | Interest on the first amount and on the interest too. |
| **table** | Numbers in rows and columns. |
| **row** | A line of a table that goes across, from left to right. |

*To the Teacher:* a **column** goes down (Lesson 14). A **row** goes across. A row is a line across a table, like a line of the cash book. In this book the word **table** always means rows and columns of numbers. It has no other meaning.

## Learn by Heart

> **Simple interest is interest on the first amount only.**
>
> **Compound interest is interest on the interest too.**

*To the Teacher:* write the two sentences on the board. Leave them there until the end of the lesson. The pupils say them aloud, all together, three times. Then each pupil says them alone.

## Exercise 1. Answer aloud.

*To the Teacher:* ask each question. The pupils answer aloud. Nobody writes.

1. Juma has 8 goats. Every 2 goats give 1 new goat. How many new goats come?
2. Why do Juma's goats grow faster every year?
3. What is simple interest?
4. What is compound interest?
5. Does a row go across or down?
6. Fatuma saves $100 for 5 years with compound interest. Does she get more than $150?

## Exercise 2. Find 10 in every 100.

*To the Teacher:* write the rule, the two models and the ten numbers on the board. The pupils write each number and its 10 in every 100 in their exercise books.

**Rule:** Cover the last figure. If the covered figure is 5 or more, add 1.

*Model.* 133 → cover the 3 → 13. The 3 is less than 5. So 10% of 133 is **13**.

*Model.* 146 → cover the 6 → 14. The 6 is 5 or more. Add 1. So 10% of 146 is **15**.

1. 110
2. 120
3. 121
4. 150
5. 161
6. 177
7. 220
8. 242
9. 266

10. 195

## Exercise 3. Fill the goat table.

*To the Teacher:* write the facts and the model row on the board. Read the facts aloud two times. The pupils draw both tables in their exercise books and fill 4 rows in each.

**Facts:** Amos is Juma's neighbour. He has 16 goats. Every 2 goats give 1 new goat each year.

**Table A:** all the goats have young, the new goats too. **Table B:** only the first 16 goats have young.

*Model.* The first row is the same in both tables:

| YEAR | AT THE START | NEW GOATS | AT THE END |
|---|---|---|---|
| 1 | 16 | 8 | 24 |

Then the pupils answer: After 4 years, how many more goats are in Table A than in Table B?

## Exercise 4. Fill the money table.

*To the Teacher:* write the facts and the model row on the board. The pupils draw both tables and fill 4 rows in each. Remind them to use the rule from Exercise 2 in every row.

**Facts:** Grace saves $200. The rate is 10 in every 100 each year.

**Table A:** simple interest. **Table B:** compound interest.

*Model.* The first row is the same in both tables:

| YEAR | AT THE START | INTEREST | AT THE END |
|---|---|---|---|
| 1 | 200 | 20 | 220 |

Then the pupils answer: After 4 years, how much more money is in Table B than in Table A?

## Exercise 5. Simple or compound?

*To the Teacher:* write **S** (simple) and **C** (compound) on the board. Read the model aloud. Then read each sentence aloud two times. The pupils write its number and one letter.

*Model.* Fatuma leaves her interest in the bank. Next year it gets interest too. — **C**.

1. Thandi takes her interest out every year. She spends it.
2. Juma keeps all his new goats. Next year they have young too.
3. Amos sells all his new goats every year.
4. A tree drops seeds. The seeds grow into trees. These trees drop seeds too.
5. Musa borrows $100. Every year he pays $10 interest on the $100.
6. The savings group adds Fatuma's interest to her savings. Next year all of it gets interest.
7. Ama sells eggs. She buys more chickens with the money. The new chickens lay eggs too.
8. Peter gets $10 interest every year. He puts it in a box at home.

## Exercise 6. Copy in your best handwriting.

The pupils copy the two sentences from the board (*Learn by Heart*). They write each sentence two times.

*To the Teacher:* the pupils use the handwriting from *Learning to Write*, or the joined handwriting from *Cursive* if they know it. Look at every page. Check three things: a capital letter at the start, a full stop at the end, and the spelling.

## After the Lesson

*To the Teacher:* tell the pupils to keep their tables from this lesson. Lesson 24 adds more rows to Fatuma's table and to Grace's table.

Ask each pupil to think of a person who saved money for many years.

## Answers (for the teacher)

**Exercise 1.** 1. 4 new goats. 2. The new goats also have young. 3. Interest on the first amount only. 4. Interest on the first amount and on the interest too. 5. Across. 6. Yes. She gets $161.

**Exercise 2.** 1. 11 2. 12 3. 12 4. 15 5. 16 6. 18 (the covered 7 is 5 or more, so add 1) 7. 22 8. 24 9. 27 (the covered 6 is 5 or more, so add 1) 10. 20 (the covered 5 is 5 or more, so add 1)

**Exercise 3.**

Table A (all the goats have young):

| YEAR | AT THE START | NEW GOATS | AT THE END |
|---|---|---|---|
| 1 | 16 | 8 | 24 |
| 2 | 24 | 12 | 36 |
| 3 | 36 | 18 | 54 |
| 4 | 54 | 27 | 81 |

Table B (only the first 16 goats have young):

| YEAR | AT THE START | NEW GOATS | AT THE END |
|---|---|---|---|
| 1 | 16 | 8 | 24 |
| 2 | 24 | 8 | 32 |
| 3 | 32 | 8 | 40 |
| 4 | 40 | 8 | 48 |

After 4 years, Table A has 33 more goats (81 − 48 = 33).

**Exercise 4.**

Table A (simple interest):

| YEAR | AT THE START | INTEREST | AT THE END |
|---|---|---|---|
| 1 | 200 | 20 | 220 |
| 2 | 220 | 20 | 240 |
| 3 | 240 | 20 | 260 |
| 4 | 260 | 20 | 280 |

Table B (compound interest):

| YEAR | AT THE START | INTEREST | AT THE END |
|---|---|---|---|
| 1 | 200 | 20 | 220 |
| 2 | 220 | 22 | 242 |
| 3 | 242 | 24 | 266 |
| 4 | 266 | 27 | 293 |

After 4 years, Table B has \$13 more (293 − 280 = 13). In year 4, 10% of 266 is 27: the covered 6 is 5 or more, so add 1.

**Exercise 5.** 1 S · 2 C · 3 S · 4 C · 5 S · 6 C · 7 C · 8 S

*Numbers 1 and 8:* the interest leaves the savings, so only the first amount gets interest. *Number 3:* the new goats leave, so only the first goats have young. *Number 7:* this is not interest, but it is the same growth on growth.

# Lesson 24. Time Makes Savings Grow

## To the Teacher

**Get these things ready before the lesson:**

- the pupils' exercise books with their tables from Lesson 23
- chalk and the blackboard
- an exercise book, a ruler, and a pen or pencil for each pupil

**Time:** about 50 minutes.

**In this lesson the pupils learn three things:**

1. At 10 in every 100 each year, money doubles in about 7 years.
2. A saver who starts early has much more than a saver who starts late.
3. A small amount is enough to start. Leave the savings in, and wait.

**What you must know before you teach.** Read this part two times. Do not read it to the pupils.

In Lesson 23 Fatuma's $100 became $161 after 5 years. Use the same rule for two more rows. After 6 years she has $177, and after 7 years she has $195. The exact amount is 194.9, nearly 200. So at 10 in every 100 each year, money doubles in about 7 years.

A rule for you, not for the pupils: divide 72 by the rate. The answer is about the number of years to double. At 10 in every 100, it is about 7 years. At 5 in every 100, it is about 14 years, and at 2 in every 100, about 36 years.

Be honest with the pupils. 10 in every 100 each year is a number for teaching. Real banks pay savers much less, often less than 5 in every 100. Prices also rise (Lesson 16), so the money buys less later. But the idea stays true: with compound interest, time makes small savings big.

**The two savers.** Kofi puts $100 in the bank now. Thandi puts $100 in the bank five years later. Both leave the money there. At the end of year 10, Kofi has $261 and Thandi has $161. They saved the same amount, but Kofi has $100 more, because his money had 5 more years.

Kofi's rows after year 7, with the rule: year 8: 195 · 20 · 215; year 9: 215 · 22 · 237; year 10: 237 · 24 · 261. A bank counts parts of a dollar and gets $259 after 10 years. The small difference comes from the rounding. It does not matter for the lesson.

Remember Lesson 21. A stranger may promise to double your money in a month. Honest savings take years to double. A fast promise is a trick.

The same is true without interest. A goat bought early has more years to give young. The pupils who do not take interest can learn this lesson with Juma's goats.

## Begin the Page

*To the Teacher:* do this at the start of every lesson. Write the lesson title and the date on the board. Each pupil starts a new page in the exercise book. The pupils write the lesson title at the top and underline it with a ruler. Under it they write the date.

## The Talk

Teach in these steps. Read the **T** lines aloud. The **P** lines show the answers to expect.

1. Copy Fatuma's compound interest table from Lesson 23 on the board (5 rows). The pupils open their exercise books at the same table. Fill rows 6 and 7 with the pupils, with the rule.

| YEAR | AT THE START | INTEREST | AT THE END |
|---|---|---|---|
| 6 | 161 | 16 | 177 |
| 7 | 177 | 18 | 195 |

**T.** How much does Fatuma have at the end of year 7?
**P.** $195.

**T.** Is that nearly two times $100?
**P.** Yes. Two times $100 is $200. $195 is nearly $200.

**T.** Yes. We say: her money doubles in about 7 years. Now Ama saves $500. About how much does she have after 7 years?
**P.** About $1,000.

2. Write on the board: **Kofi saves $100 now. Thandi saves $100 five years later.** Draw this table. Fill it with the pupils. Kofi's column is Fatuma's table again. Thandi's money starts in year 6.

| YEAR | KOFI: AT THE END | THANDI: AT THE END |
|---|---|---|
| 1 | 110 | — |
| 2 | 121 | — |
| 3 | 133 | — |
| 4 | 146 | — |
| 5 | 161 | — |
| 6 | 177 | 110 |
| 7 | 195 | 121 |
| 8 | 215 | 133 |
| 9 | 237 | 146 |
| 10 | 261 | 161 |

**T.** Kofi and Thandi each save $100. Who has more at the end of year 10?
**P.** Kofi. He has $261. Thandi has $161.

**T.** Why does Kofi have $100 more?
**P.** He started 5 years earlier. His money had more time to grow.

**T.** Kofi takes out his interest every year. Does his money still grow like this?
**P.** No. Then it is simple interest. It grows more slowly.

3. Say: "Start early. A small amount is enough. Leave the savings in, and wait."

**If a pupil says, "I am too old to start":** say, "Today is earlier than next year. Every year of saving helps."

**If a pupil says, "A man in town doubles money in one month":** say, "Honest savings take years to double. A fast promise is a trick. Never give him your savings" (Lesson 21).

**If a pupil says, "My bank pays less than 10 in every 100":** say, "You are right. Real banks pay less. The money grows more slowly, but time still helps it grow."

## New Words

*To the Teacher:* write the two words on the board. Say each word and its meaning. The pupils copy the words into their exercise books.

| Word | Meaning in this book |
|---|---|
| **double** | To become two times as much. $100 doubles to $200. |
| **early** | Near the start of a time; not late. |

## Learn by Heart

> **At 10 in every 100 each year, money doubles in about 7 years.**
>
> **Start early, and leave your savings to grow.**

*To the Teacher:* write the two sentences on the board. Leave them there until the end of the lesson. The pupils say them aloud, all together, three times. Then each pupil says them alone.

## Exercise 1. Answer aloud.

*To the Teacher:* ask each question. The pupils answer aloud. Nobody writes.

1. What does "double" mean?
2. At 10 in every 100 each year, how many years does money take to double?
3. Kofi and Thandi each save $100. Why does Kofi get more?
4. Why must you leave the interest in the bank?
5. A stranger promises to double your money in one month. What do you do?

## Exercise 2. About how much after 7 years?

*To the Teacher:* write the model and the eight amounts on the board. The rate is 10 in every 100 each year. The pupils write each amount and about how much it becomes.

*Model.* $100 after 7 years → about **$200**. It doubles.

1. $200 after 7 years
2. $300 after 7 years
3. $500 after 7 years
4. $50 after 7 years
5. $1,000 after 7 years
6. $2,000 after 7 years

7. $100 after 14 years
8. $500 after 14 years

## Exercise 3. Add rows to Grace's table.

*To the Teacher:* the pupils open their exercise books at Grace's compound interest table (Lesson 23, Exercise 4). It has 4 rows and ends at $293. Write the model row on the board. The pupils add rows 5, 6 and 7, with the rule from Lesson 23.

*Model.*

| YEAR | AT THE START | INTEREST | AT THE END |
|---|---|---|---|
| 5 | 293 | 29 | 322 |

Then the pupils answer: Grace saved $200. Is her money nearly doubled after 7 years?

## Exercise 4. Read the table.

*To the Teacher:* leave the Kofi and Thandi table on the board. Write the model and the six questions. The pupils write the answers in their exercise books.

*Model.* How much does Kofi have at the end of year 3? → **$133.**

1. How much does Kofi have at the end of year 5?
2. How much does Thandi have at the end of year 8?
3. In which year does Thandi put her money in the bank?
4. In which year does Kofi first have more than $200?
5. At the end of year 10, how much more does Kofi have than Thandi?
6. Did Kofi put in more money than Thandi?

## Exercise 5. Does it help savings grow?

*To the Teacher:* write **Y** (yes, it helps) and **N** (no, it does not help) on the board. Read the model aloud. Then read each sentence aloud two times. The pupils write its number and one letter.

*Model.* Fatuma starts to save this month. — **Y**.

1. Kofi waits five years before he saves.
2. Grace saves $5 every day.
3. Kofi takes out his savings to buy a radio.
4. Peter leaves his interest in the bank.
5. A stranger says, "Give me $100. Next month I give you $200." Ama gives him her savings.
6. Juma keeps all his young goats.
7. Musa keeps his savings under his bed.
8. Halima saves a small amount at the start of every year.

## Exercise 6. Copy in your best handwriting.

The pupils copy the two sentences from the board (*Learn by Heart*). They write each sentence two times.

*To the Teacher:* the pupils use the handwriting from *Learning to Write*, or the joined handwriting from *Cursive* if they know it. Look at every page. Check three things: a capital letter at the start, a full stop at the end, and the spelling.

## After the Lesson

*To the Teacher:* tell the pupils to keep Fatuma's table. Lesson 25 uses the same numbers again, for a debt. Ask each pupil to find out who lends money in their town. What must the borrower pay back? Tell them not to name any person in class.

## Answers (for the teacher)

**Exercise 1.** 1. To become two times as much. 2. About 7 years. 3. He started 5 years earlier, so his money had more time to grow. 4. The

interest also gets interest. If you take it out, it is simple interest. 5. Say no. Never give your savings to a stranger. It is a trick.

**Exercise 2.** 1. about $400 2. about $600 3. about $1,000 4. about $100 5. about $2,000 6. about $4,000 7. nearly $400 (it doubles two times: 100, 200, 400) 8. nearly $2,000 (500, 1,000, 2,000)

*Numbers 7 and 8:* the rule is not exact. A bank's exact sums are $380 and $1,899. Accept "about 400" and "about 2,000".

**Exercise 3.**

| YEAR | AT THE START | INTEREST | AT THE END |
|---|---|---|---|
| 5 | 293 | 29 | 322 |
| 6 | 322 | 32 | 354 |
| 7 | 354 | 35 | 389 |

Yes. $389 is nearly $400, which is two times $200. *Year 5:* cover the 3 in 293 → 29. *Year 7:* cover the 4 in 354 → 35. A bank gets $390; accept 389 or 390.

**Exercise 4.** 1. $161 2. $133 3. Year 6 (five years after Kofi) 4. Year 8 ($215) 5. $100 more (261 − 161 = 100) 6. No. Each put in $100. Kofi's extra money comes from interest and time.

**Exercise 5.** 1 N · 2 Y · 3 N · 4 Y · 5 N · 6 Y · 7 N · 8 Y

*Number 5:* this is a trick (Lesson 21). Honest savings take years to double. *Number 7:* money under a bed gets no interest. It can be stolen, and prices rise (Lessons 16 and 21). *Number 6:* this is not interest, but it is the same growth on growth.

# Lesson 25. When Compound Interest Works Against You

## To the Teacher

**Get these things ready before the lesson:**

- the pupils' exercise books with Fatuma's table from Lessons 23 and 24
- chalk and the blackboard
- an exercise book, a ruler, and a pen or pencil for each pupil

**Time:** about 50 minutes. If your pupils find the sums hard, do Exercises 3A and 4 in a second meeting.

**In this lesson the pupils learn four things:**

1. Compound interest makes a debt grow, in the same way as savings.
2. At 10 in every 100 each month, a debt doubles in about 7 months.
3. Some loans are cheap, and some loans are expensive.
4. Pay the most expensive debt first.

**What you must know before you teach.** Read this part two times. Do not read it to the pupils.

The table of Lesson 23 works for a debt too. A moneylender charges Musa 10 in every 100 each month. Musa borrows $100 and pays nothing. So the interest goes on top of the debt, and next month Musa owes interest on the interest. After 6 months he owes $177.

The numbers are the same as Fatuma's savings: 110, 121, 133, 146, 161, 177. But Fatuma's rate was for each **year**. Musa's rate is for each **month**. Fatuma waited 7 years for her money to double. Musa's debt doubles in about 7 months.

After 12 months Musa owes about $314, more than three times the loan. If the pupils fill 12 rows with the rule, they get $316. The small difference comes from the rounding. Both answers show the same thing.

Real banks pay savers much less than 10 in every 100 each year. Some lenders charge even more than 10 in every 100 each month. Some charge for each week. Teach the pupils to ask two questions: "How much interest?" and "For each week, month or year?"

**What a loan costs.** Many lenders do not say a rate. They say only, "Take $100. Pay $30 every week for 4 weeks." Then add up all the payments, and take away the money that you get. The answer is what the loan costs. Here it is $120 − $100 = $20. Some lenders keep a part at the start. They say "Borrow $100", but they give only $90. The loan is the money in your hand, $90. If you pay back $100, that loan costs $10. Compare two loans by what each one costs, for the same time.

A loan is **expensive** when its rate is high. A loan is **cheap** when its rate is low. A loan from family with no interest is the cheapest. A savings group also charges interest, but its members share that interest at the share-out (Lesson 21).

Musa must pay every debt as he promised (Lesson 19). When he has extra money, he pays the most expensive debt first. Do not look at the size of the debt; look at the rate. Some pupils do not pay interest because of their faith. This lesson still shows them why a debt with interest can grow so fast.

## Begin the Page

*To the Teacher:* do this at the start of every lesson. Write the lesson title and the date on the board. Each pupil starts a new page in the exercise book. The pupils write the lesson title at the top and underline it with a ruler. Under it they write the date.

## The Talk

Teach in these steps. Read the **T** lines aloud. The **P** lines show the answers to expect.

1. Draw a table with the columns MONTH · AT THE START · INTEREST · AT THE END. Write above it: **Musa borrows $100 from a moneylender. The rate is 10 in every 100 each month. Musa pays nothing.**

**T.** How much interest does Musa owe after the first month?
**P.** $10. He owes $110.

**T.** In month 2, is the interest on $100 or on $110?
**P.** On $110. The interest is $11. He owes $121.

2. Fill months 3 to 6 with the pupils, with the rule from Lesson 23.

| MONTH | AT THE START | INTEREST | AT THE END |
|---|---|---|---|
| 1 | 100 | 10 | 110 |
| 2 | 110 | 11 | 121 |
| 3 | 121 | 12 | 133 |
| 4 | 133 | 13 | 146 |
| 5 | 146 | 15 | 161 |
| 6 | 161 | 16 | 177 |

**T.** Look at the numbers. Where did we see them before?
**P.** In Fatuma's savings table.

**T.** Fatuma's money doubled in about 7 years. How long does Musa's debt take?
**P.** About 7 months. His rate is for each month, not each year.

3. Say: "After one year, Musa owes about $314. He borrowed only $100."

**T.** Is this loan cheap or expensive?
**P.** It is very expensive.

**T.** A lender says, "Take $100. Pay $30 every week for 4 weeks." What does Musa pay in all?
**P.** $120. 30, 60, 90, 120.

**T.** He got $100. What does the loan cost him?
**P.** $20. 120 take away 100 is 20.

4. Write Musa's three debts on the board.

| LENDER | MUSA OWES | RATE |
|---|---|---|
| his brother | $200 | no interest |
| the savings group | $100 | 5 in every 100 each month |
| the moneylender | $100 | 10 in every 100 each month |

**T.** Musa has $100 extra this month. Which debt does he pay first?
**P.** The moneylender. That debt is the most expensive.

**T.** The debt to his brother is the biggest. Why is it last?
**P.** It has no interest. It does not grow.

**If a pupil says, "Musa can forget his brother's debt":** say, "No. Musa pays every debt as he promised. Only the extra money goes to the most expensive debt."

**If a pupil says, "Musa can borrow from a second moneylender to pay the first one":** say, "Then he owes interest to two lenders. Borrow to pay a debt only with a plan, and only from a cheaper lender" (Lesson 19).

**If a pupil says, "Musa cannot pay at all":** say, "He must talk to the lender early, before the debt grows" (Lesson 19).

## New Words

*To the Teacher:* write the three words on the board. Say each word and its meaning. The pupils copy the words into their exercise books.

| Word | Meaning in this book |
|---|---|
| **charge** | To ask a person to pay an amount. The lender charges 10 in every 100. |
| **expensive** | It costs a lot of money. |
| **cheap** | It costs little money. |

*To the Teacher:* the cost of a loan is its interest. So a loan with a high rate is expensive. In this book **cheap** means only "it costs little money". It does not mean "bad".

## Learn by Heart

> **Compound interest makes an unpaid debt grow fast.**
>
> **Pay the most expensive debt first.**

*To the Teacher:* write the two sentences on the board. Leave them there until the end of the lesson. The pupils say them aloud, all together, three times. Then each pupil says them alone.

## Exercise 1. Answer aloud.

*To the Teacher:* ask each question. The pupils answer aloud. Nobody writes.

1. Musa borrows $100 at 10 in every 100 each month. What does he owe after 1 month?
2. Why does Musa's debt grow faster every month?
3. Musa's debt doubles in about 7 months. Fatuma's savings take 7 years. Why?

4. What is an expensive loan?
5. You have three debts and some extra money. Which debt do you pay first?
6. Musa cannot pay. Who must he talk to?

## Exercise 2. Fill the debt table.

*To the Teacher:* write the facts and the model row on the board. Read the facts aloud two times. The pupils draw the table and fill 4 rows. Then they answer the question.

**Facts:** Halima borrows $300 from a moneylender. The moneylender charges 10 in every 100 each month. Halima pays nothing for 4 months.

*Model.*

| MONTH | AT THE START | INTEREST | AT THE END |
|---|---|---|---|
| 1 | 300 | 30 | 330 |

**Question:** After 4 months, how much interest does Halima owe in all?

## Exercise 3. Which loan is cheaper?

*To the Teacher:* write the model and the six pairs on the board. Read each pair aloud. The pupils write the number and **A** or **B**.

*Model.* A: 10 in every 100 each month. B: 10 in every 100 each year. → **B**. The number is the same, but B is for a whole year.

1. A: 5 in every 100 each month. B: 10 in every 100 each month.
2. A: a loan from a brother, no interest. B: a loan from a moneylender, 10 in every 100 each month.
3. A: 10 in every 100 each week. B: 10 in every 100 each month.
4. A: 2 in every 100 each month. B: 20 in every 100 each month.

5. A: borrow $100, pay back $150 after one month. B: borrow $100, pay back $110 after one month.
6. A: borrow $100, pay back $120 after one year. B: borrow $100, pay back $120 after one month.

## Exercise 3A. What does the loan cost?

*To the Teacher:* write the model and the six items on the board. The pupils add up all the payments. Then they take away the money that the borrower gets. The answer is what the loan costs.

*Model.* Borrow $100. Pay $30 every week for 4 weeks. → 30 + 30 + 30 + 30 = 120. 120 − 100 = 20. **The loan costs $20.**

1. Borrow $200. Pay $60 every week for 4 weeks.
2. Borrow $100 from a brother. Pay $25 every week for 4 weeks.
3. Borrow $500. Pay $150 every month for 4 months.
4. Borrow $300. Pay $110 every month for 3 months.
5. The lender says, "Borrow $100." He gives you only $90. You pay back $100 after one month.
6. Loan A: borrow $100, pay $30 every week for 4 weeks. Loan B: borrow $100, pay $26 every week for 4 weeks. Which loan is cheaper?

## Exercise 4. Which debt first?

*To the Teacher:* write the model and the two lists of debts on the board. The pupils write the lenders in order: the first debt to pay, then the second, then the third.

*Model.* Musa's debts (from the Talk) → **1. the moneylender · 2. the savings group · 3. his brother.**

**Peter's debts:**

| LENDER | PETER OWES | RATE |
|---|---|---|
| the shop | $50 | no interest |
| a moneylender | $200 | 10 in every 100 each month |
| the savings group | $100 | 5 in every 100 each month |

**Grace's debts:**

| LENDER | GRACE OWES | RATE |
|---|---|---|
| her sister | $300 | no interest |
| a bank | $500 | 2 in every 100 each month |
| a moneylender | $100 | 20 in every 100 each month |

## Exercise 5. Write the missing word.

*To the Teacher:* write the six sentences on the board, with a line for each missing word. The pupils copy each sentence and write the missing word.

1. The moneylender _____ 10 in every 100 each month.
2. A loan with a high rate is _____.
3. A loan with a low rate is _____.
4. At 10 in every 100 each month, a debt _____ in about 7 months.
5. Pay the most _____ debt first.
6. Compound interest is interest on the _____ too.

## Exercise 6. Copy in your best handwriting.

The pupils copy the two sentences from the board (*Learn by Heart*). They write each sentence two times.

*To the Teacher:* the pupils use the handwriting from *Learning to Write*, or the joined handwriting from *Cursive* if they know it. Look

at every page. Check three things: a capital letter at the start, a full stop at the end, and the spelling.

## After the Lesson

*To the Teacher:* Lesson 26 is a review of Part Five. Ask the pupils to bring their exercise books with all their tables from Lessons 20 to 25. Ask each pupil to think of one savings goal.

## Answers (for the teacher)

**Exercise 1.** 1. $110. 2. Each month he owes interest on the interest too. 3. Her rate is for each year. His rate is for each month. 4. A loan with a high rate. It costs a lot of money. 5. The most expensive debt: the debt with the highest rate. 6. The lender. He must talk to the lender early (Lesson 19).

**Exercise 2.**

| MONTH | AT THE START | INTEREST | AT THE END |
|---|---|---|---|
| 1 | 300 | 30 | 330 |
| 2 | 330 | 33 | 363 |
| 3 | 363 | 36 | 399 |
| 4 | 399 | 40 | 439 |

Halima owes $139 of interest in all (439 − 300 = 139). *Month 4:* cover the 9 in 399 → 39. The 9 is 5 or more, so add 1 → 40.

**Exercise 3.** 1. A (5 is less than 10) 2. A (no interest) 3. B (the week rate comes about 4 times in a month) 4. A (2 is less than 20) 5. B (loan B costs $10; loan A costs $50) 6. A (the same $20, but for a whole year)

**Exercise 3A.**

1. 60 + 60 + 60 + 60 = 240. 240 − 200 = 40. The loan costs $40.

2. 25 + 25 + 25 + 25 = 100. 100 − 100 = 0. The loan costs $0. It has no interest.
3. 150 + 150 + 150 + 150 = 600. 600 − 500 = 100. The loan costs $100.
4. 110 + 110 + 110 = 330. 330 − 300 = 30. The loan costs $30.
5. You get $90 in your hand. You pay back $100. 100 − 90 = 10. The loan costs $10.
6. B. Loan A costs $20 (120 − 100). Loan B costs $4 (26 + 26 + 26 + 26 = 104; 104 − 100 = 4). Both are for 4 weeks.

*Number 5:* the lender says "$100", but the loan is the money in your hand. Always count it.

**Exercise 4.** - Peter: 1. a moneylender · 2. the savings group · 3. the shop - Grace: 1. a moneylender · 2. a bank · 3. her sister

*Grace:* the bank debt is the biggest, but its rate is low. The moneylender's debt is the smallest, but its rate is the highest. Look at the rate, not the size.

**Exercise 5.** 1. charges · 2. expensive · 3. cheap · 4. doubles · 5. expensive · 6. interest

# Lesson 26. Review: Saving and Compound Interest

## To the Teacher

**Get these things ready before the lesson:**

- the pupils' exercise books, with their tables from Lessons 20 to 25
- 100 beans or small stones, in 10 piles of 10 (for Lesson 22, if you must teach it again)
- chalk and the blackboard
- an exercise book, a ruler, and a pen or pencil for each pupil

**Time:** two meetings of about 45 minutes. In the first meeting, do the Review Questions and Exercises 1 to 3. In the second meeting, do Exercises 4 to 6.

**This review checks six things, one from each lesson of Part Five:**

1. To save is to keep some money now, to use later. Save first, then spend (Lesson 20).
2. Keep savings in a safe place. Never tell anyone your secret number (Lesson 21).
3. Interest is the price of using another person's money. 10% means 10 in every 100 (Lesson 22).
4. Compound interest is interest on the interest too. The pupils fill a table row by row (Lesson 23).
5. At 10 in every 100 each year, money doubles in about 7 years. Start early (Lesson 24).
6. A debt with compound interest grows in the same way. Pay the most expensive debt first (Lesson 25).

**Before you teach.** Read Lessons 20 to 25 again. Part Five is the most important part of this book, so take your time. Do not teach new words. Use only the people, numbers and words of those six lessons.

Have these numbers ready in your own book. They come from Lessons 23 to 25.

- Fatuma's $100 at 10 in every 100 each year, compound: 110, 121, 133, 146, 161, 177, 195.
- The same $100 with simple interest: 110, 120, 130, 140, 150.
- Juma's 8 goats: 12, 18, 27, 40. Only the first 8 goats have young: 12, 16, 20, 24.
- Kofi and Thandi at the end of year 10: Kofi $261, Thandi $161.
- Musa's $100 debt at 10 in every 100 each month: $177 after 6 months, about $314 after 12 months.

**The rule for 10 in every 100** (Lesson 23): cover the last figure. If the covered figure is 5 or more, add 1. Write the rule on the board before the lesson. In every row of a table, AT THE START is the AT THE END of the row above.

Remember the faith note of Lessons 22 and 23. Some pupils do not take or pay interest. They can answer every question, because the questions ask how interest works. The goats show the same growth with no interest.

**If many pupils get a question wrong,** teach that lesson again before Lesson 27. Use the Talk of that lesson, not only the answer.

| Many pupils get these wrong | Teach again |
|---|---|
| Review Questions 1–3 · Exercise 4 · Test 1–2 | Lesson 20: Fatuma's savings box and the stones; save first |
| Review Questions 4–6 · Exercise 1, items 3–5 and 13 · Test 3 | Lesson 21: the box with three locks; the secret number; the stranger |
| Review Questions 7–8 · Exercise 2 · Test 4–5 | Lesson 22: the beans in piles of 10 |
| Review Questions 9–10 · Exercise 3 (A) · Test 6–7 | Lesson 23: the goats first, then the two money tables |
| Review Questions 11–12 · Exercise 1, items 6–9 · Test 8 | Lesson 24: the Kofi and Thandi table |
| Review Questions 13–15 · Exercise 3 (B) · Test 9–10 | Lesson 25: Musa's debt table and his three debts |

## Begin the Page

*To the Teacher:* do this at the start of every lesson. Write the lesson title and the date on the board. Each pupil starts a new page in the exercise book. The pupils write the lesson title at the top and underline it with a ruler. Under it they write the date.

## Review Questions

*To the Teacher:* ask each question. The pupils answer aloud. Nobody writes. The number in brackets is the lesson. It is for you, not for the pupils. If a pupil cannot answer, ask another pupil. Then ask the first pupil again.

1. What is it to save? [Lesson 20]
2. Fatuma puts $5 in her box each day. How much is in it after 30 days? [Lesson 20]

3. Name the two reasons to save. Give an example of each. [Lesson 20]
4. Name three bad things that can happen to savings at home. [Lesson 21]
5. The savings group box has three locks. Why do three members keep the keys? [Lesson 21]
6. A man says, "I work for the telephone company. Tell me your secret number." What do you do? [Lesson 21]
7. What is interest? Who pays it to whom? [Lesson 22]
8. What does 10 per cent mean? What is 10% of $500? [Lesson 22]
9. What is simple interest? What is compound interest? [Lesson 23]
10. After 4 years Juma has 40 goats. The other farm has 24 goats. Why? [Lesson 23]
11. At 10 in every 100 each year, how long does money take to double? [Lesson 24]
12. Kofi and Thandi each saved $100. Why did Kofi have $100 more after 10 years? [Lesson 24]
13. Musa's debt doubles in about 7 months. Fatuma's savings take about 7 years. Why? [Lesson 25]
14. Musa owes his brother, the savings group and a moneylender. Which debt does he pay first? Why? [Lesson 25]
15. You want to borrow money. What two questions do you ask the lender? [Lesson 25]

## Exercise 1. Good rule or bad rule?

*To the Teacher:* write the two letters and their meanings on the board. Read the model aloud. Then read each numbered rule aloud two times. After each rule, the pupils write its number and one letter in their exercise books.

- **G** if it is a good rule.

- **B** if it is a bad rule.

*Model.* Save first. Then spend. — **G**. The savings go on the first line of the OUT side.

1. Spend first. Save the money that is left over.
2. $5 is too small. Do not save it.
3. Keep all your savings in a tin under the bed.
4. Never tell anyone your secret number.
5. A stranger promises to double your money in a month. Give him your savings.
6. Leave the interest with your savings.
7. Take out the interest every year, and spend it.
8. Wait five years. Then start to save.
9. Start early, even with a small amount.
10. Pay the biggest debt first.
11. Pay the most expensive debt first.
12. Ask the rate. Ask, "For each week, month or year?"
13. In a savings group, one member keeps the box and all the keys.
14. Borrow from a second moneylender to pay the first one. Make no plan.
15. Pay every debt as you promised.

## Exercise 2. Find 10 in every 100.

*To the Teacher:* write the rule, the model and the eight amounts on the board. The pupils write each amount and its 10 in every 100 in their exercise books.

**Rule:** Cover the last figure. If the covered figure is 5 or more, add 1.

*Model.* 10% of $146 → cover the 6 → 14. The 6 is 5 or more. Add 1. → **$15**

1. 10% of $300

2. 10% of $150
3. 10% of $2,000
4. 10% of $121
5. 10% of $177
6. 10% of $195
7. 10% of $605
8. 10% of $399

## Exercise 3. Fill the tables: savings and debt.

*To the Teacher:* this exercise has two parts. Write the facts and the model row of each part on the board. Read the facts aloud two times. The pupils draw the tables in their exercise books and fill the rows. Remind them to use the rule in every row.

**A. Ama's savings.** Ama saves $500 in the bank. The rate is 10 in every 100 each year. The pupils draw two tables: **simple interest** and **compound interest**. They fill 4 rows in each.

*Model.* The first row is the same in both tables:

| YEAR | AT THE START | INTEREST | AT THE END |
|---|---|---|---|
| 1 | 500 | 50 | 550 |

Then the pupils answer: After 4 years, how much more money is in the compound interest table?

**B. Peter's debt.** Peter owes a moneylender $200 (Lesson 25). The moneylender charges 10 in every 100 each month. Peter pays nothing for 3 months. The pupils fill 3 rows.

*Model.*

| MONTH | AT THE START | INTEREST | AT THE END |
|---|---|---|---|
| 1 | 200 | 20 | 220 |

Then the pupils answer two questions. What does Peter owe after 3 months? How much interest does he owe in all?

## Exercise 4. Build Grace's budget. Save first.

*To the Teacher:* write the model line and the facts on the board, in this jumbled order. Read them aloud. The pupils draw the IN and OUT line for Grace for one month. They put the savings on the first line of OUT. Then they write TOTAL IN, TOTAL OUT and LEFT OVER.

*Model.* The first line of Grace's OUT side: **savings group $100**

**The facts:** food $800 · bus ride $30 · mending clothes $1,500 · savings group $100 · soap $40 · her room $300 · school things for her son $200

Then the pupils answer two questions.

1. Grace's goal is a sewing machine. It costs $1,200. She saves $100 a month. In which month can she buy it?
2. Is Grace's budget a good budget? Why?

## Exercise 5. A short test.

*To the Teacher:* write the ten questions on the board. Do not read the answers aloud. The pupils write the number and the answer in their exercise books. Give one mark for each right answer. Write the marks out of 10 at the bottom of the page.

A pupil with 7 marks or more is ready for Lesson 27. Look at the table in *To the Teacher* for each wrong answer.

1. Fatuma saves $10 a day. How much does she have after 30 days?
2. Halima's roof breaks in a storm. Is this an emergency or a goal?
3. Is a tin under the bed a safe place for savings? Write yes or no.
4. What is 10% of $400?

5. What is 10% of $121? Use the rule.
6. Grace saves $200 with simple interest at 10% each year. What does she have after 3 years?
7. Grace saves $200 with compound interest at 10% each year. What does she have after 2 years?
8. At 10% each year, about how much does $300 become in 7 years?
9. Which loan is cheaper? A: 5 in every 100 each month. B: 5 in every 100 each year.
10. Write the missing word: Pay the most _____ debt first.

## Exercise 6. Copy in your best handwriting.

*To the Teacher:* write these four sentences on the board. They are from the *Learn by Heart* of Lessons 20, 21, 23 and 25. The pupils say them aloud, all together, two times. Then they copy each sentence one time. Quick pupils write each sentence two times.

> **Save first. Then spend.**
>
> **Keep your savings in a safe place.**
>
> **Compound interest is interest on the interest too.**
>
> **Pay the most expensive debt first.**

The pupils use the handwriting from *Learning to Write*, or the joined handwriting from *Cursive* if they know it. Look at every page. Check three things: a capital letter at the start, a full stop at the end, and the spelling.

## After the Lesson

*To the Teacher:* look at the marks of the short test. If many pupils got the same question wrong, teach that lesson again (see the table in *To the Teacher*). Do it before Lesson 27.

Tell the pupils to keep their exercise books. Lesson 28 uses their budgets and their savings goals. For Lesson 27, collect 10 beans or small stones and two tins or boxes.

## Answers (for the teacher)

**Review Questions.**

1. To keep some money now, and not spend it, to use later.
2. $150 (5 × 30 = 150).
3. For an emergency (a sick child, a broken roof) and for a goal (a goat, school fees).
4. A thief can take it; a fire can burn it; rats can eat the notes. (Also: you want to spend it; prices rise.)
5. So that one person cannot open the box alone.
6. Do not tell him. The company never asks for the number. He is a thief.
7. The price of using another person's money. The borrower pays the lender. The bank pays the person who saves.
8. 10 in every 100. 10% of $500 is $50.
9. Simple interest is interest on the first amount only. Compound interest is interest on the interest too.
10. On Juma's farm the new goats also have young. On the other farm only the first 8 goats have young.
11. About 7 years.
12. He started 5 years earlier. His money had 5 more years to grow.
13. Her rate is for each year. His rate is for each month.
14. The moneylender. That debt has the highest rate, so it is the most expensive. Look at the rate, not the size.
15. "How much interest?" and "For each week, month or year?"

**Exercise 1.** 1 B · 2 B · 3 B · 4 G · 5 B · 6 G · 7 B · 8 B · 9 G · 10 B · 11 G · 12 G · 13 B · 14 B · 15 G

*Number 1:* often nothing is left over. Save first (Lesson 20). *Number 2:* $5 a day is $150 in a month. *Number 10:* look at the rate, not the size of the debt (Lesson 25). *Number 15:* Musa pays every debt as he promised. Only the extra money goes to the most expensive debt.

**Exercise 2.** 1. $30 · 2. $15 · 3. $200 · 4. $12 · 5. $18 · 6. $20 · 7. $61 · 8. $40

*Number 5:* cover the 7 → 17; the 7 is 5 or more, so add 1 → 18. *Number 6:* cover the 5 → 19; add 1 → 20. *Number 7:* cover the 5 → 60; add 1 → 61. *Number 8:* cover the 9 → 39; add 1 → 40.

**Exercise 3.**

A. Ama's savings. Simple interest:

| YEAR | AT THE START | INTEREST | AT THE END |
|---|---|---|---|
| 1 | 500 | 50 | 550 |
| 2 | 550 | 50 | 600 |
| 3 | 600 | 50 | 650 |
| 4 | 650 | 50 | 700 |

Compound interest:

| YEAR | AT THE START | INTEREST | AT THE END |
|---|---|---|---|
| 1 | 500 | 50 | 550 |
| 2 | 550 | 55 | 605 |
| 3 | 605 | 61 | 666 |
| 4 | 666 | 67 | 733 |

After 4 years the compound interest table has $33 more (733 − 700 = 33). *Year 3:* cover the 5 in 605 → 60; add 1 → 61. *Year 4:* cover the 6 in 666 → 66; add 1 → 67. A bank counts parts of a dollar and gets $732. Accept 732 or 733.

B. Peter's debt:

| MONTH | AT THE START | INTEREST | AT THE END |
|---|---|---|---|
| 1 | 200 | 20 | 220 |
| 2 | 220 | 22 | 242 |
| 3 | 242 | 24 | 266 |

Peter owes $266 after 3 months. He owes $66 of interest in all (266 − 200 = 66). *To the Teacher:* these are the numbers of Grace's savings in Lesson 23. Grace waited years; Peter's debt grows each month.

**Exercise 4.**

| Grace, one month: IN | Grace, one month: OUT |
|---|---|
| mending clothes $1,500 | savings group $100 |
| | food $800 |
| | her room $300 |
| | school things for her son $200 |
| | soap $40 |
| | bus ride $30 |
| **TOTAL IN** $1,500 | **TOTAL OUT** $1,470 |

**LEFT OVER** = $1,500 − $1,470 = $30

The other OUT lines may come in any order. Only the savings must be first.

1. Month 12 ($100 × 12 = $1,200). The pupils may count: 100, 200, 300 … 1,200.
2. Yes. She saves first. OUT is not more than IN. $30 is left over.

**Exercise 5.**

1. $300 (10 × 30)
2. An emergency
3. No
4. $40
5. $12
6. $260 (220, 240, 260)
7. $242 (220, 242)
8. About $600 (it doubles)
9. B (the same number, but for a whole year)
10. expensive

**Exercise 6.** Check the capital letter, the full stop and the spelling of each sentence.

# For the Teacher

# More Help for the Teacher

## Part Five. Saving and Compound Interest (Lessons 20 to 26)

**What this part is for.** Part Five is the heart of the book. The pupils learn to save first, and where to keep savings safe. Then they learn interest, and how growth on growth makes savings big over time. Last, they see the same growth make an unpaid debt big, very fast.

**The pupils must leave with these ideas.**

1. Save first. Then spend. A small amount each day grows: $5 a day is $150 in a month.
2. Keep your savings in a safe place. Never tell anyone your secret number. Never give your savings to a stranger who promises to double them.
3. Interest is the price of using another person's money. 10 per cent means 10 in every 100.
4. Compound interest is interest on the interest too. It makes savings grow over the years. It makes an unpaid debt grow fast, so pay the most expensive debt first.

**Mistakes pupils often make, and how to correct them.**

- *The pupil says, "I have nothing to save."* Look at the OUT side together for a small want. Even $1 a day is $30 in a month.
- *The pupil thinks the money in the savings box is lost.* Say, "It goes OUT of the purse, but it is still your money."
- *The pupil says that 10% of 500 is 10.* Draw five boxes of 100. Take 10 from each box. Count: 10, 20, 30, 40, 50.
- *The pupil rounds wrongly.* Say the rule: "Cover the last figure. If the covered figure is 5 or more, add 1."
- *The pupil writes $10 of interest in every row of the compound table.* Ask, "How much money is in the bank at the start of this

year?" Then say: "AT THE START is the AT THE END of the row above."

- *The pupil forgets how long a rate is for.* Ask, "For each week, each month or each year?" 10 in every 100 each month costs much more than 10 in every 100 each year.
- *The pupil pays the biggest debt first.* Say, "Look at the rate, not the size." The debt with the highest rate grows fastest.
- *The pupil believes a man who doubles money in a month.* Say, "Honest savings take years to double. A fast promise is a trick."

**With very little.** Stones and beans teach this whole part. In Lesson 20, 30 stones are 30 days, and each stone is $5. In Lesson 22, 20 piles of 10 beans show 10 in every 100. In Lesson 23, stones are Juma's goats. Draw the savings group box on the board with three locks. Draw every table with four columns, and fill it one row at a time.

**Faith.** Some pupils do not take or pay interest. Teach interest as a fact, without judgment, and never press a pupil. Juma's goats show the same growth on growth with no interest at all.

**If the class is slow.** Teach Lesson 23 in two meetings: the goats in one, the money in the next. Practise 10 in every 100 before any table. Let the class say each row aloud before anyone writes it. Fill only three or four rows; the idea is the same. Remind the pupils that 10 in every 100 is a number for learning. Real banks pay savers much less.

# Word List (Lessons 1 to 26)

*To the Teacher:* these are all the New Words of the book. Each word has only one meaning in this book. The meaning is the same as in the lesson. The number tells you the lesson where the word comes first.

| Word | Meaning in this book | Lesson |
|---|---|---|
| **account** | Your money and the record of it, kept for you by a bank or a telephone company. | 21 |
| **amount** | How much money. It is a number with the dollar sign, like $40. | 2 |
| **balance** | The cash that you have after each line of the cash book. | 14 |
| **bank** | A business that keeps money for people and lends money to people. | 21 |
| **borrow** | To get money from a person, and pay it back later. | 18 |
| **borrower** | The person who borrows. | 18 |
| **budget** | A plan for the money IN and the money OUT for one month. | 10 |
| **buyer** | A person who gives money, and gets goods or work for it. | 3 |
| **cash** | Money in coins and notes. | 14 |
| **cash book** | A book where you write all the cash that comes in and goes out. | 14 |
| **change** | The money that the seller gives back when you pay more than the cost. | 4 |
| **charge** | To ask a person to pay an amount. The lender charges 10 in every 100. | 25 |
| **cheap** | It costs little money. | 25 |
| **check** | Look again at a thing, to see that it is right. | 15 |

| Word | Meaning in this book | Lesson |
|---|---|---|
| **choice** | Taking one thing and not another, when you cannot have both. | 8 |
| **coin** | Money made of metal. | 1 |
| **column** | A list of words or numbers that goes down the page. | 14 |
| **compound interest** | Interest on the first amount and on the interest too. | 23 |
| **copy** | The same words and numbers, written a second time. To copy is to write them a second time. | 13 |
| **cost** | The money that you must give to get a thing. | 3 |
| **date** | The day, the month and the year. Example: 3 May 2026. | 12 |
| **debt** | Money that you must still pay back. | 19 |
| **difference** | The amount that is left when you take a smaller number from a bigger number. | 15 |
| **dollar ($)** | The money used in this book. We write the sign $ before the number: $40. | 2 |
| **double** | To become two times as much. $100 doubles to $200. | 24 |
| **early** | Near the start of a time; not late. | 24 |
| **earn** | To get money for your work. | 7 |
| **emergency** | A bad thing that comes suddenly and needs money now. | 20 |

| Word | Meaning in this book | Lesson |
|---|---|---|
| **employer** | A person who pays another person for work. | 7 |
| **enough** | As much as the cost, or more. | 4 |
| **expense** | Money that you spend on one thing. | 9 |
| **expensive** | It costs a lot of money. | 25 |
| **fall** | Go down. When a price falls, it becomes smaller. | 16 |
| **goal** | A thing that you save for. | 20 |
| **goods** | Things that people make or grow, and sell. | 1 |
| **income** | All the money that comes IN to a person, to keep. | 7 |
| **interest** | The price of using another person's money. | 22 |
| **left over** | The money that stays after all the OUT. LEFT OVER = TOTAL IN − TOTAL OUT. | 10 |
| **lend** | To give money to a person, and get it back later. | 18 |
| **lender** | The person who lends. | 18 |
| **loan** | Money that one person lends and another person borrows. | 18 |
| **market** | A place where sellers and buyers meet. | 3 |
| **mistake** | A thing that a person writes or does wrongly. | 15 |
| **money** | A thing that all people agree to take for goods and for work. | 1 |

| Word | Meaning in this book | Lesson |
|---|---|---|
| **need** | A thing that a person must have to live and to be well. | 8 |
| **note** | Money made of paper. | 1 |
| **owe** | To have a debt to a person. "Musa owes Ama $100." | 19 |
| **pay** | Give money for a thing or for work. | 4 |
| **per cent (%)** | In every 100. 10% means 10 in every 100. | 22 |
| **plan** | What you decide to do, before you do it. | 10 |
| **plenty** | A lot; more than people use: "There is plenty of water." | 5 |
| **price** | The money that a seller asks for a thing. | 3 |
| **promise** | Words that say: "I will do this." A loan record is a promise to pay. | 19 |
| **proof** | A thing that shows what is true. | 12 |
| **rare** | There is only a little of it. It is hard to find. | 5 |
| **rate** | How much interest for every $100, for each year, month or week. | 22 |
| **receipt** | A record of one payment. The person who gets the money writes it, or a machine prints it. | 13 |
| **record** | Words and numbers that we write down, so that we can read them later. | 12 |
| **rise** | Go up. When a price rises, it becomes bigger. | 16 |

| Word | Meaning in this book | Lesson |
|---|---|---|
| **row** | A line of a table that goes across, from left to right. | 23 |
| **safe** | Not easy to lose, to steal or to burn. | 21 |
| **save** | To keep money now, and not spend it, to use later. | 20 |
| **savings** | The money that you save. | 20 |
| **savings group** | A group of people who meet, save together and lend to each other. | 21 |
| **season** | A part of the year, such as the rainy season or the hungry season. | 16 |
| **seller** | A person who gives goods or work, and gets money for it. | 3 |
| **signature** | Your name, written by your own hand, in your own way. | 13 |
| **simple interest** | Interest on the first amount only. | 23 |
| **spend** | To pay out money for things. | 9 |
| **table** | Numbers in rows and columns. | 23 |
| **total** | All the amounts added together. | 2 |
| **trade** | Two people each give something and each get something. | 1 |
| **value** | How useful a thing is, and how hard it is to get. | 5 |
| **wage** | The money that an employer pays for work, by the day, the week or the month. | 7 |

| Word | Meaning in this book | Lesson |
|---|---|---|
| **want** | A thing that a person would like to have, but can live without. | 8 |
| **waste** | Money or things used for nothing useful. | 9 |
| **worth** | The value of a thing, said in money: "One egg is worth $5." | 5 |

*To the Teacher:* two more words keep one meaning all through the book, but they are not New Words. A **sign** is a mark that stands for something, like $ or %. A **moneylender** is a lender whose work is lending money (Lesson 18).