

# Education Digital Equity Initiative

# LEARNING MANUAL

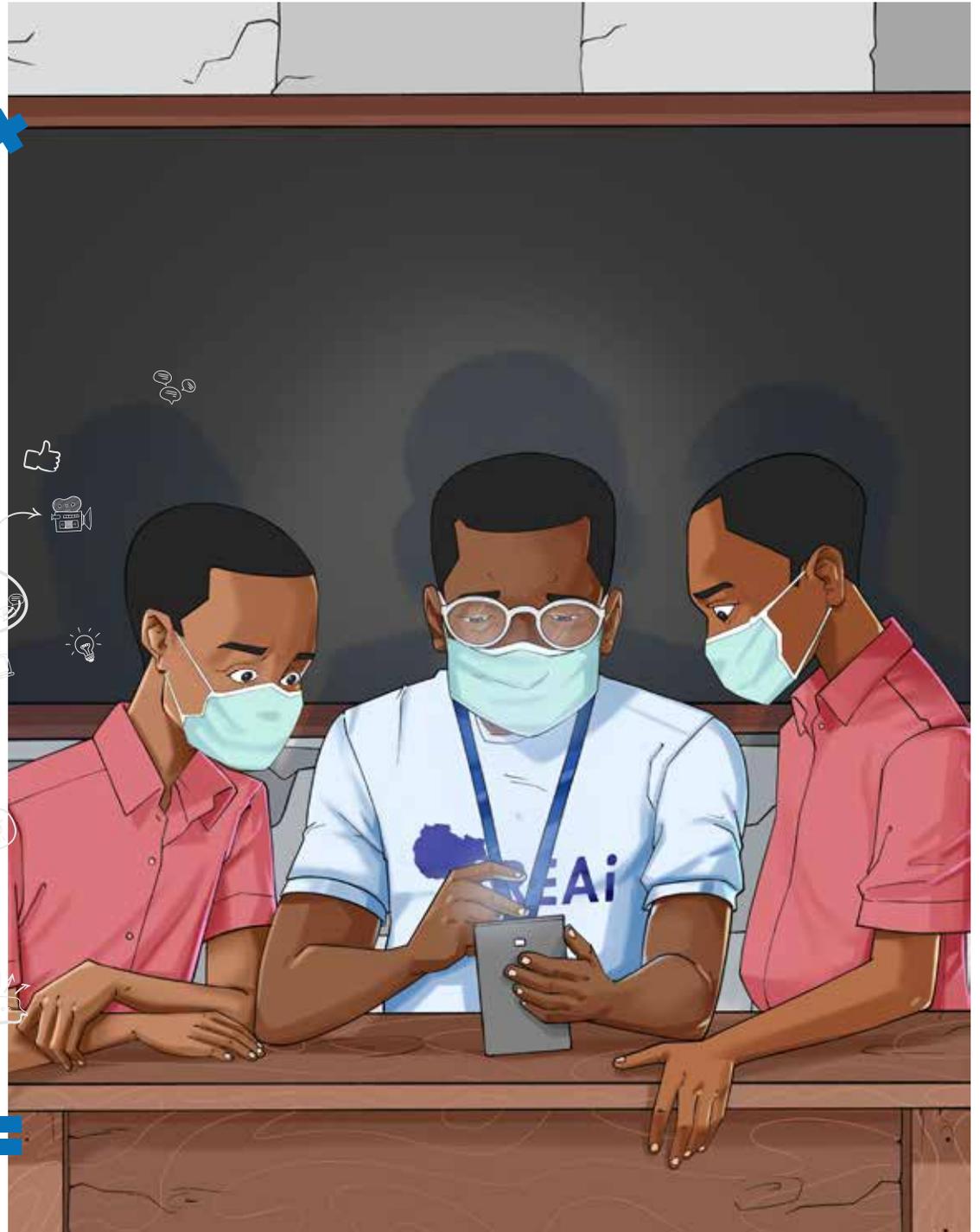
LOW-COST AND OFFLINE SOLUTIONS FOR DIGITAL  
LEARNING (FOR STUDENTS IN RURAL SCHOOLS)

Funded by:



Foreign, Commonwealth  
& Development Office

Produced by:











## 9 EFFECTIVE LOW-COST OFFLINE CHANNELS OF DISTANCE LEARNING

| TOOLS                      | TARGET USERS                   | ADVANTAGES AND DISADVANTAGES  | COST  |
|----------------------------|--------------------------------|---|---|
| Radio                      | Primary and Secondary students | <ul style="list-style-type: none"> <li>• Does not require internet</li> <li>• Access might be limited</li> <li>• Permits feedback Reception can be poor</li> </ul>          | Relatively low  |
| Television                 | Primary and Secondary students | <ul style="list-style-type: none"> <li>• Does not require internet</li> <li>• Combines audio and visual aids</li> </ul>   | Cost is relatively high for students, must be available at household level. |
| Talking Books and Pen      | Primary students               | <ul style="list-style-type: none"> <li>• Does not require internet</li> <li>• Comparatively cheaper to tablets</li> <li>• Allows learning in multiple languages.</li> </ul> | A complete set costs around 30,000 naira                                    |
| SMS Technology             | Secondary students             | <ul style="list-style-type: none"> <li>• Does not require internet</li> <li>• No smartphone access required</li> </ul>  | Costs between 300 to 500 naira to access monthly.                           |
| Home Learning Kits         | Primary and Secondary students | <ul style="list-style-type: none"> <li>• Does not require internet</li> <li>• No device is required</li> </ul>  | Cost is very cheap  |
| Educational Tablets        | Primary and Secondary students | <ul style="list-style-type: none"> <li>• May require the internet</li> <li>• Can hold large volume of content</li> </ul>  | Price ranges between 20,000 to 30,000                                       |
| Digital Book Reader        | Primary and Secondary students | <ul style="list-style-type: none"> <li>• May require the internet</li> <li>• Contains books, videos and games</li> </ul>  | Price ranges between 5000   |
| Virtual Reality            | Secondary students             | <ul style="list-style-type: none"> <li>• Does not require internet</li> <li>• Access can be limited</li> </ul>  | Costs can be very high for students, can be provided by schools             |
| Open Educational Resources | Secondary students             | <ul style="list-style-type: none"> <li>• May require the internet</li> </ul>  | Free to access  |



The Talking Book and Pen consists of a digital pen and a specially printed book.

When the pen touches text or pictures in the book, it reads out the corresponding audio, including interactive games, quizzes, multi-language translations, etc. Talking Book and Pen helps children to develop literacy and numeracy skills through structured educational content. The books are written in different languages such as French, Arabic, Spanish, Hausa, Igbo, and Yoruba. It is currently available in Nigeria and can be obtained for as low as 25,000 naira.

To buy the talking books and pen, you can visit <http://maviseducation.com/store/>



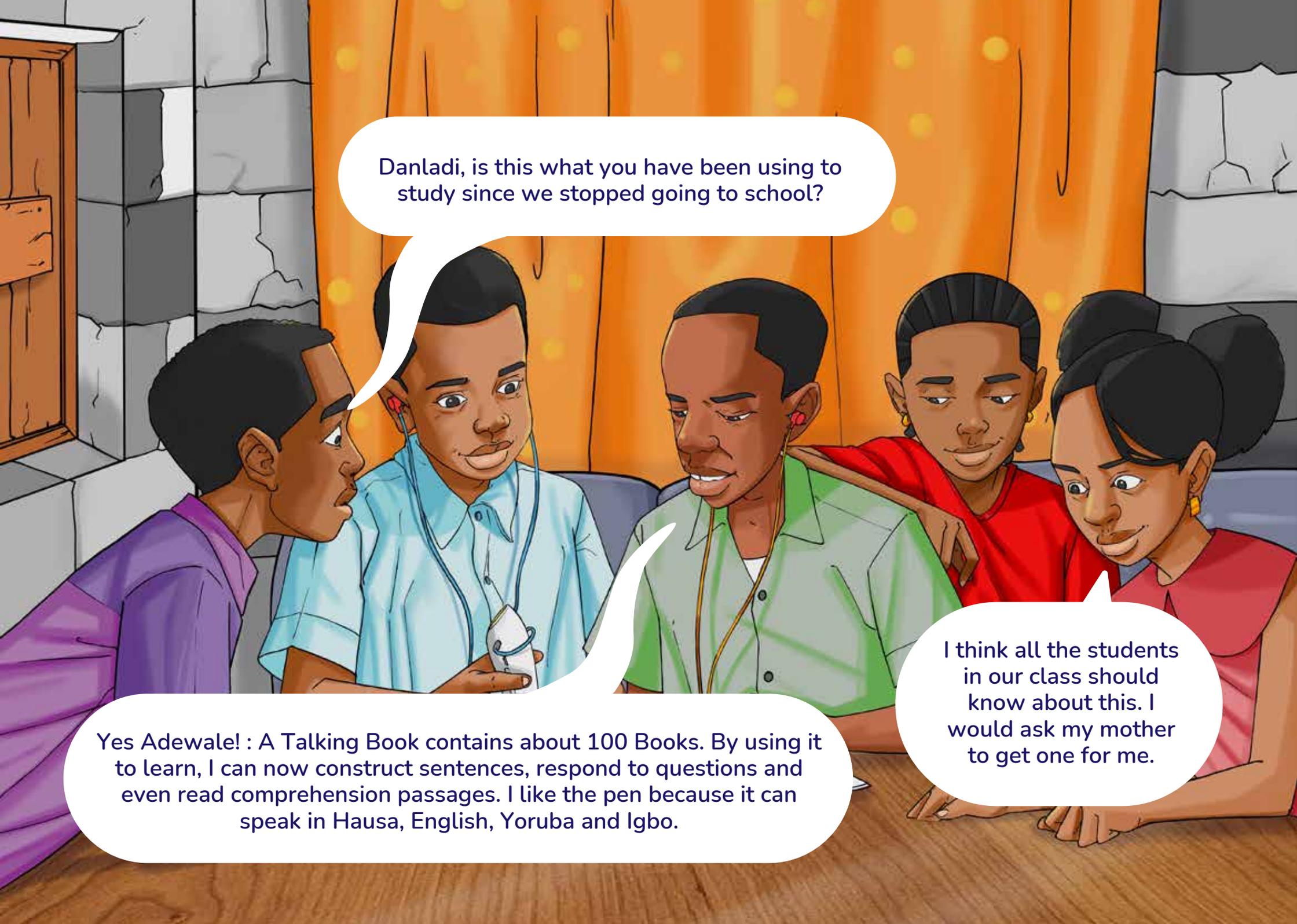
Our Teacher, since our school was closed, our children have stopped attending English and Math Lessons. How can you help us?

Don't worry yourself Alhaja and Mama Chinoso. I also heard they could not join the classes on Zoom or Microsoft Teams.



This device in my hand is called a Talking Pen. It doesn't require, and cannot connect to, the internet in order for it to work. Danladi and Chinoso can use it to learn their literacy and numeracy lessons and do exercises in a fun and engaging manner.

This must be really good. I see that it also has an ear-piece. I would definitely get one for Danladi. He would continue to use it to learn how to read and write.



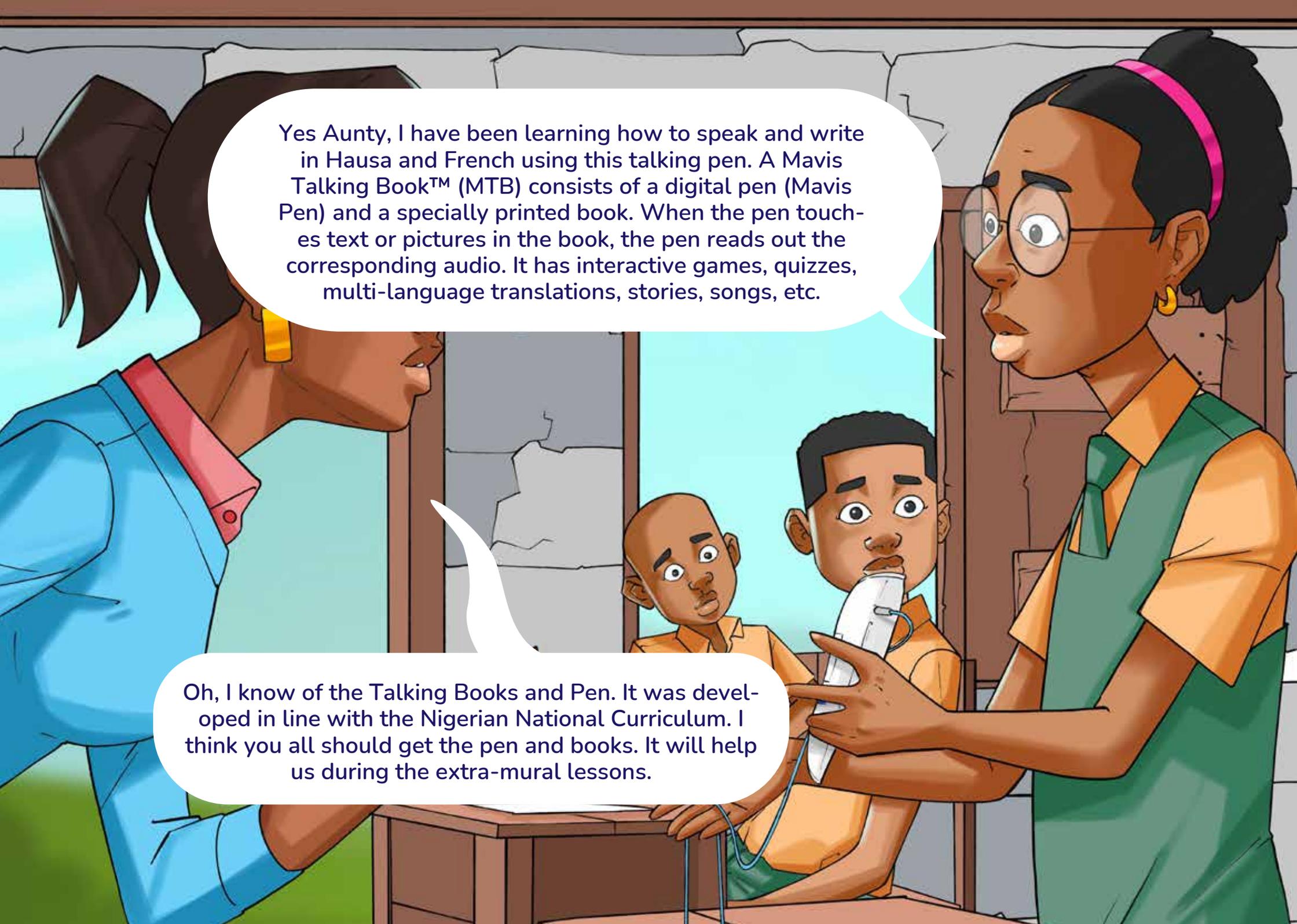
Danladi, is this what you have been using to study since we stopped going to school?

Yes Adewale! : A Talking Book contains about 100 Books. By using it to learn, I can now construct sentences, respond to questions and even read comprehension passages. I like the pen because it can speak in Hausa, English, Yoruba and Igbo.

I think all the students in our class should know about this. I would ask my mother to get one for me.

A teacher with dark skin and hair in a ponytail, wearing a blue suit, stands on the left side of the frame, gesturing with her right hand towards a group of students. The students are seated at wooden desks in a classroom with grey stone walls and windows. They are wearing orange shirts. A speech bubble from the teacher contains the text: "It's so good to welcome you all back from the long holidays. I hope many of you have been learning at home during the break?".

It's so good to welcome you all back from the long holidays. I hope many of you have been learning at home during the break?



Yes Aunty, I have been learning how to speak and write in Hausa and French using this talking pen. A Mavis Talking Book™ (MTB) consists of a digital pen (Mavis Pen) and a specially printed book. When the pen touches text or pictures in the book, the pen reads out the corresponding audio. It has interactive games, quizzes, multi-language translations, stories, songs, etc.

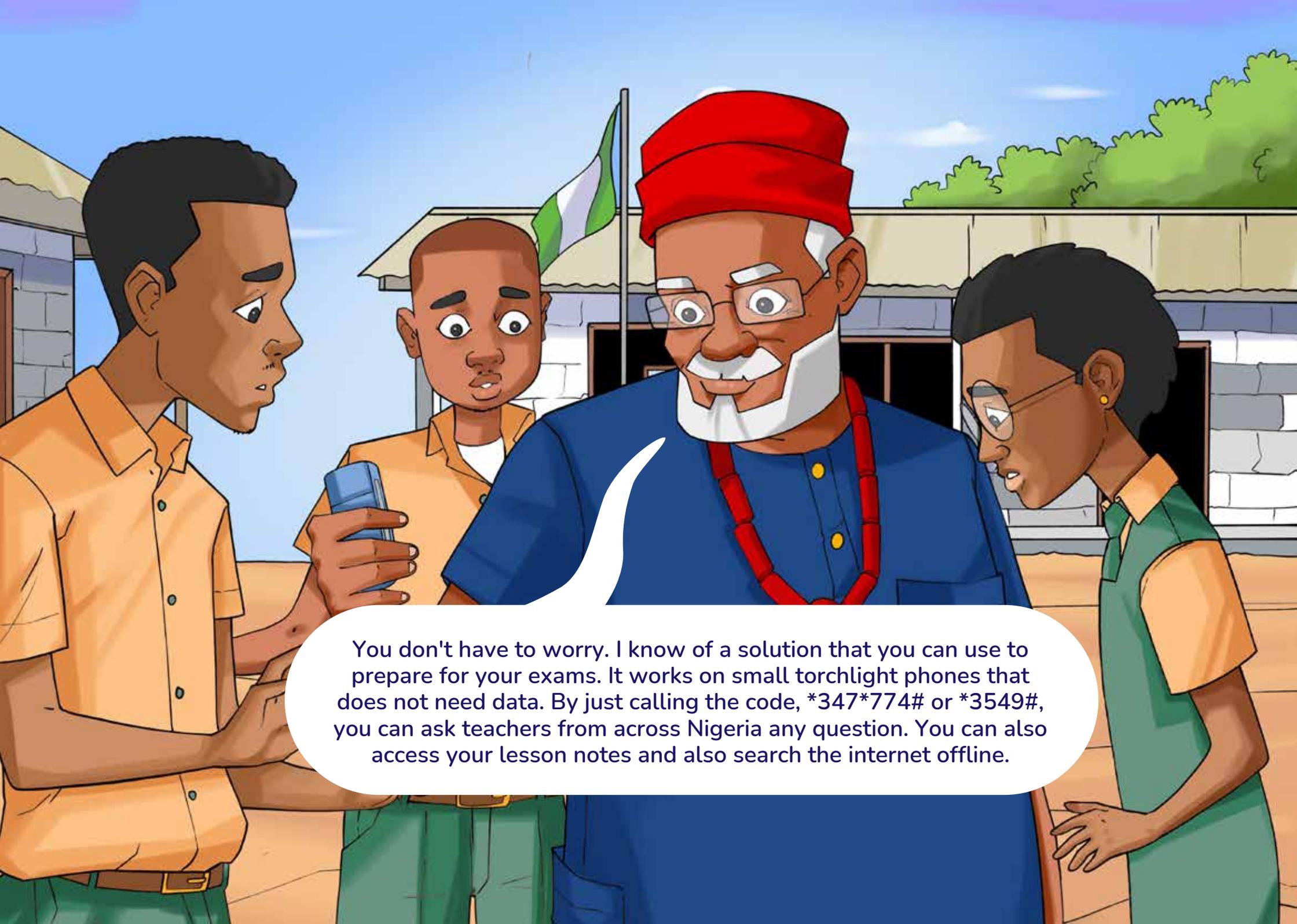
Oh, I know of the Talking Books and Pen. It was developed in line with the Nigerian National Curriculum. I think you all should get the pen and books. It will help us during the extra-mural lessons.





My dear students, it is almost time for your final exams. We would not be opening the school for your coaching and revisions. All learning has been moved online.

But how are we going to study and revise in order to pass our exams? We don't have computers, tablets or smartphones to learn online.



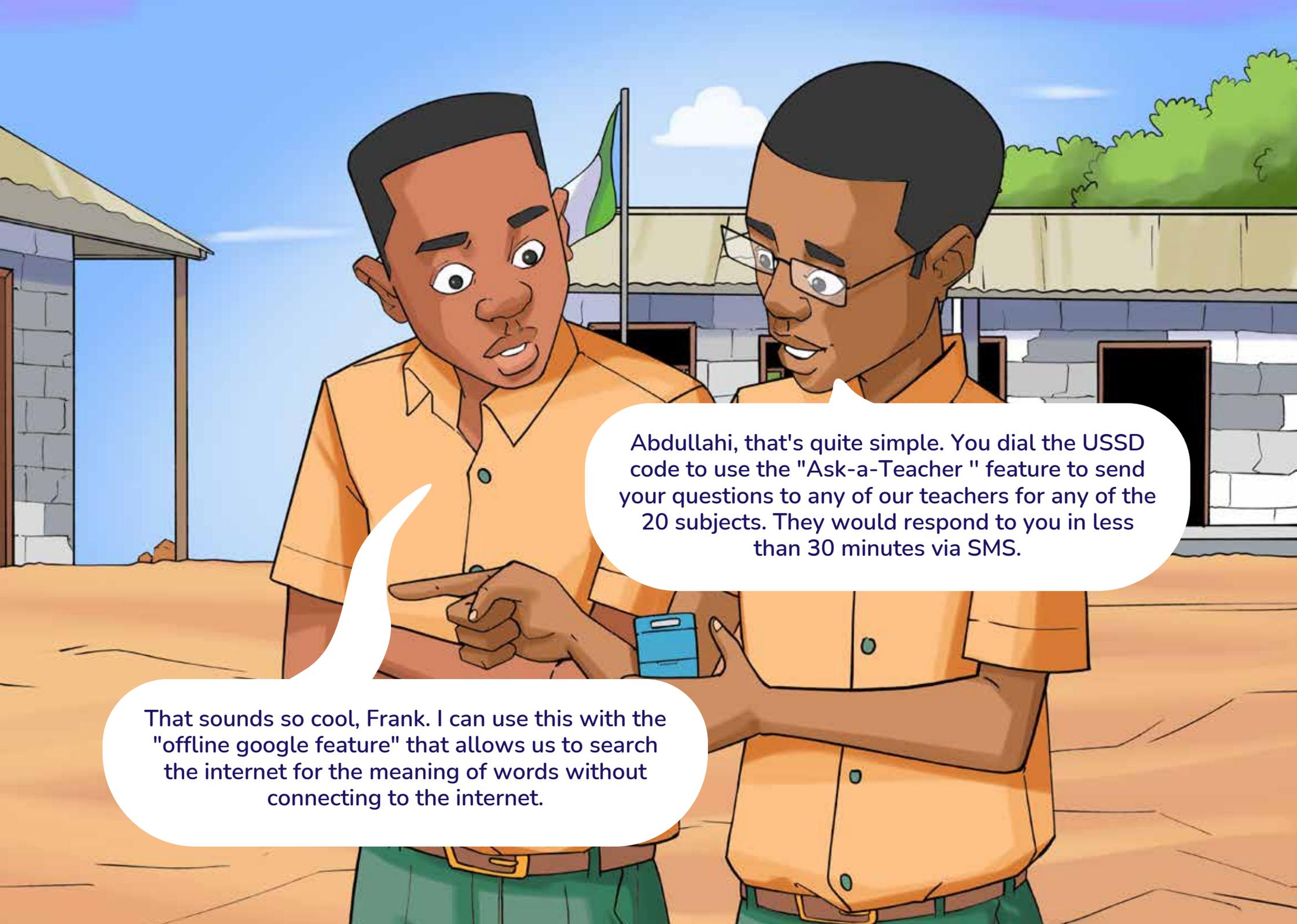
You don't have to worry. I know of a solution that you can use to prepare for your exams. It works on small torchlight phones that does not need data. By just calling the code, \*347\*774# or \*3549#, you can ask teachers from across Nigeria any question. You can also access your lesson notes and also search the internet offline.



Dad, can I please use your Nokia 3310 phone? I want to study for my UTME exam by practising past questions with the DigiLearns SMS app.



Frank, I have a lot of questions from all the lessons and exercises I have been studying in my textbooks and on the App the Chief told us about. Can you help me, please?



Abdullahi, that's quite simple. You dial the USSD code to use the "Ask-a-Teacher " feature to send your questions to any of our teachers for any of the 20 subjects. They would respond to you in less than 30 minutes via SMS.

That sounds so cool, Frank. I can use this with the "offline google feature" that allows us to search the internet for the meaning of words without connecting to the internet.

I am sure Mr. Solomon can answer this Chemistry question for me. Let me use DigiLearns.

What is the boiling point of ethanol?

What a great question from Frank, let me respond to him right away.

The Boiling point of ethanol is  $78.5^{\circ}\text{C}$





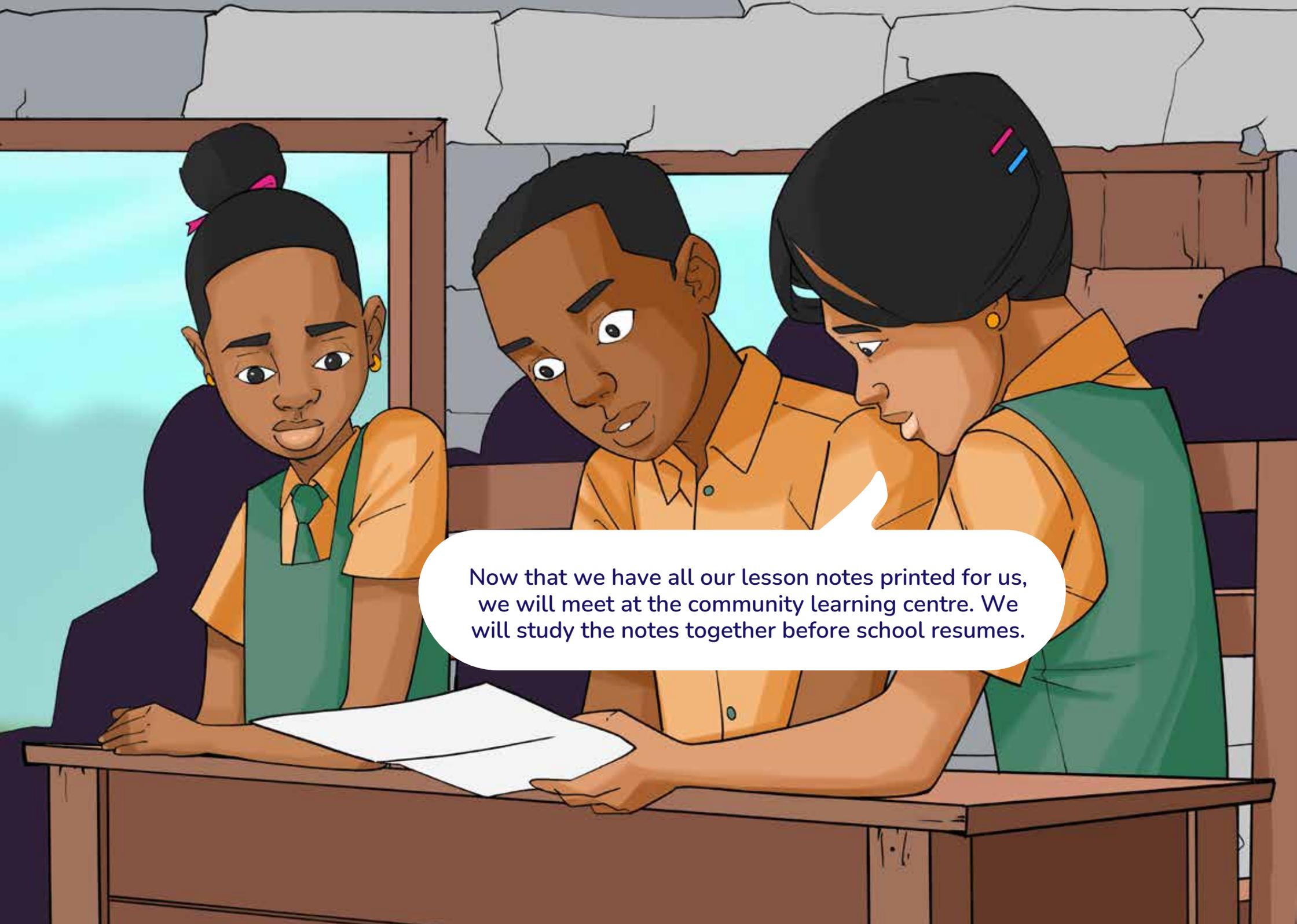


Dear students, I received your letter of request. You want us to support you and your friends with reading resources when you are home during the lockdown. The school has provided you with home learning kits.

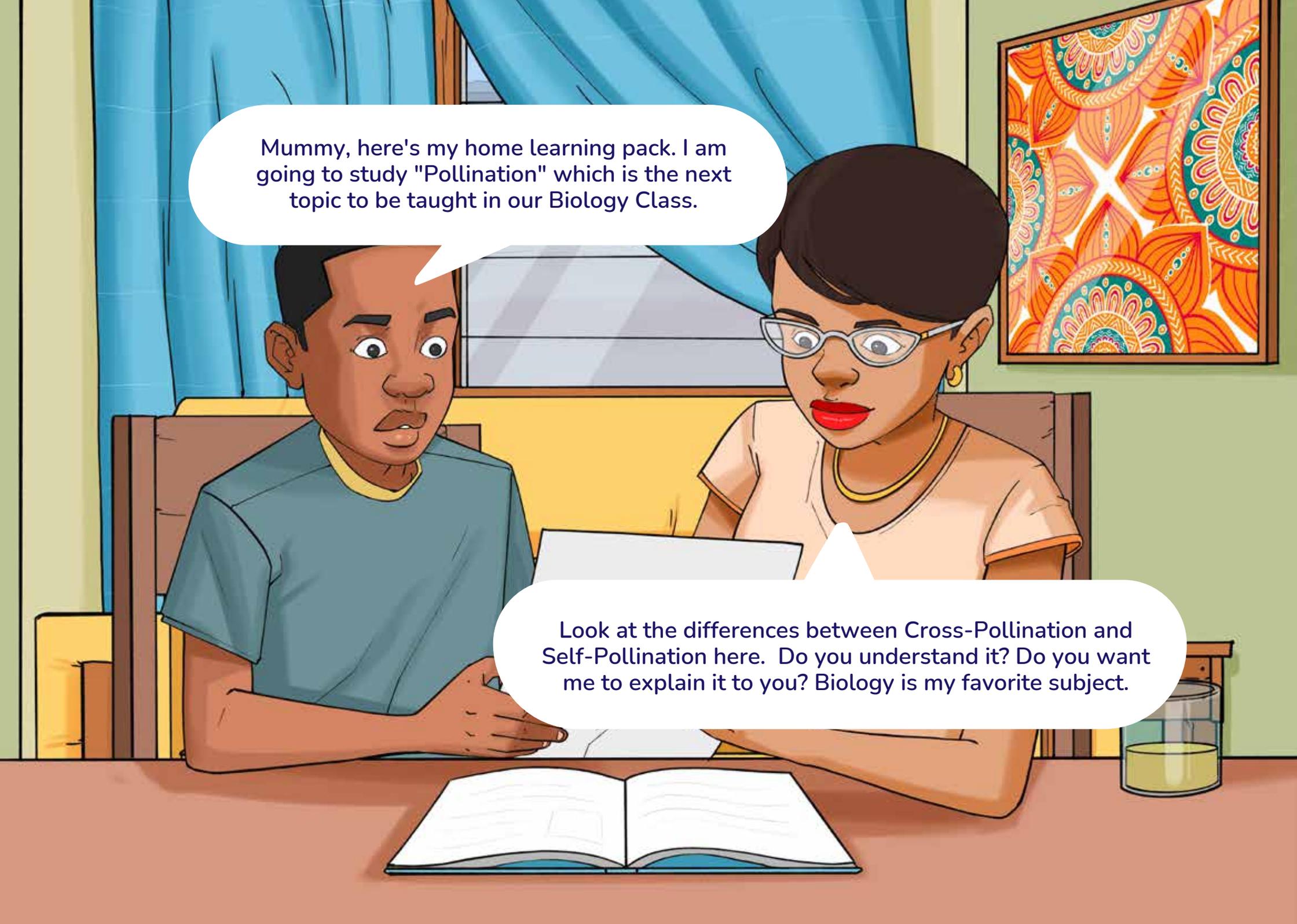
An illustration of three students in a classroom. A boy in the center, wearing glasses and an orange shirt, holds a white document. To his left, a girl with her hand to her chin looks thoughtful. To his right, a girl with her hair in two buns looks on. They are all wearing green vests over their orange shirts. A chalkboard is visible in the background.

So Chidinma, all the notes we are supposed to learn in class have been printed to help us self-study at home.

Thank you so much Olamide. I would take them now to sort and distribute them to all our classmates.



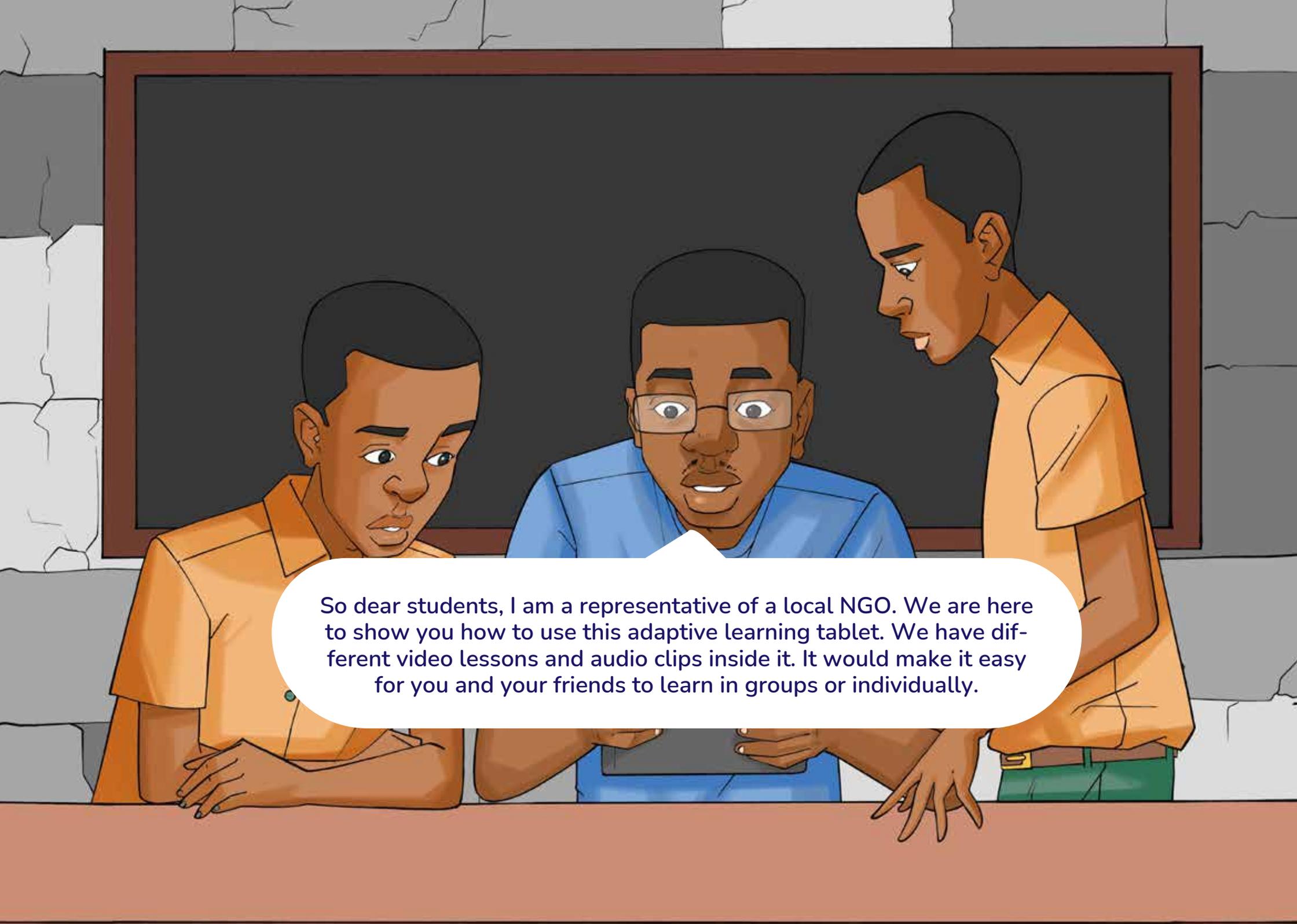
Now that we have all our lesson notes printed for us, we will meet at the community learning centre. We will study the notes together before school resumes.



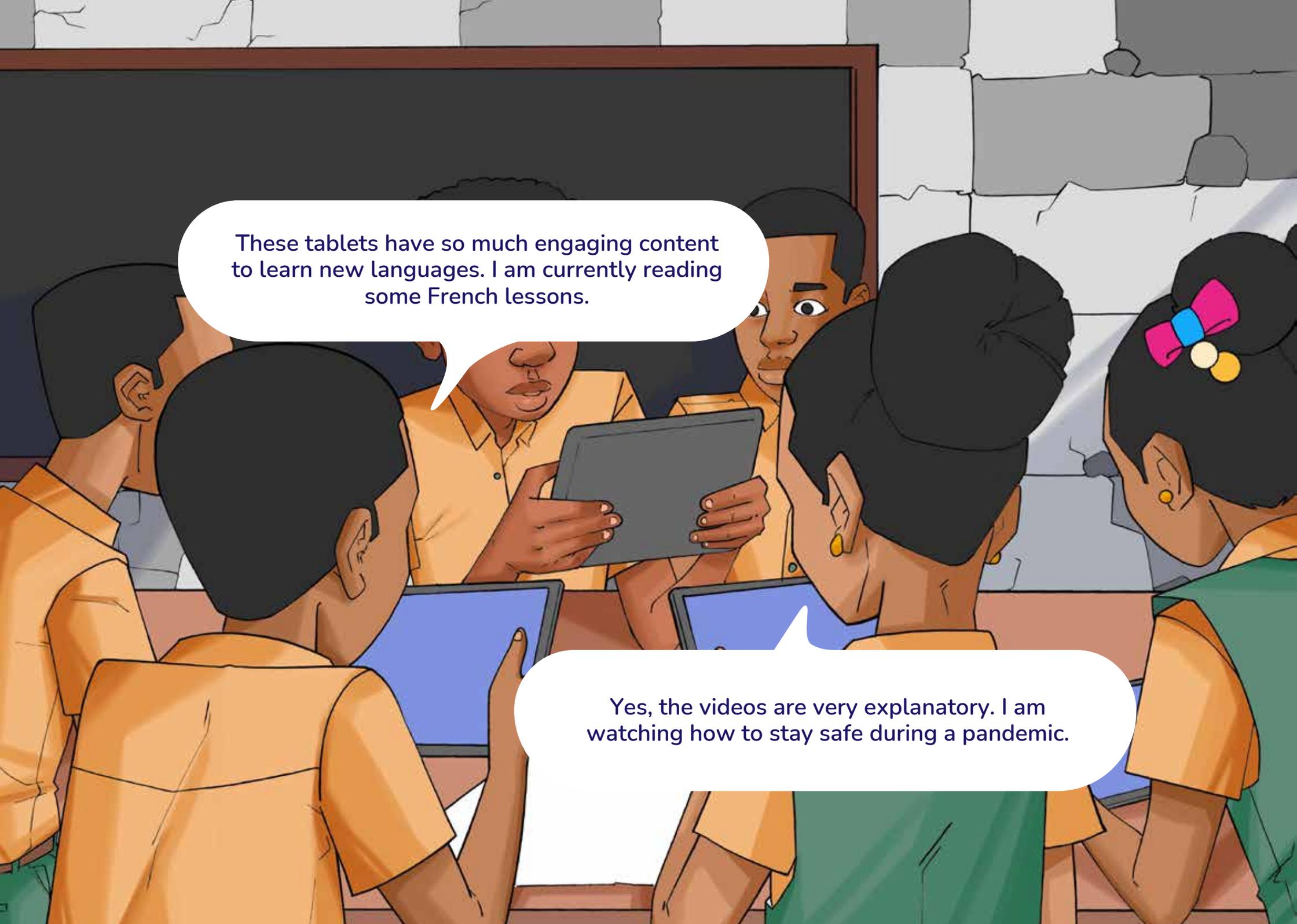
Mummy, here's my home learning pack. I am going to study "Pollination" which is the next topic to be taught in our Biology Class.

Look at the differences between Cross-Pollination and Self-Pollination here. Do you understand it? Do you want me to explain it to you? Biology is my favorite subject.





So dear students, I am a representative of a local NGO. We are here to show you how to use this adaptive learning tablet. We have different video lessons and audio clips inside it. It would make it easy for you and your friends to learn in groups or individually.

An illustration of a classroom scene. Several students are gathered around a table, looking at tablets. One student in the center is holding a tablet and pointing at the screen. Other students are looking at their own tablets. The background shows a chalkboard and a wall with some peeling paint. The students are wearing orange shirts, and one girl on the right is wearing a green shirt and has a colorful bow in her hair.

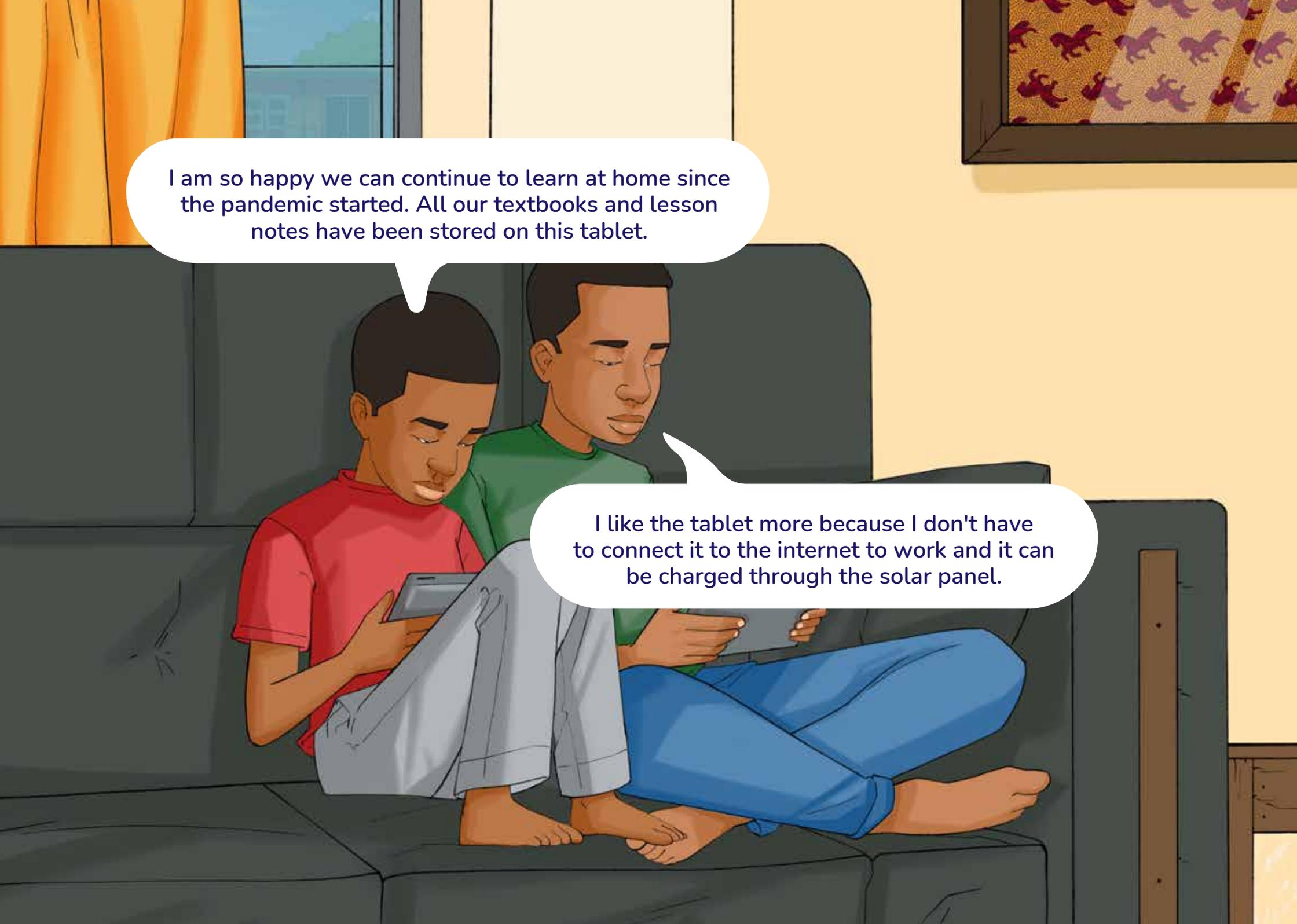
These tablets have so much engaging content to learn new languages. I am currently reading some French lessons.

Yes, the videos are very explanatory. I am watching how to stay safe during a pandemic.



What have you planned to support us with this year as chairman of the Parents and Teachers Association?

Myself and other parents have decided to partner with a local computer centre. We will donate more electronic tablets to the school. Our children can use it to learn at home and in school.

An illustration of two young boys sitting on a dark grey couch. The boy on the left is wearing a red t-shirt and light blue pants, looking down at a tablet computer he is holding. The boy on the right is wearing a green t-shirt and blue pants, looking towards the tablet. In the background, there is a window with orange curtains on the left and a framed picture of purple horses on the wall to the right.

I am so happy we can continue to learn at home since the pandemic started. All our textbooks and lesson notes have been stored on this tablet.

I like the tablet more because I don't have to connect it to the internet to work and it can be charged through the solar panel.





Brother Muda, please can you please help me install the World reader App on your book reader device? I want to read free sports, educational, religious, fiction, and nonfiction books?

Of course., I would help you. You can also read books from all across the world in 44 different languages and across 70 genres. The app can also work without the internet.



Now that I have the book reader, I can catch up with Zuri and Zara on the Literature-in-English modules that they have on their tablets and laptops.

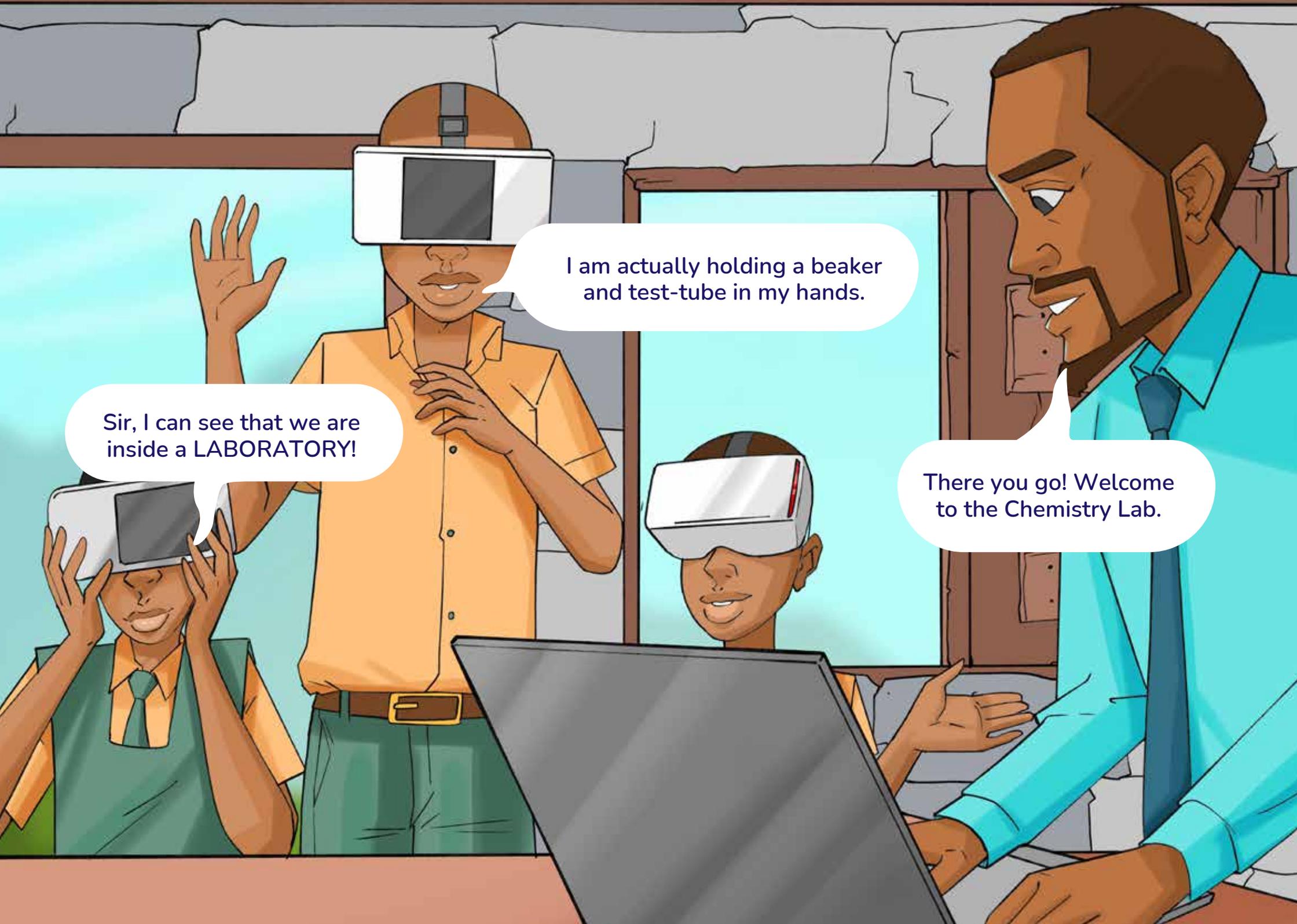




Sir, we need your help to practice for our science experiments but there are no apparatus in the school.

oh, do not worry about that. Have you ever heard about VR?

You mean Virtual Reality, Sir?

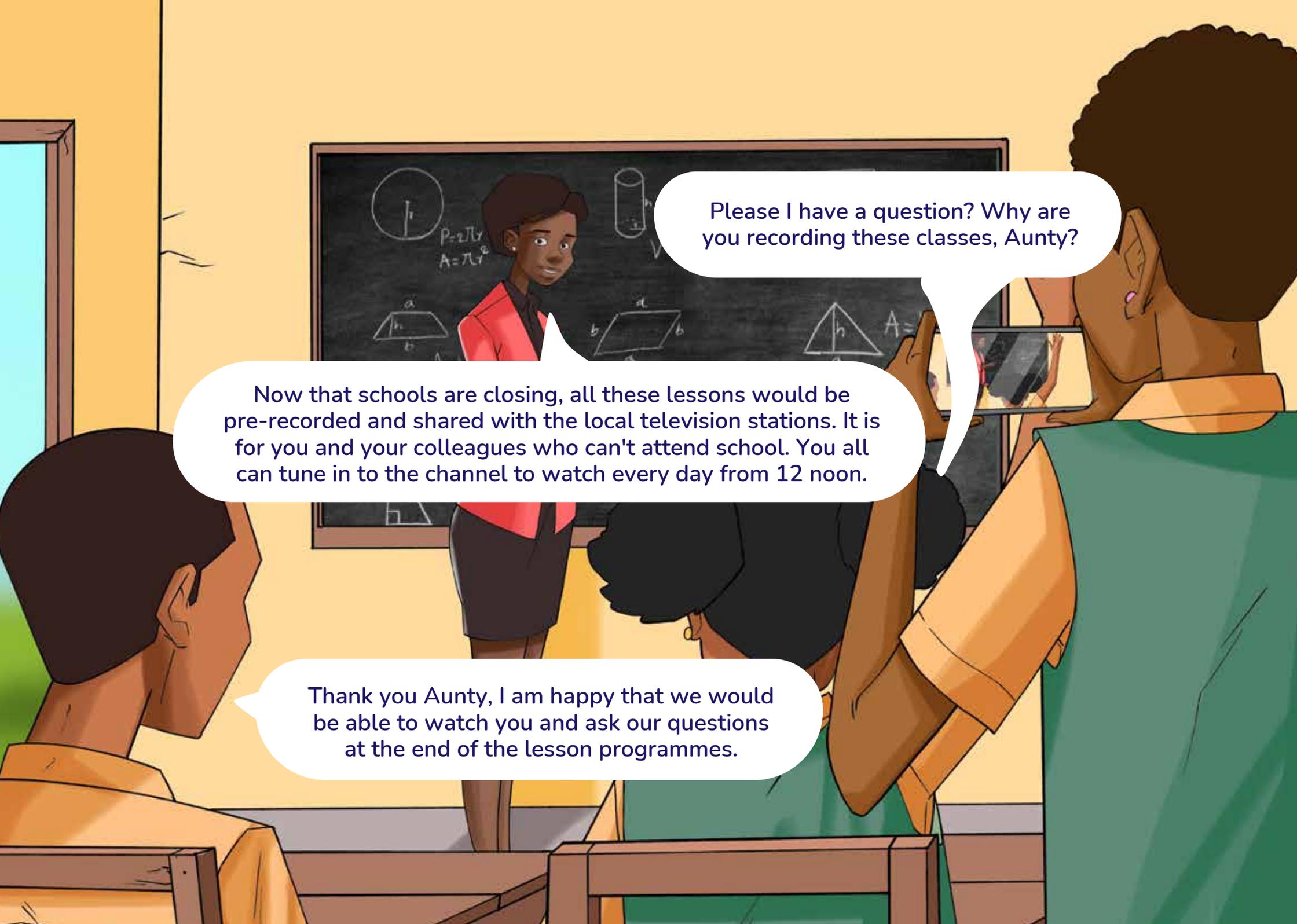


I am actually holding a beaker and test-tube in my hands.

There you go! Welcome to the Chemistry Lab.

Sir, I can see that we are inside a LABORATORY!

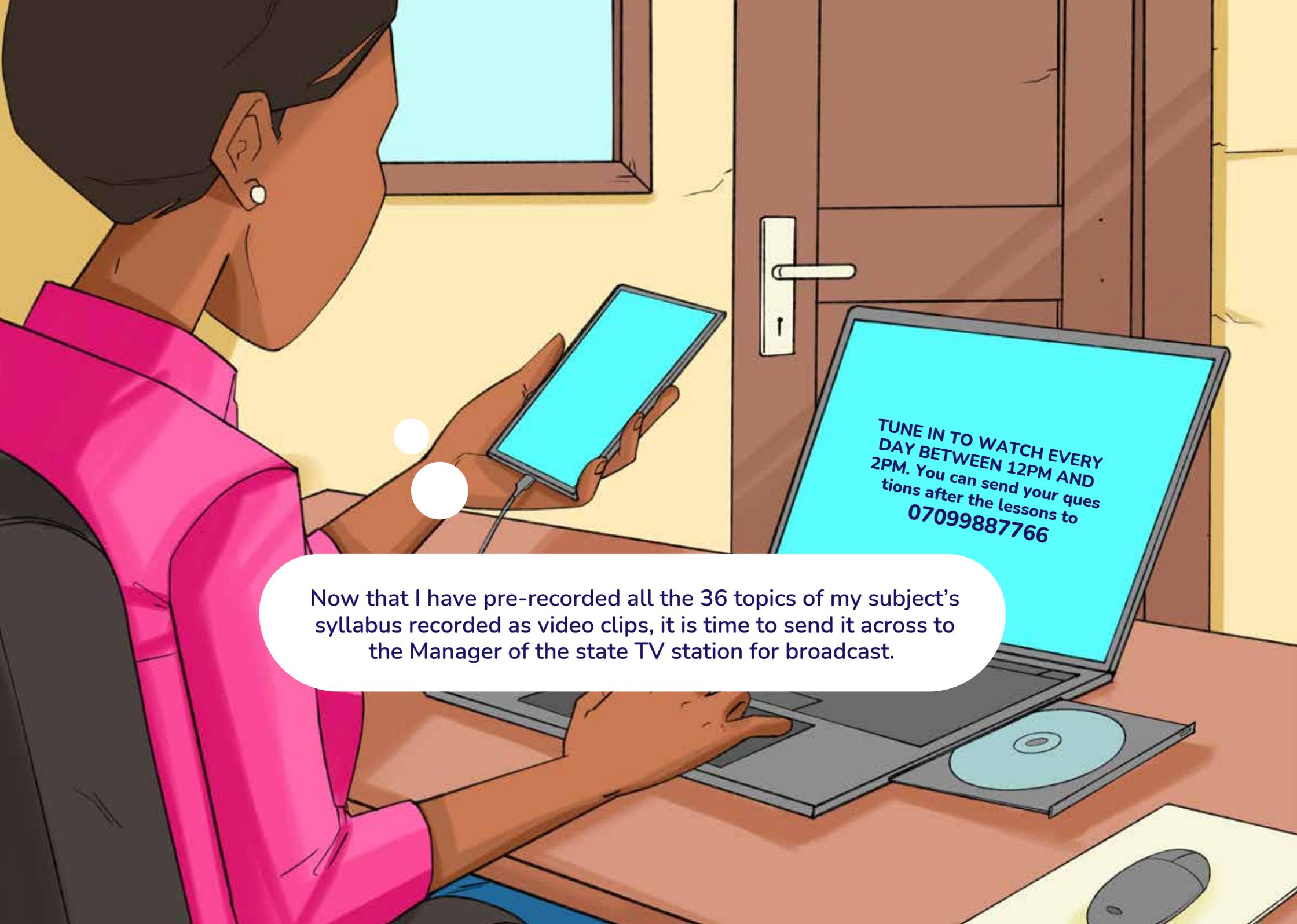




Please I have a question? Why are you recording these classes, Aunty?

Now that schools are closing, all these lessons would be pre-recorded and shared with the local television stations. It is for you and your colleagues who can't attend school. You all can tune in to the channel to watch every day from 12 noon.

Thank you Aunty, I am happy that we would be able to watch you and ask our questions at the end of the lesson programmes.



Now that I have pre-recorded all the 36 topics of my subject's syllabus recorded as video clips, it is time to send it across to the Manager of the state TV station for broadcast.



I love this TV program. This aunty is explaining so clearly that it feels like we are in the classroom.

I know Algebra better now and can solve linear equations.

I have a question to ask about the formula for Quadratic equation.

You can call 07099887766 after the program to ask your question.





Oga Corper, this village you are going to do not have internet o. How would you be able to teach your students?

Oga driver, I have several learning materials on my phone that I have downloaded that I can use without data.



Corper, you told us that there are platforms where we can access books, videos, stories and games that are for free?

Yes, there are alot of them that you can access on any kind of phone or device. For example, let's look at Wikimedia on my phone here.



## Examples of Daily Radio Lesson Programmes across Nigeria

| Radio Channels                | Days and Time                             | Focus Subjects                   |
|-------------------------------|---|----------------------------------|
| Radio Nigeria Enugu<br>92.9FM | Monday to Friday<br>11am – 12pm           | Primary Classes                  |
| Ekiti 91.5 FM                 | Monday to Friday<br>3.10pm – 4pm          | Primary Classes                  |
| Wazobia FM<br>95.1FM          | Monday to Friday<br>12pm – 1pm            | Secondary Classes                |
| Eko 89.7FM                    | Monday to Friday<br>10:30am – 1pm         | Primary 3, 4, 5 and 6<br>Classes |
| Freedom FM<br>99.5FM Kano     | Wednesday and Friday<br>11:30am – 12:30am | Secondary Classes                |
| Naija 102.7FM                 | Monday to Friday<br>11am – 12pm           | Secondary Classes                |
| Wazobia FM<br>95.1FM          | Monday and Wednesday<br>11am – 12pm       | Primary Schools                  |
| Radio Gotel<br>91.1FM Yola    | Monday and Wednesday<br>11am – 12pm       | Secondary Classes                |
| Radio Lagos<br>107.5FM        | Monday to Thursday<br>9am – 11.55am       | Primary Classes                  |
| Peace FM<br>102.5FM Borno     | Tuesday and Wednesday<br>09:30am- 10:30am | Primary Classes                  |

### Note:

- Many of these radio programmes were operational during the school closures between March and October 2020. It is believed that several of them continues to air across the stations till date.
- Wazobia FM airs in Abuja, Kaduna, Jos, Minna, Lafia and Suleja



Now I see how Bibian and Bolanle have been learning at home. I need to also use Papa's radio to listen to this lesson?



Welcome to LearningAir FM.  
My name is Sisi Nene and in today's Basic  
Science class, our topic is "Hygiene"

Do not forget to call 07099887766 at  
the end of the program to ask questions.  
We will provide answers instantly.

This sounds so clear than in the  
classroom! I will tell Papa to buy  
me my own radio so I can continue  
to learn at home.

# ACKNOWLEDGEMENTS

## PROJECT SPONSOR



Foreign, Commonwealth  
& Development Office

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## PROJECT PARTNERS & COLLABORATORS







## **NOTICE**

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