FizziQ Junior

by Trapeze.digital

User Guide

FizziQ Junior has been developed by the start-up Trapeze.digital in partnership with the Fondation La main à la pâte. It has been designed for use on tablets by K4-K8 pupils and facilitates the implementation of experimental activities in science and mathematics, based on the Inquiry Based Science Education pedagogy. The app allows students to access the tablet's sensors to carry out experimental measurements and to document their work in an experiment notebook. It is free and without any requirement to register.

⚠ Warning: as the application is under constant development, some features and/or the appearance of some pages may change. This guide corresponds to version 1.0.108.

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Description of Icons

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     : Undo

Sections

     : Questions   : Hypotheses

     : Experiments   : Results

     : Conclusions

Objectives of FizziQ Junior

What is Inquiry Base Science Education ?

The inquiry- based approach is a teaching method that emphasizes the use of student-centered hands-on activities to foster scientific understanding. In this approach, students are actively involved in the scientific inquiry process, rather than simply being passive recipients of information. This method involves the following steps:

- **Asking questions:** Students are encouraged to ask questions about the natural world and to propose their own hypotheses.
- **Planning and conducting experiments:** Students design and conduct experiments to test their hypotheses.
- **Analyzing and interpreting data:** Students collect and analyze data and use it to draw conclusions and make connections to their hypotheses.
- **Communicating Results:** Students share their findings with their classmates and discuss the results and conclusions they reach.
- **Reflecting on the process:** students reflect on the scientific method and the process of inquiry, and think about how it can be applied to other problems.

The goal of inquiry-based instruction is to help students develop the skills necessary to think critically and solve problems, as well as to foster a deeper understanding of scientific concepts.

Using FizziQ Junior in IBSE

FizziQ Junior has been created to facilitate the investigation process in K4-K8 classes (students from 8 to 12 years old). It offers the following functionalities:
1. A digital experiment notebook structured around the inquiry-based approach, in which the students can add text, photos, drawings and measurements
2. A set of instruments to conduct measures on sound, position, movement, colors, dimensions, and many others that allow the students to document their reasoning and add the measurements to their experiment notebooks
3. Exchange activities and notebooks between teachers and students
4. Access to a library of resources created by La main à la pâte foundation and Trapèze.digital

FizziQ Junior allows students to structure their thinking by following the fundamentals of scientific reasoning, which are crucial to develop one's critical thinking. With FizziQ, students will be able to solve scientific challenges that will be proposed to them, create clear and organized documents of analysis, share their work and have access to new and exciting activities.

Pedagogical objectives of FizziQ Junior

The pedagogical objectives of FizziQ Junior are three-fold:
1. To contribute to the learning of students in Science by facilitating the implementation of experimental activities in these areas
2. To reinforce digital practices within the class by distributing new resources adapted to the program for free

3. To help teachers in the realization of experimental protocols using the investigation method

These objectives target the student as well as the teacher who keeps a central role in the appropriation and use of the application.

FizziQ Junior is free for everyone, students, teachers and schools. It does not require a login or any form of registration. It is available in French and English, and soon in Spanish, Italian, Portuguese, German, and Dutch.

The application can also be used in class, or at home in the context of educational continuity or homework, offering a possibility of experimentation and sharing of experiences that is new and often difficult to achieve outside the school walls.

Instructions for First-time Users

The Main Screen

The main screen of FizziQ Junior appears after launching the application.

This main screen gives access to the three main areas of the FizziQ Junior application:
1. The test area, which contains activities to be done in a few minutes. This allows students to become familiar with FizziQ Junior and to test the different measuring instruments
2. The Student area where the student will create and manage his activities and experiment books.
3. The Teacher space dedicated to the teacher and in which the teacher will create activities, consult the students' notebooks, have access to the resources, and manage the settings of the tablet.

The Test Area

The test area has been created to help students get familiar with the application and understand the concept of measurement instruments. Click on "I test the instruments" to access this area. In this area, we offer three activities that students can use to familiarize themselves with the application:

1. The Painter - In this activity, the student will try to find three colors requested by the software as quickly as possible. The purpose of this activity is to familiarize the student with the colorimeter that allows the recognition of colors or the decomposition of a color into its primary colors.
2. The Balancer - The student will take as many steps as possible while keeping the tablet horizontal. This activity familiarizes the student with the bubble level sensor that measures horizontality.
3. Discover the Instruments - FizziQ Junior offers more than 20 instruments for measuring sound, color, movement, position, light, size, etc. The student will be able to try each of these instruments and understand the types of measurement it allows. Having a good overview of the measuring instruments will be useful to the students in their scientific research.
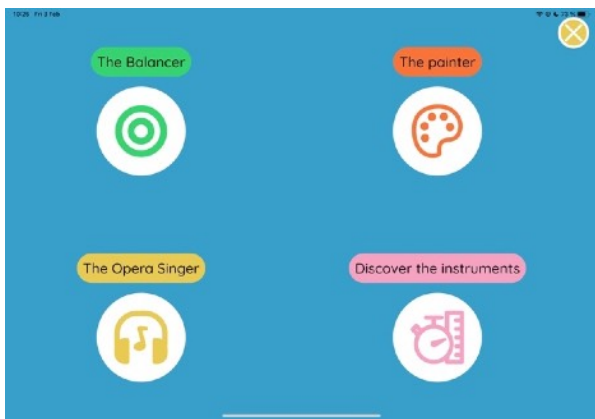
	1. Click on the "Discover instruments" tab
	2. Select the Activity « The Painter »
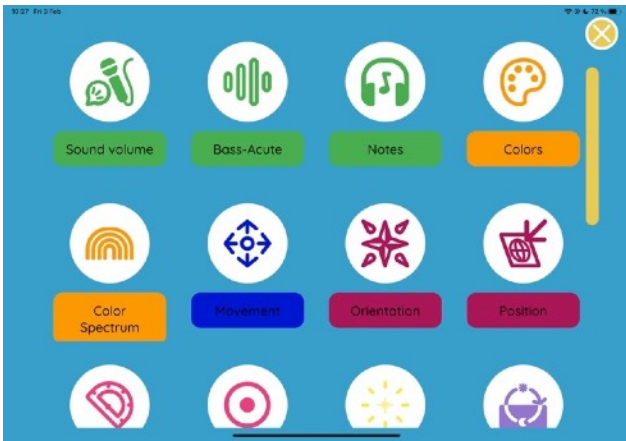
3. Discover the different Measuring Instruments

The Experimental Notebook for Students

How to access the Experiment Notebook?

The Experiment Notebook allows students to document their work by adding pictures (photos, drawings), comments, or measurements in the different sections of the notebook. By default, in a new (blank) notebook, the sections are in the following order: Questions, Hypotheses (Assumptions), Experiments, Results and Conclusions.

The (non-empty) notebooks are saved in the tablet and can be edited again, if necessary. When saved, the notebooks are identified by their title, the authors' names and the date of the last modification. For example:

Step-by-Step Instructions

1. Open FizziQ Junior and click on the "Student" tab on the home screen.

In the "Student" menu, select one of the tabs to open :
1. a new (blank) notebook;
2. a notebook from the list of notebooks previously created on this tablet;
3. or a notebook prepared by the teacher (i.e. an "Activity", see below)
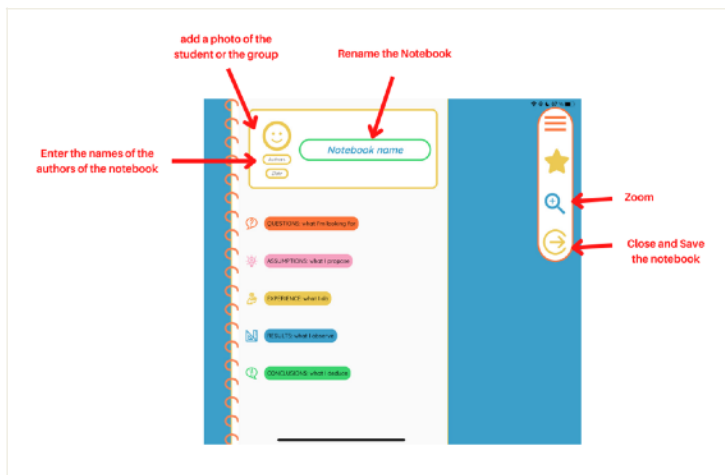
3. The notebook is open: you can personalize it and fill it with your measurements and observations (see below).
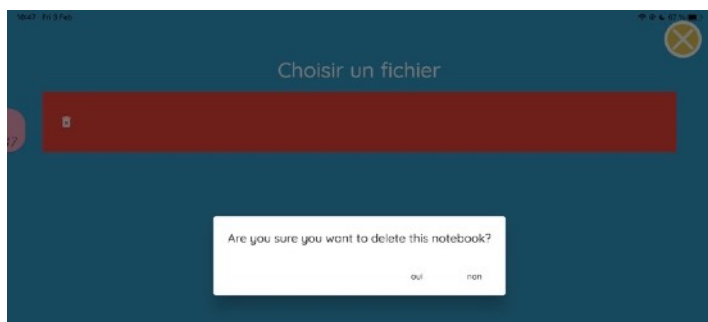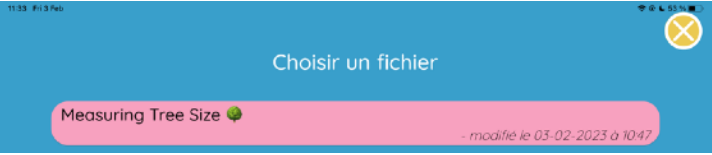

4. You can also delete a notebook from the list of notebooks stored in the tablet by clicking on the notebook and dragging the card towards the left side.

How to open an activity ?

In FizziQ Junior, an activity is a notebook that has been prepared by the teacher from the « Teacher's" space (see below for the creation and sharing): the teacher can choose the order of the sections and add instructions. The student can then directly import this notebook to work on it and complete it following the teacher's instructions.

Step-by-Step Instructions :

1. Open FizziQ Junior and click on the "Student" tab on the home screen.

2. In the "Student" menu, select "I am starting an activity". The student has two options.

3. **Case 1:** click on "The activity is in my locker".

   The list of activities available in the locker appears and the student can select one by clicking on it; the notebook opens.

4. **Case 2:** click on "**I download an activity**".
   The window that opens allows you to scan the QR code of the activity: when the activity is recognized, the message "Activity detected!"

   Click on " Start this activity " to open the notebook associated with the activity.

How to add information in the experiment notebook?

In the FizziQ Junior experiment notebook, students can add images (photos, drawings), text, or screenshots of their measurements or experiments with the tools.
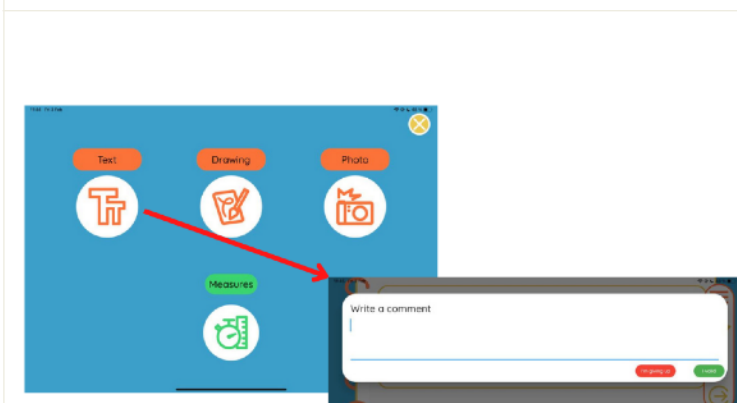
Each addition corresponds to a "card" that can be moved in the notebook and deleted, if necessary.
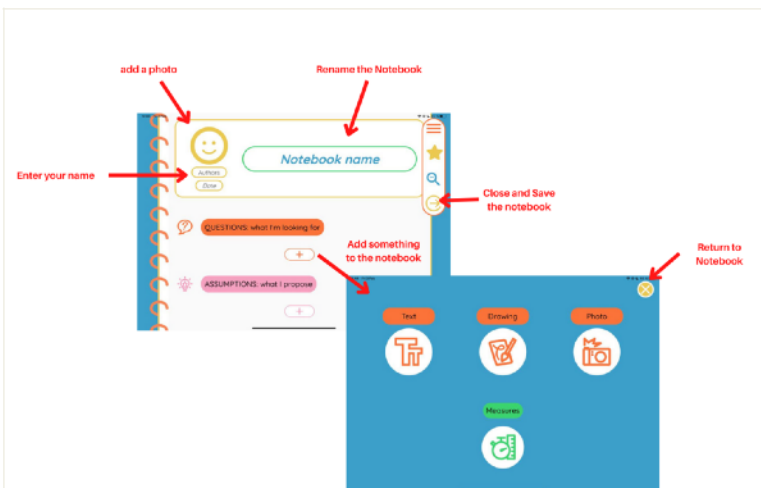
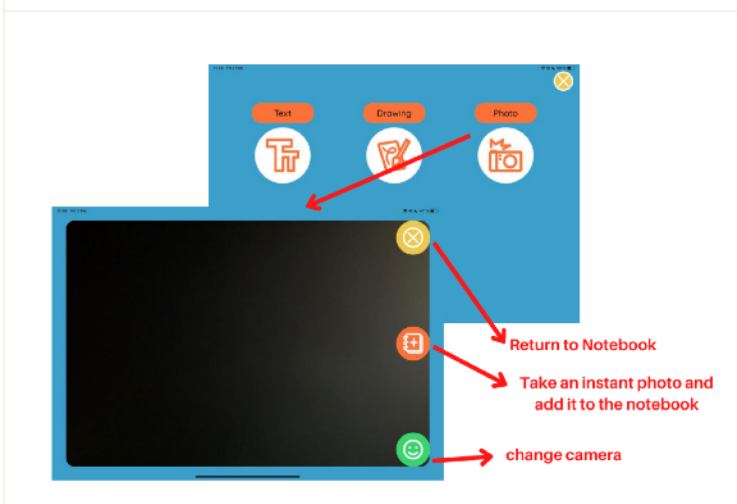**Access the list of tools and measuring instruments**
To add a card to the notebook, click on the button ⊕ in a given section: the window that appears gives access to the toolbox.
Please note that the corresponding map will be added to the selected section.

Add a "Text" card

Click on the button 📝, then write a comment and click on "I validate".

Add a Photo

Click on the button 📷, then take a picture using the 🔲 : the photo is automatically added to the notebook.

Add a Drawing

Click on the button ✏️, draw, and then click on ⊞ to add the drawing to the notebook.

Add a measurement or screenshot when using a tool

1. Access the list of instruments by clicking on the button 📏.
2. Select a tool or a measuring instrument.
3. Use the button ⊞ to add a screenshot of the measurement to the notebook.

How to organize the experiment notebook ?

Changing the order of the different sections
- Keep your finger on the section you want to move: a gray background appears.
- Without releasing your finger, you can then drag the section to the desired location.
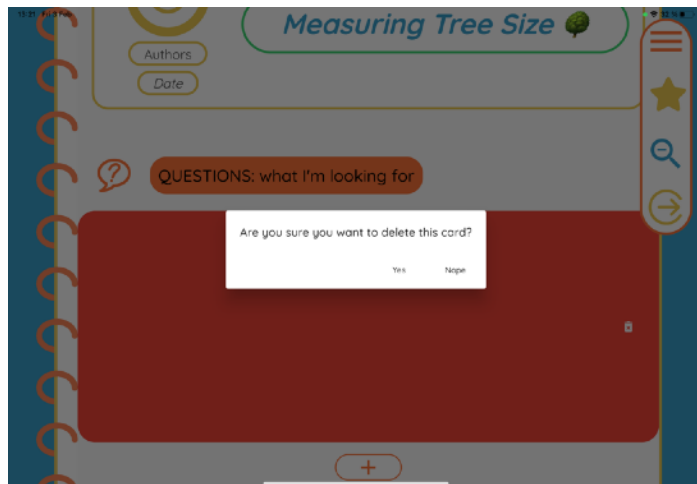
Deleting a Section/card
- Slide the section/card to the left to delete

How to Share the Experiment book with the Teacher ?

Students can share their workbook by placing it in the "teacher's locker" for correction (see below) or create a PDF document that can be sent by the method chosen by the teacher.

Step-by-step Instructions :

1. In the "Student" menu, click on "I share my work". Two options are offered:
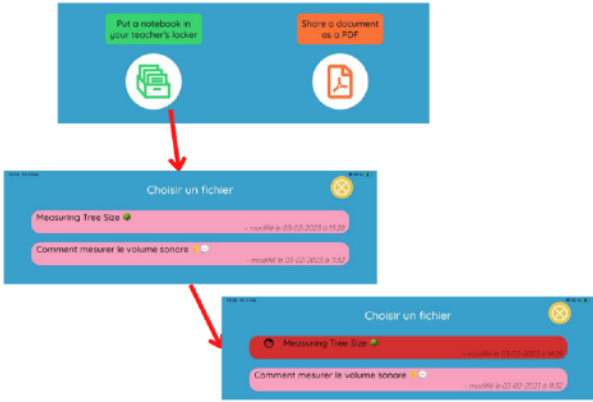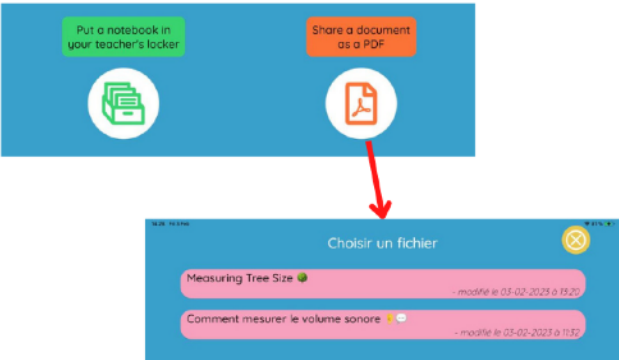   - "Put in your teacher's locker";
   - "Create a document to share" (in PDF format).

2. By clicking on "Put in your teacher's locker", you have access to the list of notebooks saved on the tablet:
   - select the notebook you want to share;
   - confirm that you want to place it in the "teacher's locker";
   - the insert of the notebook that has been placed in the locker turns red (which means "Pending correction", see below).

3. By clicking on "Create a document to share", you have access to the list of notebooks saved on the tablet: select the notebook you want to export in PDF format.

   When the PDF file is created, simply press the button and use the sending method of your choice (Drive, AirDrop, mail, etc.)

The Teacher's Space

How to set a password for the Teacher's space?

FizziQ Junior proposes a "Teacher's Space" different from the one in which the students will work: this space can be protected by a password so that they cannot access it.
By default, no password is requested while switching from the student's mode to the teacher's mode.

Note: if you have forgotten your password, use "fizziq2022" to access the "Teacher" mode and configure a new password (the procedure is explained below).

Step-by-Step Instructions :

1. Open FizziQ Junior and use the button at the bottom right of the home screen to switch to "Teacher" mode. Click on the "Teacher" tab.

2. Click on "Modify the parameters" and then on the "Teacher Password" tab.
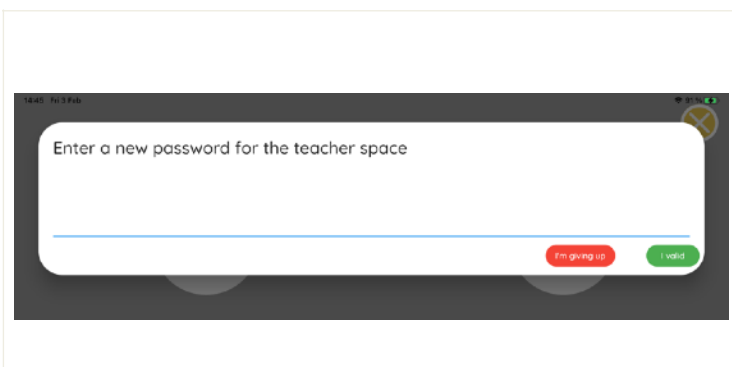
3. Type in the password of your choice, then click on "I validate" to save.

   Note: to deactivate the password function, simply leave the line blank and click on "I validate".

How to create an activity and share it ?

In FizziQ Junior, an activity is a notebook that has been prepared by the teacher from the Teacher's space: the students can choose the order of the sections in this notebook, give it a title, add instructions, etc.

The activity will be saved in the tablet with the name you have entered. You can also share it as a QR code that the student can then scan to directly import the pre-filled notebook (see above).

Step-by-Step Instructions :

1. Open FizziQ Junior and use the button at the bottom right of the home screen to switch to "Teacher" mode. Click on the "Teacher" tab.

2. From the "Teacher" menu, select the "Manage My Activities" tab to create a new activity or edit an activity you have already created.

share activity as a QR code

close and save the activity

add items to the activity

3. You can start editing the activity by renaming it and then clicking the "Add Items to Activity" button to bring up the toolbox (text, sections, drawing, photo, measurements).

Note - you can :
- move an item by holding down on it until a gray box appears, then dragging it to the desired location;
- delete an item by dragging it to the left.
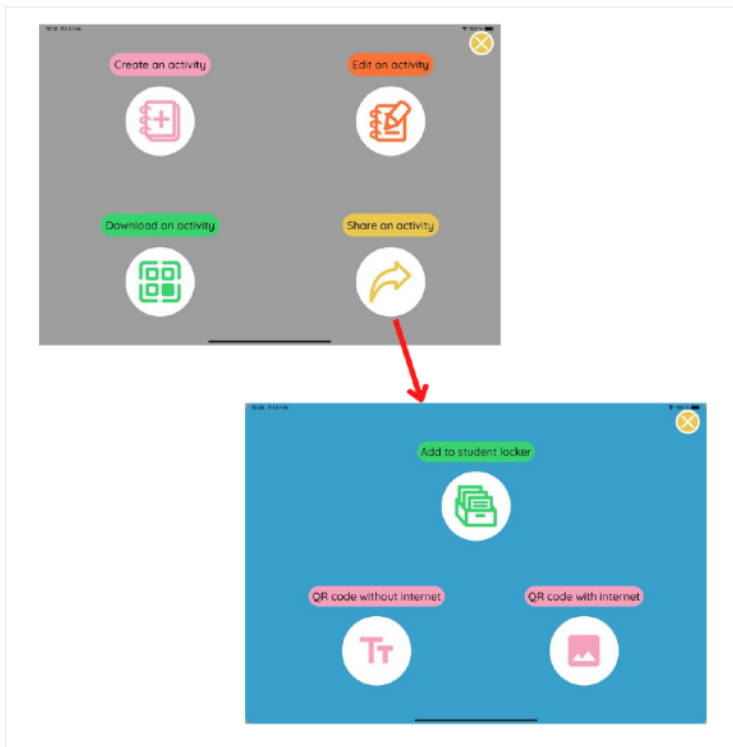
4. Click on the button ⤷ to share the activity with your students.

   It is also possible to do this directly from the "Manage my activities" menu (on your left) by clicking on "Share an activity", then selecting the activity from the list.

Three sharing options exist:

The activity is placed in the "student locker" (specific to the tablet) and the student will be able to access it directly from the "Student" menu.
No need for a Wi-Fi connection.

This option can be a solution if you are unable to scan a complex QR code.

No Wi-Fi connection is needed to generate and read the QR code. Only the titles and the text are exported.

Please note! In this version, the number of characters is limited. Moreover, the more the number of characters is big, the more the QR code can cause recognition problems.

You need a Wi-Fi connection to generate and read the QR code. All the cards in the booklet, including images, are exported.

Note: once the QR code is created, you just have to click on 🔴 to use the sending method of your choice (Drive, AirDrop, mail, etc.)

How to correct your students' notebooks ?

In the Teacher's space, you have access to a locker in which students can put their experiment notebooks at the end of a session. This locker is not an online space that allows you to collect notebooks from different tablets: each tablet has its own locker and only the notebooks created on that tablet can be placed there.

This locker will allow you to correct the students' notebooks by annotating them, and then send the corrected notebook back to the Student's space, where the student will be notified that their notebook has been corrected.
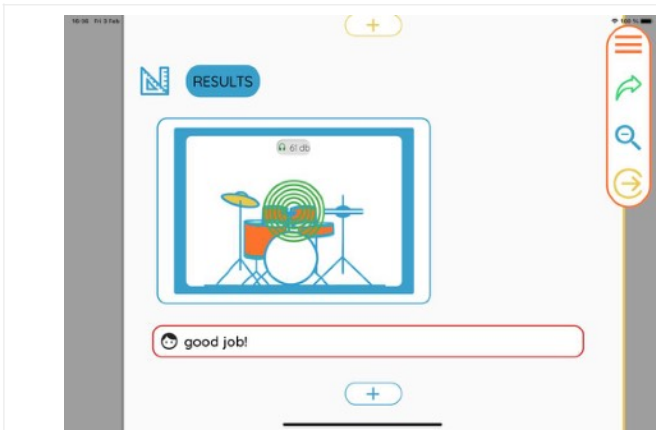
## Step-by-step instructions :

1. Open FizziQ Junior and use the button at the bottom right of the home screen to switch to the "Teacher" mode. Click on the "Teacher" tab.

2. Select "Open My Locker" to access the student notebooks stored there and choose one from the list.

3. Click on ⊕ to <u>add a comment in a given section.</u>
The teacher's comment appears in the notebook with a red outline and the symbol .☺.
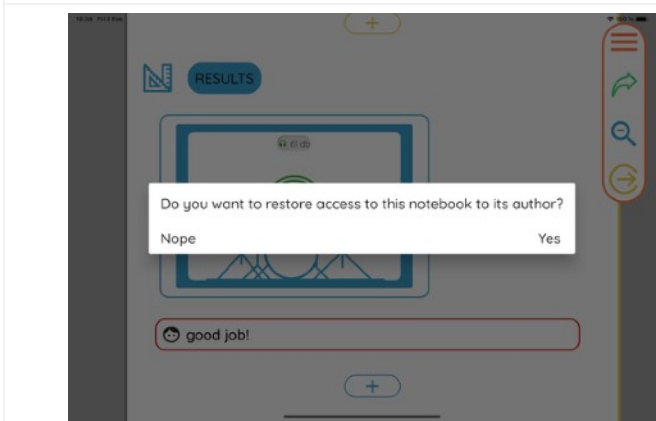
4. Once the correction is finished, you can close the notebook. You will then be able to return the notebook to the "Student" area: it will no longer be in your locker.

1. In the Student space, a notification is visible in the "I open one of my notebooks" tab: it indicates that a notebook has been corrected.

In the list of available notebooks, this notebook appears with a green background.
When the student has opened the notebook, it will appear on a pink background (initial color) in the list:

How to access teaching resources ?

Educational resources, designed by the Fondation La main à la pâte, are available in the Teachers space. These are activities to help you use FizziQ Junior and prepare your class sessions. If you have ideas for future resources using the application, please contact us by email: fizziq@fondation-lamap.org

Step-by-step tutorial :
- Open FizziQ Junior and use the button at the bottom right of the home screen to switch to the Teacher mode. Click on the "Teacher" tab.
- In the Teacher menu, select "Find an activity"
- Choose an activity from the list of those offered: it will appear on your tablet screen. When a La main à la pâte educational resource is associated with the activity, it can be consulted on the tablet by clicking on the "Learn more" link in the information bubble.

This symbol indicates that the activity is available only online

Click here to open the full educational resource

Click here to save the prepared activity in the tablet and open it

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