# USER'S MANUAL TO MOVE MI MUSIC APPLICATION

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#### INTRODUCTION

Move mi music is an application based on the Kodály Concept and the Hungarian musical education practice. This application is the result of the dedicated efforts of teaching staff at the Kodály Institute of the Liszt Ferenc Academy of Music and AutSoft Ltd. in finding effective ways to develop young children's musical skills in the field of musical writing, reading and part-singing.

The effectiveness of the musical tasks presented here is guaranteed by significant music pedagogical knowledge and experience acquired in the Hungarian school music education practice hallmarked by Zoltán Kodály's name during the past few decades.

The music pedagogical tools used by the application are the ones most commonly connected with the practice of Kodály-based music education. The different tasks have been used in Hungarian music lessons ever since the Kodály-Ádám Singing Books were published in Hungary for the first time.

As a teacher, you can use it to help your students learn musical reading and writing. The programme is child centred and is used to create diverse experience based lessons. Highly artistic images, textures and animations create an enriching experience designed to engage the modern student. The main Move mi Music mascot is Theodor the anteater, who deftly sniffs up notes from the screen, gradually changing from a somewhat grumbling-puffing animal into a joyful sweetly singing creature. As grumbly children can easily identify with him, his presence helps transform singing together with the class into a genuine remarkable experience. Kodály's first and foremost goal was for children to enjoy singing and pass on this love for music.

It is important to add that this application is designed to help the teacher's work, but cannot replace it.

#### WHAT MOVE MI MUSIC IS ABOUT?

Move mi Music offers music teachers an effective way to develop young children's musical skills in musical writing, reading and part-singing by providing useful tools to help improve inner hearing, musical memory, sight reading, rhythmic and writing skills in a playful way. Using the built-in music editor, you can create tasks and exercises for the following skills and areas:

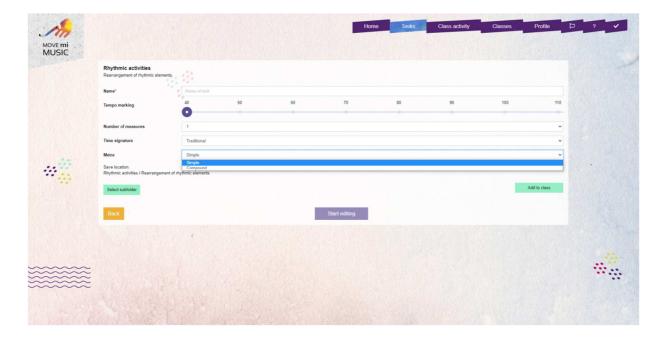
- rhythm,
- melodic ear training,
- inner hearing training,
- sight-reading,
- notation,
- sense of tempo,
- keeping tempo,
- musical memory,
- musical coordination,
- polyphony,
- relative solmization,
- relationships between notes.

For each type of task there are three templates of increasing difficulty levels built it do demonstrate the possibilities of the application.

#### **ACTIVITIES AND TASKS**

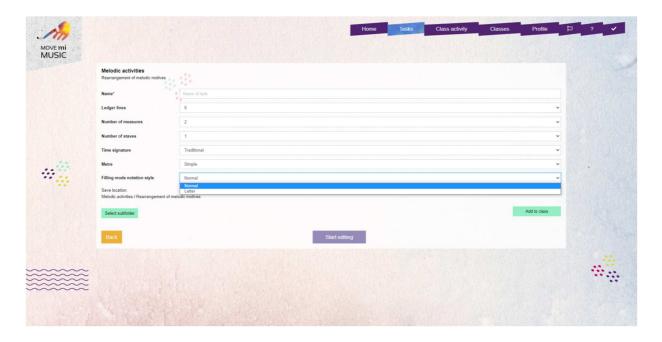
There are six activity categories and twenty task types within:

1. RHYTHMIC ACTIVITIES — rearranging rhythm cards with given rhythm elements or measures. If the teacher uses the rhythm tiles of the toolbar of the music editor with text on them, the programme keeps those elements as they are on the tiles. The rhythmic elements can be added one by one as well. If you would like the quavers grouped in four or three, you need to use the single quaver tile. The time signature can be displayed the traditional or simplified way. For 3/8 or 6/8 metre you need to choose compound metre at the beginning of preparing the task.



In the current version of the programme the measure lines (bar lines) are displayed in the boxes, therefore the children will need to pay attention to where the given rhythmic element is placed within the measure. The rhythmic elements or measures (to be rearranged) are displayed in a random order every time.

- 2. MELODIC ACTIVITIES rearranging melodic motives. This task is a very good practice for developing inner hearing, musical reading and writing skills. It can be used in two ways:
- Either the teacher hums/sings the melody and the children have to decode the heard melody and put the motives in the correct order
- or the children have to recall a known melody with their inner hearing and connect the notation in the correct order. When creating tasks, we can add the melodies the same way as in notation softwares. This task can be displayed two ways for children: melody on the usual 5-line stave or with stick notation. The "Filling mode notation style" needs to be chosen at the beginning of creating a new task.



The melodic motives (to be rearranged) are displayed in a random order every time.

- 3. MEMORISATION ACTIVITIES reading or hiding rhythmic elements, measures or melodic elements, measures. The exercise may be done exclusively in class, on the digital board, with instruction by the teacher. In these tasks, between singings (or clappings) the teacher can gradually erase elements or parts of the sheet music on the board, eventually erasing the whole, thus memorising the given melody or rhythm.
- 4. COMPLETING THE MUSIC JIGSAW completion of missing rhythmic elements, measures; melodic elements, measures; adding the missing bar lines. When completing the missing rhythmic or melodic elements, these tasks can be used in two ways:
- Either it is an already known rhythm or melody that missing its elements, therefore the children have to use their inner hearing and musical memory to complete the tasks.
- Or there is an unknown rhythm, melody needs to be completed, therefore the children practise dictation.

In these tasks there is a possibility to prepare rhythms without measure lines, this way the children have to "draw" the measure lines according to the metre. This task is a great help to the teacher to practise the different metres and beats. The available metres are 3/8, 6/8, 2/4, 3/4, 4/4.

The maximum number of measures can be eight by choosing four measures in two staves when creating a task.

#### 5. READING AND WRITING ACTIVITIES

- FIND THE MISSING MELODY: after singing a little piece of melody, the pupil can move the stems of the rhythm up and down following the melodic line. The first note is always at the correct position. The teachers prepare the tasks on 3-line stave but the children only see the rhythm without stave to practise the spatial relations between the notes.
- HOW MANY SOUNDS PER BEAT?: the pupils can reproduce the rhythm played by the teacher in the following way: they have to tap the heard rhythm into four, six or eight discs (as a time unit of four, six or eight beats) in the correct time and tempo, so their solutions to become visible. The discs with the correct solution will be outlined with a continuous line. The available rhythmic elements are crotchets, quavers grouped in 2, and semi-quavers grouped in 4.
- FIND THE MELODIC SHAPE: notes, pictorial notations (sun, bird, green pea, leaf, ca, duck, apple, etc.), hand signs, and sol-fa names can be displayed on the stave in such a way, that the pupil touches the screen on the 5-line stave according to the flow of the melody, and so the notes or signs appear on the stave where touched. The notes appear without stems; therefore, the rhythm only can be indicated by putting the notes closer if they are quavers, and a bit further if they are crotchets. The Do-clef is visible in Pupil view when using hand-signs or sol-fa names. This task is an excellent example of illustrating the movable "do".
- NOTATE THE MELODY: The pupils notate the melody, sung by the teacher, onto the 5-line stave choosing the rhythmic elements from the given rhythmic tiles. The process is similar to a scoring/notation software.
- DRAW THE MELODIC CONTOUR: Drawing the melody line on the touchscreen with the help of a figure (hedgehog, duck, boat or train). There are four different backgrounds you can choose from (meadow, hill, pond and sea), and the figure's starting point can be chosen from eight positions. As the children move the figures the background appears. Once they finished the melody line, the figures can be moved independently and follow the melody line again to reinforce the melodic contour. The pupils can write e.g. sol-fa names on the touch screen with their fingers.
- READ THE NOTATION: the application offers different notation for sight-reading exercises: melody on the 5-line stave or stick notation with sol-fa letters. Also, as in the other tasks both do-clef and Treble-clef are available.

#### 6. POLYPHONIC ACTIVITIES

This set is not interactive for the pupil, but a great deal of help for the teacher, as you can use and project your tasks – that you created within the application, so there is no need to use a separate notation software – which makes planning and teaching lessons much easier.

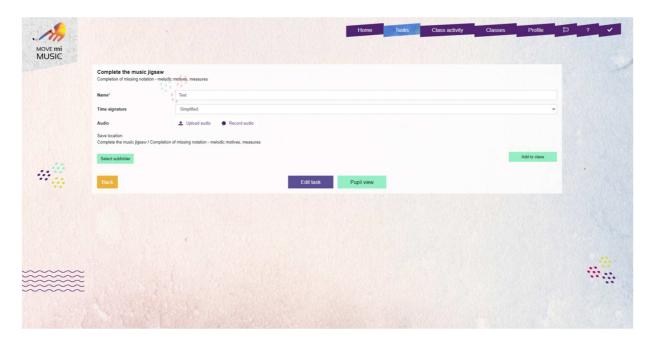
- RHYTHM CONVERSATION: playing rhythmic elements notated below and above a line in a dialogue form. It is important to know that when the upper part has the rhythm, the lower part does not have rests as they have to listen to the other part, and vice versa.
- 2-PART RHYTHM ACTIVITIES: polyphonic exercises to practice 2-part rhythms clapped or played on percussion instruments.
- MELODY CONVERSATION: similar to the rhythmic conversation, it is about playing musical elements notated below and above a line in a dialogue form
- 2-PART MELODY ACTIVITIES: exercises to practice two-part singing (such as singing interval sequences)
- READING WITHOUT THE STAFF: polyphonic singing of differently notated (hand signs, sol-fa names) musical elements but without given rhythm.
- READING ACTIVITY FROM STAFF NOTATION: polyphonic singing with rhythm.

You can set homework for the pupils in the system for the whole class or individually. The following tasks can be given as homework:

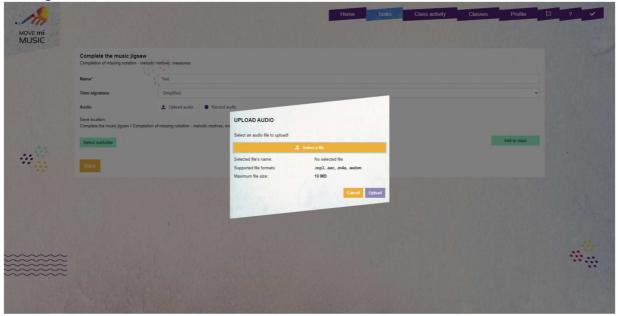
- rearrangement of rhythmic elements
- rearrangement of measures
- rearrangement of melodic motives
- completing the music jigsaws
- how many sounds per beat?

The children can do it at home on a tablet after logging in. The teacher can see the results of the homework both by classes and by pupils. Rhythm homework tasks are played by claves-sound .When creating a rhythmic task, be aware that long notes, such as minims, dotted crotchets or crotchet and a rest sound the same on claves. The

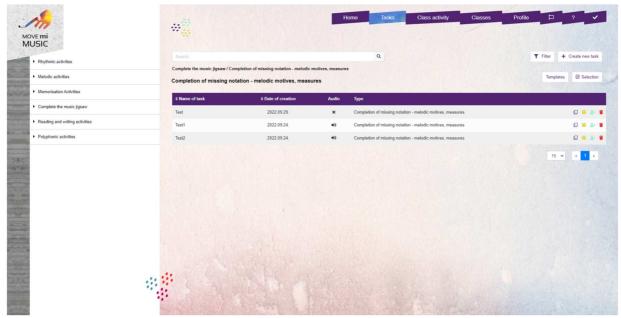
melodic tasks have sound recording or uploading option once the teacher finished editing the task.



The maximum size of the files is 10MB, files with .mp3, .aac, .m4a or webm extensions can be used, and if you record yourself within the application, the maximum length can be 2 minutes. There is a warning sign if the file has a different extension, or if it is bigger or longer.



Tasks with recording have a "speaker" icon in the list, the sound files can be listened to in "Pupil view" mode.



The pupils can access and do (practice or improve) their homework exercises multiple times and can send their results to the teacher.

#### FURTHER ADVANTAGES OF MOVE MI MUSIC

- The teacher can create numerous new exercises to prepare for a class and to actualise their teaching according to the skills of their classes.
- Exercises already created may be saved into individually named files and they can be opened, edited and resaved without deleting the original exercise from the system. It is also possible to create more exercises of the same kind. The teacher can create variants of existing exercises in class, too. After switching off projection on the screen, they can make changes on their own computer, and then they can project the new exercise again. They can also insert a new exercise if needed.
- Some exercises can be used for frontal instruction in the classroom. The exercise appears on the touchscreen or the smart board and on the tablets used by the pupils. The teacher's computer is connected to both. The touchscreen offers the possibility for the children to do an exercise in front of the class (e.g.: they can fill in the missing rhythm or melody parts).
- The class can work together (sing, clap etc.), or individually (writing down an intoned melody or rhythm on the tablet). The results of the latter exercise arrive directly into a digital evaluating system on the teacher's computer. The system shows the class average, the quickest pupil's name, and the ranking of the pupils based on how quickly they solved the task.

- The pupils get feedback about their solutions via a rewarding system (see "My solutions").
- -It needs to be emphasized that such digital technology can help the teacher but cannot replace their work. We suggest balancing the use of the application with traditional methodology (singing, playing, circle games, rhythm tasks etc.) when preparing for the classes. The application can play a role in the preparation for musical reading and writing, developing a clear sense of tempo, keeping the tempo and in practicing these skills in a joyful and engaging way, but cannot substitute modelling and instruction by the teacher.
- In the "Tasks" menu every task type has an info button. By clicking on it, you will see templates. Every task has three of them levelled as easy, medium and hard. These templates can be copied and, after copying, edited.



### **USER'S MANUAL**

This is the user's manual for the Move mi Music web and mobile application.

Technical requirements:

Supported devices: The application is to be used on tablets, laptops and PCs. Mobiles are not supported.

Required display: minimum 9.7 col, touchscreen

Browsers: Google Chrome (version 72 and later), Firefox (Version 64 and

later), Edge (version 18 and later), Safari (Version 11 and later)

Operating systems: Android version 5.0 and later, IOS version 14.5 and later, MacOS version MacOS10.10 or later, Windows version 10 and later, Huawei version: Harmony OS 1.0 and later.

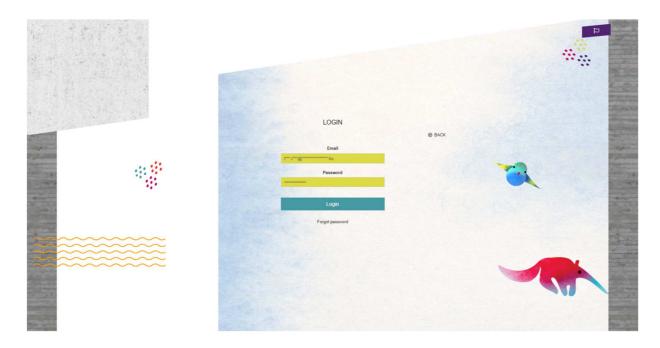
Supported languages: Hungarian, English, Italian, French, Spanish, Portuguese, Mandarin.

#### **LOGIN**

After downloading the application, you have to register first. The application will appear in the language your device is set on if the language is supported by the programme, otherwise in English. If, after registration, you open the application in a web browser, the system will use one of the supported languages if your browser has it in its settings, otherwise it will be in English. The language can be changed anytime by clicking on the flag icon. Upon registration the following login screen appears:



Teachers will be able to log in by entering the email address and password they have set when registering and this is also where they can choose the "Forgot password" option.



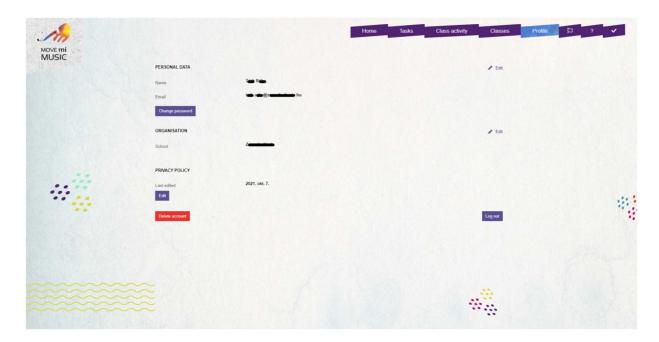
If you want to login as a pupil, you have to open the website https://movemimusic.com, select Pupil mode and read the QR-code you received from the teacher or enter it manually.



## **PROFILE**

When you log in, you can view your data in the "Profile" menu. You can change your password by clicking on the "Change password" button, and modify your personal and

organisation data. You can also log out here, or even delete your profile. By choosing "Delete profile" all data, including personal information, classes, pupils, tasks, results will be deleted and cannot be restored.



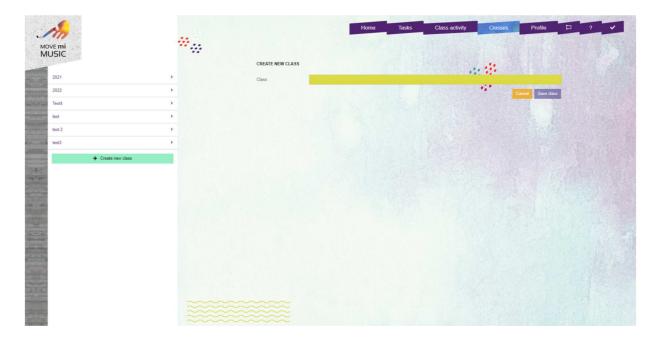
## TEACHER HOME SCREEN

After successfully logging in, the home screen appears where you can quickly access the main functions:

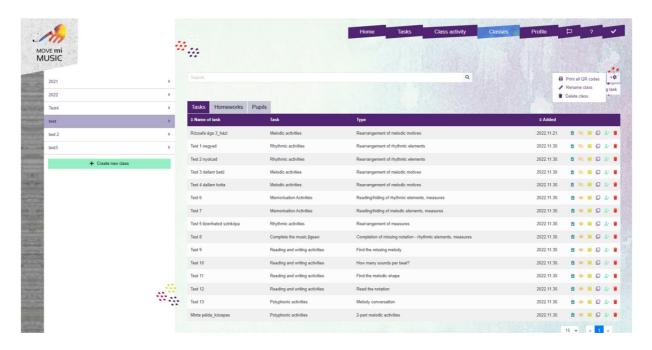


### HANDLING CLASSES AND PUPILS

You can create a new class in two ways. On the home screen, you can click on the "Create new class" button, or access the "Create new class" button from the "Class" menu. In either case, you can create the new class by filling in and saving the form.



You can edit and delete any class. You can do so by selecting a class from the list on the left, then clicking on the "Settings" button (marked by the cogwheel icon), and selecting the appropriate function from the pop-up menu.

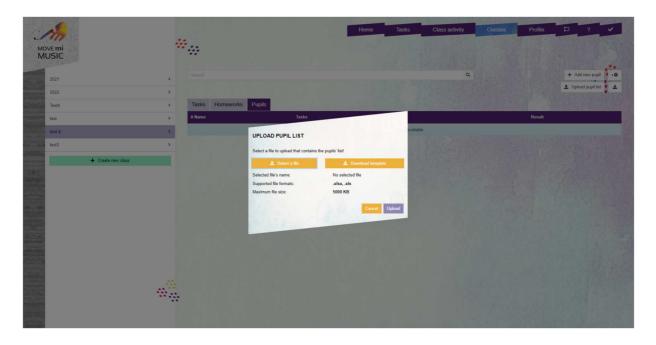


You can add students to the classes. To do so, first select the given class from the list on the left, then click on the "Pupils" tab.

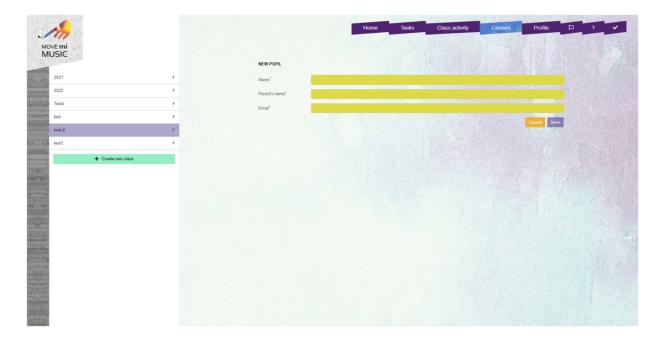


There are two options here. You can add new pupils — a whole class - to your class either by clicking on the "Upload pupil list" then uploading the existing Excel sheet (that contains the name of the pupil, name of the parent and their email address) by choosing the "Select file" option. You have the option to download the template that you can save to your PC and use it for your class lists. It is important if you use an Excel sheet that the

columns have the exact order and names as they are in the template. The template can be downloaded by clicking the icon on the right of the "Upload pupil list" menu as well. This way you can upload a whole class at once.



Or by clicking on the "Add new pupil" button then filling in and saving the form one by one.



A registration notice will be sent to the given email address after saving the form, containing the QR-code necessary for pupil login.

You can modify, edit, move or delete pupils in the following way: click on the pupil's name in the list, then select the "Profile" tab. You can edit the pupil's profile by clicking on the "Edit" button, and you can delete it by clicking first on the "Edit" button, then clicking on the "Remove pupil" button, or you can move the pupil to a different class by clicking on the "Move Pupil" button. If you choose the "Move pupil" option, you can select which class you would like to move your pupil to. New QR-code will not be generated by moving a pupil to a different class, however, because of the GDPR regulations, all the previous results of the pupil will be deleted. The "Profile" tab also shows the pupil's QR-code and manual code necessary for login. You can also print the QR-code by clicking on the "Print" button. The code to be printed will open in a new browser tab, then you can use the browser's built-in print function — it is typically accessible on a laptop or desktop computer by the Ctrl+P (on Windows and Linux) or the Cmd+P (MacOS) key combination.

The pupil will be able to easily login to the application by using the printed QR-code. Please, bear in mind that the QR code is needed at each log-in, a printed version should always be available at hand.



A handy possibility is to print every pupil's QR-code of a given class together. To do so, click on the "Classes" menu, select the desired class from the list on the left, then click on the cogwheel icon on the right, and select the option "Print all QR-codes".



## **TASKS**

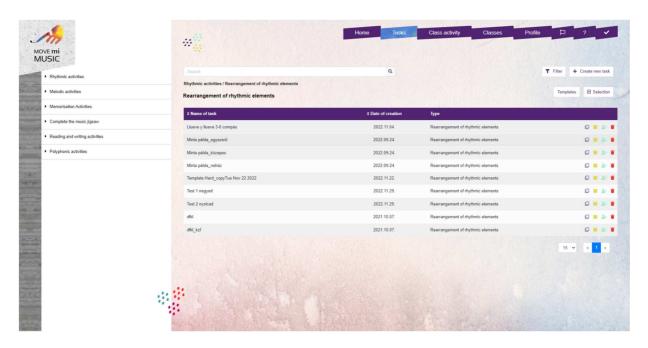
The "Tasks" menu takes you to the task categories, where you see six different ones and 20 different task types within:

- Rhythmic activities
- Melodic activities
- Memorisation activities
- Complete the music jigsaw
- Reading and writing activities
- Polyphonic activities



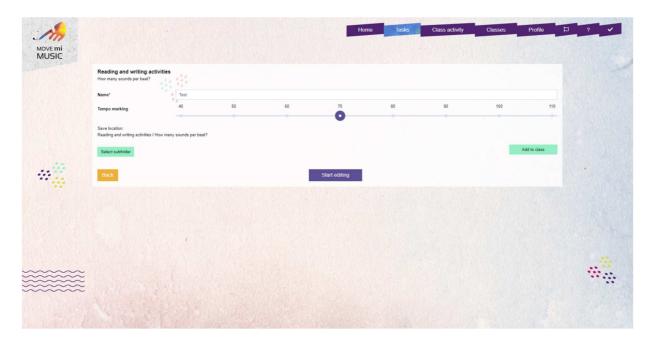
## CREATING, EDITING, DELETING AND ARCHIVING TASKS

Choose one of the Task categories and a task type within, you will see the existing tasks:

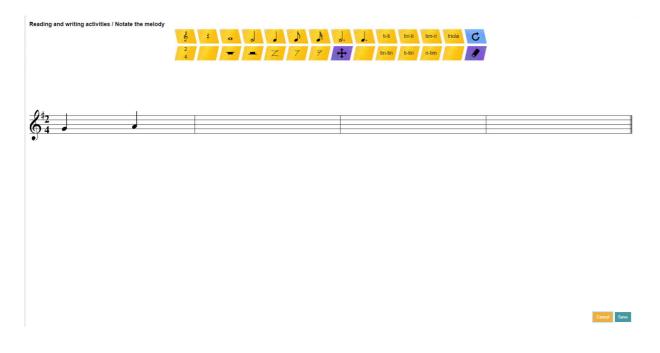


You can create new tasks in two ways. You can click on the "New task" button on the home screen or select the "Create new task" button within the task list. First, you always have to fill in a form: give a name to the task (be smart with the naming to help to

identify and find the tasks later), then set the parameters of the task type (note that some of them cannot be edited after saving the task).

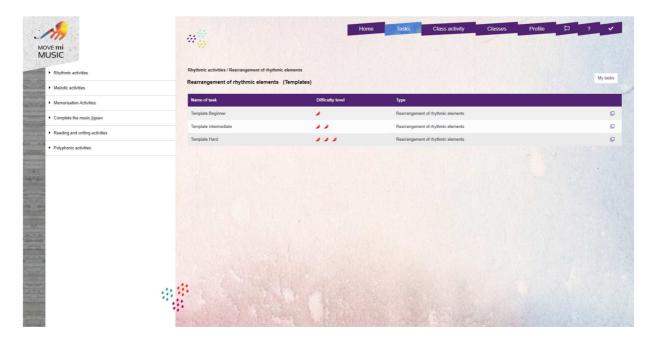


When the form is completed, click on the "Start editing" button to arrive to the music editor where you can design the task. You can find the musical tools in the upper toolbar, the music itself is below.



#### **Templates:**

Opening the "Tasks" menu, every task type has an info button. By clicking on it, you will see template tasks. Every task has three template tasks levelled as easy, medium and hard, shown with the number of chilli peppers. These templates can be copied and, after copying, edited. It is important to know that the templates with sound files uploaded with them can be edited as well but after editing the original sound file will be deleted, therefore you have to upload or record your own sound file. The "Templates" can be opened from the task list as well by choosing the "Templates" button on the top right. From here, you need to click on "My tasks" to go back to your own task list.



The toolbar contains the following elements:



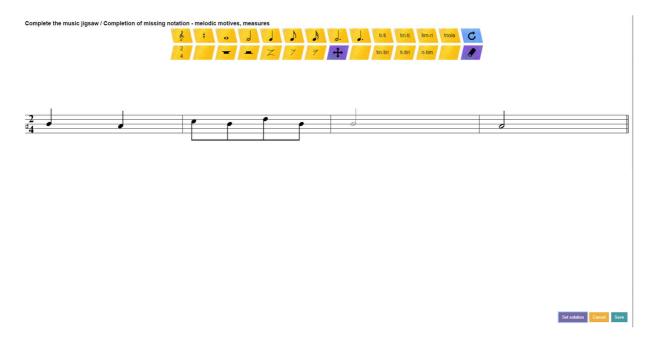
- Clefs
- Key signatures (up to 3 sharps and 3 flats
- Time signatures (if you need 3/6 or 6/8 time signature, you need to choose "Compound" metre at the beginning of the task)
- Rhythm values
- Rhythmic elements, such as "tiri-tiri", "triola", etc., have their own tiles. If you work on a smaller screen, you need to highlight the "ti-ti" tile and press it as many times you need to reach your desired

rhythmic element. If you want your quavers to be grouped in 4, you need to use the single quaver tile, if you want the quavers to be grouped in 2, then the "ti-ti" tile. If you prepare tasks in 3/8 or 6/8, you need to use the single quaver tile in order to have the correct quaver grouping.

- Eraser mark (with purple background) for deleting anything previously written items
- A circular arrow (with blue background) that starts the task from the beginning
- An anchor sign (with purple background) which helps making the placement of notes on the stave faster
- When creating a two-part melodic task, letter S or A becomes visible on the tile next to the anchor sign. If the tile is set to the letter "S", you can add the upper part's notes, if the tile is set to the letter "A", you can add the lower part's notes



After saving the task, a new button is available called "Pupil view" ("Open display mode" in the case of memory games), which shows what the pupils will see. In case of completion games with the help of a "Set solution" button the elements removed from the original task can be made visible for the teacher.



You can find five additional buttons below the form of a task. The "Select subfolder" button allows creating folders and organising your tasks. It is important to note that the topmost level of organisation is always the category of the task, the subfolders you create will appear only inside the categories, therefore in one subfolder there always will be the same types of tasks. You can create further subfolders within subfolders in any number and depth. The button and function "Add to class" is discussed in the next section. The "Back" button will take you back to the previous screen.

If you click on the "Cancel" button in the music editor, modifications won't be saved; in the case of a new task, it won't be created.

In the "Tasks" menu, after selecting a category (and a subfolder), you can view or modify the tasks of the given category (subfolder). You cannot list all the tasks of all the categories together.

A task can be modified in the following ways:

Edit: You can modify the editable settings and the score of the task (note that not every setting can be modified once the task is created). It's important to note that modifying a task that has been assigned a solution and whose submissions by the pupils have already been evaluated does not modify previous evaluation (prior to editing) itself, but upon editing, the previous settings of the task are discarded, so you cannot further compare earlier submissions with the earlier solution. It is suggested therefore not to edit a task that is being evaluated by the system and has submissions already saved. In such a case, we suggest you copy the task.

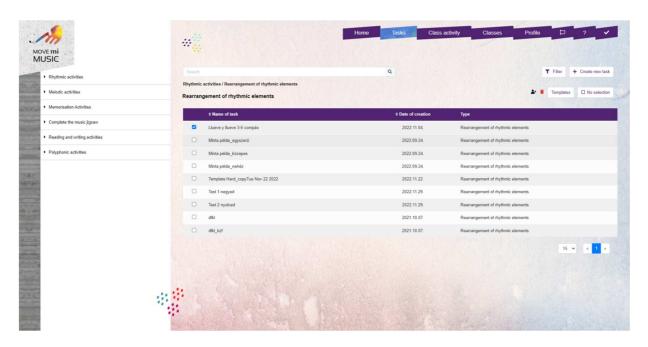
Copy: You can make a copy of the task that inherits every setting of the parent task and its score, too. Settings you cannot modify after creating a task cannot be modified during copying it, either.

Delete: Deleting a task will also delete every solution, completion and assignment to classes. If you wish to keep them, archive the task.

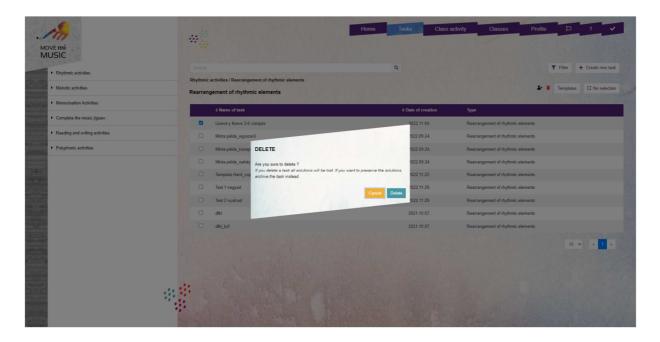
Archive/Activate: The function offers to hide the tasks from the list which you don't need any more in your everyday work, but you don't want to delete, either. It is reversible; you can activate archive tasks any time.

Add to class: it is discussed in the next section.

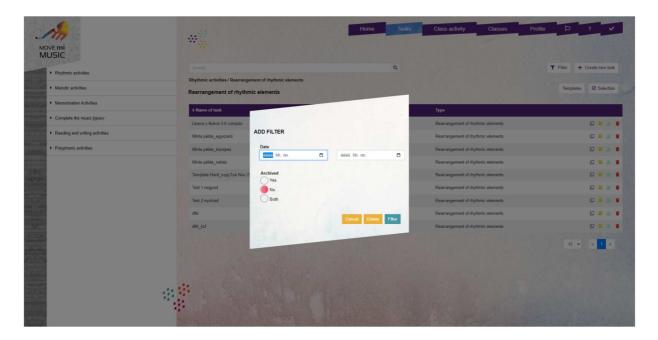
Modifications can be done by clicking on the icons at the end of the row of a given task. The functions "Add to class" and "Delete" can be done to multiple tasks at once. To do so, click on the "Selection" button above the list of the tasks to the right. This makes checkboxes appear in front of the tasks, and two icons next to the button itself. After completing the selection, click on the icon of the function you want to perform.



You can exit the Selection mode by clicking on the "No selection" button.



You can search the names of tasks in the selected category / subfolder, and you can also filter the listed exercises according to the time interval of creation and whether to show archived tasks or not.



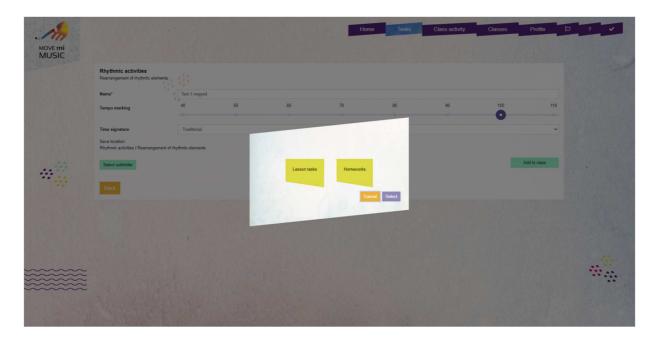
#### ADDING TASKS TO CLASSES

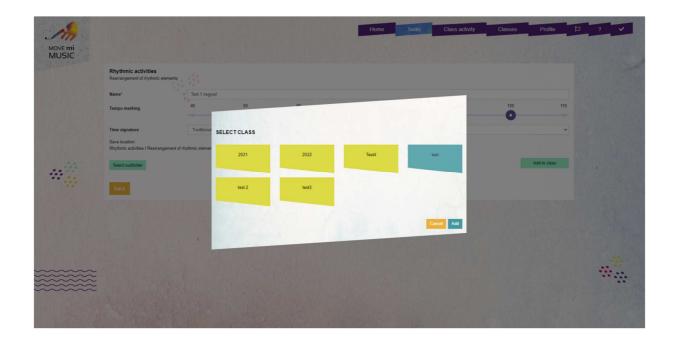
Tasks can be added to classes. A task can be a lesson task or homework (note that not every type of task can be given as homework – see Homework chapter). If you give a task as homework, it will appear in the pupil's "Homework" list and they can do it

anytime. Lesson tasks can be done together in class by selecting "School work". For each task you want to add to a class, you have to select the type of the assignment (lesson task or homework), then you also have to select the class(es) you want to add the task to. You can do so in the following ways:

- Clicking on the "Add to class" button at the "Create new task" form
- Clicking on the "Add to class" icon in the task list in the "Tasks" menu
- Individually for each task
- For multiple tasks together (after selecting them with the "Selection" button)
- Clicking on the "Add existing task" button in the Classes menu
- Clicking on the "Add existing task" button on the page of a given class in the Class activity menu

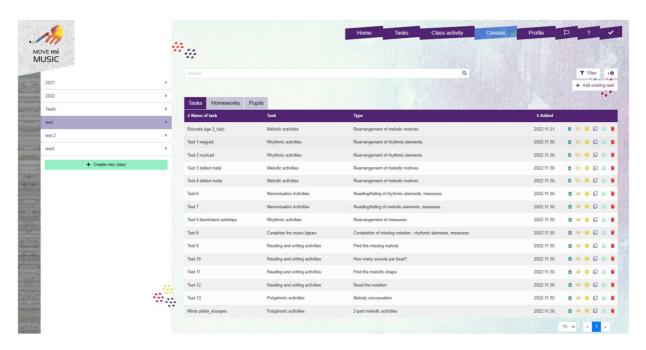
Note that a specific task can be added to the same class multiple times (for instance, if you want to repeat it with them after a certain time).



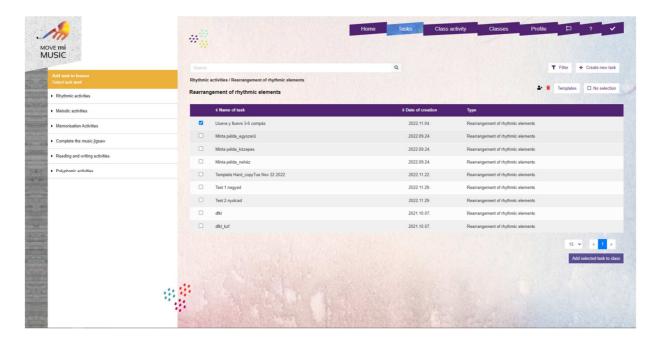


#### OVERVIEW OF ALL TASKS IN A GIVEN CLASS

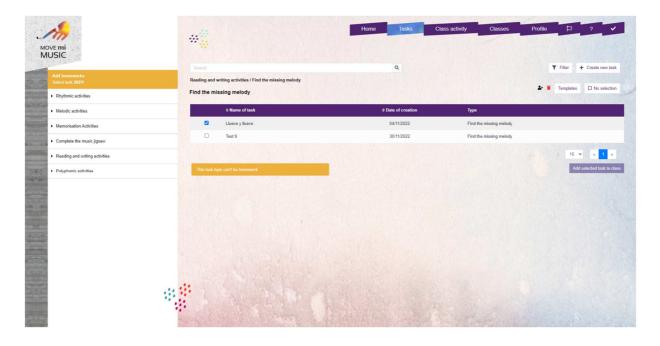
You can overview every task in a given class on the page of the class. In the "Class" menu, select the class you wish to overview. You will see three tabs ("Tasks", "Homework", "Pupils"), and by clicking on "Tasks" or "Homework", you can see the tasks you have added earlier.



If you want, you can add a task to the class from here, too. First, choose the right tab: "Tasks" or "Homework". Then click on the "Add existing task" button, which takes you to the task list view. Select the category (you can navigate between them on the sidebar), then select the task and click on the "Add selected task to class" button.



Note that not every type of task can be given as homework. If you select such a type in the list, you will see a notification:



The following actions are offered to tasks assigned to classes:

Edit: note that this modifies the task not only for the given class, but for all of them. To edit a task, click on it in the list, and then click on the "Edit task" button.

Solutions: you can see all the solutions for the given task added to the given class. If a task is added multiple times to a class, you can see the solutions separately. If a pupil did the task multiple times, all their solutions will be shown here.

Hide: In "School work" mode, only those tasks will appear in the selected class which are not hidden. You can prepare for multiple lessons in advance, and you can add tasks to a class for more lessons in such a way that not all of them are visible in "School work" mode.

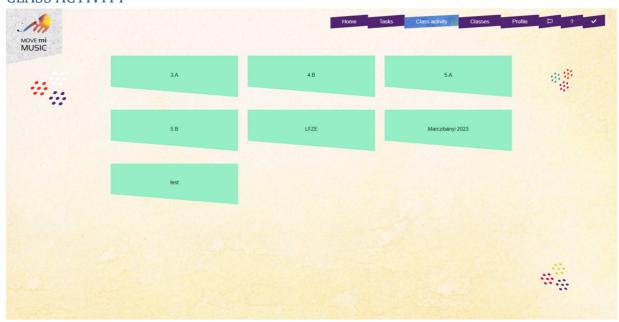
Archive: you can archive the task-class assignments, and the archived tasks will not appear in the task lists of the class. It is different from archiving a task, as it archives only the assignment, not the task itself. You can, for instance, archive every task of a given class you don't want to use anymore at the end of an academic year. You can restore the archived assignments any time.

Copy: you can copy a task, and the copy will be added to the class at once. This method makes it easy to create variants from a single task.

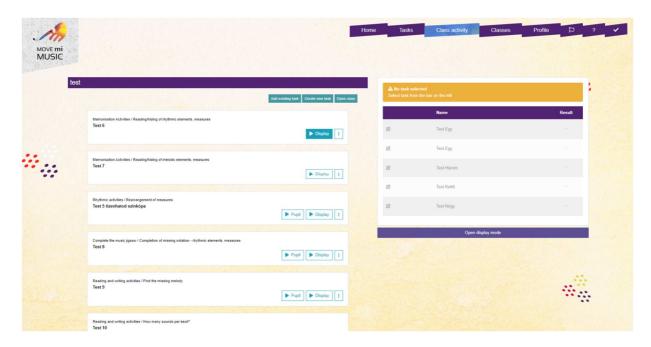
Add to class: you can add the task to further classes, too.

Delete: Deleting the task from the tasks of the given class. After deletion, all solutions for the given class will be lost, but the task itself will remain in your task list.

#### **CLASS ACTIVITY**



By clicking on the "Class activity" menu, all the classes will be listed as shown above.. Selecting the desired class will show the tasks assigned as lesson tasks, and a class roll in a chart showing who has connected to the class activity and for how long.



If you don't want to list all the added tasks in this list, click on the eye icon in the class view to hide / show individual tasks.

If you want to begin tasks on the pupil's devices in a lesson, click on the "Pupil" button on the card of the appropriate task. If you want to show the task on the smart board or the screen, click on the "Display" button. To show the display on your own device, too, click on the "Open display mode" button below the class roll chart. With the exception of memory games, every task can be started both on the display and on the pupil's devices; a memory game works only on the display.

The third button on the task card contains extra functions:

You can copy the given task or delete it from the list. The copy will be added to the class activity of the given class, so this function makes it easy to create variants of a task. We recommend not to edit the tasks for the reasons mentioned in chapter "Creating, editing, deleting and archiving tasks", p. 19). Deleting a task will remove it only from the task list of the given class.

The three buttons below the name of the class allow adding an existing task to the class, creating a new task or opening the class with only one click. The percentage of the pupils' work in class can be seen to the right. The figure is always about the active task, and it shows the results of the last submission by the given students.

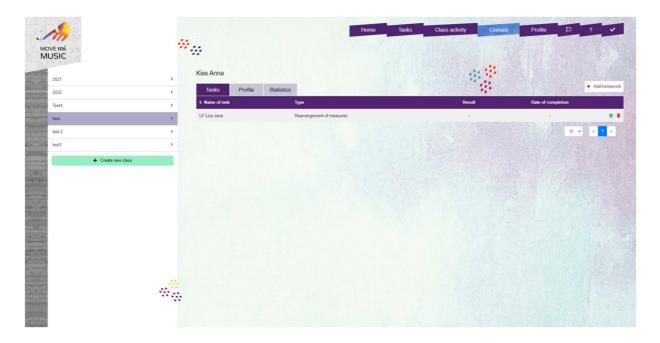
If the active task is of a type that has no solution, the results list shows a "-" sign next to the pupils' names. Clicking on the result will show what the pupil has submitted.

Clicking on the pupil's name opens the pupil's profile.

It is important to note that if you refresh/reload your app/browser (by clicking on the reload button in the browser's toolbar) while the pupils are working on a task, the results list will reload, too, so you won't see the actual results (submissions will, nevertheless, be saved, just not be shown here). It is also worth knowing that if a pupil reloads the browser, their results will disappear from the list, but it will, nevertheless, be saved.

#### ADDING A TASK TO A PUPIL AND STATISTICS

You can add tasks individually to pupils as homework. Please, note that individual assignment to pupils are allowed only in "homework mode", however it should not prevent teachers to add individual tasks to given pupil(s) during class activity – just use the "Add homework" button and the pupil(s) should switch to homework mode.



To add a task to a pupil, go to the "Class" menu, select a class, then on the "Pupils" tab, select a pupil and click on the "Add homework" button.

The image above shows the individual homework of a given pupil on the "Tasks" tab. The application registers statistics for the pupils, which are calculated from all the results the given pupil has submitted (so not only of their individual homework). The statistics is based only on the last submission of a given task. If a task is deleted, its results will be removed from the statistics, too.

### **EVALUATION**

In the case of certain types of tasks, the application offers to automatically compare the pupil's work with the solution given by the teacher and evaluate the pupil's submission. You can do so with the following types of tasks:

- Rearrangements of rhythmic elements
- Rearrangements of measures
- Rearrangement of melodic motives
- Completion of missing rhythmic elements, measures
- Completion of missing melodic elements, measures
- Completing the missing barlines
- Find the missing melody
- How many sounds per beat?
- Notate the melody

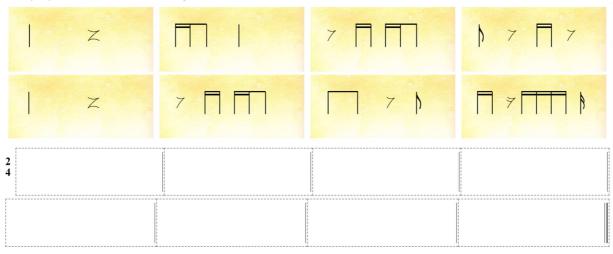
If a pupil submits one of these tasks, the application stores their submission and evaluates it with an algorithm. The pupil's submissions for other types of tasks are not stored.

#### THE EVALUATION PROCESS

In the following, the evaluation algorithms are presented for each type of task.

"Rearrangements of rhythmic elements", "Rearrangements of measures", "Rearrangement of melodic motives"

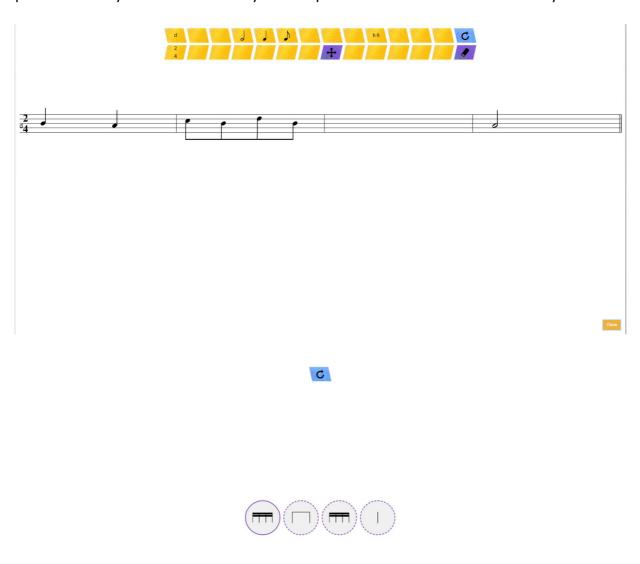
The evaluation is the same for these three tasks, as all of them work in the same way: the pupils have to rearrange shuffled cards.



The process is quite simple: the application calculates a percentage by comparing the number of cards (8 in the example) and the cards put in the right place by the pupil.

"Completion of missing rhythmic elements, measures", "Completion of missing melodic elements, measures", "How many sounds per beat?", "Notate the melody"

The pupils have to complete the missing rhythmic or melodic elements, or they have to put down every note in "How many sounds per beat?" and "Notate the melody".

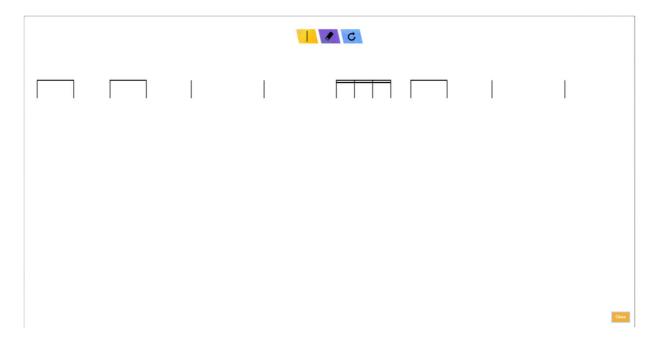


The process is quite simple here, too. The application calculates a percentage by comparing the number of elements to complete (a point each) and the number of the ones correctly placed by the pupil. Points are counted by individual rhythm notes, therefore two quavers joined by a beam (a "ti-ti") are worth two points (a point each). You can also require the pupils to add only just the accidentals to individual notes, which are worth a point each.

Correctly putting down a note together with an accidental is also worth a point. In the case of the melodic tasks, the pupil has to put down both the pitch and the rhythm of the notes correctly in order to get a point – half points are not given.

#### **Completion of missing bar lines**

The pupils have to complete the missing bar lines in a rhythmic notation according to the given time signature (presented either by the programme or the teacher).



The evaluation is also quite simple here. The application compares the number of missing bar lines with the bar lines inserted into the right place by the pupil. Every correct bar line is worth a point. The application doesn't count it as a mistake if a pupil doesn't put down a double bar line at the end of a staff system, but it's also possible to do so without confusion. The algorithm accepts a bar line as being in the correct place if it finds the appropriate note on its left.



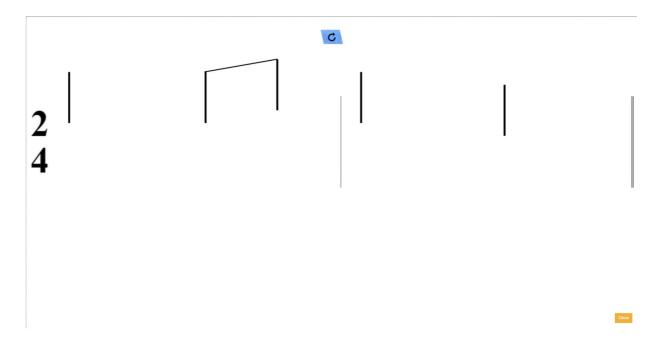
In 2/4 time, the example figure shows

- the first bar line being in the right place, as the last note of the first measure is on its left
- the second bar line is in the wrong place, as the first element of the third measure is on its left
- the third bar line is in the right place, as the last element of the third measure is on its left
- the fourth bar line is in the right place, as the last note of the last measure is on its left (it doesn't matter whether there is a single or a double bar line). This example would be evaluated as 75% correct.

It is important to note that with this task you can choose to show or hide the time signature, so you can ask the pupils to first complete the task according to 2/4 time, then again in 4/4 time, but the application will always do the evaluation based on the original time signature, as in the background the task always has a time signature even if its hidden from the pupils.

#### Find the missing melody

The pupils have to move the given rhythm notes vertically into the correct position, therefore, only the pitch is evaluated. (The staff lines are invisible, but they are there in the background, so the vertical position and the pitch are not arbitrary but marked by the staff lines.)



The evaluation is quite simple here as well: the pupil is given a point for each rightly positioned note. If the pupil moved the entire rhythm notation to the correct places, the sol-fa letters will appear under the rhythm.

#### **HOMEWORK**

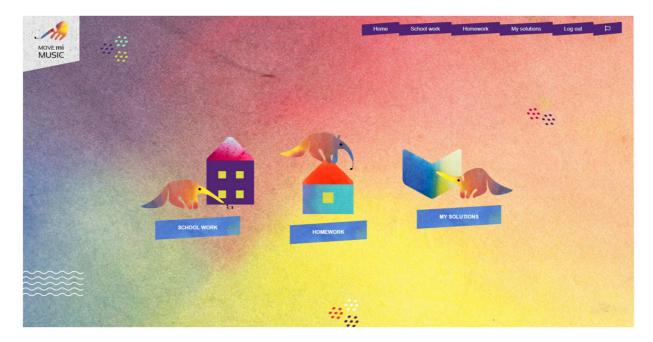
The teacher should set as homework only those tasks which can be automatically evaluated by the application, as this is the only way to know whether the pupil did in fact do their homework. The application "stands in" for the teacher for the homework, but it can only play rhythm (no melodies can be played), so only the following types of tasks can be set as homework:

- Rearrangements of rhythmic elements
- Rearrangements of measures
- Completion of missing rhythmic elements, measures
- Completing the missing bar lines
- How many sounds per beat?
- Rearrangement of melodic motives
- Completion of missing notation, melodic motives, measures

During the editing process pay attention to the fact that, because percussion instruments cannot sustain sound, the rhythmic progressions, when performed on percussion instruments, like claves, cannot be precisely notated. E.g.: a crotchet followed by a crotchet rest will sound exactly the same as a half note.

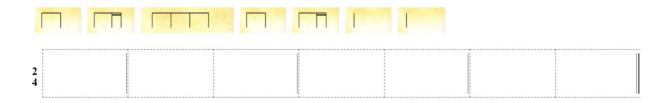
## PUPIL DASHBOARD

If a pupil logs in, the following screen appears:



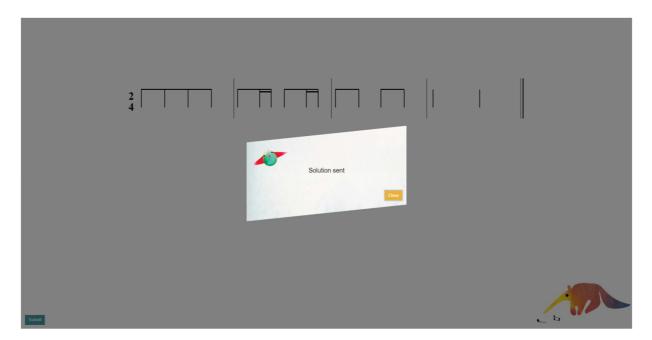
## SCHOOL WORK

If the teacher started a class activity, the pupil sees only that task on the screen, they cannot leave or close the screen. If the task has a solution, the screen will show the "Submit" button, too.





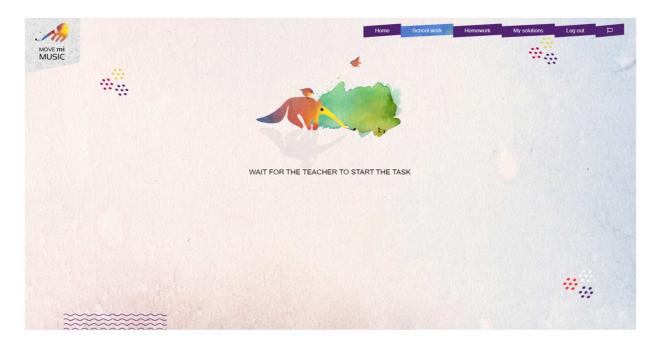
By clicking on the "Submit" button a confirmation message appears:



In other cases, the pupil's work is not saved.

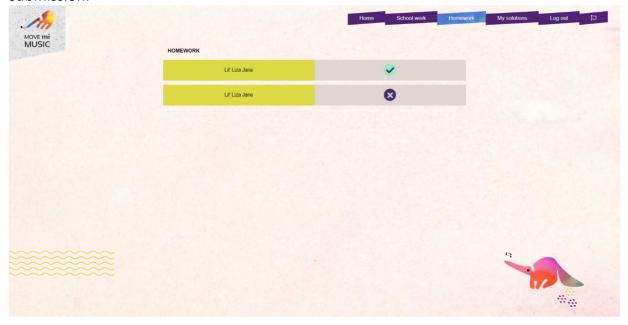
Submit

Until the task arrives the following screen appears:



#### **HOMEWORK**

If the pupil selects "Homework", they will see their homework. The list will contain both the class-assigned and individual homework. The list will show a tick next to the tasks already solved, and a cross next to those they haven't yet solved. A homework task can be solved any number of times, but the pupil can see only the last submission.



### **MY SOLUTIONS**

Under the "My solutions" tab pupils can see the results of the submitted tasks, let them be class activities, class homework or individual homework, in a separate list. They can solve a task any number of times, but they will see the result of only the last submission. The application marks submission accuracy on three levels for the pupils:

- 0-50% a dim sun
- 50-75% a brighter sun
- 75-100% a fully bright sun

