



ICT SBA

Leo Wu



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1.Introduction

This is a learning website for kindergarten students to discover the world of music and unlock the magic of melodies and instruments through engaging and interactive lessons designed specifically for kindergarten learners. Our website combines the joy of learning with the power of music to create a fun and educational experience for children. We also provide a tailor-made platform for their parents to monitor their learning progress which enables personalized support and ensures a well-rounded learning experience. Moreover, our website allows teachers to follow up with students' learning progress comprehensively and distribute tasks to them. This website provides consistence learning functions aimed for stimulating students' musical talents, including multimedia learning, interactive games, test and exercises.

2.Design and Implementation

2.1. Design

- Guest page: Before users login to their account, they visit our guest page that shows our vision statement and what their kids can learn in our website. There is a sitemap at the website that allow them to easily navigate to our learning resources. Also we designed a carousel showing different image of some musical instruments.
- Teacher version: Teachers can sign in their accounts to track their students' learning progress including when did they complete lessons and quiz. Also, teachers can post messages or tasks to their students by using the Announcement function.
- Parent version: Parents can sign in their accounts to see their children's information and their learning progress. Parents can also provide their suggestions by completing a form.
- Student version: As the learning website is provided for kindergarten students which are aged young, Our student version website is designed in a more colorful and attractive way that allows them to learn more engagingly. We designed a navigation menu with a suitable pull-down menu to make it easier to locate their desired lessons or games. They can also link to desired webpages by clicking the image directly.
- Functions Provided:

Learning Contents:

Short learning video and audio, Image map, flip card game, drag-n-drop game, solfege listening is provided for students to learn and evaluate themselves in order to recognize the musical instruments and solfege. Also, a metronome is added for them to learn the beats.

Assessments and Feedback:

Multiple choice exercises and matching quizzes are provided for students' evaluation based on their music

knowledge. They can do such exercises repeatedly. After finishing an exercise, immediate feedback will be given to students based on their performance on the exercises. Students can check their weaknesses on the specific topic, then they can revise the learning contents again to consolidate their knowledge, forming a learning cycle.

Communication:

Suggestion form is provided for users to leave their messages to our website. We will gather all the suggestions from them to improve our website in order to provide the most satisfying learning experience for students.

Announcement board is implemented for teacher version. Teachers can announce new tasks for students based on their learning progress.

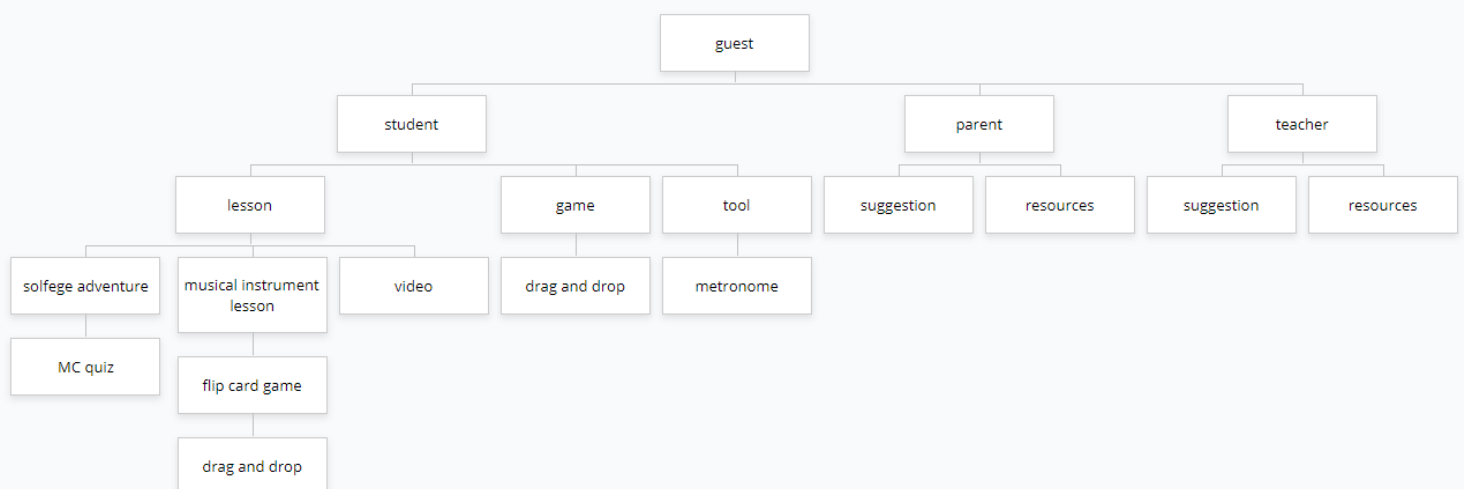
Login system:

We designed login system for students, teachers, and parents to sign in their accounts to check learning progress.

Accessibility:

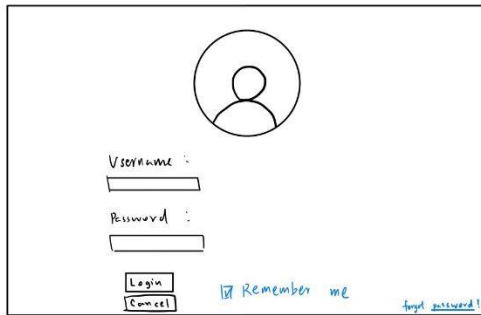
We designed site map for physically disabled people to use full keyboard control to access the whole website.

2.2. Navigation Structure



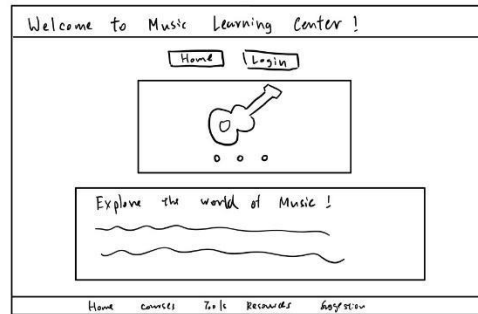
2.3. Layout Design

Login page :
(login.html)



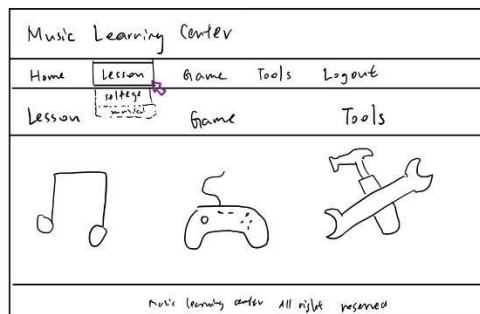
Layout sketch for the login page. It features a circular profile icon placeholder at the top center. Below it, there are two input fields labeled 'Username' and 'Password'. To the right of the password field is a checkbox labeled 'Remember me'. At the bottom left are 'Login' and 'Cancel' buttons. At the bottom right is a link that says 'forget password!'.

Home page :
(guest.html)



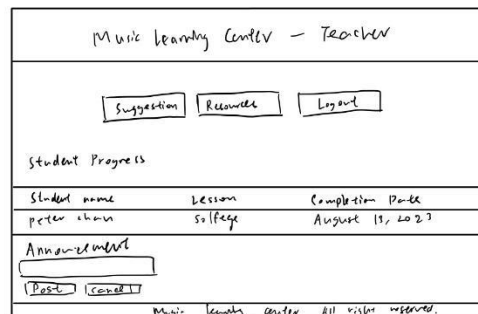
Layout sketch for the home page. It has a header 'Welcome to Music Learning Center!'. Below the header are 'Home' and 'Login' buttons. In the center is a box containing a key icon and the text 'Explore the world of Music!'. At the bottom is a navigation bar with links: 'Home', 'courses', 'Tools', 'Rewards', and 'Registration'.

Student :
(student.html)



Layout sketch for the student page. The header is 'Music Learning Center'. Below it is a navigation bar with 'Home', 'Lesson', 'Game', 'Tools', and 'Logout'. The 'Lesson' button is highlighted with a red circle and a red arrow pointing to a 'solfege' button below it. Below the navigation bar are three icons: a musical note, a game controller, and a wrench. At the bottom is the footer 'Music Learning Center All rights reserved'.

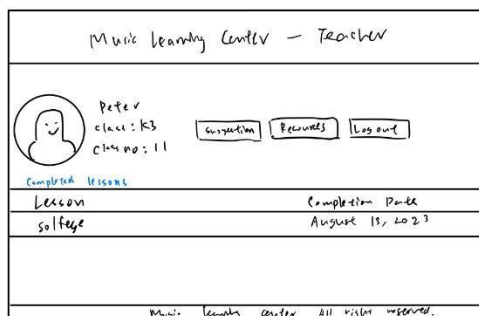
Teacher :
(teacher.html)



Layout sketch for the teacher page. The header is 'Music Learning Center - Teacher'. Below it are 'Suggestion', 'Rewards', and 'Logout' buttons. There is a section titled 'Student Progress' with a table. Below the table is an 'Announcement' section with a 'Post' button and a 'Cancel' button. At the bottom is the footer 'Music Learning Center All rights reserved'.

Student name	Lesson	Completion Date
peter ahn	solfege	August 18, 2023

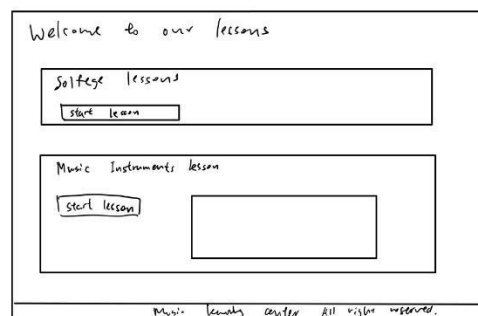
Parent :
(parent.html)



Layout sketch for the parent page. The header is 'Music Learning Center - Teacher'. Below it is a profile section for 'Peter' with 'class: K3' and 'class no: 11'. There are 'Suggestion', 'Rewards', and 'Logout' buttons. Below this is a 'Completed Lessons' section with a table. At the bottom is the footer 'Music Learning Center All rights reserved'.

Lesson	Completion Date
solfege	August 18, 2023

Lesson :
(lesson.html)



Layout sketch for the lesson page. The header is 'Welcome to our lessons'. Below it is a 'Solfege lesson' section with a 'start lesson' button. Below that is a 'Music Instruments lesson' section with a 'start lesson' button and a large empty box. At the bottom is the footer 'Music Learning Center All rights reserved'.

Solfège :
(solfège.html)

Solfège Adventure

learn solfège

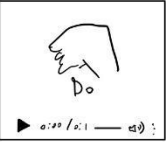
Do

Re

Mi

Quiz

Do
(do.html)


0:00 / 0:1 — 100%

Suggestion :
(suggestion.html)

Suggestion Collection

Name :

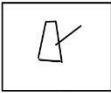
Email :


Message :

Submit

Metronome
(metronome.html)

Metronome





Tempo (RPM) : 120

start

Reset

2.4. Game Design

Quiz
(quiz.html)

Multiple-Choice Quiz

Q1:

[]

○

○

○

Submit

Flip card Game
(cardgame.html)

Try to Recognize

Flip

[] [] []

[] [] []

Test

Test Your Knowledge :

Score : 0

True False Other Write

[] [] [] []

[] [] [] [] drag

2.5. Other Design Consideration

- **Color Scheme:**

Our website for kindergarten students is designed with a vibrant and captivating color scheme that aims to create a visually stimulating and engaging experience for our kindergarten students.

- **Responsive Design:**

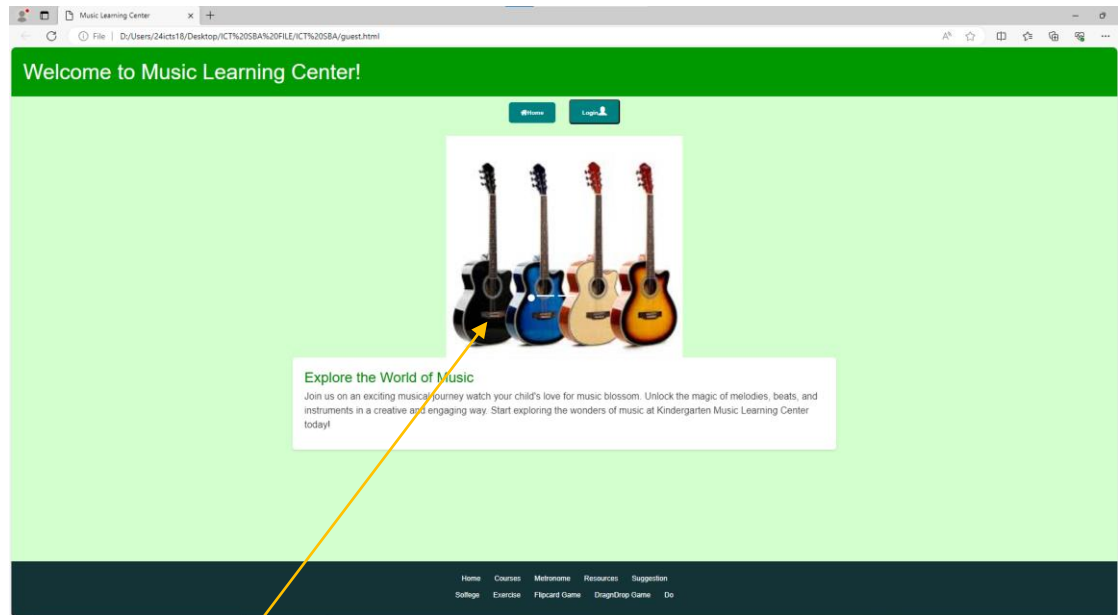
Our website uses responsive web design according to the user's device. It is mobile-user friendly as the size of buttons and images will be changed automatically when users are using portable devices to access our website in order to suit the different screen sizes.

- **User Interface Design:**

We designed 3 different user interfaces for students, teachers and parents. When they login to their own accounts, websites using corresponding user interface design will be opened.

2.6. Implementation

- **Carousel:**



The image in the carousel will change automatically according to time

```
<div class="container">
  <div id="carouselExampleIndicators" class="carousel slide" data-ride="carousel">
    <ol class="carousel-indicators">
      <li data-target="#carouselExampleIndicators" data-slide-to="0" class="active"></li>
      <li data-target="#carouselExampleIndicators" data-slide-to="1"></li>
      <li data-target="#carouselExampleIndicators" data-slide-to="2"></li>
    </ol>
    <div class="carousel-inner">
      <div class="carousel-item active">
        
      </div>
      <div class="carousel-item">
        
      </div>
      <div class="carousel-item">
        
      </div>
    </div>
    <a class="carousel-control-prev" href="#carouselExampleIndicators" role="button" data-slide="prev">
      <span class="carousel-control-prev-icon" aria-hidden="true"></span>
      <span class="sr-only">Previous</span>
    </a>
    <a class="carousel-control-next" href="#carouselExampleIndicators" role="button" data-slide="next">
      <span class="carousel-control-next-icon" aria-hidden="true"></span>
      <span class="sr-only">Next</span>
    </a>
  </div>
</div>
```

The above code is used to control the carousel

- **Login function:** CSS and Client-side scripts are used to simulate the login function. Data validation is also done to ensure validated username and password. When the users enter correct username and password, they can login to the corresponding accounts (Students, Parents, Teacher)

```

<script>
function login() {
    var username = myform.uname.value;
    var password = myform.psw.value;

    if (username === "peter" && password === "888") {
        window.location.href = "student.html";
        return false;
    } else if (username === "parent" && password === "999") {
        window.location.href = "parent.html";
        return false;
    } else if (username === "teacher" && password === "555") {
        window.location.href = "teacher.html";
        return false;
    } else {
        alert("Username/password is wrong!");
        return false;
    }
}

// Get the modal
var modal = document.getElementById('id01');

// When the user clicks anywhere outside of the modal, close it
window.onclick = function(event) {
    if (event.target == modal) {
        modal.style.display = "none";
    }
}
}
</script>

```

```

<div class="container2">
    <label for="uname"><b>Username</b></label>
    <input type="text" placeholder="Enter Username" name="uname" required>

    <label for="psw"><b>Password</b></label>
    <input type="password" placeholder="Enter Password" name="psw" required>

    <button class="button">Login</button>
    <label>
        <input type="checkbox" checked="checked" name="remember"> Remember me
    </label>
</div>

```

- **Interface Design:**

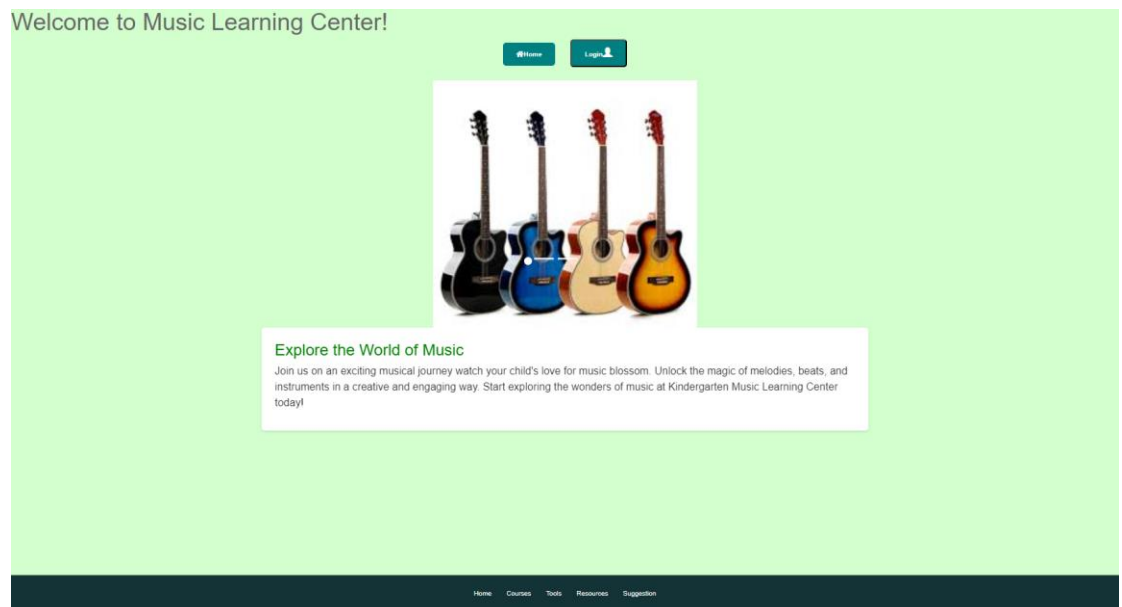
Guest Page: In this page, our users can click the login button to sign in their accounts. We designed a carousel to show some basic musical instruments on our website.

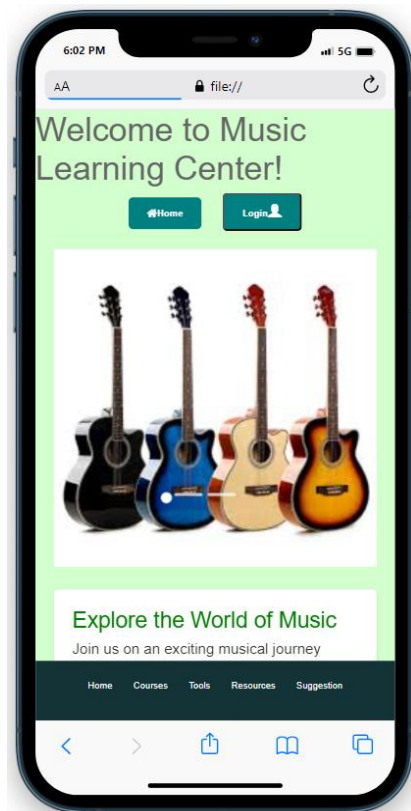
Responsive web design:

```
<div class="w3-bar w3-mobile w3-light-green">
  <a href="guest.html" class="w3-bar-item w3-button"><i class="fa fa-home w3-large"></i>Home</a>

  <div class="w3-dropdown-hover w3-mobile">
    <button class="w3-button">Lesson</button>
    <div class="w3-dropdown-content w3-bar-block w3-card-4">
      <a href="solfege.html" class="w3-bar-item w3-button">Solfege</a>
      <a href="cardgame.html" class="w3-bar-item w3-button">Musical Instrument</a>
    </div>
  </div>
</div>
```

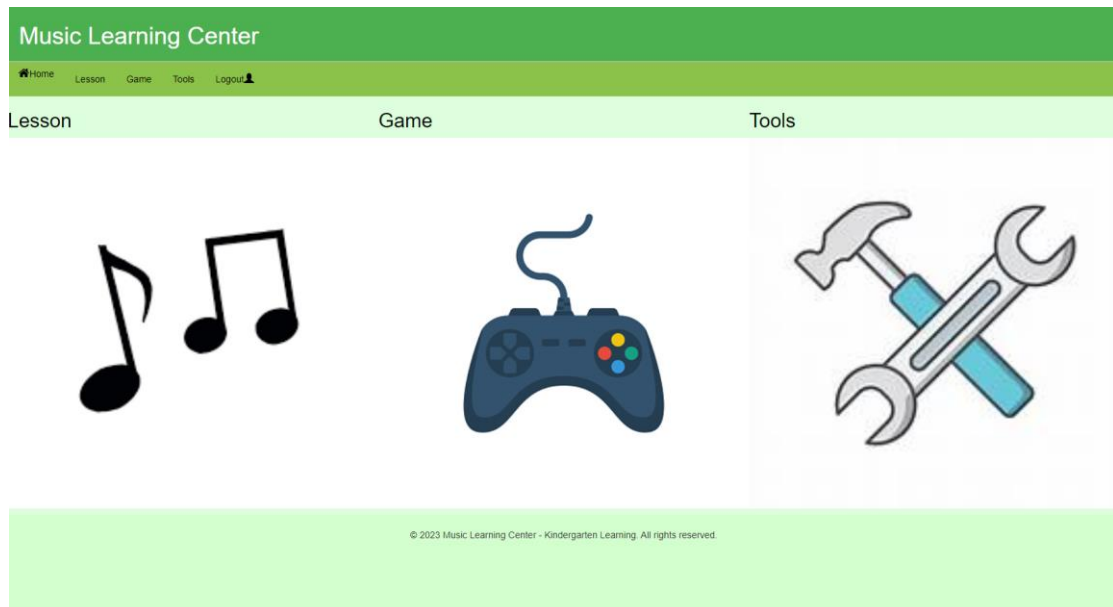
Desktop version:



Mobile version:

When users are using their mobile device to access our website, The size of buttons and images will be changed in order to suit the different screen sizes by using the `style(width="100%")`

Student page:




In the Student learning website, we designed to show different learning pages in two ways: Use the navigation menu with pull down menu or click the corresponding images to that direct to different pages

Lesson page:

Welcome to our Lessons

Solfège Lessons
Learn the fundamentals of music with our solfège lessons. From do-re-mi to high and low pitches, children will explore the magical world of melodies.
[Start Lesson](#)

Musical Instruments Lesson
Introduce your child to a variety of musical instruments with our exciting lesson. From the piano to the guitar, drums to the violin.
[Start Lesson](#)



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This page includes Solfège and Musical Instrument lessons from our website, with a short learning video for students to get the basic concept of music performance, thus increasing their willingness to learn music.

The code of the video implementation:

```
<div class="lesson">
  <h2>Musical Instruments Lesson</h2>
  <p>Introduce your child to a variety of musical instruments with our exciting lesson. From the piano to the guitar, drums to the violin.</p>
  <a href="cardgame.html" class="button">Start Lesson</a>
  <div class="multimedia">
    <iframe width="560" height="315" src="https://www.youtube.com/embed/KVdDjWZ7Z_I" title="YouTube video player" frameborder="0" allow="accelerometer; autoplay; clipboard-write; encrypted-media; gyroscope; picture-in-picture; web-share" allowfullscreen></iframe>
  </div>
</div>
```

The <iframe> tag is used to include the learning video

● Learning Function

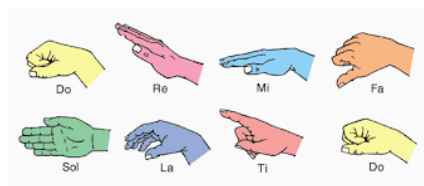
Image map:

Image map is implemented in our Solfege lesson. When students click the defined area of the image, it will link to corresponding pages.

```
<map name="image-map">
  <area target="" alt="Do" title="Do" href="solfege/do.html" coords="81,72,3,1" shape="rect">
  <area target="" alt="Re" title="Re" href="solfege/re.html" coords="158,73,84,1" shape="rect">
  <area target="" alt="Mi" title="Mi" href="solfege/mi.html" coords="162,-1,246,72" shape="rect">
  <area target="" alt="Fa" title="Fa" href="solfege/fa.html" coords="253,-1,331,72" shape="rect">
  <area target="" alt="Sol" title="Sol" href="solfege/sol.html" coords="2,77,82,139" shape="rect">
  <area target="" alt="La" title="La" href="solfege/la.html" coords="85,77,161,141" shape="rect">
  <area target="" alt="Ti" title="Ti" href="solfege/ti.html" coords="164,75,245,140" shape="rect">
  <area target="" alt="High_Do" title="High_Do" href="solfege/high_do.html" coords="253,77,333,141" shape="rect">
</map>
</div>
```

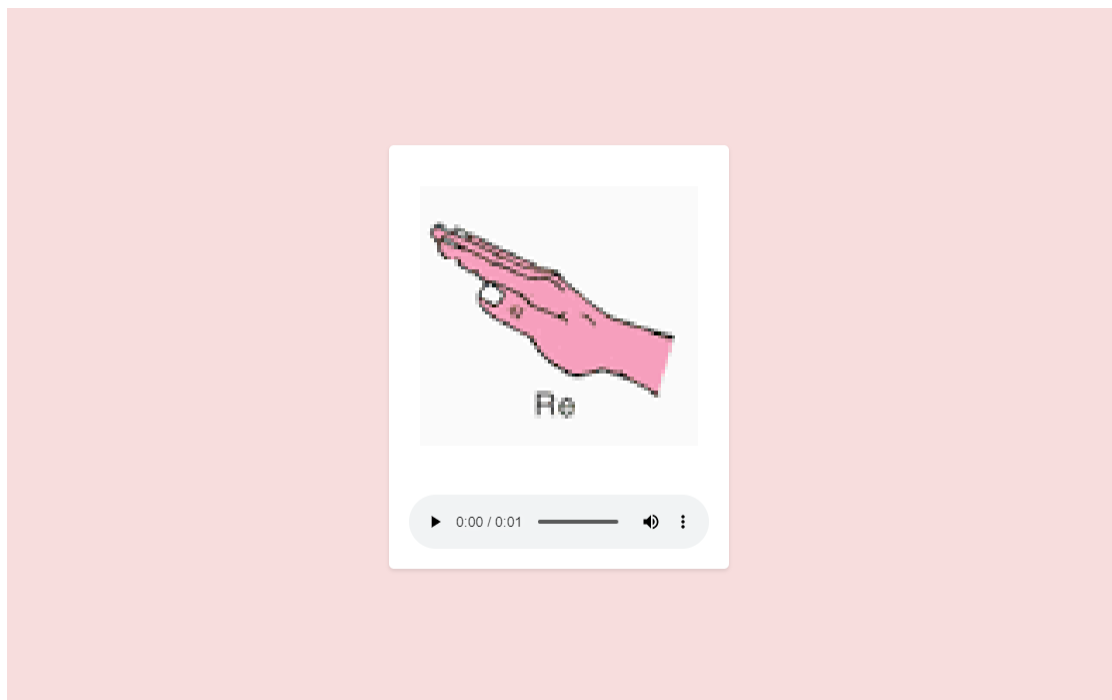
Solfege Adventures - Kindergarten Learning

Learn Solfege



Quiz

Image and Audio



Using appropriate audio can make learning more interesting, Students will learn more engagingly. We also want to increase the consistency of the learning website by adding suitable images.

The code of audio implementation:




```
<div class="solfege-container">
  <div class="solfege">
    <h1></h1>
    <audio controls class="audio-player">
      <source src="re.mp3" type="audio/mpeg">
      Your browser does not support the audio element.
    </audio>
  </div>
</div>
</body>
</html>
```




The <audio> tag is used to play the audio.

- Game functions

Flip card game:
(Before Flipping)

Try to Recognize

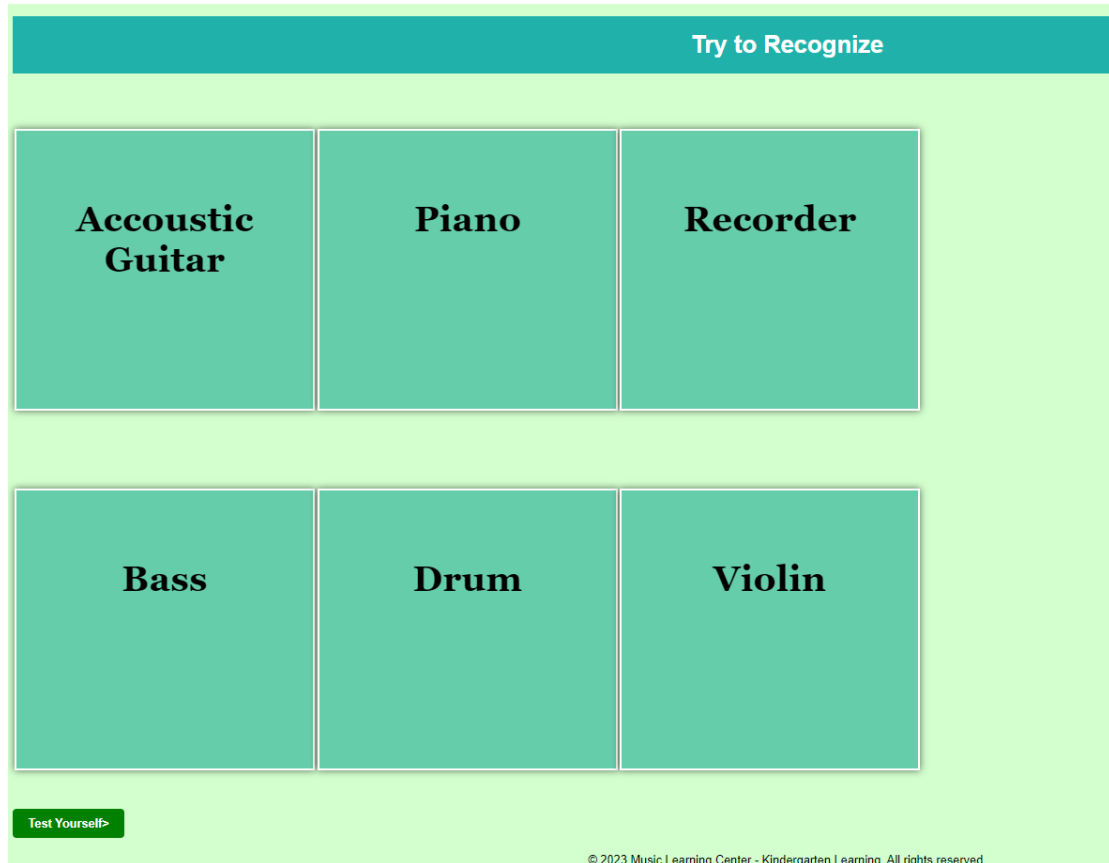




[Test Yourself>](#)

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(After Flipping)



Try to Recognize

Accoustic Guitar	Piano	Recorder
Bass	Drum	Violin

Test Yourself>

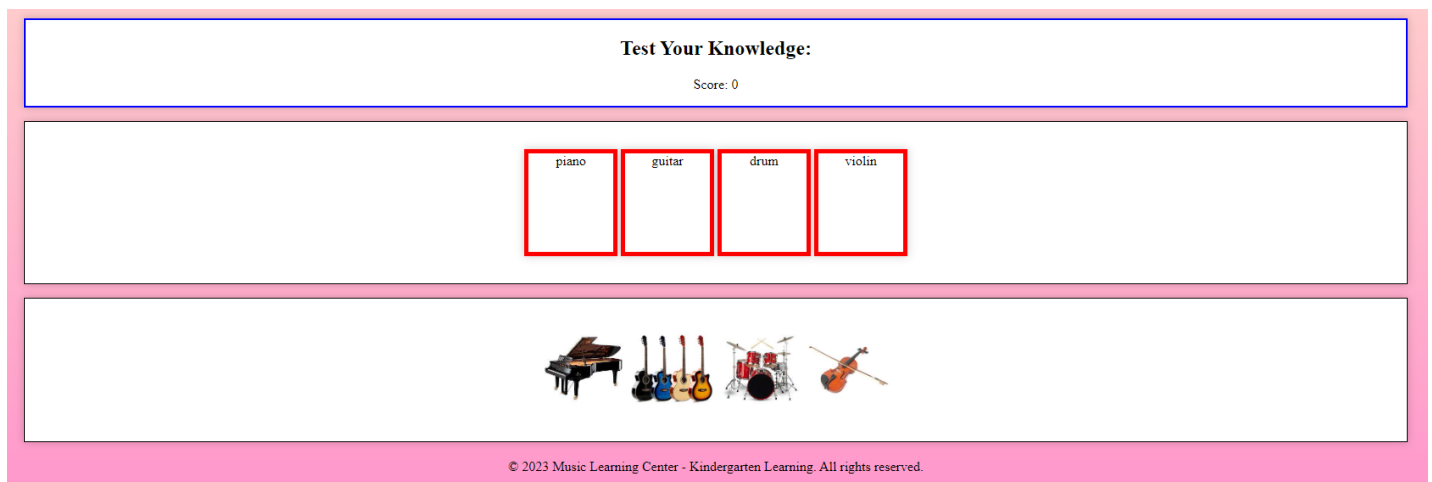
© 2023 Music Learning Center - Kindergarten Learning. All rights reserved.

The code of the flip card function:

```
.flipCard {  
  -webkit-perspective: 800;  
  -ms-perspective: 800;  
  -moz-perspective: 800;  
  -o-perspective: 800;  
  width: 400px;  
  height: 375px;  
  position: relative;  
  margin: 50px auto;  
}  
  
.flipCard .card.flipped {  
  transform: rotatey(-180deg);  
  -ms-transform: rotatey(-180deg); /* IE 9 */  
  -moz-transform: rotatey(-180deg); /* Firefox */  
  -webkit-transform: rotatey(-180deg); /* Safari and Chrome */  
  -o-transform: rotatey(-180deg); /* Opera */  
}
```

After Clicking the image of the card, the card will flip itself.

Drag and Drop game:



Students can drag the image of the card to the corresponding box of the musical instruments.

Test Your Knowledge:

Score: 3



This page says

Congratulations! You completed the game!

OK



When they drag the card correctly,
One mark will be counted and shown
on the top of the page.

```
<script>
let score = 0;

function allowDrop(ev) {
  ev.preventDefault();
}

function drag(ev) {
  ev.dataTransfer.setData("text", ev.target.id);
}

function drop(ev) {
  ev.preventDefault();
  var data = ev.dataTransfer.getData("text");

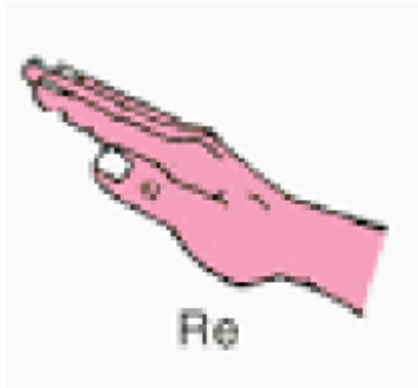
  if (data == "season1" && document.getElementById(ev.target.id).innerHTML == "piano") {
    document.getElementById(ev.target.id).innerHTML = "";
    ev.target.appendChild(document.getElementById(data));
    score = score + 1;
  }
}
```

When all cards are dragged to the correct boxes,
The website will send a congratulation message to the
student.

```
if (score === 4) {
  setTimeout(function() {
    alert("Congratulations! You completed the game!");
  }, 1000); // Delay of 1 second (1000 milliseconds)
}
```

Multiple-Choice Quiz

Question 1:



Which sofege is it?

- ☐ a) re
- ☐ b) do
- ☐ c) sol

Question 2:

Which sofege has the lowest pitch?

- ☐ a) do
- ☐ b) la
- ☐ c) mi

Question 3:



Which sofege is it?

- ☐ a) sol
- ☐ b) fa
- ☐ c) mi

Submit

We also designed a multiple-choice quiz for students to evaluate their learning progress after finishing the lessons.

Feeback will be given to students immediately when they finish the quiz.

```
function submitQuiz() {
  var q1Answer = document.querySelector('input[name="q1"]:checked');
  var q2Answer = document.querySelector('input[name="q2"]:checked');
  var q3Answer = document.querySelector('input[name="q3"]:checked');

  if (q1Answer && q2Answer && q3Answer) {
    var score = 0;
    if (q1Answer.value === 'a' || q1Answer.value === 'c') {
      score++;
    }
    if (q2Answer.value === 'a' || q2Answer.value === 'c') {
      score++;
    }
    if (q3Answer.value === 'a' || q3Answer.value === 'c') {
      score++;
    }

    if (score === 3) {
      alert('All answers are correct! Good job!');
    } else {
      alert('You scored ' + score + ' out of 3. Try again!');
    }
  } else {
    alert('Please answer all questions before submitting.');
```

2.7. System Operation

Users have to login their account first:

The screenshot shows a login interface with a green header bar containing 'Home' and 'Login' buttons. Below the header is a white login form. The form has a 'Username' field with a placeholder 'Enter Username' and a 'Password' field with a placeholder 'Enter Password'. There is a 'Remember me' checkbox and a 'Login' button. A 'Cancel' button is at the bottom left. A 'Forgot password?' link is at the bottom right. Three steps are highlighted with arrows: Step 1 points to the Username field, Step 2 points to the Password field, and Step 3 points to the Login button. A large user icon is at the top of the form.

Student

Username: peter

Password: 888

Parent

Username: parent

Password: 999

Teacher

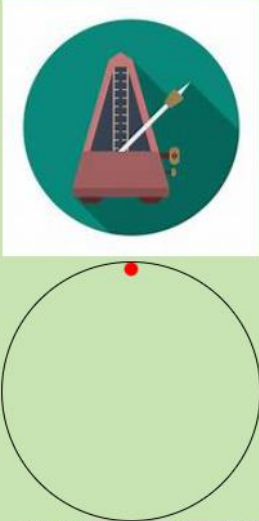
Username: teacher

Password: 555

Different accounts will be directed to different webpage

Steps of using the metronome:

Metronome



Tempo (BPM):

Step1: type in the value of bpm

Step2: click the start button

Step3: click the reset button when to stop

Announcement function:

Music Learning Center - Teacher

Student Progress

Student Name	Lesson	Completion Date
Peter Chan	Softage	August 13, 2023
Peter Chan	Musical Instrument	August 12, 2023
Jane Smith	Softage	August 11, 2023
Jane Smith	Musical Instrument	August 10, 2023

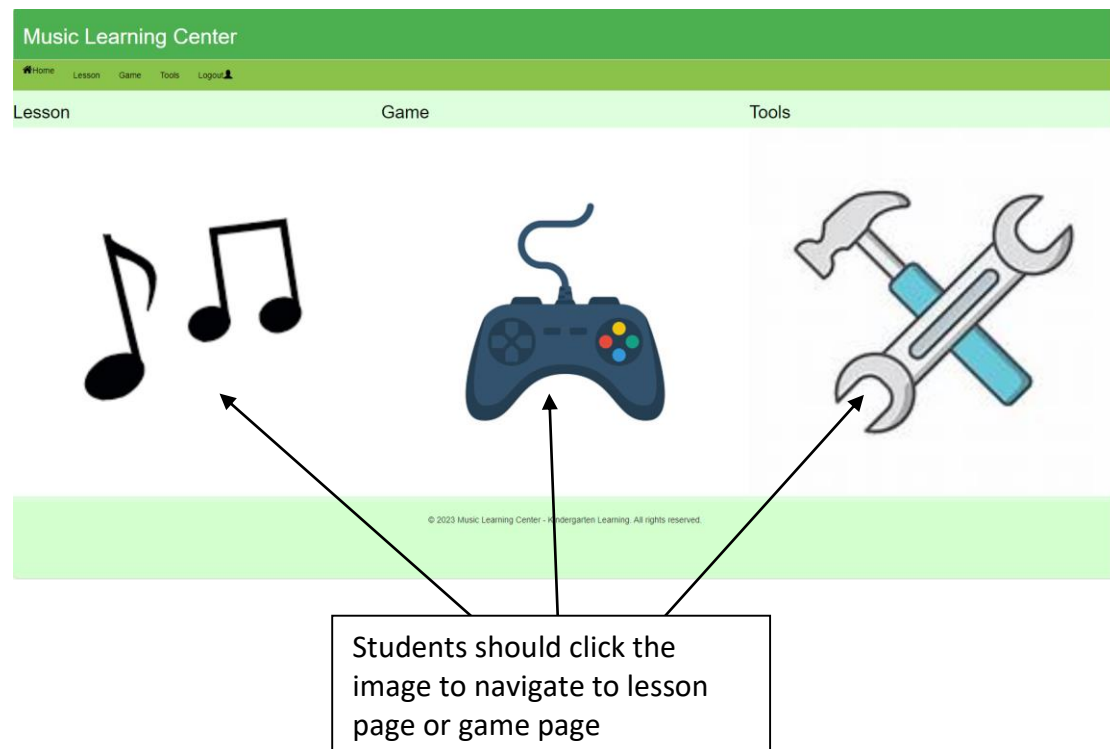
Announcement

Enter your announcement

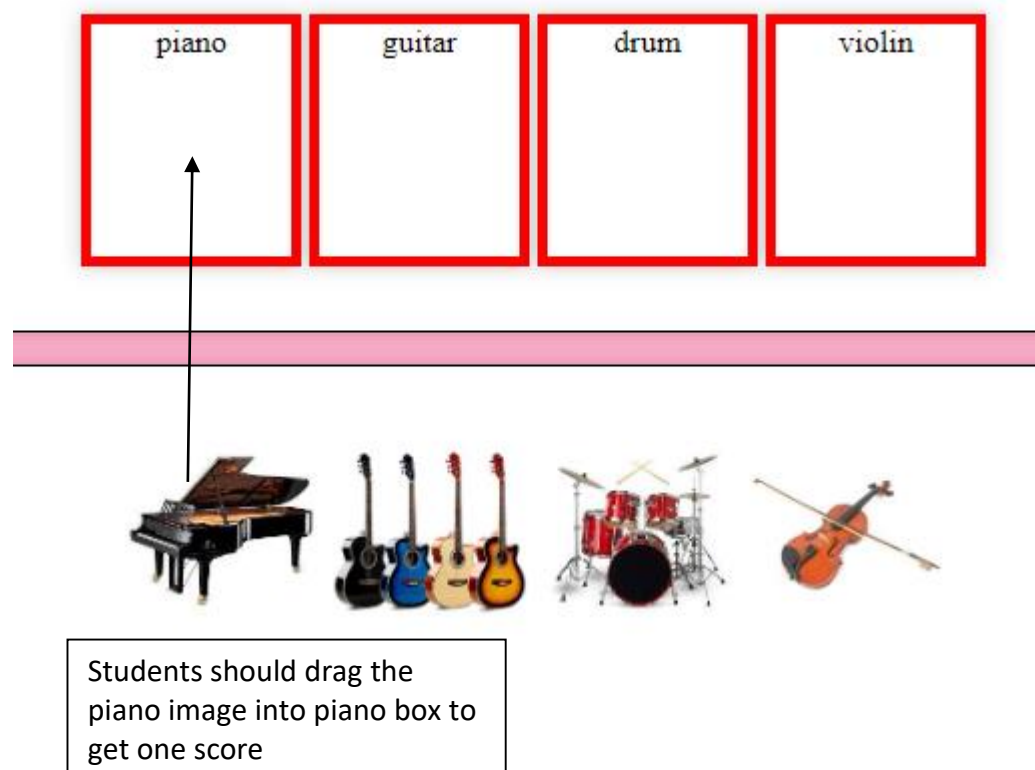
© 2023 Music Learning Center. All rights reserved.

Step1: type the message in text box

Step2: click the post button to deliver the message



Drag-n-drop game:















Test Your Knowledge:

Score: 3



2.8. Folder Structure

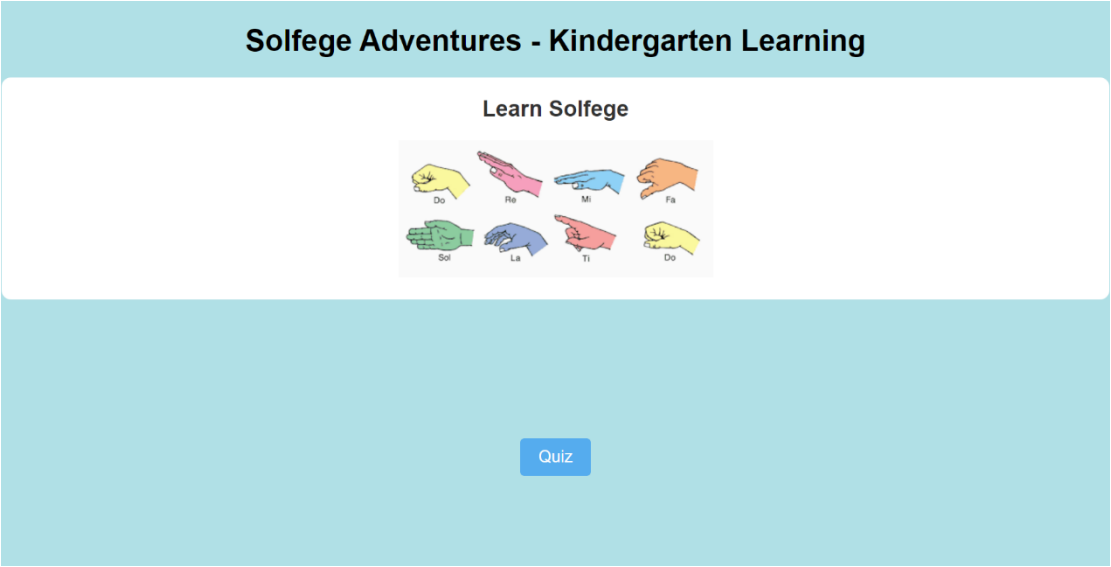
 cardgame	28/11/2023 5:23 pm	File folder	
 dragndrop	28/11/2023 5:23 pm	File folder	
 image	28/11/2023 5:24 pm	File folder	
 lesson	28/11/2023 5:24 pm	File folder	
 Login	28/11/2023 5:25 pm	File folder	
 solfege	28/11/2023 5:25 pm	File folder	
 tool	28/11/2023 5:25 pm	File folder	
 progress	28/11/2023 4:35 pm	Microsoft Edge H...	10 KB
 quiz	28/11/2023 4:35 pm	Microsoft Edge H...	4 KB
 quiz	28/11/2023 4:35 pm	Text Document	0 KB
 resources	28/11/2023 4:35 pm	Microsoft Edge H...	4 KB
 suggestion	28/11/2023 4:35 pm	Microsoft Edge H...	3 KB

2.9. Description of Important Function

Image map:
The solfege lesson page is designed using image map attribute, when the defined are is clicked, it directs to the corresponding page.

```
<div class="lesson">
  <h2>Learn Solfege</h2>
  

  <map name="image-map">
    <area target="" alt="Do" title="Do" href="solfege/do.html" coords="81,72,3,1" shape="rect">
    <area target="" alt="Re" title="Re" href="solfege/re.html" coords="158,73,84,1" shape="rect">
    <area target="" alt="Mi" title="Mi" href="solfege/mi.html" coords="162,-1,246,72" shape="rect">
    <area target="" alt="Fa" title="Fa" href="solfege/fa.html" coords="253,-1,331,72" shape="rect">
    <area target="" alt="Sol" title="Sol" href="solfege/sol.html" coords="2,77,82,139" shape="rect">
    <area target="" alt="La" title="La" href="solfege/la.html" coords="85,77,161,141" shape="rect">
    <area target="" alt="Ti" title="Ti" href="solfege/ti.html" coords="164,75,245,140" shape="rect">
    <area target="" alt="High_Do" title="High_Do" href="solfege/high_do.html" coords="253,77,333,141" shape="rect">
  </map>
</div>
```



Progress checking:

For teachers:


When students have completed the lessons, the record will be sent to the server to update the record. Then the record will be sent to teacher’s account

Student Progress		
Student Name	Lesson	Completion Date
Peter Chan	Solfege	August 13, 2023
Peter Chan	Musical Instrument	August 12, 2023
Jane Smith	Solfege	August 11, 2023
Jane Smith	Musical Instrument	August 10, 2023

For parents:

When their children have completed the lesson, the record will also be sent to parents

Music Learning Center - Parent



Peter
Class: K3
Class Number: 11

[Suggestion](#) [Resources](#) [Logout](#)

Completed Lessons

Lesson	Completion Date
Solfège	August 13, 2023
Musical Instrument	August 12, 2023

Sitemap:

Sitemap is designed such that users can use full-keyboard control to access our website by using “tab” and “enter” key, especially for the physically disabled people.

[Home](#) [Courses](#) [Metronome](#) [Resources](#) [Suggestion](#)
[Solfège](#) [Exercise](#) [Flipcard Game](#) [DragnDrop Game](#) [Do](#)

3. Reference

3.1. Copyright issues

The following email is sent to the copyright owner of our website resources to get the permission of using their pictures for educational purpose.

Dear [Website Owner's Name],

I hope this message finds you well. I am writing to request your permission to use the pictures from your homepage for a personal project.

I am currently a Form 6 student and am in the process of learning how to create my own homepage. During my research, I came across your website and was truly impressed by the beautiful pictures featured on your homepage. They perfectly align with the aesthetic I envision for my own project.

I would be extremely grateful if you could grant me permission to utilize these pictures in my homepage assignment. Please rest assured that the files will only be used for educational purposes and will not be employed for any commercial activities whatsoever.

Thank you for considering my request. I eagerly await your response. Should you require any further information or have any specific conditions regarding the use of the pictures, please do not hesitate to let me know.

Thank you for your time and attention.

Yours faithfully,

Leo Wu

3.2. Proposed Working Schedule

Proposed Working Schedule (工作日程)		
Work 工作	Deadline 完成時間	Complete on time 依時完時 (Y/N)
Find 3 popular web-based learning websites and study their functions	1/7/2023	Y
Drawing layout and game design	15/7/2023	Y
Finishing the website	1/9/2023	Y