

跨領域師培生教案

名稱：聲音的探討

領域：英語、自然



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110年外語領域計畫優良教案徵選

師資培育之大學外語領域教學研究中心(小學組)設置計畫

Center for Research on Foreign Language Teaching for Elementary Schools
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英語融入自然領域教案

Unit Title		聲音的探討	
Grade Level		Grade 5	Number of Students 25
Sequence in the Unit		Lesson 1: Loud and soft sound	Length of the Lesson 40 minutes
領域核心素養			
<p>英-E-B1 具備入門聽、說、讀、寫英語文能力。在引導下能運用所學字詞及句型進行簡易日常溝通。 自-E-B1 能分析比較、製作 圖表、運用簡單數學等方法，整理已有的自然科學資訊或數據，並利用 較簡單形式的口語、文字、影像、繪圖或實物、科學名詞、數學公式、模型等，表達探究之過程、發現或成果。</p>			
節次規劃說明			
Lesson		Summary of Each Lesson	
V	1	1. Sounds come from air vibration 2. Energy affects the volume of the sound 3. Volume affects the vibrate level	
	2	1. Understand the concept of pitch 2. Know what influences pitch through the experiment	
	3	1. Understand the science concept of the high-pitched/low-pitched sounds 2. Share the results of the experiment	
	4	1. The thinner/tighter string vibrates, the higher the sound/pitch. 2. The thicker/looser string vibrates, the lower the sound/pitch.	
	5	1. Understanding of what timbre is 2. Distinguishing different sounds are made of different materials	

第一節

本節學習重點

學習表現	學習內容
<p>英語文：</p> <p>2-III-7 能作簡易的回答和描述。</p> <p>3-III-6 能看懂課堂中所學的簡易短文之主要內容。</p> <p>6-III-1 具有好奇心，主動向教師或同學提出問題。</p> <p>自然：</p> <p>tr-III-1 能將自己及他人所觀察、記錄的自然現象與習得的知識互相連結，察覺彼此間的關係，並提出自己的想法及知道與他人的差異。</p> <p>ai-III-1 透過科學探索了解現象發生的原因或機制，滿足好奇心。</p>	<p>英語文</p> <p>Ad-III-2 簡易、常用的句型結構。</p> <p>B-III-2 國小階段所學字詞及句型的生活溝通。</p> <p>自然：</p> <p>INe-III-6 聲音有大小、高低與音色等不同性質，生活中聲音有樂音與噪音之分，噪音可以防治。</p>

本節課程目標

Students will be able to...

1. *know that vibration makes sounds.*
2. *infer that the volume of sounds affects the vibration level.*
3. *describe the findings through the target language (vibrate, vibration, hard, soft).*

學生所需之學科領域先備知識	本節課使用之英語語言內容
<p>學生學過以下英文用詞：</p> <p>sound, strong, weak</p> <p>What do you see?</p> <p>We see the sprinkles jumping/moving _____.</p> <p>(high, low, fast, slow)</p>	<p>language of learning</p> <p>Sounds come from <u>vibration</u>.</p> <p>___ (loud, soft) sounds come from _____ (strong, weak) vibration.</p> <p>language for learning</p> <p>We found the same results.</p> <p>Pay attention.</p> <p>We need more time.</p> <p>language through learning</p> <p>It looks/sounds _____. (words students may ask)</p>

Teaching Aids & Multimedia or Resources

1. YouTube video: <https://www.youtube.com/watch?v=zstmGnaaaCI>
2. Worksheet*25 (附件一)
3. 5 boxes made from iron
4. 5 sticks
5. 5 pieces of tissue

Teaching Procedure	Time	Assessment
<p>Warm-up</p> <p>1. Review prior knowledge: The teacher asks students “How does sound travel?” Students might answer: “It travels through the air, liquids, and solids.”</p> <p>2. Trigger students’ curiosity: Play the video: https://www.youtube.com/watch?v=zstmGnaaaCI (2:35-2:59)</p>	5’	

<p>The teacher asks “What do you see in the video?” “Can you see the sounds?” “What happened to the pith ball?” “When the tuning fork near the pith ball, why did it move around?”</p> <p>3. Hand out the worksheets and experiment manuals to the students.</p>		
<p>Practice <u>Experiment 1</u> <i>Predict</i></p> <ol style="list-style-type: none"> Students in groups make predictions to the question, “What does sound feel like?”. Then, everyone writes down their prediction on the prediction column. The teacher assigns responsibilities to the students. (Take the tools *2, share group findings *2, watch the time *1) 	3’	
<p><i>Observe</i></p> <ol style="list-style-type: none"> The teacher provides a box and two sticks to each group. The teacher explains some vocabulary in the experimental manual. Teacher: “Please use the sticks to beat the box and then <u>feel</u> the sound with your hands. Write down your findings on the observation column.” 	4’	objective #1 File assessment: students can write down their findings on the worksheet.
<p><i>Predict</i></p> <ol style="list-style-type: none"> Students in groups make predictions to the question, “What does sound look like?”. Then, everyone writes their prediction on the prediction column. 	1’	
<p><i>Observe</i></p> <ol style="list-style-type: none"> Students in groups get a pack of red beans. The teacher explains some vocabulary in the experimental manual. Teacher: “Please use the sticks, box, and red beans to <u>see</u> what will happen to the red beans when you hit the box. Then write down your findings on the observation column.” 	3’	
<p><i>Explain</i></p> <ol style="list-style-type: none"> The teacher picks a volunteer to share his/her observations with the class. Other students are free to add up other findings. The teacher explains the meaning of “vibration” with the PowerPoint Slide. T: Let’s look at this gif picture, the box here moves forth and back really fast. This is vibration. It means something moves fast back and forth. So, is this box vibrating? (The teacher shakes the box slowly.) S: No. T: Yes, this is not the vibration. What else is different between vibration and a normal shaking box? S: Vibration makes the sound. T: That’s right. This is also why you can hear the sound when you hit the box, and see the red beans jumping on the box. The teacher writes down the target vocabulary and sentence that students mention when sharing. “Sounds come from <u>vibration</u>.” 	4’	objective #1 Oral assessment: Students can share their observations with the class.

<p>4. Students write down the target sentences on the explain column.</p> <p><u>Experiment 2</u> <i>Predict</i></p> <ol style="list-style-type: none"> 1. The teacher demonstrates the second experiment first, and asks the students to tell the meaning of “hit the box hard and soft”. 2. The teacher asks students to predict “When you hit the box hard, what will happen to the red beans?” “When you hit the box soft, what will happen to the red beans?” Then, everyone writes their prediction on the prediction column. <p><i>Observe</i></p> <ol style="list-style-type: none"> 1. Students hit the box hard and soft to see what will happen to the red beans. Write down the findings in the observation column. <p><i>Explain</i></p> <ol style="list-style-type: none"> 1. The teacher picks a volunteer to share his/her observations with the class. Other students are free to add up other findings. 2. The teacher guides the students to concludes the findings with the sentence patterns, “___ (loud, soft) sounds come from_____ (strong, weak) vibrations.” T: Let’s make a conclusion here. Do loud sounds come from weak vibrations? S: No. Loud sounds come from strong vibrations. T: What about softs sound? S: Soft sounds come from weak vibrations. 3. Students write down the target sentences on the explain column. 4. Students put the box and red beans at the front desk. <p><u>Wrap up</u></p> <ol style="list-style-type: none"> 1. The teacher asks, “Can you see or feel the sounds?” Students might say, “Yes.” The teacher asks, “How?” Students might say, “beat the box, touch my throat, put some paper on the box.” 2. The teacher asks, “In the video, we saw the tuning fork got close to the pith ball. Why did the pith ball move around?” 	<p>3’</p> <p>3’</p> <p>7’</p> <p>7’</p>	<p>objective #2 File assessment: students can write down their findings on the worksheet.</p> <p>objective #2 Oral assessment: Students can share their observations with the class.</p> <p>objective #3 Oral assessment: Students can infer the findings in English.</p>
<p>Reflection</p>		

1. Students will read the instructions on the English experiment manual. The teacher can observe their understandings by whether the students are able to follow the steps of the experiments correctly.
2. Students will write down their findings. The teacher can understand if they get the science concepts.
3. Students will share their findings with the class. The teacher will assist their language use, and understand if they use target words appropriately.

第二節

本節學習重點

本節學習重點		
學習表現	學習內容	
<p>英語文：</p> <p>1-III-9 能聽懂簡易句型的句子。</p> <p>2-III-2 能說出課堂中所學的字詞。</p> <p>6-III-2 樂於參與課堂中各類練習活動，不畏犯錯。</p> <p>自然：</p> <p>tm-III-1 能經由提問、觀察及實驗等歷程，探索自然界現象之間的關係，建立簡單的概念模型，並理解到有不同模型的存在。</p>	<p>英語文：</p> <p>Ac-III-2 簡易的教室用語。</p> <p>Ac-III-3 簡易的生活用語。</p> <p>自然：</p> <p>INe-III-6 聲音有大小、高低與音色等不同性質。</p>	
本節課程目標		
<p><i>Students will be able to...</i></p> <ol style="list-style-type: none"> 1. <i>use gestures to demonstrate the key vocabulary they hear (remember & understand key language)</i> 2. <i>explain and demonstrate how recorders make high- and low-pitched sounds (apply & analyze)</i> 3. <i>write their observations about the experiment on the worksheet to demonstrate their understanding of the science concept (apply & analyze)</i> 		
學生所需之學科領域先備知識	本節課使用之英語語言內容	
<p>Students have learned how vibrations create sounds. The vocabulary and sentences they learned:</p> <ol style="list-style-type: none"> 1. Sounds come from vibration. 2. _____ (strong, weak) vibration creates _____ (loud, soft) sounds. 	<p>language of learning</p> <ol style="list-style-type: none"> 1. Blow across/ tap the bottle. 2. The bottle with _____ (less, more) _____ (air, water) makes _____ (lower, higher) pitch. 	
	<p>language for learning</p> <ol style="list-style-type: none"> 1. Tap gently. 2. Be careful. 3. It's your turn. 4. I (don't) agree. / I (don't) think so. 	
	<p>language through learning</p> <p>It sounds _____. (words students may ask)</p>	
Teaching Aids & Multimedia or Resources		
<ol style="list-style-type: none"> 1. Six Glass Bottles and Six Spoons 2. Recorder 3. Short clips of high/ low notes 4. Worksheet (附件二) 5. Video: https://www.youtube.com/watch?v=aBNHmUT3GPg (1:38~2:00) 		
Teaching Procedure	Time	Assessment

Preparation:

Activate prior knowledge:

- (1) The teacher asks students if they remember how sounds are created. (When something vibrates (moving back and forth quickly), it makes sounds. The vibrations travel through the air and to our ears so that we can hear sounds.)
- (2) The teacher plays the video and asks students what they observed. (students reply: There are glass cups of different shapes. / Music is created from tapping the glass cups.)

Presentation:

Teaching lesson content:

- (1) The teacher asks students if they have played the recorder in their music lessons. If so, how do they play the instrument? (students reply: blow air into the instrument / cover the holes)
- (2) The teacher asks students if they notice how lower and higher notes are played. (students reply: cover more holes to get lower sounds / cover fewer holes to get higher sounds)
- (3) The teacher introduces the word “pitch.” (Sounds can be high or low. This is called pitch. Pitch is how high or low a sound is. We have high pitch and low pitch.)
- (4) The teacher plays a few short clips of high / low notes and asks the students to hold up their arms and do gestures to demonstrate what a high-pitched sound or a low-pitched sound is.
- (5) The teacher guides the students to think if playing instruments requires vibration. (students reply: Yes, because sounds come from vibration.)
- (6) The teacher asks: “If so, when playing the recorder, what makes the vibrations?”

Group work:

- (7) Students think about what makes the vibrations when playing the recorder.
- (8) Students discuss with their group members and report to the class.

The teacher explains:

- (9) Answer: by blowing into the mouthpiece, we send air into the instrument. The air vibrates in the instrument to create sounds. The pitch is determined by the column of air. When many holes are covered, the column of air is longer, so the pitch is lower; When fewer holes are covered, the column of air is shorter, so the pitch is higher. Changing the length of the vibrating air column by covering more or fewer holes on the recorder changes the pitch.
- (10) The teacher teaches the “language for learning.”

Practice:

- 1. The teacher reminds the students to politely take turns trying out the experiment and use the sentences and phrases they have learned for communicating with each other.
- 2. Each group gets 6 glass bottles and fills them up with different amounts of water.
- 3. The teacher instructs the students to try...
 - (1) blowing into the bottle
 - (2) tapping the bottle with a spoon
- 4. The teacher writes *blow across the bottle* and *tap the bottle* on the blackboard.
- 5. The teacher writes the target sentence on the blackboard, and asks the students to fill in the blanks when doing the experiment.

1
2
2
2
2
1
3
5
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1
2

Objective #1
(The teacher checks if the students are able to make the right gestures.)

Objective #2
(The teacher checks if the students are able to explain how recorders make high- and low-pitched sounds.)

Reflection

Through watching the video, connecting to prior knowledge, and doing the experiment, the students will get to know understand the concept of pitch and learn one of the factors that influences pitch. The teacher will be able to assess students' learning through their oral and written reports.

The possible problem in this lesson is the use of glass bottles. The teacher needs to make sure that the students will be well-behaved and do the experiment following the teacher's instructions.

If this concern exists, then it will probably be better if the teacher does the experiment on his/her own and lets the students observe. Another option will be that each group takes turns going up to the stage to do the experiment so that the teacher could monitor the process.

第三節

本節學習重點		
學習表現	學習內容	
英語文 1-III-6 能聽懂課堂中所學的字詞。 2-III-9 能以正確的發音及適切的語調說出簡易句型的句子。	英語文 Ac-III-4 國小階段所學字詞 Ad-III-2 簡易、常用的句型結構。	
自 pa-III-2 能從（所得的）資訊或數據，形成解釋、發現新知、獲知因果關係、解決問題或是發現新的問題。並能將自己的探究結果和他人的結果（例如：來自同學）比較對照，檢查相近探究是否有相近的結果。	自 INe-III-6 聲音有大小、高低與音色等不同性質，生活中聲音有樂音與噪音之分，噪音可以防治。	
本節課程目標		
<i>Students will be able to</i> <ol style="list-style-type: none"> 1. use the target sentence to share the results of the experiment(apply). 2. Understand the science concept of the high-pitched/low-pitched sounds by using the rulers to make the high-pitched/low-pitched sounds (understand and apply). 		
學生所需之學科領域先備知識	本節課使用之英語語言內容	
學生學過聲音如何產生及高低音的差別	language of learning The small/short thing makes a high pitch. The big/long thing makes a low pitch. High pitch/ low pitch	
	language for learning How does the music sound? It sounds _____.	
	language through learning It sounds ___. (words students may ask)	
Teaching Aids & Multimedia or Resources		
<ol style="list-style-type: none"> 1. Video YouTube: https://www.youtube.com/watch?v=b5SJ38ZKr4o 2. 鐵琴 Glockenspiel 3. Worksheet （附件三） 		
Teaching Procedure	Time	Assessment

<p>Preparation:</p> <p>1. The teacher plays the video and asks students to find out the answers of the two questions 老師利用木琴影片來詢問學生是什麼樂器，如何演奏，進而介紹打擊樂器經由敲打樂器而產生聲音。</p>	3'	
<p>(大家看完這個影片回答老師兩個問題: (1)他們用的樂器是甚麼? 木琴 (2)他們是如何演奏的? 敲打木琴 當演奏家要演奏打擊樂器是要敲打樂器來使樂器發聲)</p>	5'	Objective#2 Worksheet (The students will fill in the “high” and “low” pitch corresponding to the size of the movement on the worksheet)
<p>2. The students observe the relation between the length of the keys and the pitches. After they discuss with their group members, they have to write down the answers on the worksheet. (Today, we are going to play the instrument. First, I want you to find out the relation between the length of keys and the pitches. You can discuss with your group members and write down the answers on the worksheet.)</p>	5'	
<p>3. The teacher will model how to do the experiment and explain the procedures to the students. The students will make a prediction and do the experiment, and write down the results of the experiment on the worksheet. (TPR)Put your hand beside the table and fix the ruler on the table (the ruler cannot be moved), use your fingers to tap the ruler, the ruler will make a sound. Fix different length of the ruler on the table will make different sounds. 開始做之前，大家要先預測一下結果，把你覺得怎麼樣會產生高音或低音寫下來，再來做實驗。)</p>	10'	
<p>4. The teacher teaches the target sentence to the students and ask students to share the results of the experiment by using the target sentence with two classmates. The students have to sign on others worksheet when they use the target sentence to share their results. (When we describe the result we will use this sentence: The (big/ small/ long/short) thing makes a (high/low) pitch. I want you to share the results with your classmates. 用這個句子和兩位同學分享你的實驗結果，而且簽上你的名字。)</p>	5' 7'	Objective#1 Peer-evaluation (Students can check their results and target language with peers)
<p>5. The teacher asks different group to make a high or a low pitch by using their own rulers to check if they understand the concept. (老師現在要指定組別用自己的直尺發出高音或是低音。Group 135, I want a low pitch. /Group246, I want a high pitch.)</p>	5'	
<p>6. The teacher sums up the concept: The big /long thing makes a low pitch. The small/short thing makes a high pitch. And, review the target sentence.</p>	5'	Objective#2 TPR (The students do the action by following the teacher’s direction, so the teacher can know whether the students know the target words by their action.

Reflection

1. Students may play the instrument instead of doing the instrument, so the direction from teacher is important.
2. During the peer-evaluation section, the teacher may need to time students to prevent a chaos in the classroom.

第四節

本節學習重點		
學習表現	學習內容	
英語文： 1-III-6 能聽懂課堂中所學的字詞 3-III-1 能辨識課堂中所學的字詞 6-III-2 樂於參與課堂中各類練習活動，不畏犯錯	英語文 Ac-III-3 簡易的生活用語 B-III-2 國小階段所學字詞及句型的生活溝通	
本節課程目標		
<i>Students will be able to</i> <ol style="list-style-type: none"> 1. Recognize string instruments, and give some examples. 2. Know that the thinner/tighter string vibrates, the higher the sound/pitch is made. 3. Know that the thicker/looser string vibrates, the lower the sound/pitch is made. 		
學生所需之學科領域先備知識	本節課使用之英語語言內容	
<ol style="list-style-type: none"> 1. 學生在音樂課已認識不同的弦樂器(認識弦)。 2. 知道聲音有高低的不同(Do/Re/Mi/Fa/So)。 學生學過以下英文用詞： <ol style="list-style-type: none"> 1. Vibrate 2. Instrument 	language of learning <i>words:</i> String, string instrument <i>sentence:</i> The thinner/tighter string vibrates, the higher the sound/pitch is made. The thicker/looser string vibrates, the lower the sound/pitch is made.	
	language for learning <i>words:</i> rubber band, tuner	
	language through learning Classroom language: Step one/two; Lower your voice; All done?...	
Teaching Aids & Multimedia or Resources		
<ol style="list-style-type: none"> 1. Musical instrument: Ukulele 2. PowerPoint/ E-book 3. Video(YouTube): https://www.youtube.com/watch?v=RL5wY6yJK6c 		
Teaching Procedure	Time	Assessment
Preparation: <ol style="list-style-type: none"> 1. Introduction to string instruments family: What kinds of string instruments do you know? Such as guitar, violin... Use video(English) and getting students ready. 2. <i>Teacher asks:</i> What do these instruments have in common? 3. <i>Teacher Announcement:</i> We call these line 「弦」 (String), so the instruments called string instruments.(弦樂器) 4. <i>Teacher asks:</i> What makes a string instrument vibrate to make sounds? 5. Make groups of four. 	5'	Objective # 1
Prediction1: <u>Hearing</u> <ol style="list-style-type: none"> 1. Teacher show the ukulele and introduce to the class. 	5'	

<p>2. Ask students to listen carefully and pluck the four strings above. <i>Teacher asks:</i> Does each string sound the same?</p> <p>3. Show PPT(enlarged picture of Ukulele) and ask students to observe and tell the difference between the four strings?</p> <p>4. Each group predict the thicker the string, the higher or the lower the sound should be? (write down the prediction on a small whiteboard)</p>		
<p>Observation1: <u>Playing</u></p> <p>1. Teacher demonstrates how to use rubber bands and a paper box to make a string instrument.</p> <p>2. Teacher provides each group with rubber bands of different thickness for experiment.</p>	8'	
<p>Explanation1: <u>Sharing</u></p> <p>1. Ss: Take out the small white board, correct the prediction and record the results of the experiment.</p>	2'	<i>Objective # 2</i>
<p>Prediction2: <u>Hearing</u></p> <p>1. Introduces the position and function of the "tuner".(旋鈕)</p> <p>2. Ask students to listen carefully, after turning the tuner, does it sound the same? (the same string)</p> <p>3. Ask students to predict that when the sound becomes higher, does the string become tighter or looser? (write on the small whiteboard)</p>	5'	
<p>Observation2: <u>Playing</u></p> <p>1. Teacher provides a rubber band for every two students.</p> <p>2. Do the experiment with the classmates next to you: one person is responsible for adjusting tightness of the rubber band, and the other is for playing the rubber band.</p> <p>3. Write down the result on the small whiteboard.</p>	5'	
<p>Explanation2: <u>Sharing</u></p> <p>1. Teacher guides students to make the conclusion: The tighter string vibrates, the higher the sound/pitch is made. The looser string vibrates, the lower the sound/pitch is made.</p>	5'	<i>Objective # 3</i>
<p>Review:</p> <p>1. Formative assessment: Use questions on E-book to check student's understanding of: (1) The thinner/tighter string vibrates, the higher the sound/pitch is made. (2) The thicker/looser string vibrates, the lower the sound/pitch is made. (透過連連看、填充題、圖片配合題，確認學生能正確配對不同樂器種類的音高)</p>	5'	
Reflection		
<p>1. What do you think the students actually learned? How do you know?</p> <p>2. What parts were most successful/ least successful? Why?</p> <p>3. Did you finish the lesson on time? If not, why?</p> <p>4. What changes (if any) will you make in your teaching and why (or why not)?</p>		

第五節

本節學習重點		
學習表現	學習內容	
英語文： 1-III-6 能聽懂課堂中所學的字詞 2-III-2 能說出課堂中所學的字詞	英語文 Ad-III-2 簡易、常用的句型結構 B-III-2 國小階段所學字詞及句型的生活溝通	
自 pc-III-2 能利用簡單形式的口語、文字、影像(例：攝影、錄影)、繪圖或實物、科學名詞、數學公式、模型等，表達探究之過程、發現或成果。	自 INe-III-6 聲音有大小、高低與音色等不同性質，生活中聲音有樂音與噪音之分，噪音可以防治。	
本節課程目標		
<i>Students will be able to</i> 3. <i>understand what timbre is</i> 4. <i>distinguish sounds of musical instruments (recognize different sounds)</i> 5. <i>distinguish different materials that make musical instrument sound different from each other</i>		
學生所需之學科領域先備知識	本節課使用之英語語言內容	
學生用中文在音樂課學過樂器 學生學過以下英文用詞： It is a ___ (piano, guitar, drum, violin, cello). ___ makes low, quick, loud, soft sounds. e.g., Guitar makes soft sounds.	<u>language of learning</u> Timbre means the quality of sound _____ sounds sharp/round/light/ <u>bright</u> . e.g., The sound of guitar is soft.	
	<u>language for learning</u> What is it made of? What is the shape/size?	
	<u>language through learning</u> It is made of _____ (words students may ask) The sound is _____ (words students may ask)	
Teaching Aids & Multimedia or Resources		
1. PowerPoint 2. Video of different sounds made by musical instruments (https://www.learnmode.net/flip/video/36224) 3. Video of same song played with different musical instruments https://www.youtube.com/watch?v=pNJTJrnpbjE Libertango (piano) https://www.youtube.com/watch?v=31C1Des-XuY (cello) https://www.youtube.com/watch?v=5DMt3JKtgrs (guitar) https://www.youtube.com/watch?v=dQsd7VAskiE (flute) 4. Worksheet (附件五) 5. Whiteboards, markers		
Teaching Procedure	Time	Assessment
Engagement: 1. The teacher will play audios for students to distinguish other teachers or classmates' voice that the teacher pre-recorded. T: Can you tell me who that is?	3'	<i>Objective # 1</i> Oral assessment: Students will need to say what musical instrument it is or who that person is.

<p>Exploration: The teacher will show students some vocabulary words for musical instruments first.</p> <p>Piano, guitar, flute, cello, drums, triangles, violins</p> <p>1. Music (audio only) of piano, guitar, and flute. Students will listen. Students from each team will be assigned to answer teacher's questions.</p> <p>T: Can you tell me what musical instrument is it? T: Please listen to the music again and write down what you think the instrument sounds like? (Students can use Chinese.) Does it sound low? Does it sound round? (T. will show examples.)</p> <p>2. The teacher will introduce the vocabulary and sentence pattern for today. T: Later, you use this sentence pattern to talk about the sound of the musical instrument.</p> <p>Vocabulary: sharp, round, light, bright, squeaky Sentence pattern: _____ sounds sharp/round/light/ bright. e.g., Cello sounds round.</p> <p>Students will listen to other audios and write down the sentences on the worksheet.</p>	10'	<p><i>Objective #1</i> Formative assessment: Students will need to write the target sentences on the worksheet.</p>
<p>Explanation: The teacher will ask students other questions (shown as follows), and students will work in groups to brainstorm ideas. T: Why or how do you know the musical instruments are different? You have two minutes to discuss with your teammates.</p> <p>Students from each team will take turns to answer teacher's question. Students can take a guess and then share the ideas with the whole class.</p> <p>The teacher will tell students that we can distinguish different sounds due to their "timbre." T: Timbre is the "the quality of sound." You can tell they are different instruments because their sound color is different.</p>	7'	<p><i>Objectives #1</i> Performance assessment: Students will discuss actively in groups.</p>

<p>Elaboration: The teacher will ask students to discuss in groups to answer teacher's questions. T: Can you guess why the timbre of musical instruments is different? T: You work in groups to discuss and then you will need to report. Students have three minutes to discuss.</p> <p>T: Okay, what makes different timbre? S: The guitar is... 木頭做的. T: Very good! Yes, the guitar is made of wood. What other materials can you tell? S: 金屬、塑膠... T: Right. Let's say "metal", "plastic", and "wood." T: What kind of sound can wood make? Round? Sharp? Or? S: Maybe round. T: Okay, what musical instruments are made of wood? S: Violin, cello, guitar. T: Okay, tell me what violin sound like? S: Violin sounds sharp. T: How about guitar? S: Guitar sounds soft. T: Okay, now you will work with your group and complete other part of the worksheet. You need to write down the materials of the musical instrument and what kind of sound they make. You can have different answers, and you can use Chinese if you don't know the word. Now, please listen to the music and write it down.</p>	15'	<p><i>Objective #2</i> Formative assessment: 1. Students will use target vocabulary and sentences orally. 2. Students will write target vocabulary and sentences on the worksheet.</p>
<p>Evaluation: The teacher will ask students to share their answers on the worksheet with the whole class. Students from each team will have a different speaker to share.</p>	5'	<p>Objectives #2 Formative assessment: Students will complete the worksheet by using the target words and sentence pattern. Oral assessment: Students will share orally.</p>
Reflection		
<ol style="list-style-type: none"> 1. What do you think the students actually learned? How do you know? 2. What parts were most successful/ least successful? Why? 3. Did you finish the lesson on time? If not, why? 4. What changes (if any) will you make in your teaching and why (or why not)? 		

Name: _____ Class: _____ No.: _____ Grade: _____


實驗記錄表: 看見聲音
SOUND EXPERIMENT REPORT

Write down your prediction and findings in the blocks.



Experiment 1



1. What does sound feel like?	
Prediction	Observation
	

2. What does sound look like?	
Prediction	Observation
Before hitting the box, I think that...	After hitting the box, I found that...

Explain

Write down your prediction and findings in the grids.



Experiment 2



2. When you hit the box hard , what will happen to the red beans?	
Prediction	Observation

2. When you hit the box soft , what will happen to the red beans?	
Prediction	Observation

Explain

Word Bank



Vibrate

Vibration

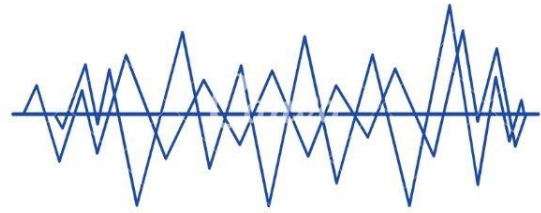


Loud sound



Soft sound

SOUNDS EXPERIMENTS MANUAL



Please follow the steps to do the experiment.

請大家依照實驗步驟完成實驗

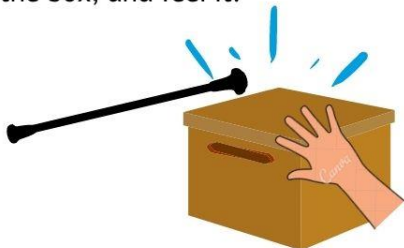
If you have questions, please discuss with your group first.

有問題可以先跟組員討論哦



EXPERIMENT 1

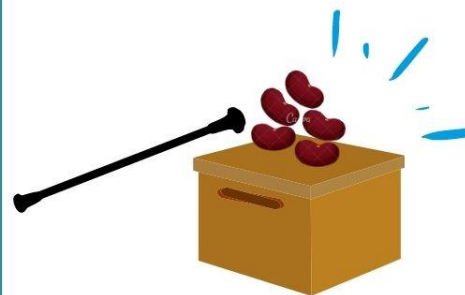
1. Take out the box and the stick.
2. Hit the box with the stick.
3. Touch the box, and feel it.



1. Take out the red beans.
2. Pour the red beans on the box.
3. Hit the box.
4. See what happens to the red beans.

EXPERIMENT 2

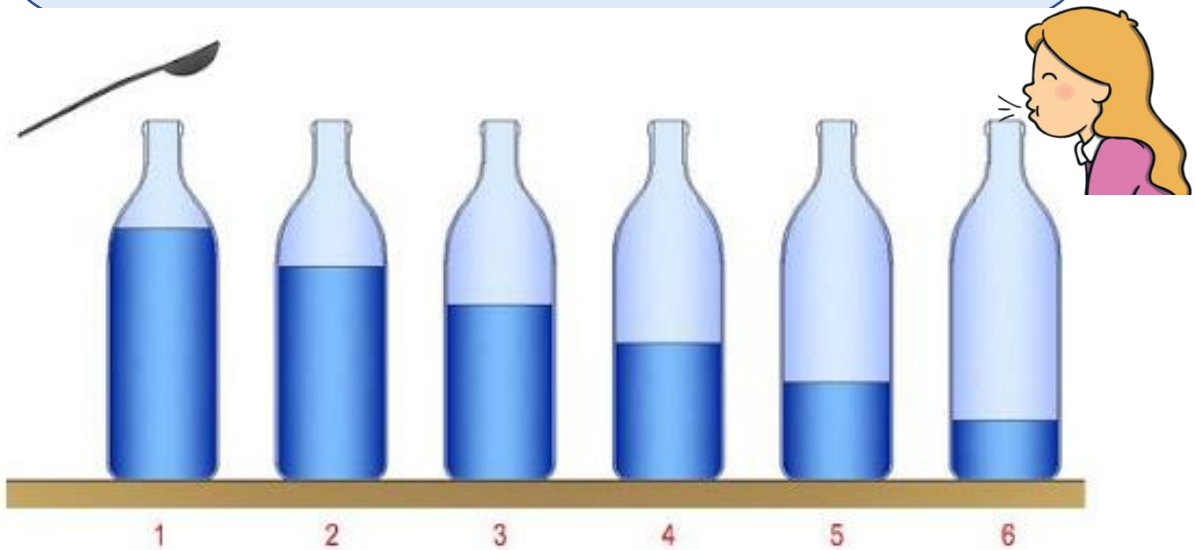
1. Make sure the red beans are on the box.
2. Hit the box hard.
3. Hit the box softly.
4. See what happens to the red beans.



**CONGRATULATIONS!
SHARE YOUR FINDINGS.**

Blow across the glass bottle.

- Number _____ makes the highest pitch, and number _____ makes the lowest pitch.
- The bottle with _____ (less, more) _____ (air, water) makes _____ (lower, higher) pitch.



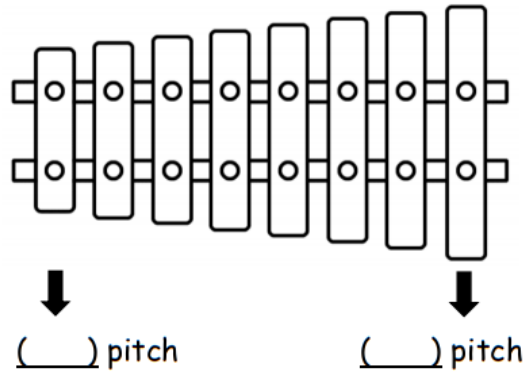
Tap the glass bottle with the spoon.

- Number _____ makes the highest pitch, and number _____ makes the lowest pitch.
- The bottle with _____ (less, more) _____ (air, water) makes _____ (lower, higher) pitch.



Worksheet 3

Class:___ Number:___ Group:___ Name:_____

A. Observation 觀察紀錄:



B. Experiment 實驗:

Length	Predict 預測	Result 結果	Results from others	Name
Long/Big 				
Short/Small 				

The _____ thing makes a high pitch.

The _____ thing makes a low pitch.

附件四



Class: _____ NO: _____ Name: _____

Timbre



Words for sounds
e.g. sharp

Word bank:

1. Sharp 尖銳的
2. Round 渾圓的
3. Bright 清亮的
4. Cello 大提琴
5. Triangle 三角鐵

Write down 3 sentences for the sound you hear
e.g. Cello sounds round.

Materials and sounds

e.g. Guitar is made of wood.
Wood makes the sound bright and round.

1. flute

2. piano

3. triangle