Instructions on Preparing a Curricular Lesson Plan with Integration of Intangible Cultural Heritage

A Guide for Primary and Secondary School Teachers in Viet Nam
Red Dao embroidery in Sa Pa, Lao Cai Province
“Intangible Cultural Heritage (ICH) are spiritual products of historical, cultural and scientific value, which are connected with a community or individuals, representing their identity, with associated objects and cultural spaces, constantly recreated and orally transmitted from one generation to another through professional training, performance and other forms of transmission”.

Intangible Cultural Heritage is present everywhere around us and is an endless resource for lifelong learning. Integrating ICH into secondary school lessons contributes to the promotion of active teaching methods that help excite students’ interest in learning, develop their learning skills, and enable them to better acquire knowledge. It also helps make lessons less rigid and more engaging. At the same time, the use of intangible cultural heritage in teaching and learning helps students easily apply acquired knowledge in practice and better understand heritage-related phenomena and the world around them. It also aims to raise youth awareness of the safeguarding of national cultural heritage values in the context of sustainable development.

The following instructions, designed for teachers of all subjects in primary and secondary schools in Viet Nam, show steps for integrating ICH elements into a curricular lesson at school, museums, or heritage sites. The instructions emphasize flexibility, creativity and appropriateness to local contexts.
General Principles

Participatory approach:

Ideally, the preparation of a curricular lesson plan with ICH integration should involve the participation and close collaboration of teachers, tradition bearers and local cultural experts;

In the event the local expert or/and the tradition bearer is/are not able to participate, the teacher may take his or her own initiative in making the best use of available resources in order to prepare the lesson plan with particular care to the accuracy of information on the related ICH.

During the process, the teacher and the local cultural expert need to:

- Ensure appropriateness of the ICH integration method to the lesson;
- Ensure accuracy of the contents on the ICH element;
- Ensure feasibility of the lesson plan corresponding to overall curricular requirements.
Steps in Preparing a Lesson Plan
Step 1
Make a List of Local Intangible Cultural Heritage

To make the list as comprehensive as possible, the teacher and the local cultural expert need to:
- Understand the definition of ICH and learn how to identify ICH elements;
- Gather information on ICH elements currently being practiced in the local area by:
  - Consulting the inventory of ICH prepared by the District Division of Culture and the City or Provincial Department of Culture, Sports and Tourism;
  - Collecting information from the local community, especially from village elders, village leaders, or old-aged persons;
  - Accessing books, newspapers, journals, recordings, and research articles about ICH in school libraries, district, provincial and national libraries, and libraries of social sciences;
  - Looking up information on the Internet.
- Make a list of ICH elements in the locality or of a local ethnic group and include a brief description of the listed elements.

Unesco Convention on the Safeguarding of the Intangible Cultural Heritage defines:

“Intangible cultural heritage” means the practices, representations, expressions, knowledge, or skills – as well as the instruments, objects, artifacts and cultural spaces associated therewith – that communities, groups and, in some cases, individuals recognize as part of their cultural heritage. This intangible cultural heritage, transmitted from generation to generation, is constantly recreated by communities and groups in response to their environment, their interaction with nature and their history, and provides them with a sense of identity and continuity, thus promoting respect for cultural diversity and human creativity. For the purposes of this Convention, consideration will be given solely to such intangible cultural heritage as is compatible with existing international human rights instruments, as well as with the requirements of mutual respect among communities, groups and individuals, and of sustainable development.

Intangible Cultural Heritage is manifested in the following domains:
(a) oral traditions and expressions, including language as a vehicle of the intangible cultural heritage;
(b) performing arts;
(c) social practices, rituals and festive events;
(d) knowledge and practices concerning nature and the universe;
(e) traditional craftsmanship.
This step should be conducted mainly by the local expert, while teachers may contribute freely. In the absence of the cultural expert for any reason, the teacher may take his or her own initiative while ensuring the appropriateness of the heritage contents used in the lesson plan. The teacher needs to verify the accuracy of information on the element with support from the cultural expert, researcher, or local manager, or/and collate it with reliable published sources.

Identifications of intangible cultural heritage:

- The element is a living heritage practiced in the community;
- The element has been created, maintained and transmitted from generation to generation;
- The element provides communities with a sense of identity and plays as an important part in community life;
- The element promotes cultural diversity and mutual respect among communities and groups.
Step 2
Identify the Link between Lesson Contents and Intangible Cultural Heritage

To do this, the teacher and the local cultural expert work in collaboration to:
- Study the lesson contents in the curriculum, textbook, and the ICH list established from Step 1;
- Create a summary table showing the link between lesson contents and the listed ICH element(s);
- Based on the summary table, select a lesson and one (or more) corresponding ICH element(s) or ICH aspect(s) to prepare a teaching plan with ICH integration.

Sample summary table:

<table>
<thead>
<tr>
<th>Ref. #</th>
<th>Current Lesson in Textbooks</th>
<th>ICH Element(s) to be Used</th>
<th>Proposed Content(s) and Learning Activities with ICH</th>
<th>Form of Teaching (in class/at site)</th>
<th>Sustainable Development Perspectives (See Tip 5 below)</th>
</tr>
</thead>
</table>
| 1      | Source of sounds (Physics, Grade 7) | Music from gongs, drums, etc. | • Characteristic of sound source: objects oscillate when making sounds  
• Learning activity: Testing the surface or knob of a gong or drum: touch by hands, place a thin paper strip to a pendulum close to its surface | Learning takes place in class | Awareness in protecting cultural values and identity  
Awareness of sound pollution |
| 2      | Molluscs (Biology, Grade 8) | Mother of pearl shell inlaying handicraft, seashell | • Understanding the roles of molluscs: as decorations, jewelry, water filters, etc.  
• Learning activity: Students to take hands-on exercise of mother of pearl’s shell inlay, or to present on the handicraft, pearl farming | • Learning takes in class or at site where the handicraft is practiced  
• Students do homework before class, researching mollusc-related handicrafts, and present results during class | Awareness in protecting natural environment  
Awareness in preserving traditional handicrafts |
| 3      | ... | ... | ... | ... | ... |
Step 3
Prepare Lesson Plan with Integration of Intangible Cultural Heritage

1. Study materials related to the selected ICH elements

Prior to fieldwork, the teacher and the local cultural expert need to:
- Study all relevant materials related to the selected ICH(s);
- Identify information and materials needed for further elaboration of lesson content;
- Prepare an interview questionnaire corresponding to needed information on the ICH(s);
- Consider a number of learning activities or experiments in which ICH element(s) is/are used.

Based on the summary table created in Step 2, apply the selected form of teaching and available materials on the ICH element(s). In collaboration with local cultural experts and teachers, create an outline of learning activities with ICH in the lesson. Here is an example of an outline:

2. Outline the Lesson Plan

Teachers work closely with the cultural expert in studying the curriculum and materials on the ICH element(s)
I. Objectives
   1. Knowledge
   2. Skills
   3. Attitude

II. Preparation by teacher and students
   1. Teacher
   2. Students

III. Sequence of learning activities
   1. Review of previous lesson (to be flexible during learning activities)
   2. Introduction to new lesson
   3. Facilitating learning activities:
      Activity 1: .................................................................
      Activity 2: .................................................................
      Activity 3: .................................................................

IV. Conclusion of lesson
   1. Consolidation
   2. Reflections
   3. Homework

3. Study about the selected ICH element(s) in the field

If time permits, teachers can coordinate with local cultural experts to do fieldwork. The fieldwork should not be too long and can often be divided into two trips, from 1 to 2 days:

Trip 1:
Collect information at the heritage site(s) through interviews, taking photographs, recording videos, and so on. Verify the appropriateness of the ICH element(s) with the lesson content; verify the suitability of the suggested learning activities with requirements of the lesson content and duration; define the form of teaching (i.e. in the classroom or at the heritage site); and, consider the possibility of involving local cultural tradition bearer(s) in teaching activities (see Who is a tradition bearer? on the following page).

Trip 2:
Collect additional materials after modifying the lesson plan. Prepare objects and tools for the lesson.
In the event fieldwork cannot be done, teachers can train themselves about the ICH element(s) through research, cultural management institutes, and published materials.

Who is a tradition bearer? He or she should:

- be knowledgeable, possessing skills, techniques and know-how;
- have been practicing the ICH for many years;
- have continuously facilitated its practice;
- have made a significant contribution to its transmission;
- have been recognized by the community.

For instance, a master artist, master artisan, shaman, ritual dignitary, martial arts master, herbalist, or master instrumentalist can be considered tradition bearers.
Based on available materials (such as books, newspapers, reviews, recordings, or research articles) and those collected during fieldwork, teachers may select the most useful materials about the ICH element(s) that can be effectively used in the lesson and to deepen students’ knowledge on the ICH element(s).

5. Apply active teaching and learning methods in designing learning activities with flexibility

Depending on each subject, its duration and the form of teaching, teachers may employ active teaching and learning methods to design learning activities before, during and after class, especially for the selective and localized lessons. For compulsory classes within a limited timeframe, teachers may also apply a problem-based learning method to carry out class activities.

Step 4
Test, Evaluate and Finalize the Lesson Plan

After completing the lesson plan, a teacher may, if conditions allow, have it reviewed by his or her workgroup or conduct a test lesson in order to ensure:
- The method of ICH integration is appropriate to the lesson;
- The new lesson plan is feasible and meets all curricular requirements;
- The information on the ICH element(s) is accurate.

Adapting feedback from the test lesson or review, teachers and local cultural experts may make modifications on any aspect of the lesson plan (e.g. learning activities, materials, images, or videos) and the teacher’s remarks in order to finalize the lesson plan. The lesson may also be supplemented with materials and tools if needed.
After incorporating the new lesson into the school year’s plan, the teacher and concerned faculty members need to monitor and evaluate the lesson plan in practice and propose measures for amendment as necessary. When conducting the lesson, whether in class or in the field, the responsible teacher needs to give attention to preparedness, effectiveness and student safety. Local education agencies should coordinate with cultural heritage management and/or research institutions to conduct regular monitoring and evaluations of the quality and effectiveness of the teaching method, make suggestions, and supplement and prepare training programs and any incentive policies for the teachers.
Danh mang folk game of the Muong in Tan Lac, Hoa Binh Province
Tips for Effective Integration of Intangible Cultural Heritage in Teaching and Learning
When preparing the summary table in Step 2, it is necessary to minimize the use of the same ICH element for many subjects. If there is an overlap, teachers should consider using many other aspects of the element while ensuring that the knowledge requirements of the lesson are met. Therefore, it is essential that the program apply all the subjects and lessons under close collaboration and agreement of all faculty members on the subjects and the corresponding ICH elements. This will also help students understand the ICH elements from many perspectives.
While realizing Step 2, 3, 4 and 5, it is important to note that integrating ICH into curricular lessons is not a teaching module but a teaching method. This means that the teacher should not focus on the ICH contents, but rather focus on using ICH or its aspects as learning tools and materials in order to elaborate and explain scientific contents of the curricular lesson. The integration of ICH must fully meet the requirements for a curricular lesson. In particular, ICH integration can apply to:

- Compulsory classes;
- Elective classes;
- Localized programs.

For compulsory classes, the duration for integrating ICH into the lesson is limited within the framework of the mandatory curriculum. Therefore, choice of appropriate content of selected ICH that meets the requirements for both knowledge and time is essential. As such, lesson contents and learning activities with ICH integration can be exposed to students at the beginning, middle, or end of the class, or interspersed throughout the class depending on specific subjects and classes.

For elective classes and localized programs, teachers can develop an entire lesson with ICH integration in one period or in two to three successive periods. For the electives, an interdisciplinary teaching method may be useful to apply, for example physics and music; music and literature; physics, music, literature, and history; chemistry, biology, geography, art, and technology; technology and literature, or other similar arrangements.

For localized programs, due to their longer duration, teachers have more options to integrate local ICH into lesson content and learning activities. In this case, the lesson may represent itself as a module. ICH integration in local programs helps deepen student knowledge of ICH in the local area.
When outlining the lesson plan in Step 3 and setting the objectives for knowledge, skills, and attitudes, it is important to ensure strict compliance with those set in the curriculum and to create new objectives on the understanding of heritage education and education for sustainable development. When designing learning activities for students, the teacher should consider replacing inefficient learning activities in the current curriculum with those with ICH integration. The use of ICH in learning activities should ensure the meeting of knowledge objectives in the current textbook. Ideally, homework for students should link the ICH content that will be taught in the next lesson or in other subjects.

When integrating intangible cultural heritage into a curricular lesson, besides the goal to help students learn the subject, better understand the ICH element, and grow passion for the heritage, it is important for students to build a positive attitude and actions towards sustainable development. Where possible, the lesson plan should integrate various aspects of the ICH element in connection to the interaction between human, natural and cultural changes, challenges and risks of disappearance, environmental and climate change, disaster risks, and impacts on sustainable development in order to make lessons more lively and insightful.

When developing lesson content and learning activities in Step 4, the teacher should not restrict themselves to only one ICH. Instead, he or she may want to compare the selected element with other elements in order to expand students’ knowledge and to distinguish the characteristics among elements. For ICH that are present in many localities, even though giving priority to the local traits, the teacher should also relate its expression in other localities so that students can observe cultural diversity, identity, and continuity. Teachers should be flexible in integrating similar ICH in their locality or ICH in other localities into lessons in case there is no local ICH.
Depending on the collected materials and the ability to connect with cultural communities and cultural bearers, the teacher may consider putting more or less integrated ICH content into the lesson. Teachers have to decide whether to use audio-visual documents or to invite cultural bearers to the class or not. This does not necessarily mean that all contents about the ICH elements are to be presented, but the most representative aspects should be. The purpose is to arouse students’ curiosity, enabling them to search for additional information once they have become fond of a particular subject. Therefore, the teacher should also be aware of the emotional reactions and attitudes of the students during learning activities.

Skills and knowledge in the practice of intangible cultural heritage are an endless source for learning.

If both the teacher and local cultural expert (or official) do fieldwork in Step 4, the task of each party can be divided as follows:
- **Local cultural expert:** Support teachers in contact with the community that holds the ICH or knowledgeable individuals to conduct interviews, collect information, and to document (through audio recordings, taking photographs or video recordings) the selected ICH element. The expert will update the latest information on the status of the ICH and make suggestions for learning activities that are integrated with the ICH.
- **Teacher:** Prepare interview questions to elaborate on the intended lesson content; verify the suitability of the ICH to the lesson; identify learning activities in connection with the lesson content; and, coordinate with the local cultural expert to develop the lesson content and to design learning activities with ICH integration.
In order to choose a suitable fieldwork area and collect precise information, consider the following:
- Identify local community members who are knowledgeable and willing to provide information (artists, artisans, tradition bearers or practitioners who have experience and knowledge about their own customs and traditions in the locality);
- If possible, identify and involve those who are knowledgeable and articulate on the ICH tradition in the preparation of the lesson plan as well as teaching in the classroom;
- When selecting the ICH, teachers should give priority to those that are near the school’s neighborhood. However, teachers should not limit themselves to certain areas. It is important to consult with local authorities or experts who are knowledgeable about the selected ICH to verify the accuracy of information;
- During interviews in the field, make sure your questions are simple, clear and open-ended in order to get answers for “Who?”, “What?”, “How?”, “Where?”, and “When?” and to avoid questions that merely elicit “Yes” and “No” answers. Try to avoid imposing suggestive ideas in order to collect authentic interpretations and explanations by the cultural bearer. With permission of the owner, try to document every material such as photos, family albums, scrapbooks, letters, tools, instruments, heirlooms, mementos, products and relevant cultural spaces. After each trip, the team needs to review the collected data in order to make follow-up plan for the next trip.
- Teachers may train themselves on the ICH elements and the corresponding scientific knowledge through talks and presentations by specialists and experts.

“In comparison to the existing learning tools in the curriculum, the use of traditional musical instruments makes physics more friendly and convenient to the students. They pick up the knowledge faster and become more engaged in the lesson. With learning tools as their own heritage, they actively participate in the learning activity with passion.”

Hung Tran Van, Physics teacher, Thanh Hoi Secondary School, Hoa Binh Province
Teachers and cultural experts conduct joint field work on the water wheel of the Muong, also known as xa dac.

Active participation in the practice of intangible cultural heritage is the most visible evidence for its viability. Giong Festival at Phu Dong Temple in 2012.
During the study of the ICH element, the teacher and local cultural expert may wish to pay attention to indigenous experience and knowledge as well as local explanations to incorporate into the lesson, reflecting the development from folk knowledge to modern science. It is essential to create learning experiences with the cultural communities and tradition bearers, directly or indirectly, in order to deepen the subject knowledge, to arouse the love for ICH and the respect for tradition bearers, and to build awareness of sustainable development.

In the event various types of materials and media are employed, such as images, dialogues and performances by tradition bearers, narration by teachers, student activities, among others, they should be arranged in a logical order to ensure a smooth flow of the lesson. Selected ICH can be flexibly introduced through audio-visual materials with subtitles, narratives or presentations by tradition-bearers, depending on available resources.

When designing activities in Step 4 to help students engage in their learning activities, it is essential to be aware of the role of teachers, as follows:

- To act as a guide or facilitator for all activities so that students have the freedom to choose their own content or themes associated with the upcoming lesson;
- To encourage students to search for information from various sources, such as books, newspapers, websites, journals, or through family and the community;
- To guide students on data collection methods, such as developing interview questions, writing, drawing, taking photographs, audio recording, and object collecting;
- To encourage students to seek indigenous knowledge with the help of the elders, grandparents, parents, relatives or neighbors, and to invite them to participate in the learning and collecting process;
- To encourage students to be self-determined and creative in synthesizing and presenting information, such as writing, drawing, mind maps, displaying objects, making video clips, PowerPoint presentations, role plays, group or individual presentations, or reproducing objects.
When guiding students through activities, the teacher should not excessively emphasize the outcome or the quality of information collected by students. Instead, it is important to focus on the firsthand cognitive process and interaction with the selected ICH element(s), aiming to avoid unnecessary pressure and to make students feel comfortable and excited with the learning activities. Even in the event of students not being able collect objects or information about the selected ICH element, they might also learn about the risk of disappearance of such ICH and have a learning experience about sustainable development, thus raising their awareness of the need to preserve and promote the intangible cultural heritage. If the information gathered by students is found to be inaccurate, the teacher may use their own knowledge to verify the information, or they can request support from a local cultural expert to check the information, and inform them at a later point.

Teachers may consult local knowledge bearers for better understanding of the ICH element(s).

Master teacher of Don ca tai tu Nguyen Vinh Bao, Ho Chi Minh City

References:

Offerings by Islamic Cham Bani followers during a ritual to begin the fasting month of ramuwan, a Cham version of ramadan.
1. Subject: Biology (7th grade)

Prepared by:
Quyen Nguyen Hoang, Biology teacher, Le Quy Don Secondary School,
Cau Giay District, Ha Noi
Thuy Tran Thi Thu, Vietnam Museum of Ethnology
1. Objectives
1.1. Knowledge
• To analyze the diversity of molluscs;
• To present several common characteristics of molluscs;
• To point out and analyze the benefits and harms of molluscs as well as their economic and artistic values;
• To know about traditional craft villages related to molluscs in Ha Noi.

1.2. Skills
• To collect information and material;
• To analyze, compare, and generalize knowledge;
• To solve a practical problem via teamwork and to give presentations.

1.3. Attitude
• Students to enjoy the lesson and the subject;
• Students to be aware of environmental protection and conservation of mollusk diversity, as well as to learn how to make use of natural materials to serve people’s life;
• Students to participate in environmental protection;
• Students to show favor towards cultural heritages and respect cultural heritage bearers;
• Students to be aware of understanding and promoting cultural heritages.

2. Preparation
2.1. Teacher
• Prepare pictures, photos, and a documentary film about molluscs and traditional crafts related to molluscs;
• Prepare computer, projector, and PowerPoint presentation;
• Prepare digital overhead projector;
• Collect materials and information through books and the Internet;
• Conduct fieldwork to collect data, objects, and photos for the lesson;
• Make a short video about the craft village for the lesson;
• Collect materials required for students to try a step in preparing mother-of-pearl for inlaying work.

2.2. Students
• Read the lesson content beforehand; draw Table 1 on page 72 in notebook;
• Collect documents including pictures/photos about the roles of molluscs and traditional handicrafts related to molluscs;
• Collect stories and objects from families and villages;
• Write, draw or take photographs of handicrafts and the handicraft village.

3. Lesson content
3.1. Revisit previous lesson (2 minutes)
Teacher: List the names and habitats of the molluscs in the pictures (teacher shows PowerPoint slide)  
   Students may list names of some other molluscs.

Teacher: As you can see, there are many different species of molluscs. So in fact, how diverse is phylum mollusca, and what general characteristics and roles do they have? We are now studying together Lesson 21 – General Characteristics and Roles of Phylum Mollusca.

### 3.2. New lesson

Teacher: Before entering the new lesson, the rule for group division is as follows:
- **Small group:** 4 students who sit at 2 desks next to each other
- **Big group:** one row of desks – corresponding to one group

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#### Activity 1: Understand diversity and general characteristics of phylum mollusca (10 mins)

<table>
<thead>
<tr>
<th>Teacher’s activities</th>
<th>Students’ activities</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Let’s look at the screen</em> (using pictures from the revisiting of the previous lesson)</td>
<td>Observe the pictures, read the textbook, and discuss in groups to find answers</td>
<td><strong>1. General characteristics</strong></td>
</tr>
</tbody>
</table>
| One of you already listed names and habitats of these molluscs. Now, observe these pictures again together and, using information in the textbook, please give comments about their sizes and behaviors. | Representative of groups give answers; other students listen, provide comments or add information. Take notes. | **1. The diversity of mollusca**
- Number of species: very large
- Size
- Diverse habitats
- Behaviors

---> Diversity |
| Invite some students to present what they observed; students should also provide comments to each other | Discuss in groups to find answers; complete the exercise sheet. | **2. Common characteristics of molluscs**
- Molluscous body;
- Not segmented;
- Developed mantle cavity;
- Complete digestive tract. |
| Provide comments and evaluate presentations; provide key information | A representative of the group presents; other students listen, provide comments, and add information. Memorize. | |
Phylum mollusca are very diverse, but their bodies share common characteristics. So, with all their diversity, what roles do they play in the environment as well as in human socioeconomic development? Together we will study Part II.

**Activity 2: Understand the roles of phylum mollusca (15 minutes)**

Ask a representative of each group to give a presentation of the report his/her group has prepared in advance;
- Group 1 and Group 2 report on the roles of molluscs;
- Group 3 and Group 4 report on traditional crafts related to molluscs;

Encourage students to give feedback to each other;
Provide comments and evaluate student presentations; provide students with key information (show additional images about roles of molluscs)

Obviously, in addition to having many benefits, molluscs also cause certain harm to people’s socioeconomic development. By understanding this, we will be aware of how to minimize harm caused by molluscs and promote the benefits that they provide to us. In your presentations, you mentioned that molluscs provided some traditional crafts with important materials. For example, apart from pearl farming, oysters are processed for food, and oyster shells are used for decoration. In Viet Nam, there are some other professions associated with phylum mollusca such as pearl farming in Nha Trang, squid catching in Quang Ngai… (teacher shows PowerPoint slides while lecturing.)

Today, we will learn about a traditional craft from a locality in Ha Noi. Before watching the video, I have three questions for you. You will answer the

<table>
<thead>
<tr>
<th>A representative of each group gives a presentation; others listen and provide comments or add information;</th>
<th>Provide feedback; Take notes; Adjust presentation; Memorize.</th>
</tr>
</thead>
</table>

**II. Roles**

1. **Benefits**
   - As food for humans and other terrestrial and aquatic animals;
   - As materials for making jewelry, decorations, toys, and medicine;
   - Clean aquatic environment;
   - Have geological values;
   - Contribute to socioeconomic development.

2. **Harms**
   - Damage crops;
   - Carry diseases;
   - Destroy wooden structures under water.
following questions after watching the video:
- What are the materials for inlaying?
- Nowadays, why do artisans have to import oysters from China?
- Why do we have to import conches from Singapore, Australia, and other countries?
- Screen the video “Mother-of-pearl Inlaying Craft in Chuon Ngo Village, Chuyen My Commune, Phu Xuyen District, Ha Noi”.

As you have seen in the video, mother-of-pearl inlaying crafts in Chuon Ngo Village (Chuyen My Commune, Phu Xuyen District, Ha Noi) were created in the third century under the Ly Dynasty. At its very beginning, the craft ancestor, Truong Cong Thanh, joined very common pieces of oyster into beautiful decorative shapes. From then on, he created these traditional crafts that bear a high value. It has continued to grow and bring flourishing life for local people. This reflects the creativity of Vietnamese people that builds up the vivid cultural traits of the country. It also demonstrates that with creativity, we can create great value from normal things.

I have here nacre layers that were cut from clamshells and already flattened. These are nacre layers from China. These are nacre layers from Viet Nam. How do you see the difference in colors of these two types of nacre layers? We can see that nacre layers cut from Viet Nam’s clams have many colors, which help to create eye-catching products with rich colors. At the same time, they are more flexible and elastic than nacre layers cut from China’s clams that are usually brittle and fragile. So, who can answer the questions I asked you before watching the video?

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
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<tbody>
<tr>
<td>Why do we have to import conches from Singapore, Australia, and other countries?</td>
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<tr>
<td>Screen the video “Mother-of-pearl Inlaying Craft in Chuon Ngo Village, Chuyen My Commune, Phu Xuyen District, Ha Noi”</td>
<td>Watch the video.</td>
</tr>
<tr>
<td>Observe and answer the question: Why does nacre from China only has a white color, while nacre from Viet Nam has more colors?</td>
<td>Answer the question.</td>
</tr>
<tr>
<td>Call upon students to answer the question. Comment.</td>
<td></td>
</tr>
<tr>
<td>All the answers are correct. Increasing demand in using mother-of-pearl inlaid products has resulted in a shortage of</td>
<td></td>
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</tbody>
</table>
domestic material, which has led to the import of raw material from foreign countries. The shortage of domestic materials is also because the clams’ river habitat has been more seriously polluted nowadays. It is the Nhue River that is being polluted by wastewater from Chuon Ngo Village and other craft villages along its banks, which reduces a great number of living shrimp, fishes clams, shells etc. Over-exploitation of conches with no attention to standard size in Viet Nam’s seas today also forces us to import conches from abroad since we do not have conches that are big enough to have thick and beautiful nacre layers for inlaying.

You can see that besides the harm caused for humans by phylum mollusca, human activities also have a great impact on phylum mollusca.

Thus, protection of aquatic environments (such as reducing the use of detergents, etc.) will help to protect habitats of aquatic organisms, including molluscs, so that we can maintain and develop Viet Nam’s distinctive crafts.

| Activity 3: Experiencing traditional crafts and games related to phylum mollusca (18 minutes) |
| In order to understand better the roles of phylum mollusca as well as to apply learned knowledge, you will participate in the following activities: practicing a step of making mother-of-pearl inlaid products, making decorations, and playing games. A complete mother-of-pearl inlaid product as you see here (show students some mother-of-pearl inlaid products prepared by the teacher) had to go through many steps, which requires artisans’ patience, meticulousness, and skillfulness. Now you will see process of making a mother-of-pearl inlaid product. |
| Show the video “Process of Making Mother-of-pearl Shell Inlaid Products”. Watch the video, memorize the content. |
| Molluscs provide important materials for traditional occupations, such as mother-of-pearl shell decoration (inlaying), jewelry making, traditional medicine, food production, etc. |
Besides mother-of-pearl shell inlaying crafts, oyster shells and shellfish are used to make beautiful souvenirs. (Show some images of products made of these kinds of shells on the projector)

In addition, these kinds of shells are also used for playing games. You can see on the screen children in Hai Hau District, Nam Dinh Province, playing rai ranh using oyster shells. Moreover, oyster shells and other seashells are used to play the game of folk chess of Viet Nam, known as co ganh, which is now at risk of disappearing.

Project the co ganh chess game on the screen and instruct students how to play.
- Assign tasks to each group:
  + Group 1: practice one step of the mother-of-pearl shell inlaying craft;
  + Group 2: make some decorations and toys using clam shells and oyster shells;
  + Group 3: play rai ranh;
  + Group 4: play chess, co ganh.
- While students participate in activities, the teacher gives each group more detailed instructions, especially Group 1 who practices cutting nacre layers of clam shells and Group 4 who plays co ganh.

- Ask the 4 groups to share their thoughts about the activities.

Students in Group 2 need to have imagination and creativity so as to make beautiful products. It is the same with mother-of-pearl shell inlaid products. Just cutting nacre layers of clam shell into expected shapes is very difficult. Thus, a craft product requires much labour but bears great values of labour skills and creativity. Students who played folk games found that materials for playing folk games are from nature, which are easy to get from our living environment. Folk games train...
not only our ingenuity and briskness but also our intelligence and logical thinking. Therefore, after this lesson, you can continue play the games that you learned today and teach other friends to play.

3.3. Review and evaluation:
- Request for students to complete Table 2 on page 72 (show answers on a PowerPoint slide).

Roles of local molluscous representatives
+ As food for humans: clams, đa snails, mít snails, trúng trục (another kind of clam), small oysters…
+ As food for other animals: all kinds of molluscs
+ As decoration: clams, conches
+ As raw materials for some crafts: pearl farming, conch and mother-of-pearl shell inlaying craft…
+ Cleaning aquatic environments: aquatic molluscs (clams, đa snails, mít snails, trúng trục (another kind of clam), small oysters…)
+ Causing harm to crops and being helminthes carriers: snails, bươu vàng snails…
+ Destroying wooden structures under water: river teredoes…

- Remind students to read the memo at the end of the lesson in textbook.

3.4. Reminding:
- Read section “Do you know?”; Read Lesson 22 in advance for next lesson;
- Each group prepares at least one living shrimp and one cooked shrimp for the next lesson.

APPENDIX
- Images used for revisiting previous lessons

River clam  Squid

Snail  Slug
MIND MAP ABOUT ROLES OF PHYLUM MOLLUSCA

ILLUSTRATING IMAGES ON THE ROLES OF PHYLUM MOLLUSCA

Squid fishing

Pearl farming
Phylum mollusca has value in geological studies

Molluscous shells are used as toys in traditional games

Jewelry, decorations, artwork
**ACTIVITY SHEET**

Study general characteristics of phylum mollusca

**Requirements:** Learn from textbook, discuss in small groups, fill in suitable content or check the following table as appropriate

**Duration:** 5 minutes

<table>
<thead>
<tr>
<th>Representative</th>
<th>Habitat</th>
<th>Way of living</th>
<th>Type of calcium carbonate shell</th>
<th>Body features</th>
<th>Developed mantle cavity</th>
<th>Complete digestive tract</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Molluscous body</td>
<td>Not segmented</td>
<td>Segmented</td>
</tr>
<tr>
<td>River clam</td>
<td>Freshwater</td>
<td>Hide in the ground</td>
<td>2-piece shell</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Oyster</td>
<td>Saltwater</td>
<td>Hide in the ground</td>
<td>2-piece shell</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Snail</td>
<td>On land</td>
<td>Move slowly</td>
<td>Spiral shell</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Helix</td>
<td>Freshwater</td>
<td>Move slowly</td>
<td>Spiral shell</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Squid</td>
<td>Saltwater</td>
<td>Swim fast</td>
<td>autolytic</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>
2.

Subjects: Physics (7th grade)

Lesson plan prepared by:
Su Duong Van, Physics teacher, Le Quy Don Secondary School,
Cau Giay District, Ha Noi
Thuy Tran Thi Thu, Vietnam Museum of Ethnology
Integrating Ca tru singing and the making of day instrument into a physics lesson
Lesson 11 – THE PITCH OF SOUND

1. Objectives

1.1. Knowledge
• To understand the definition of the frequency of a mechanical vibration;
• To identify the correlation between the pitch and frequency of a sound;
• To use the term high tone (treble), deep tone (bass), and frequency when comparing two tones;
• To help students to understand the scientific nature of instruments used in Ca tru music.

1.2. Skills
• To use intangible cultural heritage as a tool for teaching;
• To observe and conduct experiments to draw on the concept of oscillation frequency;
• To study features of musical instruments used in Ca tru to perceive the distinctive nuances of the high tones and deep tones of this intangible cultural heritage in comparison to other art forms.

1.3. Attitude
• Students enjoy learning physics;
• Students recognize the beauty of the intangible cultural heritage of the country and to respect bearers of this cultural heritage;
• Students have awareness in learning about cultural heritage and developing cultural heritage.

2. Preparation

2.1. Preparation by Teacher
• Collect information and materials on Ca tru from books and the Internet;
• Do field work and collect information and materials directly from the Ca tru singers, instrumentalists, those who produce musical instruments, and music researchers;
• Make a video about the cultural tradition for the lesson;
• Plan activities for students and prepare laboratory equipment.

2.2. Preparation by Students
Read the lesson content in advance.

3. Lesson

3.1. Review previous lesson ( 2 minutes)
Teacher: First of all, I would like to review the previous lesson. Look at the musical instruments in the pictures! (Teacher shows PowerPoint slide.) Which one of their parts makes sound?
In these sound sources, what component creates sound?

1. The air column inside the horn oscillates
2. The gongs oscillate
3. The strings oscillate
4. The drumhead oscillates

3.2. New lesson

Here I have a musical instrument that is called day. It is used in cá tru music. I also have another musical instrument called nguyệt. Now I would like to invite two students to play the instruments.

- Invite two students, each one plays one instrument / or invite one student to play both instruments.

Before you play the musical instruments, I have a question for you to answer after listening to the activity.

<table>
<thead>
<tr>
<th>Teacher’s Activities</th>
<th>Students’ Activities</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity 1: Organizing the learning situation (3 minutes)</td>
<td>Listen and observe to answer the question.</td>
<td></td>
</tr>
</tbody>
</table>
sounds of the instruments: Which musical instrument makes a lower tone?

Invite students to answer the question.

Your answer is correct. So why does the day make a lower tone than the nguyệt? In daily life, you can hear things that make low tones while other things make high tones. Now, in order to know why there are low and high tones, we move on to Lesson 11 – Pitch of Sound.

<table>
<thead>
<tr>
<th>Activity 2: Observe oscillation and establish the concept of frequency (12 minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Let us study the first experiment of today's lesson. Please read the content of Experiment 1.</td>
</tr>
<tr>
<td>Based on the content of Part I, who can tell me what the purposes of this experiment are?</td>
</tr>
<tr>
<td>Look at the screen, I instruct you how to observe and count the number of oscillations (teacher uses PowerPoint presentation to instruct students)</td>
</tr>
<tr>
<td>Now you have 3 minutes to conduct this experiment, complete the reports, and hang them on the board.</td>
</tr>
<tr>
<td>- Based on the results in the reports, the teacher suggests students bring forward the definition of frequency.</td>
</tr>
<tr>
<td>Based on the conclusion drawn from Experiment 1, look at the picture, and please tell me the length of which string corresponds to the length of which hanging cord of Pendulum A (Pendulum A has longer hanging cord than that of Pendulum B)?</td>
</tr>
<tr>
<td>Next, let us compare the oscillation frequency of the two musical instruments' strings (day and nguyệt)?</td>
</tr>
<tr>
<td>Read the content of Experiment 1.</td>
</tr>
<tr>
<td>Point out the purposes of the experiment; take notes.</td>
</tr>
<tr>
<td>Follow instructions.</td>
</tr>
<tr>
<td>Conduct the experiment, complete reports, and hang the reports on the board.</td>
</tr>
<tr>
<td>State the definition of frequency; take notes.</td>
</tr>
<tr>
<td>Answer the question: the length of the day’s strings corresponds to the length of Pendulum A’s hanging cord.</td>
</tr>
<tr>
<td>Answer the question: The oscillation frequency of the nguyệt’s strings is greater than the oscillation</td>
</tr>
<tr>
<td>I. Fast and slow oscillations – Frequency</td>
</tr>
<tr>
<td>1. Experiment 1</td>
</tr>
<tr>
<td>1.1. Purposes</td>
</tr>
<tr>
<td>- Build the concept of frequency.</td>
</tr>
<tr>
<td>- Establish the correlation between frequency and fast and slow oscillations of an object.</td>
</tr>
<tr>
<td>1.2. Operation</td>
</tr>
<tr>
<td>2. Conclusion</td>
</tr>
<tr>
<td>- Frequency is the oscillation of an object in 1 second. (Textbook)</td>
</tr>
<tr>
<td>The unit of frequency is Hz.</td>
</tr>
<tr>
<td>E.g. Frequency of Pendulum A is: … Hz</td>
</tr>
<tr>
<td>Frequency of Pendulum B is: … Hz</td>
</tr>
</tbody>
</table>
Experiment 1 also helps us understand that: the longer the hanging cord is, the smaller the oscillation frequency; the shorter the hanging cord is, the greater the oscillation frequency.

However, we are investigating why there are low tones and high tones. Therefore, what is the correlation between the frequency and pitch of sound? Together we will study this correlation through Experiment 2.

**Activity 3: Study the correlation between the frequency and pitch of a sound (8 minutes)**

I would like to invite one student to read the instructions for conducting Experiment 2 on the screen.

Guide by modeling.

Note: Remember to press your hand right to the edge of the wooden box so as not to make the ruler hit the surface of the box. You have 2 minutes to conduct this experiment.

Guide students to complete Exercise 3.

Draw conclusions about the correlation between the frequency and pitch of a sound.

Read the instruction for conducting the experiment.

Conduct the experiment.

Take notes.

**II. High tone (treble), low tone (bass)**

1. **Experiment 2**

   1.1. Purpose

      Find out the correlation between the frequency and pitch of a sound.

   1.2. Operation

   2. **Conclusion**

      - The faster the oscillation is, the greater the oscillation frequency and the higher the tone.
      - The slower the oscillation is, the smaller the oscillation frequency and the lower the tone.

**Activity 4: Application (20 minutes)**

We have studied the correlation between the frequency and pitch of a sound. Now, we will explain the phenomenon at the beginning of the lesson applying the knowledge that we have gained. Who can answer the question why the day makes a lower tone than the nguyệt?

Students may answer: the day's string is longer than the nguyệt's string, therefore, the oscillation of the day's string is slower, and its oscillation frequency is smaller, which makes a lower tone.
As I mentioned at the beginning of the lesson, this musical instrument – the day – is used in Ca tru. Ca tru music has a long history. It appeared in the 10th century and was associated with many musical instruments. However, only in the 15th century did the day instrument appear, and become closely associated with Ca tru. Since the day’s appearance, the number of musical instruments played for Ca tru has reduced to three. I would like to introduce these instrument to you here (Teacher shows the instrument to students while lecturing): The first instrument is the day. The second instruments are clappers (phach). People use these 3 sticks to clap on the bamboo clapper. The clappers of Ca tru are very special. Here we see one stick is split. This is called yang. This is called yin. Ca tru singer uses the clapper while singing. The third instrument is a small drum. It is called trong chau. The way this drum is played is special. In the past, the one who played the drum was a bureaucrat, not a member of the Ca tru troupe. When listening and enjoying Ca tru, this bureaucrat used the drum to evaluate the show. Now I will show you a video about Ca tru so that you will understand more.

The reduction of the number of instruments played in Ca tru brought the perfect combination of sound, and at the same time made the day become a special instrument. So what are features of the day and how does it mingle with Ca tru music? Please watch the following video.

Watch the video.
As you can see in the video, the day is special because it has the longest neck in comparison to other musical instruments, and is only used in Ca tru. But why does the day have such a long neck?

So why does Ca tru need the very low tone of the day? In music, the artists combine smoothly different heights of sound to create good music products. In Ca tru, the sound of the clapper, the singer, and day instrument is divided into 3 tones. The tone of the clapper is usually high. The tone of the singing is in the middle. The melodies of the day are low, which create a sharp contrast. However, they blend with each other to create an excellent symphony, an attractive, multifaceted music product. They all create the beauty of Ca tru music. With such features, on October 1, 2009, Ca tru was inscribed on the UNESCO Representative List of the Intangible Cultural Heritage of Humanity. If you want to learn more about Ca tru, you can come to the Vietnam Museum of Ethnology, next to our school. On the first Sunday of every month, a Ca tru club performs there. You can watch the performance and talk directly with Ca tru artists to learn more about it as well as gain more love for this art. Besides, you can also visit a Ca tru club at the Giang Vo Exhibition Space or Cong Vi Ward, Ba Dinh District. I know in the clubs many young people at your ages are learning Ca tru. It proves that Ca tru has a strong appeal to young people.

Answer the question. Students may answer: To make it more beautiful / The long neck makes the day's tone lower. Answer the question. Students may need guidance to answer this question.
Apart from artists who sing Ca tru, there are also artisans who make musical instruments for Ca tru. They will be talked about in the following video. Let’s watch the video about the process of making the day, a very special musical instrument.

Screen the video *Craft of making musical instruments in Dao Xa Village* (Dong Lo Commune, Ung Hoa District, Ha Noi)

The video tells us that not only Ca tru artists but also artisans who make musical instruments contribute to the safeguarding of Ca tru intangible cultural heritage of Viet Nam in particular and of humanity in general.

Now I would like to tell you a little bit more about the clapper of Ca tru. Here I have 2 different clappers. Ca tru’s clapper is longer. The other clapper is used in hat van, which is also called hát hau dong. I would like to invite a student to clap the clappers.

After the student claps both clappers, teacher gives each group two kinds of clappers to observe.

Who can tell me the difference between the two clappers?

Which one makes a louder sound? So, does the structure decide the volume of the clappers’ sound? We will learn about this in the next lesson – Loudness of Sound.

At home, you learn more about hat van through the media like radio, newspapers, and on the Internet. Our lesson ends here.

<table>
<thead>
<tr>
<th>Watch the video.</th>
</tr>
</thead>
<tbody>
<tr>
<td>One student claps both clappers.</td>
</tr>
<tr>
<td>Observe and answer the question. Students may answer: <em>Hat van’s</em> clapper has a trench at its front.</td>
</tr>
<tr>
<td>Answer the question: <em>Hat van’s</em> clapper makes louder sound.</td>
</tr>
</tbody>
</table>
Group:........
Result of the experiment of single pendulum's oscillation

**Question 1:** Observe and count the number of oscillations of 2 single Pendulums, A and B, and fill in the results of the experiment in the table below:

Note: The number of oscillations in 1 second is called the frequency. The unit of frequency is Hz (pronounced /hertz/).

**Question 2:** From the table above, which pendulum has the greater frequency? State the correlation between the oscillation frequency and the pendulums’ fast and slow oscillation?

<table>
<thead>
<tr>
<th>Pendulum</th>
<th>Which pendulum oscillates faster?</th>
<th>Which pendulum oscillates more slowly?</th>
<th>The number of oscillations in 10 seconds</th>
<th>The number of oscillations in 1 second</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

A

B

---

EXPERIMENT SHEET
Subject: Physics (7th grade)

Lesson Plan prepared by:
Hung Tran Van, Physics Teacher, Thanh Hoi Secondary School Tan Lac District, Hoa Binh Province
Thuy Tran Thi Thu, Vietnam Museum of Ethnology
1. Objectives
1.1. Knowledge
• Students understand general characteristics of the sources of sound.
• To identify some common, real-life sound sources
• To discover concepts of balance and oscillation positions
• To understand some popular traditional musical instruments of the Muong and their scientific nature
• To help students have initial feelings of high (treble) and low (bass) pitch
1.2. Skills
• To develop observation skills and to test the conclusion that the characteristic of sound sources is oscillation.
• To explain the scientific nature of physical phenomena in daily life
1.3. Attitude
• To educate students with serious attitudes in study and work;
• To evoke a passion for physics and cultural heritage of the Muong; and to have a sense of preserving and promoting cultural legacy.

2. Preparation
2.1. Teacher
• To collect materials on Muong musical instruments through books and the Internet;
• To conduct research and collect materials and Muong musical instruments, such as flutes and gongs from local artists;
• To make a video about gong performances and making of the o1 flute by the Muong;
• To consult physicists for explanations and utilize their professional knowledge
• To plan activities for students and prepare testers
2.2. Students
To read Section 11, Lesson 10: Source of Sound beforehand

3. Teaching activity (45 minutes)
3.1. Settling in
3.2. Presenting Chapter 2 as in the textbook
*We finished the optics lesson. From this section, we will learn about Acoustics in the Chapter 2. Acoustics is the science of sound. It will help people make more interesting sounds in life and know how to prevent noises.*

*The contents of this chapter include:*
• What are the characteristics of the source of sounds?
• What are the differences between low and high pitches?
• What are the differences between low and loud pitches?
• Which environments is sound transmitted through?
• In which conditions are sounds called noises? How can we avoid them?
3.3. New lesson
We are living in a world of sounds. We can hear others’ voices, lectures, songs, music, bird songs, and the sound of a stream flowing. We also have to hear other noises including horns, hammers pounding, and street noises.
So, how is sound created? What are the characteristics of sound? In this lesson, we will find out the answers to these questions.

<table>
<thead>
<tr>
<th>Teacher’s activities</th>
<th>Students’ activities</th>
<th>Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Activity 1: Organizing learning activity to recognize the source of sound</strong> <em>(5 minutes)</em></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| **Method:** Observe and study the content  
C1: *Let’s look at the screen.*  
The teacher presents a clip of different musical instruments (1st clip: Musical instruments)  
*Indicate the sounds that you hear.*  
Gongs, horns, drums, two-chord fiddles, and flutes  
*Indicate some other sounds that you hear in daily life?*  
Things that make sound such as horns, drums, gongs, car horns, so on are considered sources of sound.  
*So what is a source of sound?*  
Things that make sound are considered sources of sound.  
So what are the common characteristics of sources of sound? We will learn about it in the second part. | Sound of gongs, horns, drums, etc.  
The teacher’s voices, bird songs, car horns, etc. | 1. Recognizing sources of sound  
Conclusion: Things that make sound are considered sources of sound. |

| **Activity 2: Learning about the common characteristics of the sound source** *(25 minutes)* | | |
| a. Experiment 1 (6 minutes)  
The teacher presents steps to conduct the experiment.  
The teacher pulls the elastic band held by a student.  
The teacher presents the balance position (by using elastic band)  
Teacher arranges students to conduct the experiment. | A student stretches the elastic band in front of the class.  
Every two student conducts an experiment following three steps: | 2. What are the common characteristics of sound sources?  
2.1. Experiment a. Experiment with elastic band  
C3: When making a sound, the elastic band |
Students are asked to bring up experimental results.

The Muong’s traditional musical instruments are diversified and rich, including oi flutes, ordinary flutes, horns, two-chord fiddles, gongs, and drums. The most special cultural characteristics of the Muong, in comparison with other ethnic groups, are gongs and the oi flute.

We’ve just conducted an experiment with the elastic band. When making sound, it vibrates. So do the gongs vibrate when they make sound? Let’s move on to Part B.

b. Experiment with gongs (10 minutes)
   **Method:** Teamwork
   C4: Students play the gongs.

   **Which things make sound?**
   *Does the gong surface vibrate? How can we recognize it?*

   The teacher instructs:
   *Use the gong stick to knock at the gong knob, touch the knob, and comment. What do you feel? When you touch it, only you can feel. To see the vibration more visually, we can use the pendulum.*

   Use the gong stick to knock at the knob and gradually bring the pendulum to touch the gong knob.

   *When the gong makes sound, does the pendulum vibrate? What happens when the ball vibrates?*

---

1. One student stretches the elastic band.
2. The other pulls the band.
3. Two of them observe, listen, and describe what they heard and saw.

   When making sound, the elastic band vibrates.

---

b. Experiment with gongs

   The gong surface makes sound.

   Students knock and touch the gong knob.
   The gong surface vibrates.

   1. One student knocks at the gong’s surface. Another student brings the pendulum to touch the knob.
   2. The whole team listens, observes, and concludes.
So, when making sound, what characteristics does the gong surface have?

We do not know exactly when the Muong’s gongs appeared, but we know that in the Đong Sơn Bronze Age (about 3,500 years ago), images of people playing gongs could be seen on the Ngọc Lũ bronze drum surfaces. In the grandiose epic Creating Land and Country of the Muong, gongs are mentioned in many sections. It means that along with the bronze drums, the Muong’s gongs appeared about 3,000 years ago. It also proves that they attained a level of creating harmony in music according to the music assessment of people at that time. So we are the Muong descendants and we can be proud of this.

We already conducted an experiment with gongs. When making sounds, the gong’s surface vibrates. How about the oi flute? When it makes a sound, what vibrates?

c. Experiment with the oi flute (7 minutes)
The teacher invites one student to play the flute.

Which part makes sound?

Does the air column vibrate? How can we check it?

The teacher asks students to unbind the adhesive tape at the hole on the flute that makes sound.

Can you compare with the first time that you played the flute? Do you know why?

| The ball vibrates. This means that, when making sound, the gong’s surface vibrates. |
| A student plays the flute. The air column in the flute makes sound. Students discuss to generate ideas. |
| Students do what the teacher instructs and observe the chicken feathers. The air column inside the flute vibrates. |
| Student plays the flute without the adhesive tape covering one half of the hole that makes sound. |

C4: When making sound, the gong surface vibrates.

C5: When making sound, the air column inside the flute vibrates.
The teacher explains:
When you blow on the flute mouth, the tape vibrates making the air column oscillate and makes sound.
When blowing on the flute mouth, the tape stops a part of the air column. This makes the air column and the tape vibrate and make sound.
When the tape is not stuck at the flute hole, the air column is not stopped. So, the vibration at the flute mouth is not created, leading to the fact that no sound is made.
Traditionally, the Muong often use banana leaf instead of adhesive tape to cover the flute hole. However, the banana leaf has faded out. So, they use the tape to cover the flute hole as you’ve just done in the experiment.

The teacher concludes:
Through the above experiments, when making sound, the elastic band, gong's surface, and air column inside the flute oscillate.
So what are the common features of things that make sound?
- When making sound, things oscillate.

The teacher tells story of the Oi flute legend in Muong Bi:
In the old days, there was a family with four children. The last-born was dumb. When the father died, the youngest child did not know how to grieve for his father. So, he pierced four holes on a bamboo pipe to symbolize four children. He blew at the hole of the bamboo pipe to mourn for his father. Since then, the Muong have had the oi flute. The flute looks simple but not everyone can make it. To make it, the artists must have wide experience and traditional knowledge. We will learn about it in the following clip.

The teacher presents the clip on making the oi flute (2nd clip: Oi flute).

<table>
<thead>
<tr>
<th>The flute does not make sound.</th>
<th>2. Conclusion When making sounds, objects oscillate.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students watch the film clip.</td>
<td></td>
</tr>
</tbody>
</table>
The teacher instructs students to do C6 in their schoolbook.

<table>
<thead>
<tr>
<th>3. Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students conduct experiment with papers and banana leaves.</td>
</tr>
<tr>
<td>Students conduct experiment with papers and banana leaves. Students wrap banana leaves to make horns and play.</td>
</tr>
<tr>
<td>3. Application</td>
</tr>
<tr>
<td>Tear and vibrate banana leaves.</td>
</tr>
<tr>
<td>Sac bua performance, farming initiation festival</td>
</tr>
</tbody>
</table>

Can you make things, such as paper and banana leaves, create sound?
If the student cannot do it, the teacher instructs them to wrap it to make a horn.
In addition to wrap papers or banana leaves to make horns, do you have any way to deal with them?
Teacher lets students tear and vibrate the banana leaves.
We already conducted an experiment with gongs. So, do you know in which occasions gongs are used?
For the Muong, gongs not only make joyful and animated sounds but also show power and sacredness. They resound throughout the sky and dispel evil spirits. Hence, gongs play a very important role in the Muong life. They are used in many different occasions. In the past, every family had gongs in their house. Gongs were not only the Muong traditional musical instruments but also a precious thing that symbolized the wealth and luxury of each family.
Let’s see the clip (3rd clip: Gongs)

4. Review
4.1. In this lesson, we need to understand that:
• Things making sound are called source of sound.
• When making sound, things often oscillate.
(The teacher draws thinking map)
4.2. Students read the reminder.
4.3. Students try to play gongs instead of doing C9.
You’ve just listen to different gongs melodies. Now you can try to play some melodies such as penh pong penh, penh pong kham.
The teacher uses this content to come to the point of the next lesson (Height of Sound) and instruct students to do their homework.
Why do gongs have different sounds?
Big gongs make low sounds and small ones make high sounds. Why?

5. Instructions for Homework
5.1. Learn the conclusion by heart
5.2. Do exercises: 10.3 - 10.5 (if students can arrange their time)
Lesson Plan prepared by:
Thuy To Ngoc, Literature teacher, Tu Ne Secondary School, Tan Lac District, Hoa Binh Province
Thuy Tran Thi Thu, Viet Nam Museum of Ethnology
Integrating folk songs into a literature lesson
Lesson 134: LOCAL PROGRAM - MUONG FOLK SONGS

1. Objectives
1.1. Knowledge
• Ensure the local program objectives (as an important part of the literature subject) to enhance the love of our country and a sense of responsibility to the national community
• Help students to understand beautiful folk songs of the Muong
Attract the participation of families and the community

1.2. Skill
Train students in skills of analyzing, presenting, commenting, and writing

1.3. Attitude
Students are conscious in collecting information, doing research, and experiencing, promoting their positivity and creativity. They are also subjects of the activity of introducing legacies into lessons and learning programs.

2. Preparation
2.1. Teacher
• Search for materials in newspapers and on the Internet
• Do field work and collect materials, objects, pictures, and photos from the community to use in the lesson (in January)
• Make a documentary film for the lesson (in January and February)
• Ask students to collect objects, pictures, and photos related to folk songs. Students draw or take photos of things related to folk songs (costumes and other items used in daily life and festivals); then give comments on their collected items.
• Prepare a corner for students to display their products including the Muong costumes, musical instruments, con balls, and reels
• Invite artisans to participate in the lesson

2. Students
• Collect materials (documents, pictures, and photos) and objects in their household and village
• Write, draw, and take photos of cultural legacies
• Find out about the Muong folk songs from their family and neighbors such as lullabies, children’s folk songs, and songs from festivals, weddings, and daily life
• Draw or take photos of things related to folk songs (costumes, instruments, and tools used in everyday activities and festivals); write comments on collected folk items
• Display their collected products including the Muong costumes, musical instruments, con balls, reels, pictures, photos, and texts.

3. Teaching
3.1. Stabilizing class
3.2. Revisiting the previous lesson
Revisit the previous lesson during the lesson.

### 3.3. New lesson

*Activity 1:* Lesson introduction

The Muong folk literature is compared to a flowing river constituted by streams of oral literature such as proverbs, folk verses, legends, tales, and poems. It is a loss, if we do not mention the Muong’s folk songs. The Muong’s folk songs are one of their intangible cultural legacies. They reach people’s heart with their special features. Why? This question will be answered in our lesson today. To help us understand more about the Muong folk songs, I’m honoured to introduce two artisans of Muong Bi. They are Bui Van Eu and Bui Thi Quynh.

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<tr>
<th>Activities of teacher and tradition-bearer</th>
<th>Students' Activities</th>
<th>Contents</th>
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<tr>
<td><em>Activity 2:</em> Present products and materials of the Muong folk song legacy; giving comments on products and materials</td>
<td>Present products and materials in three groups. Each group has one representative.</td>
<td>Students work in groups. Group leader records the result.</td>
</tr>
<tr>
<td>The teacher asks students to present in groups</td>
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<tr>
<td><em>Last time I divided our class into three groups and asked you to collect Muong folk songs. Now, each group’s leader will present your results.</em></td>
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<tr>
<td>The teacher comments: <em>Through your display, you all have a sense of collecting and learning about Muong folk songs. Your work shows your solidarity. Even your collected materials and objects are not plentiful and diverse; they are all related to the Muong folk songs and the Muong cultural character. During your time to collect folk songs, did you find it difficult? Why? Through your learning, can you tell me what a folk song is?</em></td>
<td></td>
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<tr>
<td>- Folk songs are composed by people and passed down orally from generation to generation.</td>
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<tr>
<td>What are the Muong folk songs?</td>
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<tr>
<td><em>Activity 3:</em> Find out about folk songs</td>
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Teacher:
Through your display and presentation, you understand some about Muong folk songs. Now, through an exercise you will present your understand about Muong folk songs. (Complete the team exercise on an A0-sized paper)
Deliver learning form to students to work in groups.
Requirement: Name Muong folk songs. What do you know about them? (Presented in a map). You have three minutes.
The teacher will:
Ask students to stick their result paper on the board;
Ask students to comment on the three groups’ results;
Give comments and show the right results on the projector.

→ There are six types of Muong folk songs: lullabies; children's songs; telling and wishing as singing; inviting songs; singing by repartees; and epic songs in funerals.

Muong folk songs are rich in content. Some of them are accompanied by gongs. Sac bua singing and wishing as singing is common during the New Year Festival. Some others are ritual singing with music and dance. There are also songs sung with verses and legends, traditional songs, songs sung back and forth by young men and women, and children’s songs. They have a strong attachment to the Muong’s life. It can be said that the Muong folk songs are the Muong spiritual life.
To clearly understand the songs’ language, content, form, and soul of the Muong, we study some of their most special folk songs.
The most popular and meaningful one that many people know and can sing is a lullaby.
Old songs sung in thuong dan voice are very uncommon.
You have the lyrics of a lullaby sung by

1. Muong folk songs

<table>
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<th><strong>Students work in groups.</strong></th>
<th><strong>Group leader records the result.</strong> Stick the result paper on the board</th>
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<tbody>
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</table>
Mrs. Quach Thi Trai (in Chua Hamlet) that I collected recently.
We will read to ourselves and think about its words.
Show the lyrics on the projector
Read the lyrics again
Song 1: Pamper a child
Can you give comments on the lullaby language and tone?
What is the song’s content?
Conclude and write on the board
Comment: The lullaby is natural and simple but showing the aunt’s sentiments to her niece. It is filled with the aunt’s love wishing for her niece’s obedience and good sleep. She brings her niece a necklace and earrings. This shows the Muong’s compassion towards their children.
A lullaby is similar to a musical instrument with different melodies. Each string is a tone of a lullaby. Lullabies pamper and educate children to be good, and praise the Muong’s life. As we do not have much time, you will find out about those folk songs through your grandparents, parents, and other people.
Muong spiritual life is profound and meaningful. It’s the same for Muong folk songs. Singing words can spring from life and the Muong can share through poems and songs. This is the continual creativeness of the Muong. They wish each other well and entertain guests by singing. They are enthusiastic that no one can refuse.
Ask students to read the lyrics of the Inviting wine song to themselves.
Present on the projector
Read the lyrics again
Song 1: Pamper a child
- Comment on the lullaby’s tone and language
- Content of the lullaby
- Conclude and write on the board
The language is natural, simple, and

| Students watch and read to themselves. | a. Lullaby |
| Students answer. | Song 1: Pamper a child |
| Students listen. | - Pamper children to be obedient and bring them many gifts |
touching: full of the aunt’s love to wish her niece’s obedience and good sleep. She brings her niece many toys and jewelry. This shows the Muong’s compassion towards their children.

Teacher:
- A lullaby is similar to a musical instrument with different melodies. Each string is a lullaby tone. A lullaby is not only to pamper and educate children to be good, however, it also praises the Muong’s happy life.

As we do not have much time, you will learn more about songs from your grandparents, parents, and neighbors. The Muong spiritual life is profound and meaningful. It’s the same for Muong folk songs. Singing words can spring from life and the Muong can share through poems and songs. This is their part of their creativeness. They wish and invite people by singing with deep feelings and no one can refuse.

Ask students to read Inviting wine by Mrs. Trai to themselves
Show on the projector
- Who did this song mention?
The host and his guest.
- What is the meaning of this song?
Wine offering…
- How about the attitude of the host?
What do you think about his words?
Teacher: Summarizing and writing on the blackboard
- How about the attitude of the guest when he heard the humble offer of the host?
- Do you find anything special in the words of the guest’s reply?
Teacher: Summarizing and writing on the blackboard
Comment: Hyperbole can be words full of praise but still truthful and sincere. The praise includes many things such as elephants, boats, bees, etc. The great num-

Students follow the song lyrics.
Students might give answer: the host and the guest
Students give answer

Students give answer

- The host offers wine with humble words
- The guest praises the host’s skill in wine brewing
ber of things speaks to the good and great wine jar of the host and his skills. The offer and the praise are so clever and delicate that the guest cannot resist drinking. The offer is like a bee's honey, the host's gesture is hearty and humble and makes the guest feel "happy and good". Both of them passionately wallow in the Muong's wine and sentiment. This is an art and a special cultural character.

Teacher: We have studied wishing and offering songs. Now we are going to listen to a wine offering song performed by Mrs. Quach Thi Trai. Her voice is called thuong dang, an ancient and rare voice. (Show a clip of Mrs. Quach Thi Trai singing a wine offering song in a film)

Teacher: The Muong sing not only to reply but also to wish to each other. Let's see another clip and find something special in their wishes.

Teacher: Show a clip of sac bua singing to students
- When is the wish sung?
  In the time of the New Year.

Teacher: When wishing people a happy New Year, bua group always pays attention to the house, the furniture, and property of the host in order to use words suitable to the host's wishes.

Teacher: Show the wishes on the projector
- What do you think about the bua group's wishes?

Teacher summarizes and writes on the blackboard.

Teacher comments: The Muong use some country-like, informal language such as "the" or "flock", exclamatory words such as "very happy, very enjoyable", and comparisons of the weather as "flock of rain", "flock of thunder"... etc. Besides sac bua singing, there is also singing on the way, opening gate, and offering. The bua group and the host may

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sing to each other. The special thing is that the bua group wishes to the family by singing. The song depends on the family’s condition and wishes. They sing without preparation, depending on the location and the Muong’s customs.

Teacher: In short, the Muong’s lullaby, wishing, offering, and sac bua singing describe their spiritual life, soul, customs, and special language. These form the Muong specific character. In addition to those folk songs, there are also love songs, ritual songs, and songs sung as telling, etc.

Introduce a part of a love song sung by Mr. Bui Van Eu and Mrs. Bui Thi Quynh.

The artisans introduce more about love songs.

The teacher summarizes: Other kinds of folk songs will be found out at another time.

Mrs. Bui Thi Quynh gave instructions in a game to look for a paddy

Teacher: Cultural heritage is a spiritual and physical product which has historical, cultural, and scientific value. It is handed down from generation to generation. Through real-life experience and some kinds of folk songs, we can be sure that Muong folk songs are preserved in our cultural heritage.

- What do you know about heritages?
- Do you know anything else of the Muong’s heritage besides folk songs?

Teacher concludes

4. Conclusion

- Summarizing the lesson: Through this lesson, you and I have acquired more knowledge about folk songs, one of the Muong’s intangible cultural legacies. You are students and we are living with the cultural heritages. Sometimes we do not realize that there are many cultural legacies around us. Hence, we forget them and they fade gradually from our memory. I want you to draw your own message about the Muong’s life from this lesson.

What will you do to preserve and uphold the Muong’s cultural heritage?

- We invite Mr. Eu and Mrs. Quynh to share their opinion of our today lesson.
- The Muong’s folk songs are so plenty and multiform that we cannot learn them in just one lesson.
We hope that they will help us find out about the Muong’s folk songs in the future.

5. Homework
- Students are required to collect and learn more about the Muong folk songs in their locality.
- Learning about the culture of the Muong and their remarkable ritual songs

6. Learning from experience
5.

Subject: Chemistry (8th grade)

Lesson Plan prepared by:
Huong Le Thi, Chemistry teacher, Tu Ne Secondary School, Tan Lac District, Hoa Binh Province
Thuy Tran Thi Thu, Viet Nam Museum of Ethnology
1. Objectives
1.1. Knowledge
Students know and understand the physical and chemical properties of water (such as being dissolvable in a variety of solids, liquids, and gases) as well as the reaction of water and some metals at atmospheric temperature, forming bases and hydrogen, and with non-metallic oxides acids, forming acids.

1.2. Skills
• Students understand and know how to write chemical equations expressing the chemical properties of water mentioned above.
• Students practice skills of calculating volume of gases by chemical equations.
• Students practice skills in observation, information, and material collection and analysis.
• Students practice teamwork and presentation skills.

1.3. Attitude
• Students know the causes of water pollution and methods to prevent pollution and have a sense of responsibly using water resources.
• Students understand the role of water in daily life and use through local cultural heritage, such as terraced fields, rice mortar, and water wheels.

2. Preparation
2.1. Teacher
• Prepare experimental tools: glass, funnel, test-tube, glass vase with rough cork, and iron ladle;
• Prepare chemicals: litmus, sodium, distilled water, calcium oxide, and red phosphorus;
• Prepare equipment: projector, images, video, markers, A0-sized paper, and adhesive tape.

2.2. Students
• Draw pictures and collect materials and facts through the local community.

3. Methods
• Visual method
• Problem solving
• Oral conversation
• Group activities

4. Teaching and learning activities
4.1. Stabilizing class
4.2. Revisiting previous lesson
• What are the chemical compositions of water?

Introducing the new lesson:
We know that water is important in our life. Can you rehearse proverbs to express the importance of water and name some of your local customs that show the role of water?
Students then answer.
The teacher adds more information.
We are living in the cradle of the Muong culture in Hoa Binh. The Muong said that “cooking and cultivating rice requires water”, “if we have water, we have fish; if women have a womb, they will have children”. Water plays a very important role in the Muong’s life, hence it is worshiped during
the New Year. On this occasion, the Muong often perform a ritual to worship the water genie at the water source. In the first day of the New Year Festival, all families go to the water source to take water as an offering to their ancestors. Every year, during the farming initiation of Muong Bi, people make offerings to Ai Ly – Ai Lo who are the first people to teach the Muong to dig ditches and dams for irrigation.

To find out about the nature and the role of water as well as Muong traditional knowledge in exploiting and using water, today we continue to learn about water in Section 55.

4.3. New lesson

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<th>Student’s activities</th>
<th>Content</th>
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<tbody>
<tr>
<td><strong>Activity 1: Physical properties</strong></td>
<td>- Students to observe and answer: Water is a colorless, tasteless, and odorless liquid with a boiling point of 100°C (p = 1atm). It freezes to the solid state at 0°C. Its density is 1g/ml. Water can dissolve many solids, liquids, and gases. Connect the example to facts Students to answer</td>
<td>2. Water properties 2.1. Physical properties: textbook</td>
</tr>
<tr>
<td>Ask students to observe a sample of distilled water - Ask students use real-life examples to comment on the physical properties of water? When combining metals like Fe, Cu, and Al; base oxides such as CaO, FeO, CuO; and acid oxides like CO₂, SO₂, P₂O₅ with water, can you tell if water will react with them? To know which agents water reacts with, we will move to the second part of the lesson.</td>
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</table>

**Activity 2: Chemical properties**

To study the chemical properties of water, we will carry out a chemistry experiment and fill in the form.

Divide students into three groups; assign group leaders and secretaries.

Group representatives will receive equipment, chemicals, paper and pen.

Group representatives receive equipment, chemicals, paper, and pen. Groups conduct the experiment and fill in the Table.
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<tr>
<th>Experiment</th>
<th>How to do</th>
<th>Phenomena</th>
<th>Reaction equation</th>
<th>Comments</th>
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</thead>
<tbody>
<tr>
<td>a) Reaction with metals</td>
<td>- Put a piece of Sodium (Na) into a glass of water</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>
| b) Reaction with some base oxides | - Put a small piece of lime into a bowl and pour in water  
- Dip a piece of litmus paper in a solution of lime water |           |                   |          |
| c) Reaction with some acid oxides | - Burn red phosphorus and quickly put it into a bottle containing oxygen. After the reaction, pour 3 ml of water into the bottle and gently shake it; put a piece of litmus paper into the bottle. |           |                   |          |

**Teacher’s activities**

- Group representatives will make a presentation and other groups will comment.

- **Group 1: Present experiment a)**

  The teacher asks several more questions:
  - *Which gas is in the test tube? How can you define it?*
  - *Why does Na melt and create round drops?*
  - *Why can a piece of Na move on the water’s surface?*

  The teacher adds information:
  - *If the water in the solution evaporates, we get the white*

- **Students’ activities**

  - The group leader will hang their results on the board.
  - Other groups comment and add additional information on each experiment.

**Content**

*a) Reaction with metal*

\[ 2\text{Na} + 2\text{H}_2\text{O} \rightarrow 2\text{NaOH} + \text{H}_2 \]

Sodium hydroxide
(Base)
solid NaOH.
- Water can react with some other metals such as K, Ca, and Ba etc.
(Note: Many metals do not react with water)

Group 2: Present experiment b)

The teacher asks several more questions:
- When making the base NaOH, which agents react with water?
- What can we do to identify NaOH in the solution?

The teacher adds information:
- In fact, the reaction of CaO with water takes place in the process of making hydrated lime. Besides, water also combines with K₂O, Na₂O.
- The compounds of reaction between base oxides and water are solution bases. Bases change the purple litmus blue.

Group 3: Present experiment c)
The teacher asks several more questions:
- Which reactions form P₂O₅?
  How can we identify H₃PO₄ in the solution?
- Do all acid oxides react with water to form acids?

The teacher adds information:
Water combines with acidic oxide to form acids. Acid solutions turn the purple litmus red.

b) Reaction with some base oxides

\[ \text{CaO} + \text{H}_2\text{O} \rightarrow \text{Ca(OH)}_2 \]
Calcium hydroxide (Base)

c) Reaction with some base oxides

\[ \text{P}_2\text{O}_5 + 3\text{H}_2\text{O} \rightarrow 2\text{H}_3\text{PO}_4 \]
Phosphoric acid
<table>
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</thead>
<tbody>
<tr>
<td>a) Reaction with metals</td>
<td>- Put a piece of Sodium (Na) into a glass of water</td>
<td>- The Sodium piece moves fast on the water's surface (melted into round drops). Sodium gradually melts until it completely disappears.</td>
<td>( 2\text{Na} + 2\text{H}_2\text{O} \rightarrow 2\text{NaOH} + \text{H}_2 ) <strong>Sodium hydroxide</strong> (Base)</td>
<td>- Sodium has a reaction with water, creating hydrogen. The solution turns the purple litmus blue.</td>
</tr>
<tr>
<td>b) Reaction with some base oxides</td>
<td>- Put a small piece of lime into a bowl and pour in water - Dip a piece of litmus paper in a solution of lime water</td>
<td>- CaO changes to a pasty agent.</td>
<td>( \text{CaO} + \text{H}_2\text{O} \rightarrow \text{Ca(OH)}_2 ) <strong>Calcium hydroxide</strong> (Base)</td>
<td>- Steam can be seen and CaO changes into a pasty agent called hydrate lime. The reaction radiates heat. - The solution changes the purple litmus blue.</td>
</tr>
<tr>
<td>c) Reaction with some acid oxides</td>
<td>- Burn red phosphorus and quickly put it into a bottle containing oxygen. After the reaction, pour 3 ml of water into the bottle and gently shake it; put a piece of litmus paper into the bottle.</td>
<td>White smoke (( \text{P}_2\text{O}_5 )) dissolves</td>
<td>( \text{P}_2\text{O}_5 + 3\text{H}_2\text{O} \rightarrow 2\text{H}_3\text{PO}_4 ) <strong>Phosphoric acid</strong></td>
<td>( \text{P}_2\text{O}_5 ) has a reaction with water to make an acid solution, making the purple litmus paper turn red.</td>
</tr>
</tbody>
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**Teacher’s activities**

Apply knowledge that you have just learn to complete Exercise 1:

*Fill in words including acid oxide, base oxide, element, hydro, oxygen, and metal into the blanks:*

- Water is a compound of two ... that are ... and ... Water reacts with some ... to form bases, and with many ... to form acids.
As a result, water reacts with many agents. What happens if we put other agents in water? The nature of water will be changed, leading to water pollution. Water also plays an important role in life and production. What should we do to prevent water sources from pollution? To answer this question, we will move on to the next section.

In the previous section, I asked you to learn about the role of water in life and production in your locality. Now each group representative will present on three main topics:
- Group 1: Learn about the role of water in life
- Group 2: Explore the Muong’s traditional ways to exploit and protect water sources
- Group 3: Learn about water sources and ecosystem pollution

Group 1 presentation
After the presentation by Group 1, other groups comment. The teacher adds further information and shows a clip on water source roles.

Group 2 presentation
The teacher provides comments and asks:
Name some of your local cultural legacies using water resources.
Terraced fields are a creative aspect of mountainous people’s traditional culture. They rely on high mountainous terrain to create pieces of fields with different heights to irrigate their fields. This is a kind of cultivation with a complicated irrigation system to lead water to the fields. Using terraced fields is a unique cultivation method of the Hmong, Yao, Thai, and Muong etc. in Vietnam and in some other countries.

Show a clip of terraced fields.
Water is one of the most important elements of the terraced fields. To irrigate water to high and far fields, the Muong in Tan Lac

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<th>3. Role of water in life and production; preventing water sources from becoming polluted</th>
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<td>Student work in teams</td>
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<tr>
<td>Group leaders make presentation</td>
</tr>
<tr>
<td>Other groups comment</td>
</tr>
<tr>
<td>Students complete the content.</td>
</tr>
<tr>
<td>Students answer:</td>
</tr>
<tr>
<td>- Terraced rice fields;</td>
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<tr>
<td>- Xa dac (water wheel);</td>
</tr>
<tr>
<td>- Muong, bai canel systems;</td>
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<tr>
<td>- Rice mills using water.</td>
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<tr>
<td>Content: textbook</td>
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still use water wheels. We will watch a clip of traditional knowledge in using water wheels to bring water to the fields.

Group 3 presentation
The teacher adds further information.
Can you present causes of water pollution?
We will hear local people talk about this.
Show a clip of water pollution
You have received a lot of information on protecting water sources. Let's continue to find out about methods used by local people to protect watersheds.
Show a clip of watershed protection
What should we do to protect water and preserve the Muong traditional knowledge of exploiting and using water sources?
The teacher adds extra information:
To protect water sources, the Muong also have many different rules such as:
- For the running water: Slaughtering and disposing of dead animals and waste into water sources is forbidden.
- For production water: It is forbidden to vandalize ditches and willingly let water out of the water source.

4.4. Review and evaluation
What evidence exists about the important role of water in life and production? What are your local methods to prevent water pollution?

5. Instructions for learning
- Doing homework 3, 4, 5 on page 125 in the schoolbook
- Learning lesson. Read beforehand Lesson Acid - Base - Salt

6. Learned lesson and experience:
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The guidelines are prepared basing on experiences during the preparation of sample lesson plans with the participation of:

Cuong Chu Quang, Outdoor Exhibitions Department, Vietnam Museum of Ethnology
Bang Chu Thai, Vietnam Museum of Ethnology
Su Duong Van, Physics teacher, Le Quy Don Secondary School, Ha Noi
Duc Hoang, Audio and Visual Media Department, Vietnam Museum of Ethnology
Huong Le Thi, Chemistry teacher, Tu Ne Secondary School, Hoa Binh Province
Lam Le Tung, Education Department, Vietnam Museum of Ethnology
Quyen Nguyen Hoang, Biology teacher, Le Quy Don Secondary School, Ha Noi
Lan Nguyen Thi Mai, Headmaster, Le Quy Don Secondary School, Ha Noi
Van Nguyen Thi, Education Department, Vietnam Museum of Ethnology
Thuy To Ngoc, Literature teacher, Tu Ne Secondary School, Hoa Binh Province
Thuy Tran Thi Thu, Chief, Education Department, Vietnam Museum of Ethnology
Cuong Tran Viet, Headmaster, Thanh Hoi Secondary School, Hoa Binh Province
Hung Tran Van, Physics teacher, Thanh Hoi Secondary School, Hoa Binh Province
Yen Tran Thi Hai, Headmaster, Tu Ne Secondary School, Hoa Binh Province
Phuong Vo Thi Mai, Research and Collecting Department, Vietnam Museum of Ethnology
Nga Vu Phuong, Research and Collecting Department, Vietnam Museum of Ethnology
Instructions on Preparing a Curricular Lesson Plan with Integration of Intangible Cultural Heritage

A Guide for Primary and Secondary School Teachers in Viet Nam