

**新人教版 选择性必修 2**  
**Unit 1 Science and Scientists**  
**Using Language (1) : Talk about scientific experiences**  
**导学案**

**一、单元学习主题**

人教高中英语选择性必修 2 (2019 版) **Unit 1: Science and Scientists**



**二、单元整体解读:**

本单元主题语境是“科学探究和体验”，思考探究体验式学习的益处，以及科学家所具备的素养和科学精神的内涵。

**三、文本分析:**

听力文本是一段发生在朋友之间的对话。在对话中，Bill 因为生病没能去科学博物馆参观，他的朋友 Judy 为他讲述了这次妙趣横生的科学探究经历。这次体验活动涉及物理、生物等诸多科学领域，充分调动了参观者的视觉、听觉、触觉等多重感官。

**四、课型解析:**

本节课设置听说活动，帮助学生了解 Judy 对博物馆内的实验设施作了生动的描述，也表达了自己惊叹和好奇。Bill 对此产生了极大的兴趣。他们的表达激发学生对科学探究以及这种体验式学习方式的兴趣，并唤醒他们的相关体验和经历。

**I. 【教学目标】 Learning Objectives:**

By the end of this class, students will be able to:

1. get information about Judy's experience in the scientific museum;
2. talk about different scientific experiences.
3. brainstorm scientific research and experiment.

**II. 【教材分析】:**

The theme of this unit is about science and Scientists, while the theme of listening part is about “scientific experiences”.

**III. 【教学过程】 Teaching procedures:**

**Step 1: Pre-listening**

**Activity 1: Look at the photos and talk about what these activities have to do with science.**

Where are they? Why do you think so?

What can you see in the picture?

What is he/she doing?

Why is he/she doing that?

A. I think the dish in this exhibition is related to sound. Maybe the boy is whispering into the smaller circle and the dish can make his voice louder.

B. This looks like a piano you play with your feet. Maybe it shows how sound works.

C. I'm not sure what this one shows, but it must be about light or eyesight.

D. It is a hall of mirrors. Maybe it has to do with the principles of reflection.

E. This is probably an experiment involving the composition of light.

**【设计意图】** 引导学生通过观察图片预测听力内容，培养他们的听前预测策略。

**【核心素养提升点】**

语言能力: 锻炼口头表达交流的能力

**Step 2. Pre-listening**

**Activity 2: Using the photos, try to predict the answers to the following questions.**

1. Where are the people in the conversation going to go?

2. What kind of place is it, and what does it focus on?

3. What kinds of things can you do there?

### Predict by using pictures

One way to get more out of your listening is to predict what you will hear. Using the pictures provided and the knowledge you already have, you can guess the kinds of information you should listen for. At times, you may even be able to guess exactly what will be talked about. This will help you focus better when listening, making your listening more effective.

【设计意图】 激活他们的相关背景知识和体验，为接下来的听力理解做好准备。



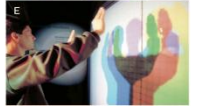


【核心素养提升点】

学习能力：激活学生的背景知识

### Step 3. While- listening:

Activity 3: (1) Listen to the conversation to check your prediction in Activity 2.

(2) Write down the letters (A-E) for the photos in the order that you hear them.

1		<ul style="list-style-type: none"><li>• a hall of mirrors</li><li>• see myself reflected thousands of times</li></ul>
2		<ul style="list-style-type: none"><li>• a blue screen</li><li>• tiny bright lights</li><li>• blood cells</li></ul>
3		<ul style="list-style-type: none"><li>• a white light</li><li>• cast different shadows</li><li>• in every colour of the rainbow</li></ul>
4		<ul style="list-style-type: none"><li>• a giant piano keyboard</li><li>• use your feet to play</li><li>• play voices of classical singers</li></ul>
5		<ul style="list-style-type: none"><li>• a giant dish</li><li>• reflect the sound back</li><li>• speak in a whisper</li><li>• 17 metres away</li></ul>

【设计意图】 帮助学生抓住对话内容的主线，将活动 1 中科学体验活动的照片按顺序排列。

【核心素养提升点】

思维品质：学会提取五幅图的关键词。

### Step 4. While- listening:

Activity 4: Listen again and complete the descriptions of the photos about scientific experiences in the conversation.

Photo A: A giant dish; when you speak into it, it \_\_\_\_\_ the sound back and \_\_\_\_\_. You can use it to speak in a \_\_\_\_\_ to someone 17 metres away.

Photo B: A giant \_\_\_\_\_ that you can use your feet to play. Instead of playing the sounds of a piano, it plays the voices of \_\_\_\_\_.

Photo C: You look at a blue screen for a while, and then suddenly you can see \_\_\_\_\_ moving around on it. These are our \_\_\_\_\_.

Photo D: A \_\_\_\_\_ where you can see yourself reflected thousands of times.

Photo E: You stand in front of \_\_\_\_\_, and it casts different shadows of you, in \_\_\_\_\_ the rainbow.

### Step 5. Post- listening:

Activity 5: Fill in the blanks with the words and expressions in the box to finish the summary of the conversation.

piano keyboard	a hall of mirrors	whisper
blood cells	sound	experimented with
the rainbow	reflected	tiny bright lights
light	a field trip	cast different shadows

1. Judy had \_\_\_\_\_ to a science museum with her classmates last week. First she went to an area for \_\_\_\_\_. In \_\_\_\_\_ Judy saw herself reflected thousands of times.
2. She also \_\_\_\_\_ a blue screen and saw her own \_\_\_\_\_ moving around like \_\_\_\_\_.
3. The thing Judy liked better was that a white light \_\_\_\_\_ of Judy in every colour of \_\_\_\_\_. Later Judy went to the area for \_\_\_\_\_.
4. Judy played a giant \_\_\_\_\_ with her feet, and it even produced the voices of classical singers. She also played a giant dish, which \_\_\_\_\_ the sound back and made it louder so that you could \_\_\_\_\_ to someone 17 metres away.

### Step 6. Post- listening:

#### Activity 6: Talk about something more on the scientific museum (Page 7, Activity 5).

1. The conversation is about the City of Science and Industry, a museum in Paris. Would you like to go to this museum? Why or why not?
2. Are there any museums like this in China? What other interesting museums are there?

#### Let's talk about scientific phenomena

Today, I want to talk to you about a very strange phenomenon called a non-Newtonian liquid. You can make it easily using equal parts of water and cornflour, like I have here. A non-Newtonian fluid is strange because you can pour it like a liquid, but if you put any pressure on it, it suddenly becomes hard as concrete. In fact, it becomes hard enough to stand on. Then, as soon as you take the pressure off, it becomes a liquid again. This shows that it is possible that something can exist as a liquid and a solid at the same time.

### Step 7. Post listening: talk about scientific phenomena

#### Activity 7: Talk about the scientific research or experiment that you are interested in.

(1) Brainstorm a scientific research or experiment (Page 7, Activity 6 & 7).

1. What scientific phenomenon is the example about?

A non-Newtonian fluid.

2. Do you know the phenomenon? Where did you know it?

Yes. In TV programs or books.

3. What other scientific research/experiments have you ever done or read about?

For example: the positive and negative charges of molecules.

【设计意图】 听后表达活动，对听力对话中所描述的科学实践活动发表看法。

#### 【核心素养提升点】

**学习能力：**学会对科学实验和现象的描述

### Step 8. Post-listening: talk about scientific phenomena

#### Read the expressions to talk about scientific phenomena (Page 7).

EXAMPLE

Today, I want to talk to you about a very strange phenomenon called...

You can make it easily using ...

This shows that...

... can/cannot exist in the form of a solid/gas and a liquid/plasma ...		
... is both a ... and a ... at the same time ...	how light/sound is reflected ...	
... the existence of other ...	This occurs when ...	If you ..., it will become ...
That demonstrates ...	This experiment/research shows ...	
Through this, we know that ...	We can prove that ...	This evidence proves ...

【设计意图】 学生开展头脑风暴，选择一项自己感兴趣的科学研究或实验活动，向全班展示和介绍。

【核心素养提升点】

语言能力：能够说出科学活动/研究/实验的关键词

### Step 9. Assignment:

1. Make a short presentation about the scientific research or experiment.
2. Use the example and useful expressions in Activity 7 on page 7 to help you.

【学后反思】

1. 反思读图预测能力？
2. 是否能说出科学活动/研究/实验的关键词？

【板书设计 Blackboard Design】

### Blackboard Design

Blackboard Design	<div>Unit 1</div> <div>Using Language:</div> <div>Picture A: a giant dish, whisper</div> <div>Picture B: a piano keyboard, play with feet</div> <div>Picture C: a blue screen, bright lights</div> <div>Picture D: a hall of mirrors, reflect</div> <div>Picture E: a white light, cast shadows, in the colour of the rainbow</div> <div> <div>Photo A: A giant dish; when you speak into it, it _____ the sound back and _____ . You can use it to speak in a _____ to someone 17 metres away.</div> <div>Photo B: A giant _____ that you can use your feet to play. Instead of playing the sounds of a piano, it plays the voices of _____ .</div> <div>Photo C: You look at a blue screen for a while, and then suddenly you can see _____ moving around on it. These are our _____ .</div> <div>Photo D: A _____ where you can see yourself reflected thousands of times.</div> <div>Photo E: You stand in front of _____ , and it casts different shadows of you, in _____ the rainbow.</div> </div>
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