



6

Unit

When art meets science

Art and science seem to be two different disciplines, but are they really so divergent? What happens when art meets science? Does science contribute to the expression of art? Should art be integrated into science education? Who is more valued in our society, an artist or a scientist? In this unit, you may find some answers to these questions.

Learning objectives

Upon completion of this unit, you will be able to:

- discuss the relationship between art and science from different perspectives
- identify the inverted pyramid structure of a news report
- integrate the pronunciation skills that you have learned
- conduct an interview about the influence of art and science

Warming up

Work in pairs and discuss the following questions.

- 1 Who do you think has a heavier workload, an artist or a scientist? Why?
- 2 Who do you think makes more contributions to society, an artist or a scientist? Why?
- 3 How do you think science influences art, or vice versa?

iExplore 1: Listening and speaking

Conversation

Listening and understanding

1 Who contributes more to our society, an artist or a scientist? Now listen to a conversation and choose the best answer to each of the questions you hear.

- 1 A. They entertain people.
B. They are relatively few.
C. They reflect times and culture.
D. They are seemingly more valued.
- 2 A. Their lifestyle is healthier.
B. They are more hard-working.
C. They have more creative ideas.
D. Their contributions are more obvious.
- 3 A. They can act in movies.
B. They discover ancient works of art.
C. They create something to spread art.
D. They inspire the producers of TV series.
- 4 A. Artists.
B. Scientists.
C. Politicians.
D. Researchers.

2 Listen to the conversation again and check (✓) the contributions of artists.

- 1 They show us who we are as a people.
- 2 They record our culture for future generations.
- 3 They save us a lot of trouble.
- 4 They help maintain society's mental and emotional health.
- 5 They come up with ideas of practical devices.

Passage

Listening and understanding

1 Physics and art are often viewed as separate disciplines. But are they really that divergent? Now listen to a passage and decide whether each of the following statements is true (T) or false (F).

- 1 Few people hold that physics and art are much more connected.
- 2 Scientists need to experiment while artists prefer to imagine.
- 3 In history, physics and art are even more connected than now.
- 4 Physics and art have promoted each other's development.
- 5 Art and physics use symbols in a similar pattern.

WORDS AND EXPRESSIONS

metaphor /'metəfɔː/ *n.* 象征
equation /ɪ'kweɪʒn/ *n.* 等式;
方程式

lexicon /'leksɪkən/ *n.* (某种
语言、某个群体、某种职业等
的)全部词汇





2 Listen to the passage again and fill in the blanks with what you hear.

Differences between artists and physicists

- Artists employ the 1) _____ and metaphor.
- Physicists use the 2) _____ and equation.

Similarities between artists and physicists

- Both try to understand and 3) _____ the world around them.
- Both must imagine, experiment, 4) _____ and share their findings.

Interaction between art and physics

- Physicists use art to visualize 5) _____ aspects of the physical world.
- Artists use physics to understand, 6) _____ and experiment with their materials.
- Advances in physics have made and changed the 7) _____ art making is done.
- The 8) _____ of artists have helped develop physics.

Similarities between art and physics

- Both are unique forms of 9) _____.
- Both reveal previously hidden 10) _____.

Thinking and speaking

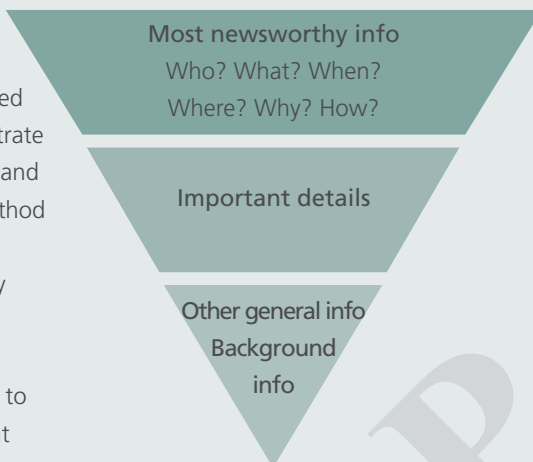
3 In the passage, the speaker has discussed how art and physics are closely related to each other. Do you agree with his opinion? If yes, give some specific examples to justify your opinion. If no, explain your reasons with examples.

News report 1

LISTENING SKILLS

Identifying the inverted pyramid structure of a news report

The inverted pyramid is a metaphor used by journalists and other writers to illustrate how information should be prioritized and structured in a text. It is a common method for writing news reports. As you've learned before, the main idea is usually presented at the beginning of a news report. However, if you want to know more details, you should pay attention to how speakers organize other important information according to this structure.



Have you ever thought about the influence of AI on creative industries like musical composition? Now listen to a news report and choose the best answer to each of the questions you hear.

- A. It can play games.

B. It can create classical music.

C. It can teach people to write music.

D. It can make emotional conversations.
- A. It is mainly used by start-ups.

B. It has created soundtracks for film directors.

C. It will create various slogans for advertisements.

D. It was used to attract people to the European Film Market.
- A. It is yet to be tested by the market.

B. It was invited to an AI summit by a government official.

C. It is the first AI to get the worldwide status of a composer.

D. It has received praise from the AI researchers in Luxembourg.

WORDS AND EXPRESSIONS

soundtrack /'saʊnd,tɹæk/ *n.*
(电影、电视节目的)配乐

PROPER NAMES

Luxembourg /'lʌksəmbɜ:ɡ/
卢森堡(欧洲国家)

News report 2

WORDS AND EXPRESSIONS

documentary /,dɒkjʊ'ment(ə)rɪ/

n. 纪录片

sharpen /'ʃɑ:pən/ *v.* 加强、提高

(技巧、能力等)

PROPER NAMES

ArtScience Museum 艺术科学博物馆 (新加坡)

Recently, ArtScience Museum has introduced its latest program. Now listen to a news report and choose the best answer to each of the questions you hear.

- A. To produce new forms of art.

B. To provide a free program for the public.

C. To select the content for temporary galleries.

D. To explore the relationship between art and science.
- A. Essays.

B. Motion pictures.

C. Multi-function images.

D. The documents of films.
- A. It supports the local film industry.

B. It helps to promote global thinking.

C. It is a major step toward rebuilding the gallery.

D. It shows the need to sharpen people's vision of art.



Explore 2: Viewing and speaking

Viewing and understanding

1 Have you ever thought about the relationship between math and art? Do you know the math behind Vincent van Gogh's *The Starry Night*? Now watch a video clip and decide whether each of the following statements is true (T) or false (F).

- 1 The German physicist has a deep understanding of turbulence.
- 2 Vincent van Gogh painted *The Starry Night* in June 1889.
- 3 *The Starry Night* was painted before Vincent van Gogh cut off his own ear.
- 4 The human brain sees light contrast, motion and colors at the same time.
- 5 Impressionists use quick brush strokes to show how light moves.
- 6 The eddies of a cloud of dust and gas around a star reminded scientists of *The Starry Night*.
- 7 Vincent van Gogh's paintings were converted into a digital format by researchers.
- 8 Vincent van Gogh's self-portrait shows the sign of fluid turbulence.

WORDS AND EXPRESSIONS

turbulent /'tɜːbjʊlənt/ a. 湍流的

fluid /'fluːɪd/ n. 流体

swirl /swɜːl/ v. (使)旋动

eddy /'edi/ n. 旋涡

Impressionist /ɪm'preʃnɪst/

n. 印象派画家; a. 印象派的

luminance /'luːmɪnəns/ n. 亮度

radiate /'reɪdi,eɪt/ v. 散发, 发射 (光和热)

psychotic /saɪ'kɒtɪk/ a. 精神失常的

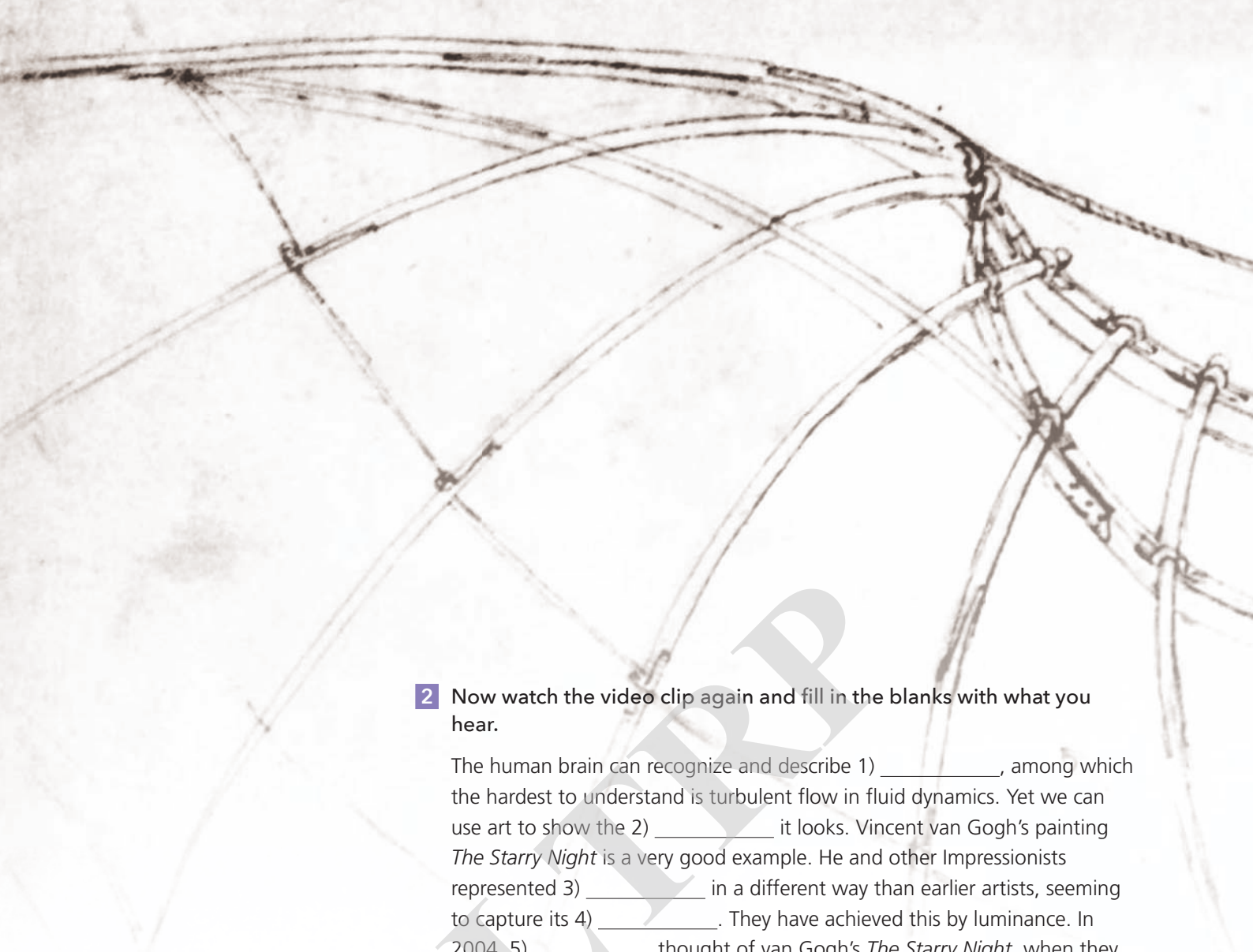
PROPER NAMES

Vincent van Gogh /vɪnsnt væn 'gəʊ/ 文森特·凡·高 (荷兰后印象派画家)

Hubble /'hʌbl/ Space

Telescope 哈勃太空望远镜





2 Now watch the video clip again and fill in the blanks with what you hear.

The human brain can recognize and describe 1) _____, among which the hardest to understand is turbulent flow in fluid dynamics. Yet we can use art to show the 2) _____ it looks. Vincent van Gogh's painting *The Starry Night* is a very good example. He and other Impressionists represented 3) _____ in a different way than earlier artists, seeming to capture its 4) _____. They have achieved this by luminance. In 2004, 5) _____ thought of van Gogh's *The Starry Night*, when they used the Hubble Space Telescope and saw the eddies of a distant cloud of dust and gas around a star. After studying the luminance in van Gogh's paintings in detail, they discovered that there is a pattern of turbulent fluid 6) _____ similar to a mathematician's equation hidden in many of van Gogh's paintings. This was especially evident in the paintings from van Gogh's psychotic periods. It's very difficult to accurately express the beauty of the fact that in a period of intense 7) _____, van Gogh was somehow able to perceive and represent one of the most difficult concepts, and to unite his unique mind's eye with the deepest mysteries of 8) _____, fluid and light.

Thinking and speaking

3 Work in groups and discuss the following questions.

- 1 What do you think of the works of Vincent van Gogh? What classic works of other artists do you know?
- 2 How would the development of science contribute to the presentation of the works of art in modern times?



iPractice: Pronunciation

Listen to the following paragraphs and pay attention to how the speaker reads them with the pronunciation skills that you have learned. Then take turns reading them to a partner.

Art and physics are a strange coupling. Of the many human disciplines, could there be two that seem more different? The artist employs the image and metaphor; the physicist uses the number and equation. Yet, physics and art are much more connected than most people imagine. In many ways they are one and the same. Both the physicist and the artist try to understand and interpret the world around them. They must imagine, experiment, explore and eventually share their findings.

When taking a look back at the history of physics and art, we will find that physicists have always used art and artists have always used physics. Physicists use art to help them visualize abstract aspects of the physical world. Artists in turn use physics to understand, apply and experiment with their materials.

Unit project

Conducting an interview

Which has more influence on you, art or science?

A rising number of universities are starting to realize the importance of art education in combination with science education. To closely examine the two and compare their impact, your university wants to conduct an interview to see which has more influence on students. As members of the Student Union, you and your friends would like to help conduct the interview in your class. The following steps may help you with the project.

Step 1 Brainstorm

Work in groups of four. Come up with as many questions as possible to ask your classmates. The following questions may give you some ideas.

- Are you taking any courses in art or science?
- In what aspect has art impacted you?
- In what aspect has science impacted you?
- Which has more influence on you, art or science? Why?
- Which do you think will have a greater impact on your life in the future, art or science? Why?

...

Step 2 Design an interview

Select five questions that you think can best tap into your classmates' thoughts about the subject. Make sure that the five questions are meaningfully connected.

TIPS

Designing questions for an interview

- Understand the main objective of your interview.
- Ask questions related to background information about your respondents.
- Use simple language so that your respondents can understand your questions.
- Avoid double negatives when phrasing questions.
- Make sure that the questions are interconnected and logically ordered.

Step 3 Interview your classmates

Ask five classmates to answer your questions and note down their responses. Write down the specific reasons for their choices as well as the supporting evidence and examples that they provided.

Step 4 Present the result

Summarize the findings of your interview and report them to the class. The class then votes on the most useful and interesting findings. Afterwards, the winning group will collect and analyze the results from other groups. They will combine those results with their own and present the overall findings to the Student Union.



Further listening

News report 1

PROPER NAMES

Arles /'ɑ:lz/ 阿尔勒 (法国城市)

Listen to a news report and choose the best answer to each of the questions you hear.

- 1 A. It is a must-see art event in a gallery.
B. It will display several painters' paintings.
C. It will present some works from the *Sunflowers* series.
D. It is a reunion of all van Gogh's most famous paintings.
- 2 A. He will host the art show.
B. He will share his personal memories of one of the paintings.
C. He has seen all the sunflower paintings in his parents' home.
D. He thinks more highly of the *Sunflowers* series than *Mona Lisa*.
- 3 A. They were painted before 1888.
B. They were once reunited in an exhibition.
C. They were painted in the north of France.
D. They are now distributed around the world.

News report 2

WORDS AND EXPRESSIONS

formula /'fɔ:mjələ/ n. 公式;

方程式

line segment /'segmənt/

n. 线段

ratio /'reɪʃiəʊ/ n. 比例; 比率

PROPER NAMES

Yeganeh /jə'gɑ:neɪ/

耶加内 (人名)

Vitruvian /vɪ'tru:vɪən/ *Man*

《维特鲁威人》(列奥纳

多·达·芬奇的世界著名素描)

Listen to a news report and choose the best answer to each of the questions you hear.

- 1 A. It reminds us of formulas.
B. It is rarely used in our daily life.
C. It can be displayed with software.
D. It is only learned in high school.
- 2 A. He is an art student.
B. He is an animal lover.
C. He uses formulas to create artworks.
D. He uses math concepts to create sculptures.
- 3 A. It is newly established.
B. It is known by many people.
C. It is discussed in ancient Greece.
D. It is shown in one of da Vinci's works.

Conversation

Listen to a conversation and choose the best answer to each of the questions you hear.

- 1 A. It helps a lot to take a better photo.
B. It may distract others at art galleries.
C. It has caused problems around the world.
D. It is banned when taking photos of sculptures.

- 2 A. It is a risky decision for most museums.
B. It is first enforced by the Palace of Versailles.
C. It is issued mainly for the safety of the paintings.
D. It is not adopted by the National Gallery in London.

- 3 A. Many of them are young people.
B. They contribute to the spread of art.
C. They are cautious about using selfie sticks.
D. They are completely engaged in social media.

- 4 A. Positive. B. Worried.
C. Opposed. D. Objective.

PROPER NAMES

Palace of Versailles /vɜː'saɪ/
凡尔赛宫 (法国)

Passage

Listen to a passage and choose the best answer to each of the questions you hear.

- 1 A. It is no longer as popular as before.
B. It is questioned by more and more universities.
C. It can't replace majors of classics or art history.
D. It promotes arts in science and technology education.

- 2 A. To show that a coder can hardly be a tech hero.
B. To exemplify that tech elites can also be artistic.
C. To emphasize that technology makes our hearts sing.
D. To illustrate the importance of integrating sciences with arts.

- 3 A. It reveals the importance of liberal arts education.
B. It aims to examine the goal of liberal arts education.
C. It points to the importance of expertise in the specific major.
D. It's about the relationship between employers and employees.

WORDS AND EXPRESSIONS

coder /kəʊdə/ n. 编程人员