Everyday Science and Technology

News You Can Use

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NAN'UN-DO

To the Students

We live in what some have dubbed "The Age of Science and Technology." More and more, our lives and societies are being affected (some would say for better or worse) by momentous discoveries in every scientific field and by advances in every area of technology—progress that purports, even promises, to make life better and easier for everyone (though there is some doubt and controversy about such claims). This textbook—*Everyday Science and Technology*—takes a brief, popular-science look at some recent key breakthroughs, game-changing inventions, and salient trends.

I am not a scientist or technologist by any means, but I am fascinated by the many science-and-technology news stories that I read and hear about every day. In this textbook, I wanted to share some of that fascination with you. The book's subtitle—"News You Can Use"—suggests what I see as perhaps the text's primary benefit. I have come up with stories and information that I think will be useful to you—news that will increase your understanding and appreciation of (and perhaps concern about) life and society today, but at the same time will give you essential facts and ideas that will help you navigate your way through and thrive in our, in many ways, challenging period of history.

But of course *Everyday Science and Technology* is first and foremost an English textbook—one that I have tried to make easy, straightforward, and a pleasure to use. There are 15 units or lessons, each with a reading of 300-350 words written in natural, everyday English—some of it necessarily technical but always presented in an accessible, reader-friendly way so as not to overwhelm or discourage. The follow-up comprehension and vocabulary-study activities are all designed not to test you but to help you get the most out of each reading and allow you to retain the "news you can use" offered in it. Each unit ends with a listening activity related to the reading's main topic.
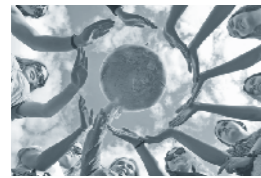
All in all, *Everyday Science and Technology* will give you an excellent workout—a challenging but effective language-fitness program that will build up your stock of knowledge, strengthen all your English skills, boost your confidence, and, I hope, spark your awe and curiosity, about our exciting (but also anxious) world of everyday science and technology.

CONTENTS

Artificial Intelligence

AI's Impact on Art

Looking Ahead

As you read today's reading on the next page, look for answers to these questions.

1. Why does it sometimes seem as if AI is "taking over the world"?

2. What can AI's and robots do better and faster than humans?

3. What can AI art tools now produce?

4. What do art AI's have in their data bases?

5. Why are ad-agency creators especially pleased with AI art?

6. What does Aimee Cozza say that AI art does NOT require?

7. What do "real" artists especially dislike about AI art?

[1]   Today, it can seem as if AI—**artificial** intelligence—is taking over the world. From shopping to dating, schools to gaming, factories to farms, AI technology is transforming nearly every aspect of modern life. It's easy to see why. AI robots can turn out more of every **commodity** in far less time than **conventional** production methods. They can examine data far faster than any human. They accomplish all this cheaply and efficiently, without fatigue or boredom, and nearly error-free.

[2]   Advances in AI are also having an impact on art. Special AI art tools can now produce paintings, photographs, and many other artworks. They allow us to create almost anything we can imagine. "Type in a few words, and up pops an **assortment** of artistic images," says digital artist Aimee Cozza.

[3]   Of course, it's not quite that simple. The "few words" we type in are actually a short **description** of the painting or sculpture we have in our mind's eye. Art AI's have a huge collection of pictures in their data base. They search through all these images and recognize patterns among them. This allows them to **eventually** come up with artworks that match the descriptions we have given them.

[4]   To the average person, this is a dream come true. Almost anyone can now create art, "without doing all the studying and practice and hard work to get good at it," says Aimee Cozza. Creative workers such as ad-agency illustrators are especially happy with the technology. AI art shows them almost **immediately** what the great new idea they are picturing in their imaginations will actually look like!

[5]   But not everyone is a fan of AI art. Many "legitimate" artists are put off by it. It's totally unfair, they complain. They **resent** having to compete against computers for attention, jobs, and art prizes. "It's hard," adds Aimee Cozza, "for artists. They hate to see people who have never picked up a pencil make nice things using just a simple typed-in description and borrowed art styles. It's even harder when they see people acting as if they've made the art with their own skilled hands."

Notes   turn out：生産する / accomplish：成し遂げる / boredom：退屈 / up pops = pops up：突然現れる、ポンと飛び上がる / sculpture：彫刻 / come up with：～を思いつく / match：～に合致する / ad agency：広告代理店 / picture：描く / legitimate：本物の、真の / put off：うんざりさせる / complain：不平を言う / compete against：～と争う、競う

A *Choose the correct answer.*

1. Which of these fields is NOT mentioned as one way in which artificial intelligence—AI—is transforming modern life?
    a. health and medicine   **b.** education   **c.** agriculture

2. What does paragraph 1 say that AI robots can do faster than any human?
    a. produce goods   **b.** analyze information   **c.** play games

3. The underlined word "fatigue" in paragraph 1 refers to people's
    a. being tired   **b.** getting old   **c.** needing help

B *Circle T if the sentence is true, F if it is false.*

4.   T   F   Paintings and photos are the only artworks AI art tools can produce.

5.   T   F   Aimee Cozza designs computers for a living.

6.   T   F   The underlined phrase "mind's eye" in paragraph 3 is a synonym for "imagination."

C *Fill in the blank(s) in each sentence below. Listen to check your answers.* ◖DL◗ 03

7. The "few words" Aimee Cozza mentions are actually a _____ of the artwork we want to create.

8. An art AI's _____ is filled with a huge _____ of images or pictures.

9. To most people, including creative people like _____, AI art is like a dream come _____.

10. "_____" artists complain that AI art is totally _____.

D *Writing Challenge: Write a full-sentence answer to each question below. Listen to check your answers.* ◖DL◗ 04

11. What do people who create AI art NOT have to do, according to Aimee Cozza?

    _____

    _____

12. What does Aimee Cozza say makes "real" artists especially upset about people who create AI art, even though those people have never picked up a pencil?

    _____

    _____

Part 3 Vocabulary Study: *Follow the instructions for each activity below.*

A *Match these KEY WORDS from today's reading with the definitions and synonyms below. Write the words on the lines. (The words are highlighted in bold in the reading.)*

artificial	assortment	commodity	conventional
description	eventually	immediately	resent

1. _____ product or good; material thing
2. _____ over time; after a while; someday
3. _____ false; imitation; not real
4. _____ a picture in words; sketch; depiction
5. _____ to be angry about; feel bitter; begrudge
6. _____ variety; range; selection
7. _____ right away; very soon
8. _____ traditional; normal; ordinary; old-fashioned

B *Fill in the blank in each sentence below with the correct form of one of these words to make a phrasal verb (idiom) used in today's reading. Listen to check your answers. (The meaning of the phrase is shown in brackets after each sentence.)* 🎧 DL 05

come	pop	take	turn

1. This new machine can _____ **out** 500 sandwiches per hour. [make]
2. Can you help me _____ **up with** a name for our new robot? [create]
3. Gerald always tries to _____ **over** our meetings. He's really rude. [control]
4. So many ads _____ **up** on my computer. How can I stop them? [appear]

Part 4 Listening Challenge: *Listen to the short talk. Then circle T if each sentence below is true, or F if it is false.* 🎧 DL 06

1. T F ChatGPT is the only chatbot that has so far been created.
2. T F ChatGPT came out in November 2023.
3. T F ChatGPT uses AI to produce text.
4. T F ChatGPT's language is similar to how people speak and write.
5. T F ChatGPT is not at all useful in mathematics.
6. T F ChatGPT is difficult for the average person to use.
7. T F ChatGPT's information for its responses is gathered from the internet.
8. T F ChatGPT might cause students to use it to do all their schoolwork.

Ecology/Environmental Science (1)
Solar Geoengineering

Looking Ahead

As you read today's reading on the next page, look for answers to these questions.

1. What will happen if we don't take action to slow global warming?
2. What is geoengineering, and what does it aim to do?
3. What are two geoengineering methods?
4. What are three types of solar geoengineering?
5. What did a recent Harvard study show about solar engineering?
6. Why do some scientists oppose solar engineering?
7. What do these scientists say we should do about climate change?