

5 Sciences

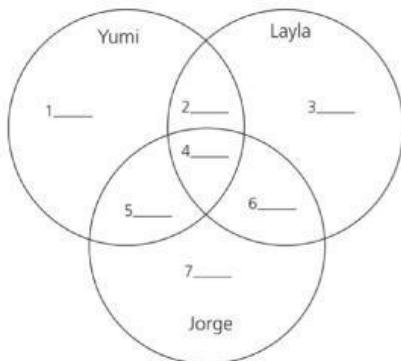
Reading

1 Read the article on page 41. Match the characteristics (a–f) with the career options from the article (1–3).

- a Excellent if you really enjoy figuring out how things work _____
- b An especially good choice for people who love words and language _____
- c A career where you're responsible for making big decisions about money _____
- d An interesting field for people who want to explore and share ideas _____
- e A good place for people who think about what's right and fair in business _____
- f A job where you actively and directly support working scientists _____

4 Match the statements (a–g) with the correct place in the Venn diagram (1–7).

- a Actively looked for a new career
- b Discovered their new job by chance
- c Has a PhD
- d Stopped studying after getting an undergraduate degree
- e Now works preparing materials for wide audience
- f Now works in a profession where applications have to be assessed
- g Is happy in their job



Alternative careers in science

When we think of jobs in science, we tend to think of laboratories and research expeditions. But fields as diverse as publishing, law, education, sales, consultancy and business need scientists too. Here are three career options you may not have thought about.

1 Law and intellectual property

A new scientific, medical or technological innovation is often given a patent – a document that shows that the development is unique and that the right to produce or sell it belongs to the inventor. In addition to legal professionals, this process requires a variety of expert science and engineering personnel to examine patent applications and assess the function and originality of inventions. Taking a law course on top of scientific training would be one way to develop a career, but you could also pursue work as a scientific and technical advisor in a law firm or in the legal department of a company.



The voice of experience – Jorge: *'I loved physics in school and studied it up to PhD level, where I specialized in robotics. The day-to-day work was OK, but was very focused on one thing: designing a certain type of robotic arm. When my research group at the university went through the process of making a patent application, I got interested in the legal side of it – thinking about who owns ideas. I ended up joining a law firm as a science advisor and they gave me legal training. Best move ever!'*

2 Science administration and funding

Governments and other organizations support science by providing funds for research. If you enjoy following emerging scientific developments, but don't want to work in a lab, science administration and funding could be for you. The field requires people with a science background to assess applications, evaluate the usefulness and originality of proposed research and decide how to allocate financial backing. It's an excellent way to take part in the conversation between science and society, and apply your scientific knowledge to the development of scientific and technical solutions to the world's problems.



The voice of experience – Yumi: *'When I chose biology, I had thought I might go into medicine, but by the time I finished my degree, I knew I didn't want to be a doctor. A careers counsellor at my university suggested I contact a major scientific funding body, which I did, and then I successfully applied for a position there as a research funding officer. I love engaging with scientists' ideas and determining which ones have the best potential to meaningfully further human knowledge.'*

3 Publishing

Scientists, medical professionals, policymakers, science and medicine students, and the general public demand a steady flow of the latest scientific information. Whatever your field of scientific interest or expertise, publishers are compiling information about it in books, journals, magazines, apps, ebooks and websites. This work requires the effort of a team: writers, illustrators, editors, proofreaders, designers and production and IT staff. If you have a background in science and you're interested in organizing and communicating ideas and shaping messages for particular audiences, publishing could be for you.



The voice of experience – Layla: *'As a graduate in chemistry working as a lab assistant, I wrote up experiments for inclusion in journal articles. I loved expressing complex ideas coherently and presenting them clearly. The journal editor encouraged me to consider working in publishing. I took a publishing summer course and the rest is history. I now edit books and articles in chemistry and other fields. One of the biggest perks of the job is that I'm constantly learning about the latest developments in science.'*

Vocabulary

Describing health benefits

1 Match the sentences (1–7) with the next logical statements (a–g).

1 Everyone joined in, so the comedy show was a big success. _____

2 I work alone in my job and don't have much social interaction. _____

3 I don't have a very high tolerance for the cold. _____

4 The swim was 1.5 km, the bike ride was 40 km and the run was 10 km. _____

5 She asked for the best ways to support her immune system. _____

6 I've been trying to cure my insomnia. _____

7 The new employees all seemed very open-minded. _____

a That's why I'd rather do something indoors.

b The laughter was infectious.

c I find that avoiding screens at bedtime helps with this.

d They burned a lot of calories.

e However, I really enjoy chatting to people when I have occasional online meetings.

f The doctor recommended plenty of sleep and exercise.

g It's great when people are willing to try new things.

2 Complete the notes with these words.

calories	immune system	inappropriate
infectious	insomnia	open-minded
social interactions		tolerance

- When people work out with a friend or small group, it's a lot easier to keep going because motivation can be ¹_____. When we see our friends pushing hard, we want to do the same. And ²_____ such as chatting, sharing a joke or even groaning together can make it feel easier and encourage us to keep going.

- Both laughter and exercise burn ³_____, which can help keep you at a healthy weight. Both contribute to a strong ⁴_____ so that your body can fight disease, and both can help solve the problem of ⁵_____, so you can get a good night's sleep. And, like laughter, certain types of exercise can even increase your ⁶_____ of pain.
- Psychologists encourage us to find out what type of humour we like and to laugh as often as possible. However, if you're in the habit of laughing at negative, angry or otherwise ⁷_____ jokes you should try to be ⁸_____ and find more positive ways to laugh.

Pronunciation

Saying vowels and diphthongs: length

1  5.1 Listen and circle the words you hear.

- 1 *Fill / Feel* it.
- 2 Hold this *knot / note*.
- 3 The sign on the door said 'Pull' / 'Pool'.
- 4 He brought some *mats / mates* with him.
- 5 Did you find your *set / seat*?
- 6 How do you spell 'but' / 'boot'?

Grammar

Adding emphasis with cleft sentences

1 Put the words in the correct order to make cleft sentences.

1 always absurd / I like about / The thing / they're / her jokes is / .

2 Look at the first sentence in each pair. Complete the cleft sentence so that it has the same meaning.

1 I love the funny ending to this film.

What I love about this film is the funny ending.

2 Take your time when you tell a joke.

What you _____ when you tell a joke.

3 You should ask Erik to tell that joke, not me.

It's _____, not me.

3 Rewrite the sentences in bold as cleft sentences.

A: Does laughter increase your blood pressure?

B: No, it doesn't. **1Laughter decreases your blood pressure.**

A: Oh, I remember now. **2Laughter boosts creativity.**

B: **3Laughter doesn't only increase creativity.** It also improves memory, mood and sleep.

A: Do you know any good jokes?

B: Sorry, I'm no good at jokes. **4Ask Dan.**

A: I already asked him and he said he didn't know any good ones.

B: **5You need a good joke book.**

A: Yeah, I guess that would help. **6I need a funny story to start my presentation.**

2 rides at the theme park / What / is going on / makes me laugh / .

3 he did was / wait for / What / to stop laughing / the audience / .

4 the seriousness in / that makes me / It's / want to laugh / some meetings / .

4 I want a good laugh, not another boring comedy show.

It's _____, not another boring comedy show.

5 You need to ask Leo to give the speech.

The person you need to ask

6 I'm going online to get tickets for the comedy club.

The reason I'm going online

1 What / laughter / decrease / blood pressure

2 The thing / laughter boosts / creativity

3 It / not only creativity / laughter increases

4 The person / ask / Dan

5 What / need / good joke book

6 It / a funny story to start my presentation / need

Listening

1 Complete the table with these words and abbreviations.

= e.g. etc. i.e. incl regarding vs w

Word or expression	Abbreviation
and so on	1 _____
for example	2 _____
that is	3 _____
including	4 _____
is/are	5 _____
6 _____	re
versus	7 _____
with	8 _____

2  Listen to part of an online workshop on note-taking. Choose the correct abbreviations to complete the notes.

Digital ¹vs / re handwritten – researchers don't agree – ²etc. / i.e. both have strengths and weaknesses

Cornell method ³= / w good for exam preparation

Title, date, ⁴ etc. / e.g.	
Key words ⁵ e.g. / incl terms, questions, phrases	Main notes
Summary	

Sketch notes

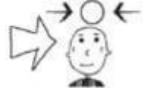
– ⁶incl / re simple



– make ⁷= / info easy to



– working ⁸vs / w care
and attention



Vocabulary

Suffixes related to research

1 Complete the article about narrative in science with the correct form of the words in brackets.

Narrative in science can be ¹_____ (inform) because it can help audiences to understand and engage with scientific ideas and concepts. It makes ²_____ (statistic) information more ³_____ (person) so that people can relate to it. By, for example, focusing on the ⁴_____ (individual) of animals, rather than just seeing them as a group of identical creatures, we gain an understanding of their true nature. This in turn can make storytelling ⁵_____ (persuade)

because understanding how scientific findings are related to everyday life may encourage people to act. This is especially important now, when we consider challenges such as global warming that ⁶_____ (human) is facing.

However, some scientists worry that using stories may be ⁷_____ (manipulate) because they may appeal to people's emotions rather than encouraging the rational, ⁸_____ (analyse) thought that is so important in science.

According to researchers Michael F. Dahlstrom and Dietram A. Scheufele, the solution lies in using narrative not only to increase the ⁹_____ (available) of relatively complex scientific ideas, but also to promote careful scientific thought.

2 Complete the sentences with the words you wrote in Exercise 1.

- 1 The website was very _____ and gave me all of the information I needed.
- 2 Have you checked the _____ of tickets for the science fair?
- 3 Her mind is very _____, which makes her good at solving problems.
- 4 The story was _____ and designed to make people react emotionally.

- 5 If we work together, _____ is capable of doing great things.
- 6 When a story is _____, people can relate to it better.
- 7 Together, data and narrative can be very _____.
- 8 After studying zebras for years, he was able to see the _____ in their markings.
- 9 Scientists gather _____ information to understand how the world works.

Focus on

Negative and limiting adverbials

1 Rewrite the sentences using the negative and limiting adverbials.

1 I realized the fox was following me when some children pointed at it.

It was only when _____.

2 Chimps don't only use tools, they also make them.

Not only _____.

3 I hadn't seen a herd of deer so large since I'd worked in Canada.

Not since _____.

4 The bear seldom left its den during the winter.

Seldom _____.

5 No one had seen a whale of that size.

Never _____.

2 Complete the narrative about stargazing with these words.

hardly little never before no no way only

1 _____ did I know when my friend Lisa invited me to go with her to the countryside to look through her new telescope that I would have such an amazing experience. 2 _____ when you go to a really dark place can you appreciate how huge the night sky can be. 3 _____ had we arrived than I was in a state of complete awe – and the telescope wasn't even set up yet! I felt as though I was seeing the sky for the very first time. 4 _____ had I seen so many stars. 5 _____ would we ever have seen such an amazing sky in the city. We looked at stars and planets for hours. 6 _____ sooner had we put away the telescope than we noticed the sun was beginning to rise. We had stayed out all night!

1  5.4 Listen and choose the correct option to complete the sentences.

- 1 Whose card / cart is that?
- 2 We need some more saws / sauce.
- 3 Did they serve / surf it?
- 4 The log / lock broke into several pieces.
- 5 He took photos of the rays / race.

Pronunciation

Saying longer vowels before voiced consonants

Writing

1 Look at part of a video brief explaining how to tie a knot called a figure 8 bend. Complete the 'Voice' column of the brief with the descriptions (a-f).

- a First, make an '8' shape with the light rope.
- b Continue pushing the dark rope through the light rope's 8 until it also forms an 8.
- c I'm going to show you how to tie these two ropes together in a knot called a figure 8 bend.
- d Now you have two ropes tied together with a figure 8 bend.
- e Next, push the dark rope through the loops of the 8 in the light rope.
- f Finally, pull the ropes away from the knot to tighten it.

Voice	Visuals
1	
2	
3	
4	
5	
6	