UNIT 6

In the Lab

READING

Read the text. Who takes care of the business of science?

Scientist Make Science, Businesspeople Make Business



One common image of the scientist is of someone who is in search of pure knowledge, someone who is outside the day-to-day concerns of other people. It is, of course, a myth. Scientists have always needed money to conduct their research and to live on. In the past, this might have come from a rich patron, who would give money or other rewards to a scientist in order to have their name connected with the latest discoveries. For example, when Galileo discovered the four brightest moons of Jupiter, he presented the discovery as a gift to the Medici dukes. In return, he was given the position of court philosopher and mathematician. These days, funding is more likely to come from institutes and other organizations, who often want to see real-world applications of the science they pay for. Increasingly, scientists need to think about ways in which their research can be turned into a business to make money.

There are a number of challenges to be faced. Few scientists have the necessary business skills to get the most out of their discoveries. While they are very experienced at coming up with hypotheses that they then test, they often have little understanding of how markets work or who their potential customers are. Scientists are also used to being the smartest people in the room, and it can sometimes require a change in culture for them to realize that they need to rely on other people with a better understanding of how business works. Another difference in culture between science and business is that scientific advances often depend on sharing information between colleagues, whereas in business it can be very important to protect commercial information and prevent it from becoming known by your competitors.

The process of turning a scientific advance into a profitable business begins with recognizing the opportunity. With some research, such as the development of a new drug, the commercial possibilities may be clear. However, the applications are not always so obvious, and sometimes scientists need the advice of business consultants who are more familiar with the commercial world. Some universities have "technology transfer offices" which specialize in this area with the aim of making money for the organization that can then pay for more science.

Once the application has been identified, it becomes important to protect your intellectual property. The normal method is through patents. By taking out a patent, you make sure that no one else is legally allowed to use your idea or your technology, unless they pay you for a license to use it. This may sound like a simple process, but if your patent is valuable, other businesses will look for ways around it. The patent needs to be very carefully defined and then protected by legal means. The threat of legal action plays a larger part in the world of business than it does in the world of science.

It is then necessary to use all the usual business tools to be successful: market research, marketing, and advertising, among others. Scientists who are focused on their own discoveries can easily fall into the trap of thinking that the world is just waiting for their products and that the benefits of their ideas are obvious. However, just as with many other successful products, it may take time and a lot of marketing before people are prepared to buy.

Another way of approaching the idea of making money from science is to start with a problem and design the science to solve the problem. One company, Deep Science Ventures, based in London, England, identifies problems in, for example, energy or healthcare and then puts together teams of scientists to find solutions to the problems. In theory, it should be easier to turn those discoveries into successful products because the demand has already been identified.

intellectual property (n): an idea or invention that is yours and which no one else is allowed to sell

patent (n): an official document that gives you the right to sell a particular product

LIVEWORKSHEETS

UNIT 6

In the Lab

VOCABULARY

Complete the sentences with words from the box.

commercial experienced legal pure valuable

1 Something that is _____ is worth a lot of money.
2 The _____ world is the world of business and trade.
3 Something that is _____ is not mixed with anything else.
4 The _____ world is the world of law and justice.
5 Somebody who is _____ in an area knows a lot about it.

COMPREHENSION

Choose the correct option.

1 Scientists in the past could do their research because they …
a needed less money for their work than today.
b found official positions that gave them the freedom to work.
c relied on rich individuals to pay for their research.

2 One problem with scientists in business is that they are not used to …
a working with people who know more than they do.
b sharing information.
c testing their ideas properly.

3 It's important to find commercial applications because they may help to pay for …
a the advice of consultants.
b further research.
c cures for some diseases.

4 Compared to science, people in business need to be more prepared to …
a take people to court.
b define things carefully.
c follow the law.

5 Turning science into business may be helped by …
a waiting until people demand a product.
b trying to solve a known problem.
c identifying companies that are possible customers.

LIVEWORKSHEETS

UNIT 6

In the Lab

READING

Read the text. Would you do home DNA testing?

Home DNA Testing Today



Your DNA is your unique genetic code. It carries all kinds of information about you, your health, and your ancestors. The area of DNA testing is developing rapidly, and as the cost falls, more and more companies today offer DNA tests that you can do at home. They send you a kit and you provide a sample of saliva, which you then send to the company. They analyze the sample, and six to eight weeks later, you receive a report. Why have these services become so popular, and are there any potential dangers with this process?

The reason for the popularity of home DNA testing lies in the kind of information you receive when your DNA is analyzed. There are perhaps two main reasons for taking this kind of test. The first is general interest in your own genetic history. People are increasingly mobile these days. According to the Legatum Institute, based in England, 3.4% of the global population live outside the country they were born in. That's about 1 in every 30 people. This may explain why more and more people are interested in finding out where in the world their distant ancestors came from. By comparing your DNA with the DNA of other people in their database, a company may be able to tell you that a certain percentage of your DNA comes from Eastern Europe, a certain percentage from Africa, and so on. For some people, it can be an interesting journey of discovery about themselves and their cultural identity. It can even lead to people who are related becoming aware of each other's existence. A number of people have found distant cousins when their DNA matches closely to that of someone else in the database.

The second reason for the kits' popularity is health information. Analyzing your genetic code can give you information about how likely you are to develop certain health conditions, such as breast cancer or Parkinson's disease. Some companies also offer to provide information on any genetic conditions you may pass on to children. It's also possible to get a report that advises you, based on your DNA, what kind of diet to follow, how best to exercise, and other ways of living a healthier lifestyle.

In theory, that all sounds fine. Surely, you may think, it must be an advantage to have as much information as possible. However, there are a number of problems with the type and quality of information that DNA home testing provides. First of all, there are risks to people's identities when the information they receive doesn't match their own ideas about who they are. When you have been told that you are part Indian and the results come back saying that you have no Indian DNA, how do you react and how does it affect how you view your cultural identity? Companies have been criticized for providing people with this kind of sensitive information without any further support. In addition to that, the information can be unreliable. Different companies can give very different reports on the same DNA. It all depends on how good or how large their databases are. There are also question marks over whether people should receive possibly important health information in this way. Understanding the results is not always easy, and to be told that you have, for example, a 50% higher chance of developing a disease can lead to unnecessary stress and worry if the chance is still extremely low. Some health services complain that the rise in home DNA testing is causing people to visit their doctors when they don't need to.

Another area of concern that many people don't think carefully about is privacy. When you send your DNA to a company, they add that to their database, where they use it to compare against other people's DNA. If they remove anything that can identify you personally, they can even sell the information in your DNA to other companies. There is a risk that your DNA could fall into the hands of others who could use the information in criminal ways.

DNA (n): a chemical in all living cells that contains genetic information

saliva (n): liquid produced in your mouth

LIVEWORKSHEETS

UNIT 6

In the Lab

VOCABULARY

Choose the correct option.

1 Unless you are a twin, your DNA is … and different from everyone else's.
a alone **b** unique **c** sole

2 Your … are your family members from a long time ago.
a ancestors **b** cousins **c** relatives

3 Your DNA is kept on a … on a computer.
a program **b** software **c** database

4 Information about your health can be … and you may want to keep it private.
a sensible **b** sensational **c** sensitive

5 If you are concerned about …, don't have a DNA test done.
a privacy **b** deprivation **c** prevention

COMPREHENSION

Choose *True* or *False*.

1 DNA testing is becoming popular in spite of the rising price. True / False
2 Companies can compare your DNA with your ancestors' DNA. True / False
3 Most DNA testing companies provide emotional support to their customers. True / False
4 The results of analyzing your DNA may differ from company to company. True / False
5 Having your DNA tested can make you more likely to get a disease. True / False

LIVEWORKSHEETS

UNIT 6

In the Lab

READING

Read the text. Are opportunities there for everyone?

Making Opportunities for Yourself



Some people seem to get golden opportunities. They are in the right place at the right time and are chosen for promotion, or they have a business idea that takes off. For the rest of us, it can seem as if opportunities pass us by. We might get all the right qualifications, pass all the right training courses, and still not get the same chances that other people seem to get. While many people blame their lack of success on bad luck, and there is no doubt that luck does have a small role to play, it's possible to make opportunities more likely to come your way and to make the most of those opportunities.

The first step is to make sure you have clear goals. You may want to be successful, but you need to develop an idea of what success means to you. It may consist of a large house, an expensive car, and luxury vacations, or it may involve having a lot of leisure time to follow your interests or having control over your life. Once you have made clear exactly what your goals are, you can begin to define the types of opportunity you need to achieve your goals. To achieve financial goals, it may be necessary to seek out opportunities for employment that is better paid, even if this means increased responsibility and longer hours at work. Achieving freedom and control may involve finding a position that is more closely connected to an area you are passionate about, or it may involve looking for opportunities to be your own boss.

Having clear goals is a part of being prepared for opportunities when they come up. Another aspect of that is having the skills and knowledge you need. It makes it harder to achieve the goal of running a successful business, for example, if you don't have the right training in management or in finance. Qualifications and training won't make opportunities happen, but they will help you to be ready when the time comes. And when you look at people who are successful, it can often seem as if they have achieved their dreams without too much effort, but don't be fooled. Most success is built on a solid base of hard work.

With clear goals and with the skills and knowledge you need, you then need to put yourself out there. It's very rare for opportunity to come knocking on your door while you're simply waiting for it to happen. Opportunities come through people, and networking is vital. By creating connections with people who are already doing what you want to do, or who have similar goals to you, you make it more likely that you will hear about opportunities. With social media and other forms of online communication, it can seem as if networking is very easy. However, it still takes effort to make meaningful connections with other people. A common mistake is to network simply to look for opportunities. This can make people uncomfortable or make them feel like they are being used. It is more effective to look for real ways in which you can get other people closer to achieving their goals.

Once you have made it more likely for opportunities to appear, you need to know what those opportunities look like and pay attention. It might be that someone mentions a relative of theirs who works in a particular area you are interested in. That could be a great chance to be put in touch with someone who can help or advise you. Not all opportunities are that obvious, though. Often, opportunities appear as difficult tasks or challenges that other people don't want to take on. Your willingness to tackle a difficult problem may be noticed by someone who can then help you get closer to your goals. Of course, it may not, but accepting risk is an important part of success.

LIVEWORKSHEETS

UNIT 6

In the Lab

VOCABULARY

Match to complete the sentences.

1	If an idea or a business **takes off**, …	**a**	you look for it carefully.
2	If something **passes** you **by**, …	**b**	you accept it.
3	If you **seek out** something …	**c**	it appears, possibly when you don't expect it.
4	If something **comes up**, …	**d**	you don't know about it happening.
5	If you **take on** a risk or responsibility, …	**e**	it becomes very successful.

COMPREHENSION

Choose the correct option.

1. It's important to **aim for financial security** / **have a clear aim in mind**.
2. Completing the right courses **gives you a good starting point** / **hasn't helped most successful people**.
3. When you network with people, it's best to focus on how **they can help you** / **you can help them**.
4. Sometimes an opportunity might appear at first to be **a request for help** / **an unpleasant task**.
5. When looking for an opportunity, you may need to risk **nobody noticing your efforts** / **somebody else being rewarded for your work**.

LIVEWORKSHEETS