HACKERS **PRACTICE**

1 Although known primarily for their honey production, bees are actually more important to human well-being as pollinators of the staple crops that make up our diet. In fact, the American Environmental Protection Agency claims that pollinators are responsible for nearly one in every three bites of food you eat. If this is true, then the fact that honeybee numbers are dwindling should be a major cause of concern, not only for their survival but for ours. A study carried out by Nicholas Calderone, associate professor of entomology at Cornell University, showed that crops pollinated by honeybees and other insects contributed 29 billion dollars of annual farm income in the United States, revealing the extent of their importance both agriculturally and economically. This point was emphasised by Vera Lucia Imperatriz-Fonseca, senior professor at the University of São Paulo, who stated in a United Nations report that pollinator's health is directly linked to our own well-being. In fact, a study by Professor Simon Potts in the UK revealed how a massive decline in honeybee colonies has made agriculture reliant upon pollination by wild bee species, many of which are also under threat.

Look at the following statements (Questions 1-2) and the list of researchers below.

*Match each statement with the correct researcher, **A**, **B** or **C**.*

1 The welfare of creatures that pollinate crops, such as bees, has a direct connection to human health.

2 Agriculture has become dependent on a certain kind of bee for pollination.

List of Researchers

A Simon Potts
B Vera Lucia Imperatriz-Fonseca
C Nicholas Calderone

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pollinator n. vật/ loài thụ phấn (như côn trùng mang phấn hoa từ một cây sang cây khác giúp cây đó phụ thấn) **staple** adj. chủ yếu, chính **Environmental Protection Agency** phr. Cơ quan Bảo vệ Môi trường **dwindle** v. thu nhỏ lại, giảm dần **entomology** n. khoa nghiên cứu sâu bọ, côn trùng học **colony** n. bầy, đàn **pollination** n. sự thụ phấn

LIVEWORKSHEETS

2 Despite being less than 250 years old, the United States has become one of the world's economic powerhouses. Although the country's location, vast size, and abundant natural resources played a large role in its success, these would have had little impact without advances in the transportation industry. Until around 1800, the country relied mainly on water-based transportation, such as ships and boats for its cargo needs. Since the country was rather small and most early cities were on the East Coast, early Americans could easily trade with one another and with their European trading partners using this form of transportation. However, as the 19th century got underway, the Louisiana Purchase doubled the size of the nation and it eventually reached the West Coast. This resulted in vast interior areas that were not accessible by boat and therefore ended the water-based transportation era. The problem was solved by the construction of the transcontinental rail system, which brought the country into the land-based transportation era. The new railways allowed large-scale shipping of large items from one coast to the other for the first time. Later, after the invention of the automobile, highways mirrored this transcontinental system and people could easily drive across the country on their own. These land-based systems dominated transportation in America until the mid to late-1900s. The following period saw the simultaneous rise of air travel and information technology. As the air-based transportation era began, people could travel or send parcels across the country in a matter of hours rather than days or weeks, and transferring information became instantaneous.

Classify the following statements as referring to

A	Air-based transportation era
B	Land-based transportation era
C	Water-based transportation era

3 The speed of the postal service was reduced to less than a day.

4 A new form of travel emerged at the same time as a new technology.

5 A new system provided a way of travelling alone across the country.

6 The location of cities on one coast made trade easy.

powerhouse n. cường quốc abundant adj. phong phú cargo n. hàng hóa (vận chuyển trên tàu) interior adj. ở trong, phía trong transcontinental adj. xuyên lục địa shipping n. vận chuyển hàng hóa (bằng tàu thủy) mirror v. dựa theo, bắt chước theo simultaneous adj. đồng thời instantaneous adj. tức thời, ngay lập tức

LIVEWORKSHEETS

3 Sleep is a necessity for all animals which, according to some scientists, could reveal something about our shared evolutionary ancestry. Because of its universality, many early sleep researchers felt that it must have begun very early in animal evolution. However, this view is contested by some scientists, such as Jerry Siegel of the University of California, who suggests that the need for sleep could have developed in each species separately. 'It could be more of a case of convergent evolution', he states, suggesting that sleep is 'an adaption to an animal's environment' rather than a trait inherited from a common evolutionary ancestor. Siegel's theory is backed up by the massive variation in sleep patterns across different species, from possums that can sleep for up to 18 hours a day, to birds that take hundreds of short naps every day. He has also discovered that dolphins, which are renowned for their ability to put one side of their brain to sleep at a time, have another unique sleep pattern. After an adult dolphin gives birth, neither she nor her offspring will sleep for an extended period of time. This practice, the opposite of what occurs in land mammals, suggests that animals adapt their own system of sleep, rather than inherit a universal one. Nonetheless many scientists still hope to find an overarching theory for why all animals need sleep. Paul Shaw, a researcher at Washington University in St. Louis, claims that because 'sleep is costly' in terms of vulnerability to ambush from other animals, there must be an underlying evolutionary reason for its universality. Shaw cites sleep research pioneer Alan Rechtschaffen, who stated, 'If sleep doesn't serve an absolutely vital function, it is the biggest mistake evolution ever made.'

Look at the following findings (Questions 7-8) and the list of scientists below.

*Match each finding with the correct scientist, **A**, **B** or **C**.*

7 Animals developed unique sleep habits to match their specific surroundings, rather than inheriting a general trait.

8 The importance of sleep is evident when we consider how a sleeping animal is much more open to attack from a predator.

List of Scientists

A Alan Rechtschaffen
B Paul Shaw
C Jerry Siegel

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universality n. tính chất toàn thể, tính phổ biến **contest** v. tranh cãi, đặt vấn đề nghi ngờ **convergent** adj. hội tụ **variation** n. sự biến đổi, sự khác biệt **possum** n. thú có túi (bộ thú có túi possum) **overarching** adj. bao quát **vulnerability** n. tính dễ bị tổn thương **ambush** n. cuộc phục kích, sự nằm rình **underlying** adj. cơ bản, cơ sở

LIVEWORKSHEETS

4 In nature, most animals avoid eating things that have a bitter taste. This occurs, according to Oxford researcher J. Zhang, because bitterness often indicates toxicity. Therefore, animals can prolong their lives by avoiding bitter foods. Using this knowledge, some manufacturers have begun using bitter flavours to act as an animal repellent. In fact, researcher A. L. Riley showed in his research that applying bitter compounds to objects could train birds to avoid them. Interestingly, humans seem to have lost the aversion to bitterness that other animals display. This can be seen through our use of bitter flavours in commercial food production. Food manufacturers have developed 'bittering agents' specifically to add this flavour to certain foods.

A good example of the use of these bittering agents occurs in the brewing of beer. The hops that brewers add to their product are meant to impart a bitter flavour to balance the sweetness of the sugars that ferment in the malt. This is also the reason that caffeine is added to colas. When its caffeine is removed, cola is simply cloying fizzy water and must be balanced with another bittering agent. One of these is liquid 'bitters' made from aromatic herbs and other plant materials. These commercially available liquids are now widely used in food and cocktail preparation, but they once had a very different use. They were seen as health tonics. This was exactly the case with the popular 'bitters' produced by the House of Angostura. Dr Johann Gottlieb Benjamin Siegert developed the concoction to ease seasickness and marketed the product to sailors. Over time, his product came to be used to cut the sweetness of drinks such as lemonade or the Sazerac cocktail.

Look at the following statements (Questions 9-11) and the list of people below.

*Match each statement with the correct person, **A**, **B** or **C**.*

9 developed a product to relieve a medical condition

10 explained why animals avoid food with a certain taste

11 conducted research into using bitter items to train animals

List of People

A Zhang
B Riley
C Siegert

prolong v. kéo dài **repellent** n. thuốc chống/trừ (sâu bọ, động vật...) **compound** n. hợp chất **aversion** n. sự ghét, ác cảm **agent** n. chất **brew** v. ủ, chế, pha (trà) **hop** n. cây hoa bia (dùng để ủ bia) **impart** v. truyền cho **ferment** v. lên men **malt** n. mạch nha **cloying** adj. ngọt quá mức **fizzy** adj. có ga, sủi bọt **tonic** n. thuốc bổ **concoction** n. thuốc pha chế **ease** v. làm dịu, giảm **seasickness** n. sự say sóng

LIVEWORKSHEETS

5 The region between the Tigris and Euphrates rivers in the Middle East is known to have been inhabited by primitive people for hundreds or even thousands of years before the development of a settled population. This area, which was named the 'Fertile Crescent' by early 19th-century archaeologist James Breasted for its fertility, provided a bounty of products from its soil, rivers, and wildlife that allowed these early inhabitants to feed themselves and their families. Eventually, this brought about the first active production of food and, in turn, the first true settled civilisations. Over time, the ability of these civilisations to produce food with regularity led to an increase in the number of people in the area and, around 4500 B.C., something interesting happened. The people built a large, densely populated permanent settlement called Uruk, which we now know as the first city.

The new city of Uruk had a large temple, homes, and other buildings created entirely with sun-dried bricks. This, according to historian Stephen Bertman, was due to the lack of timber and stone commonly used in construction elsewhere. We know that the use of these bricks allowed them to create large structures with columns, arches, and fortifying walls for the first time, but it doesn't explain why such a settlement was developed. In traditional retellings such as the *Epic of Gilgamesh*, the leader of the civilisation ordered the building of the city and its fortifications. However, research by anthropologist Jason Ur calls this into question. According to Dr Ur's research, early urbanisation likely occurred organically, not because of a political ruler. He showed that different civilisations from the area settled around a central mound. These clusters allowed the different civilisations to live near one another, but kept the appropriate social distance. As time passed, they came together to form an interconnected city with one leader.

Look at the following statements (Questions 12-14) and the list of researchers below.

*Match each statement with the correct researcher, **A**, **B** or **C**.*

12 He determined the reason that an early society used sun-dried bricks.

13 He revealed that the growth of the first cities happened naturally.

14 He coined a term to represent the agricultural strength of a region.

List of Researchers

A James Breasted

B Stephen Bertman

C Jason Ur

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crescent n. lưỡi liềm **a bounty of** phr. nhiều, phong phú, dồi dào **bring about** phr. dẫn đến, dẫn tới **temple** n. đền, miếu **column** n. cột, trụ **retelling** n. câu chuyện phỏng lại/truyền miệng **fortification** n. sự củng cố, pháo đài **call into question** phr. đặt ra nghi vấn **mound** n. vùng/gò đất, đồi nhỏ **cluster** n. cụm, đám **come together** phr. hợp lại, tụ lại

LIVEWORKSHEETS

6 Many parents complain that their children are no longer the same people they once were. During their preadolescent stage, these children were generally docile and amenable. They were very loving and attached to their parents who probably had no trouble interacting with them. At this point, many parents believe that they have a strong bond with their children that will never weaken. Unfortunately for them, this stage only lasts until about the ages of 10-13. As children enter adolescence, they undergo changes that can make them quite difficult to deal with. This period of increased conflict with parents, rapid mood changes, and increasingly risky behaviour caused early psychologist G. S. Hall to refer to this early teenage period as the 'storm and stress' stage.

One reason for the undesirable behaviours associated with this teenage stage is the rapid change that the body goes through at this time. The adolescent's body is maturing rapidly and it may appear that they are adults acting with childish impulsivity and emotional instability. This can frustrate parents, but is simply a sign that the frontal lobes of the brain, the areas that control these behaviours, are not yet fully developed. In fact, Donald Stuss has found that the frontal lobes sometimes do not fully mature until the early to mid-twenties. In addition to these physical changes, the adolescent's social interactions are undergoing major changes as well. Most adolescents will become distant from their parents and focus on external relationships as they prepare to enter society as an adult on their own. This distance is more pronounced now than when it was proposed in the 1950s. Today, a more interconnected world has dramatically increased the number of social relationships we develop outside the family. Adolescents now must figure out who they are while living in larger cities and interacting with more people both in real world situations and through online interactions and social media. This can lead to greater identity confusion than in the past and may increase the stress of parents dealing with the 'storm and stress' stage in their adolescents.

Classify the following statements as referring to

A	Preadolescence
B	Teenage period

15 Family relations are less important than socialising with others.

16 A deep connection exists between children and parents.

17 There are more unsafe activities.

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preadolescent adj. trước thời kì trưởng thành **docile** adj. dễ bảo, ngoan ngoãn **amenable** adj. tuân theo, nghe lời **undergo** v. trải qua **impulsivity** n. sự bốc đồng **instability** n. tính không ổn định **frontal lobe** phr. thùy trán **pronounce** v. rõ rệt, đáng chú ý

LIVEWORKSHEETS