READING

READING PASSAGE 1

You should spend about 20 minutes on ***Questions 1–13****, which are based on Reading Passage 1 below.*

The Sun — A Mixed Blessing

A People in Western countries have very mixed feelings about the sun. On the one hand it evokes memories of beaches, summer holidays and playful times. Children's books often personify the sun as a smiling, happy face — typically contrasted with angry, moody rain clouds. In fact, the sun has such positive connotations that the descriptor 'sunny' refers not only to a state of weather but also to 'cheery, cheerful, or joyous' moods and dispositions amongst humans. On the other hand, many people fear the sun because of its association with cosmetic degeneration that can cause people to look much older than they actually are. Even more seriously, many people see the sun as a killer — this is because excessive sun exposure can lead to skin cancer which has a very high mortality rate. So is the sun our friend or a foe? The answers are complex and contradictory.

B Let's start with the worst news about the sun. It is a carcinogen. As the National Toxicology Program Report on Carcinogens from the Department of Health and Human Services reports, broad-spectrum UV radiation and solar radiation (what is known as 'sun rays') are thought to contribute to most of the estimated 1.5 million skin cancers diagnosed in the United States each year. This gives the sun the unfavourable distinction of being the leading carcinogen in the United States — ahead of genetic mutations, bad diets, cigarettes, alcohol, chemical exposure and other lifestyle factors. Of these diagnoses, 8,000 sufferers will perish from the condition. The primary cause of this mortality is metastic melanoma — moles that become cancerous and then spread mutated cells into the lymph nodes and eventually through the rest of the body.

C Even if you are lucky enough to avoid skin cancer, the sun can still have damaging effects on your skin. This is known as premature aging, so-called because sun damage mimics the skin's natural aging process, but does so at a much earlier age. The sun causes premature aging by breaking down and mutating collagen — a fibrous, 'glue'-like substance that supports and connects tissue and is responsible for the firmness, suppleness, elasticity and overall appearance of the skin. Skin's collagen production slows and eventually stops due to aging anyway, but sun exposure accelerates this process. It also mutates collagen cells, producing visible abnormalities on the skin. The slowing collagen production appears as wrinkles, sagging and fine lines, while the mutated cells can take the form of a leathery skin texture, facial ruddiness and blemishes known as liver spots. Together these can dissolve signs of youth and vitality from a person's looks — an image that contrasts starkly with the smooth, tanned and youthful-looking models we often associate with summer!

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D The sun does have a lot of positive things to offer humans, however. Firstly, it staves off Seasonal Affective Disorder (SAD), an appropriate acronym for a mood disorder caused by insufficient exposure to light — as such, it is typically associated with winters and is sometimes called 'winter blues' or 'winter depression'. SAD, once treated with scepticism by health experts but now widely acknowledged to be a legitimate condition, can create a number of distressing problems. Sufferers may oversleep and find it difficult to be roused in the morning, crave 'comfort foods' high in carbohydrates, lack energy, find it difficult to concentrate and may withdraw from social exposure. Together these symptoms can lead to depression, pessimistic feelings of hopelessness and an inability to find pleasurable activities. Researchers are not yet sure of the exact physical mechanism that causes SAD, but they do know that exposure to bright life is an effective remedy. The sun definitely has a palliative effect here.

E In other ways, the health-improving effects of the sun can be even more powerful. These effects typically relate to Vitamin D, of which the sun is a great source for two reasons. Firstly, it is completely free, and secondly, our bodies have natural mechanisms that prevent an overdose from internally-generated Vitamin D from the sun. Although this vitamin can be sourced from milk, cod liver oil and supplements, solar radiation is still the primary source for most humans. It's preventative role is important: Vitamin D seems to protect against prostate, breast, colon, kidney and ovarian cancers, benefit bone health, as well as reduce overall mortality and the occurrence of cardiovascular events — mortality from strokes and heart attacks is up to forty percent higher in some countries during winter months, a connection linked to lack of sun exposure. In fact, skin cancer rates rise with proximity to the equator amongst light-skinned people, but the prognosis of most other cancers is exactly the opposite. Indeed, the overall benefits of sun exposure outweigh the risks when it comes to cancer, even though the sun is a well-documented carcinogen.

F Ultimately, moderation and protection may be the key when it comes to sun exposure. This is true of other carcinogens such as alcohol as well—studies suggest that binge drinkers and teetotallers experience higher levels of many health problems than people who drink moderate amounts of alcohol on social occasions. Healthy access to the sun involves wearing broad-spectrum sunscreen before every exposure (even in winter) and not staying in the sun any longer than is necessary, which is about five minutes for adequate Vitamin D exposure. With these simple steps, the sun once again becomes our friend and not our foe.

Questions 1–6

Reading Passage 1 has six paragraphs, **A–F**.

Which paragraph contains the following information?

*Write the correct letter, **A–F**, in boxes 1–6 on your answer sheet.*

1 A description of the physical process that makes someone look older
2 Recommendations for how to be safe in the sun
3 Examples of emotional ailments that contact with the sun can treat
4 Evidence that the sun can lower death rates
5 An explanation of how a single word can have contrasting connotations
6 Several causes of cancer

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Question 7

*Choose the correct letter, **A**, **B**, **C** or **D**.*

Write your answer in box 7 on your answer sheet.

7 Which of the following is **NOT** given as a symptom of premature aging?

A Loose skin

B Organ problems

C Redness on face

D Rough, dry feel to skin

Questions 8–13

Do the following statements agree with the information given in Reading Passage 1?

In boxes 8–13 on your answer sheet, write

TRUE	*if the statement agrees with the information*
FALSE	*if the statement contradicts the information*
NOT GIVEN	*if there is no information on this*

8 Sun exposure can result in SAD.

9 Experts no longer consider SAD to be a health problem.

10 Artificial sources of light are not very good at treating SAD.

11 The sun cannot give us too much Vitamin D.

12 Most people get their Vitamin D from the sun.

13 The sun can both cause and prevent cancer.

READING PASSAGE 2

*You should spend about 20 minutes on **Questions 14–26**, which are based on Reading Passage 2 below.*

A New Planet Is Discovered

[*Humans have long been fascinated by the possibility of extra-terrestrial life. Novels, films and folk-tales have encouraged curiosity and speculation about what might be 'out there' in space. More recently, scientists have joined in on the collective wonderment after the first discovery by astronomers of a new planet—Gliese 581g—that could almost certainly support such organisms. In fact, Steven Vogt—one of the two astronomers credited with discovering the planet—has declared that 'the chances of life on this planet are 100 percent' and that he has 'almost no doubt about it'.*]

A Although we currently know very little about Gliese 581g, a couple of its features strongly indicate that this planet might harbour the existence of organisms. Firstly, Gliese 581g is located at almost exactly the right distance from its red dwarf parent star (Gliese 581) in order to sustain liquid water, which is the only known criterion for organic formation. Planets that orbit too close to or too far away from their stars do not have a suitable climate; this can only be found in a slender strip of solar space around each star known to astronomers as a 'habitable zone'. Around our star—the Sun—Earth is the only planet that occupies this zone, although it nearly stretches to

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Venus and Mars. Gliese 581g is also the right size for organic life. It is about 3.1 to 4.3 times the size of Earth, and this relatively low mass means it should be made mostly of rock. Planets that grow beyond 10 times the size of Earth tend to become gaseous and uninhabitable, without the solid or liquid infrastructure necessary for organisms.

B Gliese 581g is part of a string of planets in the Gliese 581 solar system. Two of Gliese 581g's siblings—Gliese 581e and Gliese 581b—orbit too close to their parent star to support any kind of life on them. Gliese 581c skims the near side of the habitable zone, but scientists suggest that it does not have enough of a toehold in this zone to provide a stable infrastructure for organic formations—roughly the same goes for Gliese 581d, which has a stronger presence in the habitable zone on its far side, but may not be hot enough for liquid water—opinion is not 'completely settled' on this matter, says James Kasting of Pennsylvania State University. Kasting, who has studied the two Gliese 581 planets on the outer edges of the habitable zone, suggests that Gliese 581g is 'smack dab in the middle' of the zone which, along with its size and composition, makes it the most exciting and realistic prospect for extra-terrestrial life yet.

C The comparisons between the Earth and Gliese 581g should not be overstated, however. Even if Gliese 581g can sustain organisms, it would be a very different place to live. The main difference is that Gliese 581g orbits much closer to its star than the Earth does to the Sun. Because Gliese 581 is only one percent as bright as the Sun, it exudes little warmth, and its habitable zone lies much closer than the Sun's. At this closer distance, planets in the zone get locked into strong gravitational pulls that tend to slow their circular movements over time. Eventually, they become stuck with one side constantly facing the star—just as the Moon always shows the Earth the same face. Because of this, it is likely that Gliese 581g experiences permanent daytime on the side facing the star and permanent shadow on the other side. It is estimated therefore that average temperatures on the star side would be about 71 degrees C and average temperatures on the other much chillier: –34℃. Nevertheless, Steven Vogt suggests that Gliese 581g probably has a comfortable area along the midpoint, known as the terminator. Any life here would always see the star sitting on the horizon and consequently experience eternal sunrise or sunset.

D Even if there is no life on Gliese 581g, its discovery reveals that habitable planets are quite common, with around 10 to 20 percent of red dwarves and sun-like stars boasting them. Gliese 581 is one of just nine stars at that particular distance which astronomers have searched with high enough precision to uncover a planet in the habitable zone. While the odds may prove to be slightly lower than 10 percent, the evidence of life—or at least, the high possibility of life—is still overwhelming. There are at least a few hundred billion stars in our galaxy, which means that around 20 to 40 billion planets have the potential for the development of organisms.

E And so, the search for life continues. Unfortunately, Gliese 581g is not particularly amenable to observation. The next step in finding out the chances of life on the planet would be to measure its light spectrum, a process that would reveal molecular oxygen if indeed it exists. The glare from the parent star makes this impossible to do with current instruments, however. Another way to gather information would be to transport a vessel to and from the planet. The technology currently exists to do this, but at 20 light years from earth, it would take 200 years for astronomers to receive the result. Luckily, new information may just be a few years away. Astronomers suggest that many rocky planets are likely to be found in habitable zones during the coming years, and some of these will provide a better platform for research with current instruments.

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Questions 14–18

Reading Passage 2 has five paragraphs, **A–E**.

Which paragraph contains the following information?

*Write the correct letter, **A–E**, in boxes 14–18 on your answer sheet.*

14 A reason why we cannot learn much more about Gliese 581g in the near future

15 An estimate of the number of planets in habitable zones

16 An explanation for why Gliese 581g may not rotate

17 Gliese 581g's location in relation to other planets

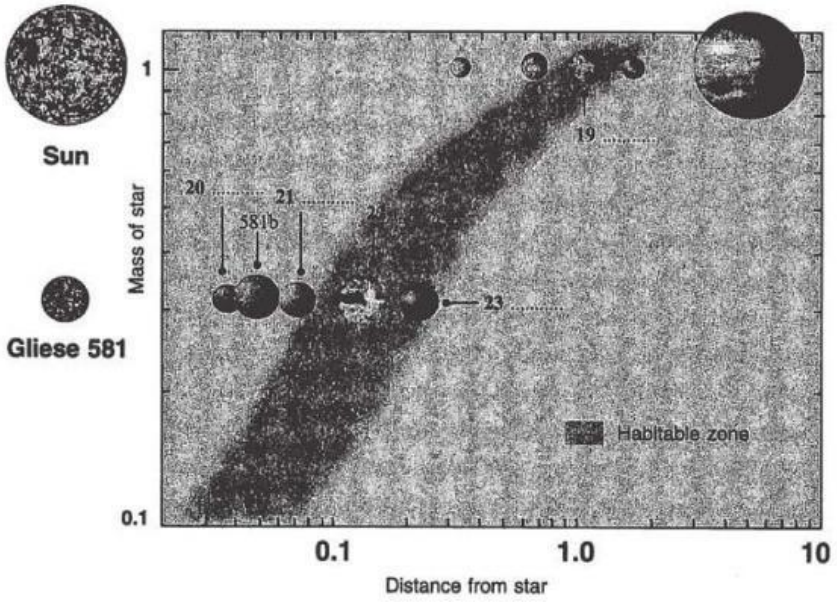
18 A pre-requisite for the beginning of life

Questions 19–23

Complete the diagram below.

*Choose the correct letter **A–E** from the box below.*

Write your answers in boxes 19–23 on your answer sheet.



A	Gliese 581c
B	Gliese 581d
C	Gliese 581e
D	Gliese 581g
E	Earth

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Questions 24–26

Answer the questions below using ***NO MORE THAN TWO WORDS*** *from the passage for each answer.*
Write your answers in boxes 24–26 on your answer sheet.

24 To what can Gliese 581g be compared because of its lack of circular motion?

25 What is the name for the central meridian on Gliese 581g where there is no darkness?

26 What do astronomers now realise are not rare occurrences?

READING PASSAGE 3

You should spend about 20 minutes on ***Questions 27–40*** *which are based on Reading Passage 3 below.*

READING WARS

A In many developed countries literacy skills are under siege. This is true even in societies where access to primary education is universal and governments invest heavily in education. New Zealand, for example, was leading the world in literacy rates in 1970, but tumbled to thirteenth place in 2001 and then again to twenty-fourth just a few years later. Test scores in the USA also slumped ten percent during the 1990s despite the country riding an economic boom for much of the decade. In some cases these statistics reverse trends that were in motion for over a century and a half. The steady, gradual expansion of literacy across social groups and classes was one of the greatest successes of the period of industrialisation that began in the mid-1850s.

B This reversal of fortunes has lead to widespread contention over the pedagogy of teaching literacy. What was once a dry and technical affair — the esoteric business of linguists and policy analysts — rapidly escalated into a series of skirmishes that were played out in high-visibility forums: Newspapers ran special features, columns and letters-to-the-editor on the literacy crisis; politicians successfully ran their national campaigns on improving reading test scores; and parents had their say by joining Parent Teacher Associations (PTAs) and lobby groups.

C The arguments around reading pooled into two different classroom methodologies: constructivism and behaviourism. The constructivist methodology grew from a holistic conception of knowledge creation that understood reading and writing to be innate, humanistic and interpretative practices that suffered when they were spliced and formalised within rigid doctrines, strict rules and universal skill-sets. Constructivists associate words with meanings; each word might be thought of as a Chinese ideogram. Students are encouraged to learn individual words and skip over and guess words they do not understand, or learn to interpret those words by situating them within the lexical infrastructure of the sentence and the story's wider narrative. These practices materialise as learning processes centred on guided group reading and independent reading of high-quality, culturally diverse literature or textual composition that emphasises pupils conveying their own thoughts and feelings for real purposes such as letters to pen pals or journal entries.

D Behaviourism sees the pedagogical process in a less dialectical fashion — words are initially taught not lexically, as vehicles to convey meaning, but rather sub-lexically, as a combination of features that can be separated and learnt in a schematic process. The behaviourist approach does not focus on words at all in the early stages of learning. Rather, it is centred on a universally

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applicable method of teaching students to isolate graphemes and phonemes with the intention that students will eventually learn to synthesise these individual parts and make sense of spoken words textually. In this way, individual components are not equated with the strokes of a brush on a Chinese ideogram, but rather as the focal pieces of interpretation — as in, for example, learning to read musical notations or Morse Code. Because of its emphasis on universal rules, behaviourism is much more conducive to formal examination and the consolidation of results across regions and countries. The ability to master language is considered to rest in the acquisition of a set of skills that exist independently of individuals. Classroom learning is therefore based upon the transmission of knowledge from tutor to student, rather than seen as an internalised process that erupts within the students themselves.

E So who comes out on top? It is not easy to say. Champions of behaviourism have claimed victory because constructivist learning took over in the late 1980s, just before test scores on literacy began sinking across the West. Constructivists, however, can make the valid claim that the behaviourist approach has a heavy methodological bias towards testing and examination, and that test results do not represent the ability of individuals to use and interpret language freely and creatively. Furthermore, different socio-economic groups respond in different ways to each method. Those from wealthier families tend to do well regardless of the method, but thrive on the constructivist approach implemented in the 1990s. Children from poorer families, however, are better served by behaviourism. These outcomes have ramped up levels of socio-economic based educational disparities in educational systems that have pushed the constructivist method.

F It is unlikely that either constructivism or behaviourism will be permanently sidelined from curricula in the near future. Most teachers find it easier to incorporate aspects of each approach. Constructivism may ultimately hold the trump card because of its proven success with pupils who come from families where they are introduced to reading and writing in various forms from a young age—this process of 'living and learning' and immersing oneself in language is a sound principle. In a world rife with social inequities, households with illiterate parents and a scarcity of funding for education, however, the behaviourist approach may have the upper hand in teaching children to access the basic skills of literacy quickly and efficiently, even if some linguistic creativity is crushed in the process.

Questions 27–33

Reading Passage 3 has six paragraphs, **A–F**.

Which paragraph contains the following information?

*Write the correct letter, **A–F**, in boxes 27–33 on your answer sheet.*

***NB** You may use any letter more than once.*

27 A reason why constructivism might increase inequalities in society

28 Ways in which people debated the merits of different ways of teaching reading

29 A comparison between forms of communication that build meaning from isolated parts

30 Reasons why a method that is theoretically superior might not always work effectively in practice

31 An explanation of why measuring the success of different reading methods is difficult

32 An example of an activity that teachers might use to develop writing skills

33 Evidence of a national decline in reading standards

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Questions 34–36

*Choose **THREE** letters, **A–G**.*

Write your answers in boxes 34–36 on your answer sheet.

Which **THREE** of the following are features of constructivism?

A Students learn best by working on their own.
B People are naturally inclined to develop language abilities.
C It is vital that a disciplined and regulated approach is used.
D It is important that students understand every word they encounter.
E Language is best learnt as a single, organic process.
F Everyone learns to read and write in a similar manner.
G Context can provide helpful cues to understanding words.

Questions 37–39

*Choose **THREE** letters **A–G**.*

Write your answers in boxes 37–39 on your answer sheet.

Which **THREE** of the following are features of behaviourism?

A The whole of a word is less important than its parts.
B There is not a common set of conventions.
C Students learn best by working on their own.
D Meaning is created by connecting word fragments.
E Linguistic capacities are built into people.
F Students learn by receiving information from teachers.
G It is difficult to judge how well students are doing collectively.

Question 40

*Choose the correct letter, **A**, **B**, **C** or **D**.*

Write your answer in box 40 on your answer sheet.

Which of the following statements best summarises the writer's general conclusion?

A Constructivism is better, while behaviourism leads to negative social effects.
B Each method complements the other, and their application should be integrated.
C Ideally constructivism would be used, but behaviourism is more pragmatic.
D Neither is particularly useful, and there needs to be a new alternative.

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