



READING PASSAGE 1

You should spend about 20 minutes on Questions 1-13, which are based on Reading Passage 1 on pages 2 and 3.

Advertising needs attention

The harder advertisers try to get your attention, the more your brain ignores them. Jane Raymond, a consumer psychologist at the University of Wales in Bangor, is carefully holding and gazing at a bottle of Chillz mineral water like a baby. Despite being made of clear plastic it looks as if it has been carved from ice. This simple feature means shoppers are drawn to this bottle over the others on the shelf and cannot resist picking it up, Raymond says. She studies the subtle factors that motivate us to buy what we buy and advise big companies on how powerful an advertisement is, and how it could be designed to stick more firmly in a consumer's memory. Most of all she works out how to attract your attention.

In today's fast-paced consumer world, attention is in short supply. Whether we are taking our time shopping in a mall, surfing the internet for information, or just watching television as a form of passive entertainment, consumers are surrounded by messages-experiencing one every 15 seconds of our waking lives, according to some estimates. Last year, companies worldwide spent \$401 billion on advertising, according to the independent World Advertising Research Centre in the UK. But as the graveyard of failed products shows, they usually get it wrong.

Nine out of 10 new products meet an early death, says Jamie Rayner, director of research at ID Magasin, a UK consultancy specializing in consumer behavior. And the reason, he explains, is simple: conventional advertising has ceased to work. Rayner and his colleagues have measured how consumers, in particular regular commuters, react to advertising, and their conclusion should alarm many executives. They

used a camera embedded in a pair of glasses to record their gaze as they glanced at advertisements on their journey to and from work. After analyzing the recordings and questioning the subjects, they found that most of the advertisements made no impression at all: only about one per cent could be recalled without prompting. It seems that although we may be looking at brands and advertisements all day long, most of the time we're not taking anything in.

Raymond thinks she knows why. Her move from research in visual processing into consumer psychology began in the early 1990s, when she discovered some strange behavior in the brain's attentional system. She showed people a stream of letters and numbers on a screen and asked them to look out for a white letter o or an X. When she asked her volunteers afterwards what they had seen, she found that if the X appeared up to half a second or so after the white letter, or vice versa, people failed to see it. She concluded that if something catches your attention, your brain is blind to anything else for a short period afterwards. She called this effect the 'attentional blink'. In short, the reason most advertising doesn't work is that we're in a severe state of attentional overload. Unless advertising is presented in a way the brain can absorb, it is simply not seen, Raymond says.

So what does this mean for advertisers? A typical television advertisement consists of a series of attention-grabbing images interspersed with the product. But unless the scenes in the advertisement are cut to take



account of attentional blink. The brain is likely to ignore the information the advertiser wants to get across. The same applies to magazine advertisements, where viewers often register the main image but fail to pick up on the secondary images-the bits advertisers often desperately want us to see. Raymond says advertisers consistently fail to consider how easily the brain misses the point. It's not that they haven't realized that the space and time they have to get their message across has shrunk. But advertisers respond by cramming in ever more complex information. Raymond is opposed to this, and her advice is simple: deliver your message in a straightforward manner and do so slowly, gently and concisely.

After her research on the attentional blink, she wondered whether attention would be linked to other processes in the brain, particularly emotion. Could our attentional state influence whether we like or dislike a brand, for example? Today, companies are hugely interested in the emotional value of their brand as they want their products to make us feel good. It is well known that if something elicits positive emotions then you are more likely to take notice of it. But Raymond's further research also demonstrated that if people are distracted by an image or a brand when performing an intellectually demanding task they tend to instantly dislike the brands, regardless of its emotional value. So for example, if you are reading a web page when a banner advertisement starts flashing, or are watching a film with intrusive product placement, it is probable you will come to dislike the brand whatever it is.

This contradicts the more-exposure-the-better rule most of the industry follows, says Raymond and means that advertising can backfire horribly. Advertising can backfire horribly. Advertisers tend to buy as much exposure for a product as they can, through television and radio commercials,

billboards, whatever they think will attract their target audience, but again Raymond has found that this doesn't necessarily work in their favor. Perhaps the most dangerous time, says Raymond, is the holiday season when advertisers are madly competing to grab people's attention. 'Marketers don't realize that humans digest information like they do food. Once they are full, if they are shown any more food, they're disgust,' she says.



Questions 1- 7

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

In boxes 1- 7 on your answer sheet, write

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

- 1 Jane Raymond statement that Chillz mineral water is packaged in a way that is unattractive to consumers.
- 2 Consumers are still exposed to more advertising through television commercials than through the medium of the internet.
- 3 According to Jamie Rayner, the reason that most products are discontinued is that advertising fails to attract consumers.
- 4 Jamie Rayner shows that people are no longer influenced by traditional advertisements.
- 5 Jamie Rayner believed that commercials should be simpler in their content.
- 6 Advertisements showing unfamiliar brands affect a person's concentration more than ones with familiar brands.
- 7 Jane Raymond suggests that a product should be advertised in as many ways as possible.

Question 8-13

Answer the questions below.

Choose **NO MORE THAN THREE WORDS** from the passage for each answer. Write your answers in boxes 8-13 on your answer sheet.

- 8 What group of consumers were specifically targeted in Jamie Rayner's research?
- 9 What subject did Jane Raymond use to study before focusing on the behaviour of consumers?
- 10 According to the writer, what important aspect of an advertisement in print do many people fail to notice?
- 11 According to the writer, what do companies today want their products to have in order to make consumers feel positive about themselves?
- 12 What does Jane Raymond say will annoy someone watching a movie?
- 13 According to Jane Raymond, when do advertisers promote their products most fiercely?



READING PASSAGE 2

You should spend about 20 minutes on Questions 14-26, which are based on Reading Passage 2 on page 5 and 6.

Growing more for less

Satellite technology is helping farmers boost crop yields

- A For farmers, working out the optimal amount of seed, fertiliser, pesticide and water to scatter on a field can make, or break, the subsequent harvest. Regular laboratory analyses of soil and plant samples from various parts of the field can help-but such expertise is costly, and often unavailable. However, a new and cheaper method of doing this analysis is now on offer. Precise prescriptions for growing crops can be obtained quickly, and less expensively, by calculating the amount of electron-magnetic radiation reflected from agricultural land. The data is collected by orbiting satellites.
- B Examining the wavelength of the radiation that is reflected can reveal, with surprising precision, the properties of the soil, the quantity of crop being grown, and the levels in those crops of chlorophyll, various mineral, moisture and other indicators of their quality. If recent and forecast weather data is added to the mix, detailed maps can be produced indicating exactly how, where and when crops should be grown. The service usually costs less than US \$15 per hectare for a handful of readings a year, and can increase yields by as much as 10%.
- C Such precision farming using satellite-based intelligence is a relatively new technique. Even so, it is catching on quickly. Five times a year, for example, a French cereal-growers' co-operative called Sevepi purchases satellite data and makes it available to its members in the form of maps of their fields, divided into three of four colour-coded zones per hectare. For each zone, one of about 50 fertilizer formulas is recommended. On top of this, if the wheat in the field has already grown quite high early in the season, and heavy showers are expected, an appropriate dose of growth regulator is recommended for each zone. (Lone, fragile stems break more easily in downpours.) Then, farm vehicles equipped with global-positioning system locators automatically mix and apply the prescribed dose to each area.
- D France is the pioneer in this sort of surveillance. More farmland is analysed by satellite there than in any other country, according to Infoterra (a subsidiary of EADS Astrium), the firm that is France's largest provider of such information, supplying data to companies such as Sevepi. Moreover, Henri Douche, head of Infoterra's agriculture sales in Toulouse, reckons the amount monitored farmland will increase as weather patterns change and farmers can no longer rely on the past as a guide to the future. When confounded by the yield variations that these new weather patterns will bring, even farmers who are afraid of new technology will sign up, he says.
- E Inexpensive data on the productivity of land is advantageous to governments, too. Areas where fertilisers and pesticides are being applied excessively can be pinpointed, studied and regulated by environmental and land-use agencies. Guy Lafond, an agronomist with Agriculture and Agri-food Canada, a government agency, says the satellite data it purchases is providing useful for the study of fields with declining productivity in the province of Saskatchewan. Overkill with



nitrate fertilizers (which are also a source of greenhouse gases) appears partly responsible. And according to RapidEye, a German satellite operator, insurance companies are also studying satellite data with a view to selling insurance policies to governments of famine-prone countries that might be threatened by crop failure.

- F In March, RapidEye began selling data that helps forecast harvest. 'Too often, farmers limit productivity by managing fields uniformly,' says Fredrick Jung-Rothenhausler, head of product development at the firm's headquarters in Brandenburg an der Havel. 'Our satellites are the first commercial satellites to include the Red-Edge band of the light spectrum, which is sensitive to changes in chlorophyll content. More research will be necessary to realise the full potential of the Red-Edge band. However, this band can assist in monitoring vegetation health, improving species separation and also help in measuring protein and nitrogen content in biomass.' The company's data, which comes from both Europe and the Americas, breaks field productively down into patches just five metres square.
- G The advantage that satellite technology provides in terms of precision farming do not have to be restricted to rich countries. In Africa, where many soils have become badly depleted of nutrients, better fertiliser management would greatly improve the situation. As a consequence, the charitable trust World Agroforestry Centre, in the city of Nairobi, in Kenya, has begun to build up a catalogue of the radiation patterns derived from around 100,000 samples of African soils. The information is the key to understanding the potential of these soils to be more agriculturally productive. Once passed on to the International Center for Tropical Agriculture, based in Colombia, South America, it is intended that the information be used to build a database called the 'Digital Soil Map'. When ready, this will provide farmers with free forecasts, developed with regularly updated satellite imagery, across farmland in a number of countries in Africa. This is information which will almost certainly assist in improving crop yield. For a hunger-ravaged continent, that is good news indeed.



Questions 14-20

Reading Passage 2 has seven paragraphs, A-G.

Which paragraph contains the following information?

Write the correct letter, A-G, in boxes 14-20 on your answer sheet.

NB You may use any letter more than once.

- 14 an example of how farmers in one country are now using satellite data to determine fertiliser use.
- 15 a reference to climate change and its effects
- 16 a reference to the effect on the soil of using too much fertiliser
- 17 an example of information that will be shared between different countries.
- 18 a mention of the country which is the leader in agricultural technology
- 19 a description of an innovation in satellite imaging which requires further study
- 20 evidence of the cost effectiveness of using satellite technology in agriculture

Questions 21 and 22

Choose TWO letters, A-E.

Write the correct letters in boxes 21 and 22 on your answer sheet.

Which TWO companies obtain information directly from satellites?

- A Sevepi
- B Infoterra
- C Agriculture and AgriFood Canada
- D RapidEye
- E World Agroforestry Centre

Questions 23-26

Complete the sentence below.

Choose NO MORE THAN TWO WORDS from the passage for each answer.

Write your answers in boxes 23-26 on your answer sheet.

- 23 Initially, orbiting satellites are used to measure _____ coming from farmland.
- 24 _____ believes that confusion about irregular weather will cause more farmers use satellite technology.



25 As a result of satellite technology, it may become possible to insure against the risk of _____

26 In Africa, much of the soil suffers from the loss of _____

READING PASSAGE 3

You should spend about 20 minutes on Questions 27-40, which are based on Reading Passage 3 on pages 9 and 10.

The fluoridation controversy

The long-standing debate about whether to fluoridate our drinking water continues. Fluoridation is the addition of fluorine to public water supplies with the aim of reducing tooth decay. The fluorine, when mixed with water, becomes fluoride and the desired concentration of fluoride in public water is approximately one part per million, depending on the regional temperature and hence the amount of water people are likely to drink. Many studies, such as those by McClure in 1970 through to Burt in 1983, have shown that when children drink fluoridated water, their average rate of tooth decay seems greatly reduced. A typical figure claimed is 50 percent reduction. This apparently enormous benefit for children's teeth is the major argument in favor of fluoridation.

Three main grounds for opposition to fluoridation have been expressed. First, opponents claim the benefits are exaggerated or not established. Second, there are claims of health risks to parts of the population, for example, allergic reactions. It is also accepted that high levels of fluoride can cause discoloration of otherwise healthy teeth. Proponents do not consider this to be a problem in such small concentrations, whereas opponents disagree—especially because some people drink more water and obtain much more than the standard 1 milligram of fluoride per day. Third, fluoridation is thought to be an infringement on individual rights because it is compulsory medication of all members of a community.

An understanding of the fluoridation issue has important implications. If, according to the experts, fluoridation is unquestionably a beneficial and non-hazardous measure, then the wisdom of allowing the public to vote on, and reject it must be questioned.

Almost all studies that have been done have assumed that the scientific aspects of the controversy are unproblematic, and they have excluded science from sociological examination. The traditional view is that science is a special kind of knowledge, which is established through scientific methods and objectively applied by members of a scientific community. However, in recent years there has been a major challenge to this picture by a sociology of science that shows how scientific knowledge is socially negotiated, and inevitably linked to the values of the relevant parties, both scientists and nonscientists. These challengers do not see scientific knowledge as exempt from social inquiry.

Kuhn (1970) argued that scientific knowledge does not always develop as an orderly process, but is characterized by periodic revolutions, in which the methods of study and the assessment criteria change in a fragmented way. According to Kuhn, the shift from one scientific way of thinking to another is not made solely on the basis of clear rules of formal scientific practice, but can include social factors, though Kuhn has never developed a full analysis of what these might be. Collins (1975)



took this concept further when he asserted that the outcome of experiments was not something whose meaning could be immediately comprehended, but rather something for interpretation, discussion between scientists, and reinterpretation in the light of other experiments.

One interpretation of this analysis of science is that traditional distinctions between facts and theories, and between scientific knowledge and values, can no longer be justified. Because social processes are involved at all stages of the creation, evaluation, and establishing of scientific knowledge, social values may also be involved.

In the same way as many scientists who study fluoridation have overlooked social values, sociologists have also downplayed an important part of the debate by ignoring the number of eminent scientists who have questioned aspects of fluoridation. An example is the study by Sutton in 1960, which analyzed the classic North American studies of the effect of fluoridation on tooth decay, and found that each showed significant methodological shortcomings. Sutton's detailed study throws doubt as to the extent of reductions in tooth decay from fluoridation. Yet Sutton's book is not cited in a single analysis of the fluoridation issue by any sociologist.

In a situation of some scientific uncertainty, differences in values are highlighted. A supporter of fluoridation might argue, 'The evidence for the benefits of fluoridation is quite substantial, while the evidence for harm is limited and dubious. I think the likely benefits outweigh the possible dangers; hence I support fluoridation because it is the cheapest and easiest way to make sure every child reaps the benefits.' An opponent might argue, 'Though the evidence for the benefits of fluoridation is substantial, there is some doubt about it. Since fluoridation is not necessary for good teeth, we should forego the benefits if there is some

slight chance of harm. Some scientists claim that a small percentage of the population could be harmed by fluoride. Therefore, I oppose fluoridation of water supplies and favor the voluntary use of fluoride tablets by those who want to take them.

Both arguments consider the scientific evidence concerning fluoridation, but differ in their assessments of the social benefits and costs. This difference is not between rationality and irrationality but is a legitimate difference in values, for example, the positive value placed on good teeth, the negative value placed on possible health risks, and the social benefits or costs of compulsory or voluntary intake of fluorides.

From the sociological point of view, opposition to fluoridation is not necessarily irrational. Rather, claims to rationality and to scientific authority are better seen as part of a strategy to promote fluoridation than as incontrovertible statements of fact. Second, social values are likely to be bound up in any decision about fluoridation, so this is not an issue on which declarations by scientific experts ought to be considered the final word.



Questions 27-31

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

Write the correct letter in boxes 27-31 on your answer sheet.

- 27 The optimum amount of fluorine in fluoridated water is calculated
- A how hot the area is.
 - B how warm the water is.
 - C how many dental problems there are in the community.
 - D how much fluorine the community chooses to have in its water
- 28 One reason given by the writer for opposing fluoridation is that
- A it may contribute to tooth decay.
 - B it will be unacceptably expensive for the public.
 - C obligatory fluoridation takes away personal freedom.
 - D excessive fluoride could be added to the water by mistake.
- 29 The writer mentions Kuhn in order to
- A provide a contrast with the view of Collins.
 - B support the rational nature of scientific inquiry.
 - C demonstrate that Kuhn did not argue his case adequately.
 - D show that science can be influenced by non-scientific considerations.
- 30 What did Sutton's research discover about earlier studies in North America?
- A There were failings in the way they were carried out.
 - B The scientists involved had achieved unique results.
 - C Proponents of fluoridation had not understood its long-term effects.
 - D Fluoridation had a greater effect on tooth decay than previously believed.
- 31 In the last paragraph, what does the writer say about scientists?
- A They should reveal their true motivations.
 - B They should not decide the fluoridation policy.
 - C They are solely concerned with scientific truths.
 - D They cannot reach agreement on the fluoridation issue.



Question 32-35

Do the following statements agree with the views of the writer in Reading Passage 3?

In boxes 32-35 on your answer sheet, write

- | | |
|-----------|--|
| YES | if the statement agrees with the views of the writer |
| NO | if the statement contradicts the views of the writer |
| NOT GIVEN | if it is impossible to say what the writer thinks about this |

- 32 Scientific knowledge should be kept separate from social values.
- 33 Many sociologists have disregarded the doubts that some scientists have concerning fluoridation.
- 34 Sutton's findings have been given insufficient attention by scientists outside of North America.
- 35 There are valid arguments on both sides of the fluoridation debate.

Questions 36-40

Complete each sentence with the correct ending, A-G, below.

Write the correct letter, A-G, in boxes 36-40 on your answer sheet.

- 36 The traditional view of science is that
- 37 A sociological view of science argues that
- 38 Collins is of the opinion that
- 39 The writer suggests that a supporter of fluoridation may conclude that
- 40 The writer suggests that an opponent of fluoridation may conclude that

- A the results of scientific research are not always understood at first.

B science is an unbiased discipline.

C people should be able to choose whether they want fluoride.

D there is insufficient proof to support a cautious approach.

E the serious damage fluoride causes far outweighs any positive effects.

F children are not the only ones who benefit from fluoridation.

G scientific knowledge is affected by the beliefs of everyone concerned.