



General Certificate of Education
Advanced Level Examination
June 2011

General Studies (Specification A)

GENA4/PM

Unit 4 A2 Science and Society

Case Study Source Material

For use with **Section A**

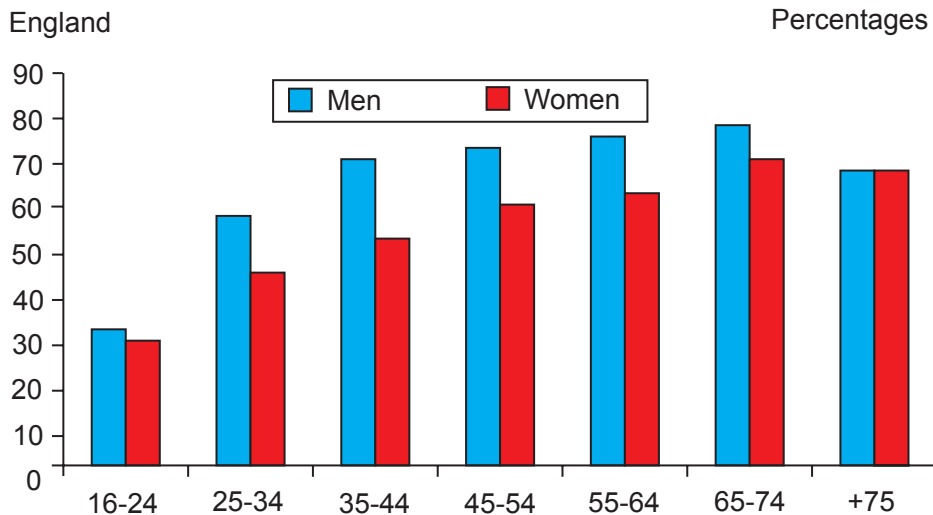
- The material consists of five sources (A, B, C, D and E) on the subject of **diet, exercise and sport**. These extracts are being given to you in advance of the Unit 4 examination to enable you to study the content and approach of each extract, and to consider issues which they raise, in preparation for the questions based on this material in Section A.
- A further Section A source (F) will be provided in the examination paper.
- Your teachers **are** permitted to discuss the material with you before the examination.
- You may write notes in this copy of the Source Material, but you will **not** be allowed to bring this copy, or any other notes you may have made, into the examination room. You will be provided with a clean copy of the Source Material at the start of the Unit 4 examination.
- You are not required to carry out any further study of the material than is necessary for you to gain an understanding of the detail that it contains and to consider the issues that are raised. It is suggested that three hours' detailed study is required for this purpose.
- In the examination room you are advised to spend approximately one hour and fifteen minutes reading a previously unseen extract and answering a range of Section A questions based on all the source material.

Case Study Source Material on Diet, Exercise and Sport.

Source A

Figure 1: Obese and overweight adults in England, 2006.

Proportion of adults who are overweight including obese, by age and gender, 2006



Source: Reported by NHS Health & Social Care Information Centre, Lifestyle Statistics 2008 (www.ic.nhs.uk)
 Based on *Statistics on obesity, physical activity and diet: England*
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Figure 2: Key facts on obesity, physical activity and diet

Obesity

- In 2006, 24% of adults (aged 16 and over) in England were classified as obese. This represents an overall increase from 15% in 1993.

Physical Activity

- Overall, physical activity has increased among both men and women since 1997 with 40% of men and 28% of women meeting the recommended levels in 2006.
- Those in the lowest quintile income group are more likely to be in the low participation group than those in the highest income quintile.
- 30% of adults have not participated in active sport in the last 12 months in 2005/06.

Diet

- In 2006, 28% of men and 32% of women consumed 5 or more portions of fruit and vegetables a day. Among children aged 5–15, the equivalent figures were 19% for boys and 22% for girls.
- The proportion of adults and children consuming 5 or more portions of fruit and vegetables a day remained steady between 2001 and 2004.

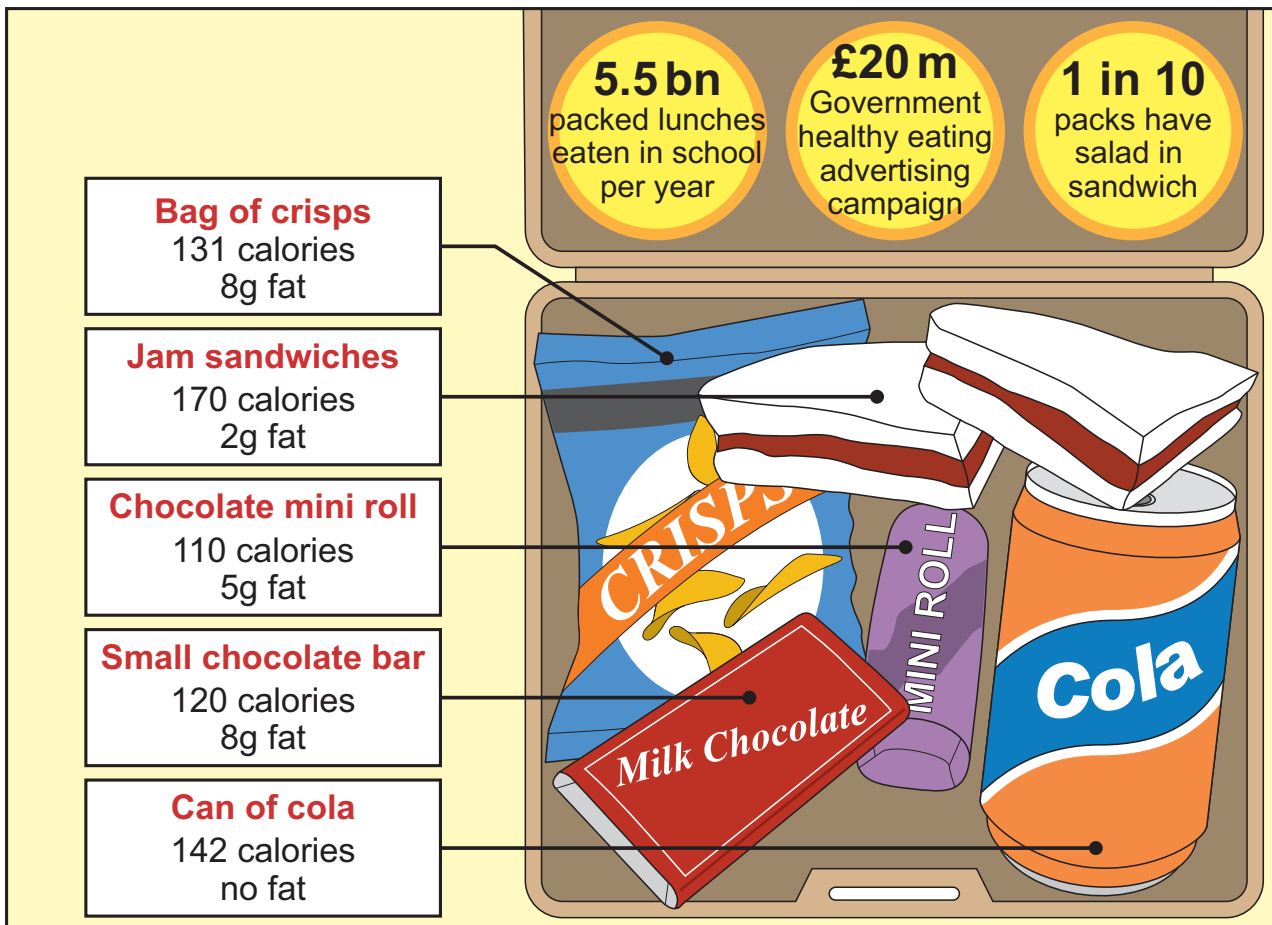
Source: Reported by, and adapted from, NHS Health & Social Care Information Centre 2008 (www.ic.nhs.uk)
 Based on *Statistics on obesity, physical activity and diet: England*
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Figure 3: Top out-of-school Foods

	Description	Top brand/ purchase	Cost (£)	Weight (g)	Kcal	Sugar (g)	Fat (g)
1	Carbonated sugared drinks	Coca Cola	0.50	330	139	35.0	0.0
2	Sweets	Starburst Choozers	0.42	41	162	26.7	2.5
3	Chocolate confectionery	Dairy Milk chocolate bar	0.46	49	255	27.8	14.6
4	Chips	Portion chips	0.60	374	922	6.4	46.4
5	Crisps/Savoury snacks	McCoy's (steak flavour)	0.49	50	258	1.2	15.4
6	Cakes/Sweet pastries	Doughnuts (3 pack)	0.35	210	732	39.5	30.5
7	Still drinks	Ribena bottle	1.05	500	255	60.5	0.0
8	Biscuits/Cookies	Chocolate bourbon biscuits	0.44	200	962	61.4	43.2
9	Sandwiches/Paninis/Wraps	Chicken Caesar Wrap	2.09	204	583	5.3	33.3
10	Fried Chicken	Chicken and Chips	1.00	406	971	4.1	53.2

Source: This Table comes from a broader research project on what school children eat from shops around their schools. The School Fringe Report by SARAH SINCLAIR and JACK WINKLER. For further information, email: jtw@blueyonder.co.uk

Figure 4: 'Danger in kids packed lunch'



Research by Leeds University shows that only 1% of primary schoolchildren's lunch boxes meet nutritional standards set by the government in 2008 for school dinners.

Figure 5: Reasons for non-participation in active sports

Main reason for non-participation in active sports¹ during the past 12 months, 2005/2006

England	Percentages
Health isn't good enough	47.0
Not really interested	18.4
Its difficult to find the time	18.2
I am too old	2.7
It costs too much	2.1
I wouldn't enjoy it	1.8
Never occurred to me	1.6
No one to do it with	1.1
I am too lazy	1.1
Other reasons ²	5.9
<i>Base</i>	4,523

1. adults aged 16 and over
2. other reasons include don't know, fear of injury and changing facilities are not good enough

Source: 'Taking Part: The National Survey of Culture, Leisure and Sport'.
The Department for Culture, Media and Sport
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Figure 6: Treating the Obesity Epidemic

World Health Organization figures from 2005 suggested that there are more people suffering from overweight problems than malnutrition. The costs to healthcare providers are likely to be unsustainable.

A 2009 study by Andreas and Athanasios Anastasiou (*The effects of current dietary trends and consumption pattern on health: evidence from the UK*) highlighted the sorry state of the British diet and the burden that growing obesity trends and problems will ultimately have on the economy and society as well.

Here are just a few of the UK obesity facts and figures cited by the authors:

- 30 000 deaths a year
- 9 years average life reduction
- 18 million working days lost
- £1 billion cost to NHS
- £2.5 billion cost to the economy.

Source: adapted from DAVID BRADLEY, 'Treating the Obesity Epidemic', 23 September 2009
www.sciencebase.com

Turn over ►

Source B

Minister calls for lock-in at schools to stop rush for chippie

A gaggle of schoolchildren at the chip shop is a common scene in Britain's high streets – but it may not be for much longer. The children's minister, Kevin Brennan, has called for secondary pupils under the age of 16 to be locked in school grounds at lunchtime to stop them from stocking up on sweets, fizzy drinks and takeaways.

The proposal came as damning new research by academics from London Metropolitan University reveals the extent to which children pass through school gates to buy large quantities of food that is high in fat and sugar. Some pupils left school to buy junk food more than 11 times a week.

With soaring numbers of children now dangerously overweight, one answer was to keep millions of pupils inside the gates. According to Brennan: "Some schools have a stay-on-site policy for 11-to-16-year-olds but let the sixth form go off-site. I'm very strongly supportive of that approach. I would like to see more schools operating some sort of stay-on-site policy because its advantages are shown not just in improved uptake (of healthy school lunches), but also improved behaviour and community relationships."

But any plans to lock children in were attacked as Orwellian by parents, while headteachers argued that it was not possible to police pupil movement. "Much as schools would like to keep children on site at lunch time, the number of exits in some – as many as 20 – make this almost impossible," said John Dunford of the Association of School and College Leaders. Andy Hibberd, co-founder of the Parent Organisation described the plan as "very nanny-statist, totally unworkable and impractical".

However, others were more supportive. Cathy Court, a director of Netmums, a mothers' social networking organisation, said: "My own view is that 16-year-olds are still children and should stay in. They need to stay on site not just to stop them buying unhealthy stuff from local shops but also for safety reasons."

The key findings of the research were as follows.

- Supermarkets, newsagents and takeaways were far more popular than the school canteen, with 80% of children using them regularly.
- The top 10 purchases made by pupils included fizzy drinks, chocolate, sweets, chips and fried chicken. Fruit and vegetables came 22nd out of 26 food types.
- Girls' eating habits were less healthy than those of boys.
- Pupils snubbed school lunches because they disliked the queues, lack of seats and high prices.
- Only 6% of pupils ate hot lunches, fewer than half of those entitled to free school meals.
- Young people were consuming dangerously high levels of fat and sugar.

It is three years since chef Jamie Oliver first exposed the appalling state of school food through his Channel 4 series *Jamie's School Dinners*. His campaign was hugely successful, forcing ministers to introduce new nutritional standards and provide £280m to pay for it. But offering healthy food was not the same as persuading pupils to eat it and the authors of the research condemned local councils for contributing as little as three pence towards the cost of each school meal – a sum dismissed as "totally inadequate".

Source: adapted from DENIS CAMPBELL & ANUSHKA ASTHANA,
'Minister calls for lunchtime lock-in at schools to stop rush for chippie', *The Observer*, 6 July 2008
© Guardian News and Media Ltd

Source C

Food industry's ethics under scrutiny over obesity

Marketing junk food to children has become socially unacceptable, according to a leading obesity expert who warns that the food industry has done too little voluntarily to help avert "a far worse scenario than even our gloomiest predictions". According to Professor Philip James, chairman of the International Obesity Taskforce think tank, when it comes to public health the response of the food industry has so far been a case of "too little, too late".

Professor James has called for a cabinet overlord to lead the cross-departmental fight, involving changes in education, media, culture, transport, leisure and the food chain as well as in health service provisions.

In addition, Professor James has called for negotiation with the food industry to establish targets for improvements. "Our diet-related health should no longer be a casualty in a battleground where every advance is resisted to defend short-term market share and profit. The food business will do best with clearly agreed goals on changes to our foods."

Banning the advertising of junk food during children's television is not enough. All kinds of marketing must be addressed. "We must go much further in protecting children....we need to make it socially unacceptable to peddle to children and that means big supermarkets and small retailers really changing their approach."

Given the estimated costs of treating weight-related illnesses, the government is already thinking long-term, working out the problems of 25-30 years ahead and trying to solve them. But many in public health feel that there has been more target setting and talk from the government than useful action.

According to Ros Godson, a leading member of the Community Practitioners and Health Visitors Association, which represents the country's 2500 school nurses, the government programme of weighing and measuring children in schools needs to be linked to help inside and outside the classroom with diet and exercise if it is to make a difference. "Ideally we need to tie it in with the work done in class, with the Healthy Schools programme, to find a way for the health and education disciplines to work together and secure a robust prevention, treatment and referral system."

According to Liberal Democrat health spokesman Norman Lamb: "Hospitals are doing what they must to take care of their patients. It is the government that must take responsibility for failing to do enough to halt the rise of this public health crisis. We now need urgent action to encourage healthier eating from the government and food industry."

Source: adapted from SARAH BOSELEY, 'Food industry's ethics under scrutiny over obesity',
The Guardian, 15 October 2007
© Guardian News and Media Ltd

Source D

Turn up and play

Concerns about costs and pressures on time have prompted a shift from traditional sports such as football and rugby to more informal pursuits such as cycling and jogging according to figures released yesterday. The exploits of Sir Chris Hoy, Victoria Pendleton and others in the Beijing Velodrome boosted the number of people cycling for pleasure by 112 000 to 1.88m in the year to October, according to the Sport England figures.

The Sport England chief executive, Jennie Price, said that some people were turning their back on organised sport in favour of “turn up and play” sessions. “People have a more informal relationship with sport – turning up when they want to and doing as much as they want to rather than on a Thursday night for three hours,” she said.

The government has promised to get one million more people playing sport for 30 minutes three times a week by 2013, but the figures showed progress remains slow. The overall number of over 16s playing sport three times or more a week for at least 30 minutes rose to 6.9m, up from 6.8m from the previous year. Price said that figures would start to rise sharply when a strategy to funnel £480m in public funding to the grassroots started to take effect.

Separate figures released by the Department of Health highlighted the scale of the challenge in using the 2012 Olympics as a catalyst to make the nation more active. The department recommends that adults should get 30 minutes moderate exercise, five days a week. But the annual Health Survey for England revealed that 94% of men and 96% of women do not achieve it.

Researchers from the National Centre for Social Research and University College London gave a representative sample an accelerometer to wear for a week. It showed that what adults really like doing was sitting in front of the computer at work or at home, watching television, reading, eating, studying or drawing.

Interview with Dame Kelly Holmes



© Alamy

One reason women aren't interested in sport is the lack of role models. We have so many incredible female athletes, but their profiles are tiny compared with the men. In 2009 the England women's cricket team won the Twenty20, the World Cup and the Ashes, and yet they didn't win the Team of the Year at the BBC Sports Personality of the Year awards.

The cricketer Claire Taylor, or Victoria Pembleton, the cyclist, should be the ones written up in magazines for girls to look up to, so girls realise that there are other ways to getting recognition than just being really skinny.

The other issue is the difficulty in getting teenage girls interested in sport. I did a project called Girls Active for three years, trying to encourage disengaged girls into sport and I found a lack of self-esteem. Doing sport wasn't perceived as cool. Plus sport can be difficult – especially when it's cold, dark and wet outside. But schools have changed their approach recently and now they do cheerleading, street dance, martial arts and rock climbing.

We need more women in top leadership roles. I'm on a commission to the Women's Sport and Fitness Foundation to find ways of doing that. Without women at a strategic level, it can be very hard to change the landscape.

Source: adapted from OWEN GIBSON & SARAH BOSELEY, 'Turn up and play: grassroots sport becomes more relaxed' and interview with Dame Kelly Holmes by Helen Pidd *The Guardian*, 17 December 2009
© Guardian News and Media Ltd

Turn over ►

Source E

Why isn't your workout working?

There are many reasons to exercise. Stronger abdominal, lower-back and core muscles help stabilise the spine; cardio-exercise such as jogging or aerobics makes your heart and lungs work harder, lowers the level of 'bad' LDL cholesterol in your blood, strengthens bones and wards off high blood pressure and coronary heart disease. Regular cardio workouts also have a profound impact on our mental health, combating stress, depression and anxiety.

But let's be honest here. The primary reason that most of us exercise is either to lose weight or to maintain a body shape that we can bear glimpsing in the mirror. It's a simple, tried-and-tested equation: exercise equals weight loss. The foundations on which a multibillion-pound fitness industry is built. But what if the equation was wrong, or at least, a far more complex one than conventional thinking would have us believe?

A study by researchers from the Queensland University of Technology, and reported in *The British Journal of Sports Medicine*, looked at 58 obese people, who completed 12 weeks of supervised aerobic training without changing their diets. Almost half of the participants failed to attain the predicted weight loss estimated from their exercise-induced energy expenditure – in other words, they didn't lose nearly as much weight as the research team had expected.

Another study by scientists at The University of Colorado School of Medicine involved a variety of people – from the very fit to the overweight – in an experiment requiring them to spend several 24-hour periods in a walk-in 'calorimeter' (a special laboratory room that measures the calories that a person burns). To their surprise, the researchers found that none of the groups experienced 'afterburn' – when the metabolism, raised through exercise, continues burning fat after the exercise had ceased. Crucially, the subjects did not use up additional body fat on the day they exercised.

So is there any point exercising? If exercise doesn't lead to weight loss, is it time to bin the trainers and embrace a life of sloth? The key is to look beyond the sensationalist headlines. First we have to understand the difference that low-and-high intensity exercise have on the body. The other key point is that the Queensland University study did not include any dietary change for its subjects. They just exercised more. (The fact that their research findings had been so twisted by the media so incensed the team that they refused to comment on the story.)

Also crucial is the point that muscle burns more calories than fat. For long-term weight loss, you need to change the composition of your body. If you want to lose weight you have to combine exercise with dietary measures, says Roxy King, manager of LA Fitness in London's Holborn. "If you just go on a diet, you will lose body fat but muscle percentage as well, and reduce your metabolic rate – which you do not want."

Another common misconception is that an hour spent on the treadmill and exercise bike justifies an evening spent munching burgers and quaffing lager. As Jeni Pearce, performance nutritionist at the English Institute of Sport explains, we often over-estimate the amount of energy we expend through exercise. "People may think they've expended 500 calories because they've worked really hard on the treadmill for an hour. But the reality is that they may only have burned 250–300."

"If you want to lose weight and keep it off the key thing is consistency," she says sternly. "Reducing body fat takes time. It's a lot more difficult, and takes longer, than most people realise. You have to be in it for the long haul."

So there you have it. Despite our ever-more sophisticated understanding of how the human body works, and behind the screaming headlines, is a simple, commonsense message: losing weight requires time, effort and the right combination of exercise and diet. So put that cheeseburger down, lace up those trainers and hit the streets. Oh, and don't forget that you'll live longer and feel happier too.

Source: adapted from DAN ROBERTS, 'Why isn't your workout working?' *Independent Life*, 8 December 2009

END OF SOURCES

There are no sources printed on this page