

Obesity, healthy eating and physical activity in primary schools

A thematic review into what actions schools are taking to reduce childhood obesity

In 2011, the World Health Organization claimed that childhood obesity is one of the most serious public health challenges of the 21st century.

In August 2016, the government published 'Childhood obesity: a plan for action'. As part of the plan, Ofsted has reviewed obesity, healthy eating and physical activity in schools.

Age group: 5–11

Published: July 2018

Reference no: 180017



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Plain English Campaign
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HMCI's commentary

Childhood obesity is one of the pressing issues of our generation. By the start of primary school, almost a quarter of children in England are overweight or obese.¹ This rises to over a third by the time children leave Year 6. Obesity in children starting Reception has risen for the second year in a row. Naturally, this issue is a high priority for the government, and the recently published obesity strategy sets out the responsibility we all have to support young people in meeting the challenge.

Obesity in children happens for complex reasons. Every child is influenced by many factors and we do not have a full understanding of how these factors interact when it comes to individual children. However, the messages reaching children need to consistently reinforce the importance of choices that lead to better health. Without this, the attractions of sugar, fat and inactivity will more often win the day over healthier choices.

Schools have an important role to play in reinforcing these messages. They also have responsibility for a curriculum that gives children a solid body of knowledge about healthy living and the skill to pursue it. Children need to learn how our bodies work, why physical health is important and how to prepare food. They need to grow in competence in sport and physical pursuits so that being active is enjoyable for them as well as challenging.

Reinforcing messages, imparting knowledge and developing skill are what schools do – and do well. In the shared effort to tackle obesity, schools should focus on improving those things they are best placed to do:

- planning a challenging and well-sequenced curriculum, including learning about the body in PE and science about healthy eating and cooking
- providing ample opportunity for children to take physical exercise during the school day – with lots of opportunities to 'get out of breath'
- teaching particular skills like how to cook or how to dance
- updating parents on their children's physical development such as agility, balance and coordination.

The contribution of schools is extremely important. But it must be about doing what schools do best: education. We should not imagine that schools alone can have a direct and measurable impact on children's weight. There are too many factors beyond the school gate that make this impossible for them to control.

As part of this research, we carefully selected a group of 60 primary schools where we could control for demography (as much as we could within the limits of the

¹ 'Obesity prevalence increases in reception age primary school children', NHS Digital, October 2017; <https://digital.nhs.uk/news-and-events/news-archive/2017-news-archive/obesity-prevalence-increases-in-reception-age-primary-school-children>.

work). This gave us a group of schools where obesity seemed high compared with schools that were similar to them, and another group of schools where obesity seemed low, also compared with schools with similar demography. We used this split to look at each of the school-level interventions taking place in these schools, where we had the evidence. When we did this, we saw no pattern to suggest that any intervention was related to higher or lower obesity. This means that individual school-level actions, like having a nominated lead for obesity or having an on-site kitchen, are not likely in themselves to make a significant difference to children's weight. This was not a surprising finding, because we would not expect them to. Obesity is far, far more complex than that.

School meals

Clearly, the food that schools provide has to be healthy. Our inspectors found no reason to believe that schools are not following the school food standards set by the government. The best school leaders were going much further and were taking a personal interest in the quality of the meals they were providing.

It would be economic good sense for schools if more children took up school meals. The government has made a significant financial commitment to providing free infant school meals. It is very puzzling why this offer has lower take-up in disadvantaged areas compared with wealthier ones. Our evidence did not tell us why and this deserves further investigation. Not only do infant school meals save parents the cost of a packed lunch, but higher take-up makes meals more economic to serve.

The cost of school meals is a factor for some parents when pupils reach key stage 2. We saw big differences in approach between the school leaders who took personal ownership for the quality of food and usability of payment and catering procurement, and those who, wrongly, saw themselves as having little control.

However, we saw no strong evidence in our research to suggest that packed lunches are playing a significant role in the obesity crisis. Based on the evidence given to us by pupils, what is most likely to be in their packed lunch is a piece of fruit, a packet of crisps, a pot of yoghurt and a ham sandwich. They are mainly drinking water. While it might be worth trying to substitute the crisps for something healthier, swapping this lunch for a school meal is unlikely to be a silver bullet. Certainly, quite a few packed lunches had a biscuit, a chocolate bar or a piece of cake. However, 93% of pupils taking school meals told us they had a pudding. Instead, the choices leading to obesity are more likely to be happening outside of school hours.

A curriculum for healthy living

There is a broader temptation to look to schools to do more than educate. When faced with a worrying trend that threatens children's futures, there is an understandable desire to find ways to turn the tide. However, there is a risk that by focusing on activities other than education, schools neither reduce weight, increase health nor teach children what they need to know. The more we expect schools to become a catch-all for all societal ills, the more we distract them from their core purpose. Instead, schools need to focus on the positive role they can play, which is

educating children about healthy living by getting the curriculum right. Our evidence identified a number of areas in which schools were not doing enough in this respect.

At the very least, a good curriculum that supports learning about health should meet the broad standard set by the national curriculum. Cooking is a specialist area to teach but is rightly required by the national curriculum at key stages 1, 2 and 3. One school brought in specialism by drawing on support from a local supermarket. It was still only around a quarter of schools, however, that reported that they gave children the opportunity to cook. Some schools were constrained by their facilities but 90% of the schools we visited had a full production kitchen.² For something that is explicitly set out in the key stage 2 curriculum, the proportion of children being taught to cook is very low. More cooking in the curriculum was something parents wanted to see.

We found evidence that teaching children about healthy living could have an impact on their behaviour outside of school. Around half of parents we surveyed said that what their children had been taught in school led them to make healthier eating and drinking choices outside of school. More than half of pupils surveyed said that they were doing more sport and exercise as a result. However, as above, we saw no link between schools' approaches to tackling obesity and their impact on weight.

Parents want more PE

Looking to schools to do more beyond their core educational role can lead to unintended consequences. How much workload is being created in planning and delivering events around health that parents struggle to attend? One of the most striking things from the evidence given to us by schools is how much effort is being put into activities designed to influence parents without any evidence that they either have an impact or are what parents want.

Eighty-three per cent of parents said they had been invited to an event at school. However, parents also told us they are time-poor and what they really want is information about what their child is doing at school – what they are actually eating and what they are learning about – so that this can be followed up on at home. Less effort spent inviting working parents into the school and more effort providing accessible information about school lunches, for example, would be a good place to start.

Another thing parents wanted to see in the curriculum was more time for PE. In addition to timetabled PE, the extra-curricular offer is a good way to broaden the opportunities for children to learn new skills and be active. However, a quarter of parents said that their child could not access all the clubs and activities they wanted. The most common issue was that not enough spaces were available. When they were, parents could not afford the cost or the school had not taken into account parents' work and childcare patterns. Some primary schools were using their PE and

² In some cases, percentages are calculated on the basis of 60 schools and some cases for 59 schools. This is due to missing data for one of the schools in the sample.

sport premium to expand the offer and reduce the cost. Why this funding is available but parents were still concerned about cost leaves serious questions for some schools to answer. This is particularly the case because we found schools using their funding for planning, preparation and assessment (PPA) cover. The government has been explicit that the funding should not be used in this way.³

There are some kinds of activities that can be more expensive to deliver. Swimming needs access to a pool and cycling needs bicycles. However, tight funding need not always be a barrier. One activity pupils wanted to do more of was dodgeball. All you need for dodgeball is some space that can be marked out and some foam balls. Only around a quarter of the schools we visited offered pupils the chance to play dodgeball.

Schools and parents need to reinforce each other's roles more effectively. Schools told us they were very aware of the role that home life and parents play. It was therefore surprising how little the schools we visited seemed to understand about what parents needed to support the messages and learning being taught in school. In particular, many schools seemed to hold a view that parents were difficult or uncooperative. Yet our evidence suggested something else: that schools had not made enough effort to listen to where parents were coming from. The complexity and pressure of managing work and childcare alongside the life of the school was something parents spoke about but schools did not. Crucially, parents understood that what matters is what is learned. They wanted more time for PE and cookery, more clubs and physical activity and more teaching about unhealthy food and the effect that it has on health. These are all sensible things to ask schools to do that are about the basics of good education for health.

No one should conclude from our findings that schools do not have a role to play in tackling one of the greatest threats to children today. They unquestionably do. In doing so, however, it is misguided for schools to attempt to address every dimension of the problem. Education for health **is** essential and must be done well, without distraction. It will not be done well if schools are devoting time and energy to things in which they are neither expert nor likely to have an impact.

There are 24 hours in a day but children only spend six in school. The other 18 hours matter enormously. The government's new measures⁴ will help parents to make these hours healthier for their children. Schools and parents sometimes spoke to us as if they are on different sides, but they are on the same side. If schools listened a bit more closely to what parents want for their child's education, this is where some real gains could be made.

³ 'PE and sport premium for primary schools', Department for Education and Skills Funding Agency, September 2014; www.gov.uk/guidance/pe-and-sport-premium-for-primary-schools#how-to-use-the-pe-and-sport-premium.

⁴ 'Childhood obesity: a plan for action, chapter 2', Department of Health and Social Care, June 2018; www.gov.uk/government/publications/childhood-obesity-a-plan-for-action-chapter-2.

Background

1. Obesity is one of the biggest health challenges facing England. In 2011, the World Health Organization (WHO) declared childhood obesity to be one of the 'most serious public health challenges of the 21st century'.⁵ It comments:

'Obesity in childhood is associated with a wide range of serious health complications and an increased risk of premature onset of illnesses, including diabetes and heart disease.'⁶
2. Latest figures from the National Child Measurement Programme for England, 2016/17, for children in Reception and Year 6 in state-maintained schools state that:

'Almost a quarter of Reception children were overweight, including obese. In Year 6, it was over a third.'

⁷
3. Obese children have an increased risk of cardiovascular risk factors, respiratory comorbidities and developing type 2 diabetes. Many obese children are reported to have to endure social and psychological problems like negative stereotypes, peer rejection, teasing and discrimination. This can be linked to developing a negative self-image, low self-esteem and even depression.⁸
4. Research also suggests that obesity continues from childhood to adulthood: 40–60% of obese school-age children become obese adults. While some individuals are genetically more susceptible to obesity than others, genetics alone are not enough to cause obesity. Obesity is more likely to be a result of behaviours such as diet and eating patterns and changes to physical activity and factors such as availability and affordability of healthy food and access to physical activity opportunities.
5. In response to its own global recommendations, the WHO Global Strategy on Diet, Physical Activity and Health calls for action at global, regional and local levels to improve diets and increase physical activity.
6. In August 2016, the UK government published 'Childhood obesity: a plan for action'.⁹ Among the actions it proposed was creating a healthy rating scheme

⁵ 'Childhood overweight and obesity', World Health Organisation, 2011; www.who.int/dietphysicalactivity/childhood/en. www.who.int/dietphysicalactivity/childhood/en.

⁶ 'Facts and figures on childhood obesity', World Health Organisation; www.who.int/end-childhood-obesity/facts/en. www.who.int/end-childhood-obesity/facts/en.

⁷ 'National Child Measurement Programme – England, 2016-17', NHS, October 2017; <http://digital.nhs.uk/catalogue/PUB30113>

⁸ Cale L and Harris J, 'Every child (of every size) matters' in physical education! Physical education's role in childhood obesity'; in 'Sport, Education and Society', 18(4), 2013; pp. 433–452.

⁹ 'Childhood obesity: a plan for action', Cabinet Office, Department of Health and Social Care, HM Treasury, and Prime Minister's Office, August 2016; www.gov.uk/government/publications/childhood-obesity-a-plan-for-action. www.gov.uk/government/publications/childhood-obesity-a-plan-for-action.

for primary schools. As part of this, it commissioned Ofsted to look at obesity, healthy eating and physical activity in primary schools.

Methodology

7. To shape this review, we sought and received advice from a panel of experts from:
 - Association for Physical Education
 - Department for Health and Social Care
 - Department for Education
 - One Dance UK
 - Sport England
 - Youth Sport Trust.
8. We have also carried out a thorough literature review, drawing on studies and reviews from several countries.
9. The analysis and conclusions in this report represent Ofsted's view of the evidence and not necessarily the views of any other organisation.

Research design and methods

10. We designed a mixed-methods study (further detail is in Annex A) consisting of:
 - visits and ethnographic observations of 60 primary schools, covering a range of contexts and involving a wider range of professionals related to the issues of healthy living.
 - an online survey of Years 5 and 6 pupils in these schools
 - an online survey of the participating pupils' parents.
11. The online surveys were self-selecting and therefore responses may not be representative of all pupils within the schools visited.
12. In addition, Ofsted inspectors:
 - spoke to school senior managers, governors, school staff with named responsibility for healthy eating or physical activity, teachers, teaching assistants, catering staff, school nurses, pupils and the pupils' parents
 - observed lessons related to healthy eating and physical activity
 - looked at the organisation of school breaks and lunchtime activities and extra-curricular provision during lunchtime and after school
 - looked at the content of school lunches
 - recorded their observations as detailed notes.

13. We completed all the fieldwork in autumn 2017.

The impact of schools on BMI

14. The purpose of this research was to develop a better understanding of what schools' contribution can be to reducing child obesity in England. The main challenge is that the influences on any child's weight are complex. If schools operated in a vacuum and were the only influence on a child's life, the process might look something like this:
 1. Pupil gains knowledge about their body and develops their physical activities.
 2. Pupil develops positive attitude towards a healthy lifestyle.
 3. Pupil routinely makes healthy choices.
 4. Pupil maintains a healthy weight.
15. However, schools do not exist in a vacuum and in every child's life there will be very many factors that will contribute to their weight. The impact of the school can easily be 'drowned out' by many other factors.
16. This created a challenge for our research, and it continues to create a challenge for schools. As part of our discussions with schools, several said that they felt they should have access to the data collected as part of the National Child Measurement Programme on individual children's weight. For schools that are focused on impact, the logic of this understandable, if misdirected. The number of other influences is potentially so great that trying to assess impact using BMI is unlikely to be accurate and may well distract from more directly relevant issues.
17. One of the risks for this research was that the level of complexity involved could leave inspectors open to cognitive bias – seeing effects or patterns where none exists. To avoid this, we asked Public Health England to devise the sample of schools for us to visit. All the primary schools in England were grouped according to a number of factors: deprivation, ethnicity, rurality/urbanity and region. This resulted in a series of grouped schools. From each group, Public Health England selected the schools with very high or very low levels of obesity relative to the rest of the schools in the group.
18. Therefore, the 60 schools in this research are not the schools with the highest or lowest levels of obesity in the country. They are those where obesity is comparatively high or low relative to their context. If we had not done this, any differences in schools would likely have reflected factors that related to deprivation, rather than obesity.
19. The purpose of this sampling exercise was not to identify the impact that schools have on BMI. This is because there was no way to isolate the effect of the school among all the other factors affecting children. The purpose was to protect against the temptation to attribute impact incorrectly.

20. What we found was as we expected. None of the things that any of the schools in our sample were doing mapped against whether they had relatively low or relatively high levels of obesity. Nor was there any evidence from the sample that taking a comprehensive approach to healthy living across a school had a direct and measurable impact on BMI. This evidence was from a school with very high levels of obesity relative to schools with a similar context:

It was clear that promoting healthy eating and physical activity is deeply embedded in the school curriculum from the early years foundation stage through to Year 6. The children had developed a very good understanding of healthy eating from a range of planned settings, including science lessons, assemblies, displays and special days and weeks. The school had then ensured that what the children ate in the meals they provided and snacks and food the children brought in fully matched this. There was also evidence to suggest that the food parents were providing at home was being influenced by this. At the same time, the school was successfully recognising and celebrating the cultural differences of those home diets. Similarly, physical activity was being successfully promoted by a diverse range of curriculum strategies ranging from active days and weeks, to well-planned PE lessons, to a very proactive approach towards engaging children in extra-curricular activities. Here, the emphasis was on developing skills and fitness in a fun setting, which was then likely to lead to continued involvement in later life.

21. As before, it is important to note that this pattern is not simply because the 'low obesity' schools were in areas of greater affluence. The schools we selected were chosen from groups of schools that were similar in terms of deprivation, ethnicity, rurality/urbanity, and region. That we can have schools with similar demography but very different levels of obesity indicates that the schools' own interventions are not likely to be having an impact on weight.

Ethos and management

22. Across the sample of schools we visited, the overwhelming balance was towards schools that considered themselves to have an ethos that emphasised the importance of healthy lifestyles:

'The school staff as a whole are totally behind the ethos of preparing children to be resilient and make good choices in life, including having healthy lifestyles.'

'All subject leaders see the bigger picture, not simply their own subject, and consider that PE and sports and healthy eating have a high profile in the school because of the determination to support each child's physical and emotional well-being and understanding of a healthy lifestyle.'

23. Of all the schools visited, there was only one where the inspector noted that enthusiasm was not shared across the school:

'It is not a very sporty local community... Whole-school leadership and coordination is lacklustre; middle leadership is enthusiastic.'

24. More than half (59%) of the schools said they had a food plan. All but two of the schools had a named person with specific responsibility for healthy eating or PE. Most commonly, the named individual responsible for the area of healthy eating was a middle leader (79%).

25. Similarly, all but two schools indicated that had provided their staff with training on some aspect of healthy living over the past two years, primarily either health and well-being (37% of all training) or sports/PE (52%). One quarter of training was offered to all staff. A slightly smaller proportion of teachers/teaching staff and specialist staff were provided with training opportunities. Most schools' training took one to two days. Some training sessions were reported to have been up to three hours long and happened as one-off training. In two schools, training was long as three to five days. Most schools said that when training or development activities had been offered this had had an impact. Commonly, when schools had offered specialist training on particular physical activities (such as gymnastics, swimming, dance), this had increased teachers' confidence to teach. Some schools reported that teachers being more knowledgeable had increased take-up of that sport.

'Staff are more confident re supporting and teaching swimming; children know and trust their teachers and 'have a go.'

26. The impact of training that was related to healthy eating was much less clear. In a number of cases, this was because training was being done for compliance reasons (such as food hygiene). Some of the training was about well-being generally and impact is harder to observe. When the topic was about increasing

teachers' knowledge (such as cooking), the impact was much clearer. A number of schools had increased how often they taught cooking.

27. Inspectors noted that some school leaders were passive in their approach to school meals. While these schools had the discretion to make contracting decisions about school food, they were not using this to secure the best offer for their pupils.

'The leaders and governors do not understand what is on offer and buy in an SLA (Service Level Agreement) to deal with the whole area of school food, which does not allow local variation. This means that meal uptake is not as high as it could be.'

'Leaders do not really engage with the school food offer. They accept what is there and rarely challenge.'

28. Later in this report, we highlight an example where the principal took the opposite approach and was instrumental in improving take-up through taking personal ownership of purchasing decisions. The importance of the role of the senior leadership in setting direction on school food was noted as an important factor in take-up by catering staff in another school.

Curriculum

29. The role of schools is to teach a deep and rich curriculum so that pupils learn what the school intends them to learn, in line with standards set nationally.
30. Nine of the schools sampled had carried out some assessment or review of their curriculum as to how it related to healthy living or were planning to do so. One of the schools monitored the effectiveness of the teaching on healthy lifestyles and reported on it to governors.
31. There are three main ways that schools organised their curriculum for healthy eating and physical activity:
 - discrete subject teaching, where healthy eating might be delivered through separate lessons in personal, social, health and economic education (PSHE), design technology (DT) and science
 - linking across themes, where subjects may be distinct but associations are made between learning in different subjects
 - cross-curricular or thematic teaching, where content is organised by topic rather than subject.
32. Many of the schools we visited were delivering a thematic curriculum overall, though PE was often not included in this. Many of the schools were able to give extensive detail about the activities they did or themes and topics they had constructed. However, this was not matched with clarity about curriculum

intent, implementation or impact. In many schools, the passion and imagination being given to the curriculum was evident. However, what this effort was aiming to achieve in terms of pupils' knowledge about healthy living and skill to carry it out, or any evidence of whether this had happened, was not clear

Sport, physical education and physical activities in the curriculum

33. Physical activity features in several areas of the curriculum. Sport and movement are part of the physical education (PE) curriculum.¹⁰ The primary science curriculum includes the human body. Energy requirements are part of the biology curriculum and rhythm and tempo are part of the music curriculum. Primary schools receive the PE and sport premium that the government introduced in September 2013 as part of the legacy from the 2012 Olympic Games.¹¹ The premium was initially set to run for at least two years. The funding allocations for 2017/18 were announced in October 2017.¹²
34. Forty-one of the schools we visited (69%) had two or more hours of PE in the timetable each week. The schools that did not all indicated that children were active in other ways, though in a few of these this was 'playtime', which may or may not have been physically active. One school did have two hours timetabled for PE but was frank that time was being lost in getting changed and setting up. We asked pupils whether they were active every day and around a third said that they were.

¹⁰ 'National curriculum in England: PE programmes of study', Department for Education, September 2013; www.gov.uk/government/publications/national-curriculum-in-england-physical-education-programmes-of-study.www.gov.uk/government/publications/national-curriculum-in-england-physical-education-programmes-of-study.

¹¹ 'Inspired by 2012: The legacy from the London 2012 Olympic and Paralympic Games', HM Government and Mayor of London, July 2013; www.gov.uk/government/publications/the-olympic-and-paralympic-legacy-inspired-by-2012.

¹² 'PE and sport premium: funding allocations for 2017 to 2018', Department for Education and Education and Skills Funding Agency, October 2017; www.gov.uk/government/publications/pe-and-sport-premium-funding-allocations-for-2017-to-2018.www.gov.uk/government/publications/pe-and-sport-premium-funding-allocations-for-2017-to-2018.

Table 1: Frequency of physical activity at school

How often do you do some sport, dance or physical activity (such as walking, cycling, fitness games) at school?	%
Every day (5 times a week)	35
4 times a week	11
3 times a week	15
2 times a week	20
Once a week	16
Never	4

35. We asked schools which sports and other physical activities they offered. We did not differentiate between activities provided as part of the curriculum and those offered through after-school clubs and other extra-curricular activity. However, the evidence from schools suggests that some schools may have only told inspectors about extra-curricular activities. This may have resulted in a lower proportion of schools listing swimming, for example. If a higher proportion of children were participating in swimming, however, parents were not aware. Only 35% of parents who responded to this question said that their child had been swimming at school in the past year.
36. We asked pupils to name their favourite sport or physical activity. Football was both the most commonly offered and most likely to be named as a favourite. The second most popular activity with pupils was dodgeball, which was only available in a quarter of the schools we visited. We also asked pupils which sports and physical activities they would like to do more of in school. Every option offered was chosen by at least 9% of pupils. The activity most pupils wanted more of was dodgeball (33%), followed by football (30%), swimming (28%), tennis (20%), cycling (19%), basketball (19%) and rounders (18%).

Table 2: Activities available in schools (respondents could choose more than one answer)

Activity	Number of schools which offered these activities	Schools which offered these activities (%)	Pupils who said it was their favourite sport or physical activity (%)
Football	48	81	47
Dance	46	78	14
Gymnastics	44	75	n/a*
Swimming	41	69	22
Rugby	35	59	8
Netball	35	59	20
Cricket	35	59	13
Tennis	34	58	11
Athletics	34	58	15
Rounders	33	56	14
Cross country and running	32	54	15
Hockey	29	49	n/a
Basketball	25	42	15
Multi-sports or multi-skills	25	42	n/a
Dodgeball	15	25	27
Bikeability, cycling	13	22	8
Yoga	11	19	n/a
Orienteering	9	15	n/a
Circuit training	9	15	8 (listed as 'Keep fit')
Judo, taekwondo, kick boxing, karate, boxing	8	14	n/a
Tri-golf	8	14	n/a
Skipping	7	12	n/a
Badminton	6	10	4
Archery	5	8	n/a
Volleyball	3	5	n/a

Not all the sports and physical activities offered by schools were listed in the question to pupils, and so appear below as 'not available'.

37. Other activities that individual schools offered included: hopscotch, softball, infant agility, forest school, gardening, 'be active' sessions, hide and seek, fencing, boccia, cheerleading, relay races, Frisbee, adventure garden/adventure activities, tag, skateboarding and table tennis. The number of activities offered by schools ranged from 28 to 12. Schools on average offered 18 activities.
38. In addition to the regular weekly timetable, many schools gave examples of additional activities organised at the whole-school level. Thirteen of the schools

organised a 'daily mile', while another two schools would have liked to organise it but were prevented by lack of space. Some schools highlighted the opportunity this initiative gave for social interactions as well as improving fitness. They reported that it also gave teachers a great opportunity to get involved with physical activity and lead by example. Some schools also mentioned their annual sports day event.

39. The overwhelming majority of pupils said they enjoyed some sport or physical activity they did at school. Only 3% of pupils said they did not enjoy anything at all. Most parents (81%) said that their children enjoyed being involved in sport and physical activity in school either a great deal or quite a lot. The same proportion of parents (81%) said the same about what their children did outside of school. However, between Reception and Year 6, the proportion of parents saying their child enjoyed sport or physical activity very little or not at all grew incrementally from less than 1% to 7%. In the course of this research, many of the experts we consulted emphasised that what happens in primary school is only part of the picture and that there is a drop off in physical activity as children get older and enter secondary school.

Healthy eating in the curriculum

40. Healthy eating appears in several areas of the national curriculum. It is part of the PSHE curriculum, while cooking and nutrition are within the design and technology curriculum for key stages 1 to 3.¹³ The geography curriculum features resources (food and farming) and physics includes the energy values of foods.
41. Eighty-nine per cent of the schools sampled had some timetabled curriculum time for teaching about food and healthy eating. In delivering their whole curriculum, schools used support from sports and food professionals (28%) and offered activities such as cooking (26%), growing food (21%) and whole-school assemblies about healthy living (24%).
42. Learning related to healthy eating was covered through topics in PSHE, science and DT (which includes food and nutrition in the national curriculum).
43. For the purposes of this research, inspectors asked schools whether they were able to quantify the amount of curriculum time spent on healthy eating. This proved difficult because the content was distributed across a number of subjects. The spread of healthy eating learning across different subjects, however, gave children the opportunity to develop understanding about food in a variety of contexts. The schools were able to give many and varied examples of how food is incorporated into the children's learning.

¹³ 'Personal, social, health and economic (PSHE) education', Department for Education, September 2013; www.gov.uk/government/publications/personal-social-health-and-economic-education-pshe/personal-social-health-and-economic-pshe-education.

44. Nineteen schools had a garden area, which was giving children opportunities to develop an understanding of how to grow food. Once harvested, the children tasted the produce and it was sometimes also used in the canteen at lunchtime. When the production was particularly successful, some schools enabled children to sell excess produce at farmers' markets. Schools also shared many examples of food-related activities, such as visits to supermarkets to learn about where food comes from and Bake Off or MasterChef events that encouraged children to cook. Many schools also had themed weeks such as walk-to-school week, package-free week and healthy or well-being week.
45. Parents most commonly said that cooking activities during the school day (28% of parents) and lessons about healthy eating (32%) were the ways in which pupils were taught about healthy eating. Just under a fifth of parents said that their children took part in class outings on healthy eating. Fifteen per cent mentioned special healthy eating events, assemblies or lessons led by visitors and 4% said that their children had a chance to take part in a gardening club.
46. We asked pupils what they had learned: 80% said a lot or quite a bit about healthy eating. The lower proportions of schools cooking and growing food were reflected in smaller proportions of pupils saying they had learned a lot or quite a bit about these (28% in both cases). Thirty-seven per cent of parents felt that the school had helped their child quite a lot or a great deal in making healthy choices about eating. However, 19% said it varied and 11% felt that the school had had very little impact or no impact at all.

Specialists

47. Through the primary PE and sport premium, schools often bought in PE specialists (21 schools). These specialists supported the school in a variety of ways, including through delivering:
 - ongoing continuing professional development (CPD) for teachers
 - particular PE teaching in areas the school has identified as weaker
 - all or some of the after-school clubs.
48. Government guidance on primary PE and sport premium is explicit that it should not be used to fund planning, preparation and assessment (PPA) cover. However, inspectors found that this was often the case. As a consequence, opportunities were being lost to use time for developing teachers' skills and confidence. When specialists were used for CPD, there were examples of how effective this could be:

The training cycle that has been introduced in PE with specialists was built on a staff survey of their perceived barriers to delivering effective PE. The results came back that a lack of confidence and specific skills (rather than understanding of rules) were an issue. The staff will be reviewing their progress as part of their CPD. There is a staff meeting scheduled for all staff on the field and their training reviews will use the same skills audit

that the specialists use. CPD for dance is a priority. The cluster and specialist sports coordinator bought a package so that secondary dance teachers train primary dance.

Access and facilities

49. There was wide variation in the number and type of extra-curricular activities offered by the schools in the sample. Schools offered a much wider range of extra-curricular clubs related to physical activity than to healthy eating. Many of these sessions were free. Some schools covered all or part of the cost from the primary PE and sports premium budget. Others only offered activities run in-house that members of staff give their time to. Other schools invited companies to run the clubs at a cost to parents. If there was a cost, it ranged from £10 to £60 a term.
50. Activities took place before school, in the lunch break or after school. Sometimes these were run by members of staff, parents or by external companies.
51. Many schools encouraged children to be active at lunchtime. Facilities for this included:
 - having larger equipment to develop climbing and balancing skills, such as trim trails, climbing frames and climbing walls and even a wooden pirate ship
 - an area for team sports, such as a 'multi-use games area' (MUGA) or a fenced-off or enclosed area of outside space
 - sporting or active equipment for children to use such as soft balls, skipping ropes, stilts, hoops, beanbags, circus equipment and space hoppers
 - equipment to encourage other activities such as table tennis
 - a 'wellie wall', which enables children to play wellie football when the field is too wet – this not only encourages team sports, but also alleviates the otherwise cramped conditions on the playground.
52. Around two thirds of parents (65%) said that their child was able to participate in all the activities and clubs they wanted to. Around a quarter (26%) said that they were not (9% did not know). The most common issue was that access to clubs was restricted – either because access was only for particular year groups or places were oversubscribed. The following issues were also frequently mentioned as barriers to participation:
 - incompatibility with parent's work or childcare
 - cost
 - narrowness of the range of clubs offered.

53. A small number of schools had practical barriers to an active lunchtime. Two schools had limitations with their outdoor space: one because it was small and the other because the space was shared with the community and this restricted children's ability to move about freely. Similarly, several schools used their halls for dining, which limited their use for activities.
54. Not everything that could have improved mealtimes was in the gift of the school. Some meals were limited by space restrictions, which resulted in rushed meals and long queues. One inspector noted that:

'Dining hall is gloomy, dark and dull, slightly reminiscent of Victorian era.'

55. Similarly, some schools noted that a lack of cooking facilities had a direct impact on what they could do to teach cooking to pupils on site.

Attitudes and behaviours

56. Very few schools were able to demonstrate to inspectors that what pupils were learning was having any impact on attitudes and behaviours.

'Not aware of any specific strategy that has an impact.'

'The school is not aware of this because no analysis has been done.'

'There wasn't much convincing evidence that what the school is doing is impacting on most pupils.'

'The school could not give any examples of where monitoring has led to improved attitudes.'

'They have not been able to identify any difference in attitudes or behaviours in relations to food so have not implemented any differing strategies for any pupil groups.'

57. This was not because schools were having no impact. The area parents were most likely to see change was in drinking more water and eating more fruit and vegetables.

Table 3: Reported changes by parents in habits related to healthy living (respondents could choose more than one answer)

Have healthy school activities led to any of the following changes in your child's choices at home or school?	Total percentage of 'yes' answers for each option
Drinking more water	51
Eating more fruit and vegetables	47
More willingness to try different foods	42
Walking to school	37
Providing healthy food as snacks	35
Providing healthy food in lunch boxes	24
Exercising more	23
Cycling to school	13
Reduced portion size	4

58. Fifty-one per cent of pupils said there were things they ate more of at home and 44% of pupils said there were things they ate less of. A similar proportion of parents (49%) agreed that the school had helped their child make healthy choices about food either a great deal or quite a lot.

'Things that i do regularly at home has altered because of my learning at school. Some things contains fat salt but most obvious, sugar. And things children eat at a regular basis is a bit bad for health. For an example chocolate and other relatives are decreasing your vitamins and good stuff. That go's to show that things now is very important opportunity because whatever you do now can alter in the future. And eating vegetables and fruits at a regular basis is better.'

'more water more fruit more vegetables more chicken more fish more meat more everything healthy'

'I learned that you should only drink water if you want to keep fit and that you should only eat fruit and vegetables'

'I eat less candy and chocolate and drink less hot chocolate with whipped cream'

'i dont eat sweets at home anyway but i have eaten more things such as : apples, bananas and ricecakes rather than crisps'

'I have started to reduce on sugars and sweets such as chocolates, and have started to eat more fruits each day.'¹⁴

¹⁴ We have not changed spelling or punctuation in the pupil quotes.

59. Some schools told inspectors that since learning about healthy foods, pupils started choosing healthier lunch options:

'Evidence gathered at lunchtime tells me that in school, pupils choose healthy options for their lunch.'

'They told me that "most children choose some salad" (Year 4 girl) to go with their school dinners and they know that "eating healthy food is good for us" (Year 3 boy). They are aware of the need to eat a balanced diet and all pupils could tell me what this means.'

'One pupil has cut down on the amount of fizzy drinks he has as a result of what he has learned about sugar in drinks. He now drinks more water instead of fizzy drinks.'

60. When inspectors spoke to pupils, they heard descriptions of how they attempted to make changes in their diet as a result of learning about healthy eating. The knowledge they have gained at school enabled them to make informed choices about what they want to eat.

'I used to drink juice but now I've got used to drinking water.'

'I didn't like certain sports, like hockey, but now I really like it.'

'In Reception, we tried new foods and after that I asked my parents to buy them.'

'I eat less sweets.'

61. Pupils also told inspectors that they take home what they have learned at school and share with their parents and that sometimes this leads to changes in behaviours around eating and physical activity. Parents have also noticed some changes:

'Parents said that some children had started drinking water at school and carried this on at home.'

'Parents commented how their children had educated them about what foods were appropriate for a packed lunch that meets nutritious guidelines.'

62. We also asked parents and pupils about the impact school had made on their level of physical activity. Fifty-six per cent of pupils said that there were sports and physical activities that they did more of at home because of what they had learned at school. A very similar proportion (55%) of parents agreed that the school had helped their child make healthy choices about physical activity either a great deal or quite a lot:

'I found that I enjoyed them.'

'I do lots of activites at home I play more football with my dad. Our school does lots of sports and activities to keep us healthy.'

'I do rock climbing swimming and starting karate. We learnt at school that you will be fit and healthy if you do physical activities and movement.'

'Gymnastics and netball because I do them at school and they keep you fit and healthy.'

'I started climbing lessons after doing it on a school trip.'

'Because i have realised that when I learn a sport i either like it or don't like it'

'Sports is a very important thing in our school. Some people may agree, some people may disagree, but sports is a opportunity to help decrease any fat and other bad resources. Sports is a key to help you to keep in tip top shape and a good way to lose weight. Any sports happening now doing good and altering your future. But... some people have went beyond their limits and refuse to do it, but with a bit of motivation anything is possible. Football, tennis, running and basketball.'

63. There was a consistent pattern with what was reported from both parents and pupils that what schools were teaching was having an impact on around half of pupils. What is difficult about assessing the impact on behaviour is that different individuals react differently to what they learn. For some children, what they learn may not result in behaviour change for some time. It is perfectly possible for knowledge to sit unused for years until, as an adult, someone decides to make changes to their life and draw on what they have known for years. Therefore, while schools should think about the behaviours that they want to promote so that they can be consistent in the messages they give, it is more effective and accurate to measure impact in terms of the knowledge and skills children have gained.

Food and drink

64. A high proportion of children aged between seven and 14 do not meet national recommended guidelines for healthy eating.¹⁵ Young people's diets have been found to be too high in saturated fats, salt and sugar and most still do not eat enough fruit and vegetables.

¹⁵ Pechey R et al. (2013), 'Socioeconomic differences in purchases of more vs. less healthy foods and beverages: analysis of over 25,000 British households in 2010', Social Science and Medicine, 92(100), 22–6.

65. Schools exist to teach pupils knowledge and skills. However, they also feed them. There has been extensive debate nationally about the quality of school food and whether lessons about healthy lifestyles are matched with healthy food and drink in the school.
66. Some schools we visited also saw themselves as having a role in teaching the social dimension to dining. In one school, children sit and eat healthy snacks but are also taught 'social dining skills' and manners. In another, lunchtime supervisors had a specific reference in their job description to 'helping establish healthy eating routines, supporting children to develop physical dexterity and coordination when using a knife, fork and spoon; engaging the children in conversation about their food and healthy eating habits and promoting an orderly, clean and pleasant atmosphere for children to enjoy their lunch.'

Meeting the standards

67. In January 2015, the DfE issued guidance on standards for school food in England.¹⁶ This guidance applies to all maintained schools and to academies and free schools that were founded before 2010 and after June 2014.
68. Ninety per cent of the schools we visited had a full production kitchen. The remaining schools had hot food transported in. Food was prepared and cooked on site. However, responsibility for this was generally something that the schools contracted out. The large majority of schools we visited did this, either with a local authority caterer (42%) or a commercial caterer (42%). Only one in 10 schools managed catering in-house. Sixty-eight per cent also provided breakfast clubs. Again, the food for this was mostly delivered by external companies.
69. We asked schools how they checked that their menus complied with the School Food Standards¹⁷, which provide the regulatory framework for food served in schools. Most schools (60%) said that they relied on the commercial providers they worked with to comply with the standards and that these companies provide them with some evidence for this. This usually took the form of a confirmation of compliance or very occasionally a more detailed nutritional analysis. As well as often directly providing catering services, local authorities also sometimes recommended catering companies. Some schools looked to the local authority for assurance that the menu complied with standards.
70. In some schools, leaders and governors assumed that the company was compliant with the standards without further evidence of this. These schools told inspectors that they trusted the company to be compliant.

¹⁶ 'School food in England', Department for Education, January 2015; www.gov.uk/government/publications/standards-for-school-food-in-england.

¹⁷ <https://www.gov.uk/school-meals-healthy-eating-standards>

71. In three of the schools, the cook was the person who ensured the quality of food provision. In these schools, the cook used information provided from the local authority to adhere to the standards. In these cases, there was no additional check that the adaptations being made were in line with standards.
72. Inspectors noted that in three schools (only 5% of those visited), leaders had no practical measures to give them assurance standards were being met.

'Leadership do not know if meals comply with nutritional guidelines.'

'In theory, the caterers make checks that staff are following guidance, but school leaders could not identify a recent visit (possibly over 18 months since last one).'

School meals

73. Healthy school meals only contribute to a healthy lifestyle if children eat them. Take-up of school food nationally remains 'stubbornly low, at 43%': 57% of children are not eating school lunches at all.¹⁸ However, eating school dinners is better for the pupils and more effective economy for the schools. Average take-up of school dinners needs to be at least 50% for the school food service to break even. Subsidising low take-up costs local authorities or the schools themselves £140 million a year. The government is therefore keen to encourage more parents to take advantage of school dinners.

74. As the School Food Plan says:

'This state of affairs is neither desirable nor necessary. Parents currently spend almost £1 billion a year on packed lunches; persuading just a fraction of them to switch to school food would make the system solvent again (and their children healthier).'¹⁹

75. Unsurprisingly, in the schools we visited, take-up was highest for infant meals. These are both free and universal and therefore do not have the potential stigma of 'free school meals'.

Table 4: School reported school meal take up

Offer	Total take-up from cohort
School meals	64%
Infant meals	82%
Free school meals	78%
Breakfast	11%

¹⁸ 'The school food plan', Department for Education, July 2013; www.gov.uk/government/publications/the-school-food-plan.

¹⁹ Independent school food plan: www.schoolfoodplan.com/plan.

76. In every year apart from Reception, take-up was higher in schools in areas of low deprivation. The disparity between schools in areas of low and high deprivation includes Years 1 and 2 when meals are free.
77. The pupils who responded to our survey were in Years 5 and 6 and 45% said they had a school meal. A further 22% said they sometimes did. This reflects the data we collected from their schools about regular take-up.

Table 5: School reported school meal take up by year group and deprivation

School year	Percentage of children in each school year who had school meals once a week	Percentage of children in each school year who had school meals once a week in high and low deprivation schools	
		High deprivation	Low deprivation
Nursery	26%	14%	36%
Reception	83%	82%	79%
Year 1	79%	71%	82%
Year 2	77%	63%	81%
Year 3	53%	47%	61%
Year 4	48%	43%	53%
Year 5	47%	36%	53%
Year 6	41%	34%	51%

78. We asked parents whose child did not take up school meals why this was. The most common response (47%) was that they preferred to provide their own meals. Of the parents who responded, 24% said the meals were expensive. A number of parents gave more detailed explanations. Common issues were:
 - child had dietary requirements (vegetarian, coeliac, allergies, halal) and the provision for these was unsatisfactory
 - the portions were too small and their child was hungry at the end of the day
 - there wasn't enough time to eat
 - arrangements to pay were restrictive and aggravated the cost factor (for example, you had to pay weekly rather than monthly, or you had to pay for the whole week).
79. Some parents said that they provided packed lunches because their younger child wanted what the older siblings had. Therefore, if cost is a factor for higher years it could potentially have an effect lower down the school even when lunches are free. This observation was also made by catering staff within schools. However, from the evidence available to us we would not be able to say if this was or was not a factor.

80. Some parents raised questions about the approaches being taken and whether they were genuinely promoting good health:

'I also find the meals hypocritical, allowing children pizza, chocolate and cake/biscuits but then giving us parents a hard time for including a small treat in a lunch box.'

'The meals are often not healthy enough, especially the pudding options.'

'The children are told they have to eat everything on their plate or they cannot have pudding or play outside.'

'The food is junk. Too many carbohydrates and the emphasis on puddings sets an expectation that every meal should have something sugary and unhealthy.'

81. When we spoke to catering staff, they echoed parents' issues with cost. Several catering managers said that having two children in key stage 2 was prohibitive in terms of cost. Catering staff's common view, which was not mentioned by parents, was that many children had very limited exposure to different foods outside of school. One catering company said that the unfamiliar meals on the menu affected take-up in low income areas.
82. Catering staff recognised the impact of school leaders on take-up. In one school, they said they had seen a clear rise in take-up under a new headteacher. In another school, the inspector noted the role of the headteacher:

'The academy's daily IT pre-order system is described as 'the Mercedes of food ordering'. Fifty per cent of the cost is supported by the local authority. Parents can also review the menu and avoid duplication at home. The impact includes the academy having one of the highest rates of take-up of school meals in the borough and because children make their own choice, they are happy and eat well. The principal trialled two previous systems until satisfied.'

83. Children who had school meals usually (73%) made their own choice of what to eat. Only a small minority were helped to choose by someone at home (12%) or the lunchtime staff (8%). We asked pupils whether they had had a pudding as part of their last school meal and 93% said yes (this is within the School Food Standard guidelines).
84. On visits to schools, inspectors identified some factors that they considered would affect food choices. In some schools, the catering staff did not encourage pupils to try new foods. There were also examples where pupils did not know what the food in the display was because of lack of labelling or could not see what was offered because the displays were placed too high for the younger children to be able to see them.

85. A small minority of children told us that they went to breakfast club every day (5%). A larger proportion went sometimes (22%). The most common things eaten at breakfast club were toast and cereal.

Table 6: Items eaten at breakfast clubs

What do you usually eat and drink at breakfast club?	%
Toast	74
Cereal	53
Milk	36
Water	37
Fruit juice	31
Jam	21
Squash	20
Yoghurt	17
Cheese	4
Cereal bar	5
Fizzy drink	2

86. Twenty-seven per cent of pupils identified something else, including: bagels, fruit (particularly raisins), porridge and pancakes. A number of children said there was no food at breakfast club.

Packed lunches

87. Of the pupils who responded to our survey, 44% brought a packed lunch and 21% did sometimes. Pupils said they had a say in what went into their packed lunch: 35% chose it themselves and 44% did sometimes.
88. The things pupils said were most likely to be in their packed lunches were: fruit (72%), crisps (60%), yoghurt (49%) and a sandwich or wrap with meat (48%). Drinks were most likely to be water (42%), fruit juice (34%) or squash (22%). Only 2% of pupils said they brought fizzy drinks. Thirty per cent of pupils said they also brought something else, of which by far the most common answer was some form of processed meat (such as mini sausages, pepperoni sticks, Polish sausage, ham, branded meat snacks).
89. Inspectors noted some schools that took an active approach to working with pupils and families on the contents of their lunch boxes. This was based on growing their understanding of healthy choices:

'Staff and lunchtime supervisors talk through with the pupils about what they see in their lunch boxes to help them understand a healthy lunch box. They do not remove anything and talk to parents when this is required. They have noticed that this approach is having a very positive

impact and pupils are now informing their parents... 'chocolate sandwiches' were very popular and parents/pupils now know that this is not a good food option so this practice has stopped. There is still an ongoing issue with drinks though because many still bring in orange juice (although this is progress because it used to be fizzy drinks).'

'Headteacher's view is that he does not want to dictate to parents what to include in lunch boxes. Guidelines are available rather than a policy about healthy packed lunches and parents are signposted to these, which are produced in school newsletter.'

Water and snacks

90. Children need access to drinking water throughout the day. We asked schools what approach they took to providing water for pupils. Six schools did not have taps in classrooms nor fountains in the hallways. Three of these provided water bottles for children and three did not.

Table 7: Provision of water in schools

	There is a tap for drinking water in every classroom	Children have water bottles supplied by the school	Children are asked to bring in their own water bottles	There are water fountains in the hallways
Number of schools	33	19	48	40
Percentage of schools	56	32	81	68

91. Only one school provided no snacks outside of mealtimes. Every other school provided fruit. Nine out of 10 of the schools provided vegetables as well. Five schools also provided sugar-based snacks and three provided salted snacks.

Parents and schools together

92. The influences on children are complex. Schools play a role, but what they teach pupils interacts with what pupils are taught and absorb indirectly from home, their peers, and the wider environment. What parents do, think and want for their children are all important pieces of the puzzle. The relationship between schools and parents is another.
93. We gathered views from both schools and parents about how they perceived each other's roles and what they thought they each could do differently.
94. Most of the parents in our survey could see a positive difference in their child's behaviour from what their child's school had done to promote healthy living. Of the parents we surveyed, more than half (51%) said that the school had helped their child in making healthy choices about eating a great deal or quite a lot.

This rose to 59% for healthy choices about physical activity. For both healthy eating and physical activity, fewer than 4% of parents said the school had not helped at all.

95. We asked parents what they wanted schools to do. The comment given most frequently was that schools should improve the quality of school meals and/or provide better information about what children were eating in school. This was also one of the main things parents thought would improve healthiness of the whole family's lifestyle.
96. There is a disparity, however, between what parents receive and what they want. Seventy-eight per cent of parents surveyed said that they received information about school menus. However, what parents were asking for was more specific information about what their child is actually eating during the day. Also, parents clearly have views about what school menus should provide. However, only 19% of parents said that their child's school had asked for their views about what is provided.
97. Other things parents asked for (in order of frequency) were that schools:
 - increase the range of after-school clubs and reduce their costs
 - provide cooking lessons or lessons on how to grow food
 - increase physical activity and the availability of resources during the school day
 - provide more than one PE lesson a week
 - teach more about healthy food and the impact of unhealthy food on children.
98. Parents we surveyed were aware of school policies and guidance. Only 8% of parents said that their school provided no guidance about any food and drink children take to school. Fifty-three per cent also said the school shared policies on PE and sport. It is helpful that schools are making this kind of information available to parents. Inspectors confirmed this. They found that 81% of the schools they visited had policies and guidance that were in a place and format that would be easily accessible to parents. Parents said they were aware of policies on:
 - drinks children can bring in (68%)
 - allergies (62%)
 - snacks for break time (60%)
 - healthy packed lunches (56%).
99. However, this again shows a disparity between what schools were doing and what parents were asking for. While policies and guidance are important, the focus is on compliance rather than on learning. When we asked parents what help they needed to make their families healthier, a second major theme in

their comments was that they wanted schools to tell them what they could do at home to build on what was being taught at school about healthy living.

100. Only 35% of parents we surveyed said that their child's school told them how well their child was doing in PE, sports clubs and other physical activities. Our evidence gathered from schools showed a similar picture. Schools provided very few examples of engaging parents in helping to embed the learning around healthy living. In most cases, these were examples of them trying to influence behaviour change, rather than focusing directly on building knowledge or skill. Examples included:

- a mother and daughter Zumba class
- a parent and child running club
- a parent club focused on producing healthier meals
- modelling healthy eating and activity in the nurture provision
- activity days for parents over the summer holidays.

101. While each of these examples may have value, it is notable how few examples there were of engaging parents in embedding curriculum learning around healthy living. Two examples were given:

The PE lead speaks with the child and the family and creates a plan. This is a tailored offer that the child has been involved with creating. They can suggest a sport, choosing from a wide menu, and they can choose a friend to participate with them. Their progress is monitored. Thank you letters from parents and children show this has been very successful. These children have then been seen to take up the 'regular' sports offer available to all.

A cooking programme from a national organisation is used to teach targeted families and pupils to learn to cook from scratch. Parents say that cooking in the curriculum and using this programme has encouraged their children to take up cooking.

102. The most common way that parents were involved with the school around physical activity was being invited to some kind of event (such as sports day, inter-school sport or fundraising activities). Eighty-three per cent of parents said that their school did this. Many parents had also been invited to events around healthy eating (38%). This bias towards inviting parents to events was evident in our evidence from schools, which gave many examples of this kind:

- the school provides workshops with healthy eating and physical activities guidance for parents

- the school holds an annual health event for parents and pupils with a range of stalls, which includes food tasting, advice and guidance on healthy lifestyles
- parents were invited to contribute and attend the cultural awareness day, which gave everyone an opportunity to share food from different cultures
- the school offers workshops to help families understand the differences in cultures, for example the need for physical activity such as swimming
- key stage 2 parents evening had a 'sugar swap' demonstration
- a community link worker from the supermarket provides resources/food and cookery sessions for parents and children
- there is a Christmas walk around the park; parents are invited
- healthy workshops attended by parents
- the school lets parents know that there are plenty of opportunities given to children to be active and healthy at the school; there is large parent presence at sports day.

103. However, one of the common themes in comments from parents was that a barrier that they saw to having a healthier lifestyle in their family was having too little time to spend with their children. If time is a barrier in many families, then providing events for parents to attend may not be a helpful form of support. Schools reported to inspectors that they had low attendance at events and therefore perceived a lack of parental support in promoting healthy living. This disparity between what parents need and what schools are offering may explain why many schools expressed frustration about working with parents.

104. There was also a possible gap between what staff in schools said to us about the views of parents and the views that parents themselves gave us. A number of the schools we visited gave the view that there were many parents who did not wish to engage with what the school proposed and did not support their children in making healthier dietary and lifestyle choices. However, when we put the question to parents directly, 90% of parents said that they always follow or try to follow the school's guidance on what food and drink to give their children. Our survey was self-selecting, so views may not be representative. However, it raises a question about whether schools are correctly interpreting parents' responses to their activities or communications. The relationship could potentially be improved if what schools were offering more closely matched the help parents want.

Increasing participation

105. There were several schools that looked to pupils to help them adjust the curriculum offer to increase participation. One school used a pupil survey to find out why some groups of pupils were less involved. They changed their extra-curricular offer using this information. Another school involved children who were not in any club in suggesting or creating new sports clubs.

106. There were some examples of schools reviewing the formal curriculum to improve physical fitness. One school adjusted its timetable when staff noticed that children were putting on weight as they moved through the school. By moving the swimming lessons to lower down the school, they gave Year 4 pupils an additional hour of PE each week. Another school introduced dance in Reception to support children's development of large motor skills.

107. The majority of schools we visited (74%) were targeting individual pupils identified as being at risk of obesity. Almost all (95%) knew how to make a referral for specialist support and most (77%) had done so in the past. Schools were acting in three main ways:

- making clubs designed to target specific pupils
- targeting specific pupils to participate in extra-curricular activities
- drawing in specialists to provide help.

Targeting groups

108. Most of the schools that were providing targeted activities used an externally developed programme for this. It was not always clear what these programmes were: many schools referred to 'Change4Life'. However, given that local and national organisations can badge their work with this brand, it was generally not clear in our evidence who the school was working with directly.

109. Though targeting was widespread, a number of schools raised concerns about the implications of a targeted club or activity. Evidently, pupils quickly come to identify a 'fat club', which immediately then carries a stigma. Several schools had changed their approach so that pupils who were obese or overweight were prioritised but the club or activity was open to all. One school made the same point about PE and the importance of not singling children out in lessons. It was not always clear how interventions that were clearly targeted were avoiding this issue:

- 'Active Me' sessions about healthy lifestyles for children identified as more obese
- a Year 4 lunchtime club that supported pupils in losing weight and their emotional needs and coordination
- additional PE sessions for children in Years 3 to 5 to develop coordination and self-esteem
- 'Fun Fitness' for children identified as overweight or obese or who need to develop their motor control
- a walking club for pupils who are obese that doubled as an opportunity to include nurturing elements as well.

110. Some schools had programmes designed to develop physical activity and skill for disabled pupils and those who have special educational needs:

- 'Get Moving', a programme for pupils with special educational needs and/or disability to help improve their coordination.
 - a programme that involved use of gymnastics equipment for climbing, balancing and jumping, for children with autism spectrum disorders/conditions or behavioural issues
111. Taking account of the needs of disabled pupils and those who have special educational needs in planning extra-curricular activities was less common, though one school had noted that 'pupils with SEND, particularly autism, prefer to go to other less active clubs such as computer and Minecraft'. Two schools reported that they welcomed and supported visually impaired pupils in their after-school clubs. One Year 1 pupil had an adult one-to-one support in football club and a pupil in Year 6 was supported by the caretaker in a cross-country event. An inspector noted particular support for disabled pupils and those who have special educational needs in PE lessons:

A Year 4 boy with cerebral palsy was running around the field at speed with his frame. His TA ran beside and the enjoyment on both their faces was palpable. This is the norm in a school where physical activity is embedded in the wider curriculum.

112. Inspectors also noted some targeting relating to disadvantage. A number of schools provided support with costs so that pupils could access clubs. There were examples of pupils being invited to specific clubs relating to healthy eating, such as the 'cooking from scratch club'. In this instance, some of the pupils attending were young carers and they were given a cookbook to take home.

Targeting attitudes

113. The approach to increasing participation in some schools was about identifying attitudes and perceptions that create barriers to being active and designing opportunities with these barriers in mind.
114. Several schools referred to gender biases that were evident in their physical activities (for example, a higher proportion of girls involved in dance and gymnastics or a higher proportion of boys involved in football and other team sports). We saw two different approaches: either attempting to find activities that they thought both genders would take up or accepting the biases and targeting either girls or boys. For example, one school introduced 'Fit and Fun', which has been expanded into Years 3 and 4. Another school offered clubs that appealed to the specific gender (such as rowing, dance, and performing arts). Two schools went as far as splitting some of their clubs by gender, which in one school increased the number of girls participating.
115. While working within biases may be effective in increasing take-up, it could also serve to reinforce views about gender and physical activity. If girls are being targeted, there needs to be some assurance that action is being taken to

combat biases that result in negative attitudes to exercise. One school saw that girls in the school were low in confidence and introduced the Sport England 'This Girl Can' programme, which is designed to help get girls over the fear of judgement that is stopping them joining in.

116. Another approach to targeting was based on identifying pupils who were less active and trying to vary the options available to find something that would appeal to them. Examples included a mixed martial arts club, tri-golf, street dance and a go-kart club. Dance was used to engage pupils in physical activity who were not interested in sport. For example, one school was involved with the Chance to Dance scheme, which resulted in four of its pupils being selected for scholarships linked to the Royal Opera House. Inspectors noted a number of examples where targeting children who were less active proved to be a good strategy for particular individuals:

One school introduced a girl who hated PE and sport to a shot-put event. She now attends a local athletics club after winning the event in a district sports competition.

Another pupil who had been targeted as a result of being less active (as identified through the Fit4School survey) is now in the gifted and talented intervention group.

The pupil was encouraged to join the cricket and rugby teams, which improved his self-esteem. He clearly enjoyed sport and because he was asked to join felt wanted. Highly successful transition to secondary with continued participation in rugby at a club level.

Using specialists

117. Twenty-three schools gave us examples of when specialist support was required, which in the majority of cases was provided by the school nurse team. In some cases, schools drew on external sources of support for particular pupils. In most of the examples given, the child had a range of interconnected needs and a number were only incidentally about food or weight. As well as obesity, there were referrals for: being underweight; issues with swallowing; an autism spectrum disorder diagnosis and fixation on particular types of food; emotional health and anxiety issues; a range of issues resulting in children being taken into care; and extremely limited diets. As a result, external agencies involved with these children were varied:

- family action teams
- food clinics
- dieticians
- counselling services

- local authority sports interventions and other programmes
 - speech and language services
 - GPs
 - nutritionists
 - children's social care services.
118. A number of schools raised concerns about the availability of specialist help, often linked to pressures on capacity in the health service. A third of schools we visited reported difficulties getting help from school nurses or health visitors. In most cases, there were visits to the school from a nurse, but the frequency of this varied from weekly to yearly. Comments illustrate the pressures:
- 'The school nursing service and health visitors are very stretched now and immediate help cannot be guaranteed.'
- 'The school nurse has no access to statistics. There is no process for passing the information back to schools.'
- 'School nurse only visits once a year so and no information was available.'
- 'Whilst support was available (through GP, dietitian and social work involvement) the school nurse and vice principal expressed concern over the slow response and need to repeatedly contact agencies.'
- 'Often specialist support is not available in a timely fashion. Advice is given but the school have to carry out all of the actions. The lack of cooperation with NHS is concerning.'
- 'A barrier to ongoing specialist support is that fact that once a 'Team Around the Child' has been set up it is difficult to get the agencies to continue to attend. Plus, there is felt to be barriers over the sharing of information between the GP and school.'
- 'If they are worried about a child they refer to the school nursing service. This requires resilience as the service is overstretched and they often have to persist in order to get the required support.'
- 'Because of the limitations of time available to the nurse this was a one-off visit and there was no external follow up, although the school continued to monitor the pupil and work with parents.'

Findings and observations from other studies

119. We examined a wide range of studies to understand the context, both global and national, of the growing problem of childhood obesity, the possible consequences of this for children's health and what interventions have been attempted to date. We ran a search of several academic databases for anything

published after 2000.²⁰ We identified additional material from the references and bibliographies of these papers. Finally, we included a further small sub-set of papers that we came across on an ad hoc basis.

120. Many countries have studied obesity in children and young people and attempted interventions to manage the levels of obesity in children and young people.^{21,22,23,24,25,26,27,28,29,30} Most interventions were based either on increasing physical activity or on changing diet or eating habits. Studies encouraging students to eat fruit and vegetables were inconclusive in terms of supporting weight loss, since they ate more fruit but vegetable intake did not change. Several projects promoting healthy eating or physical activity led to very few differences between the control and intervention groups or before and after interventions. The only studies successful in decreasing obesity levels within schools were the comprehensive interventions that focused on both healthy eating and physical activity and that involved external support. An evaluation of the whole school programme 'Food for Life' reported increased uptakes of fruit and vegetables, with children in the programme twice as likely to consume 'five a day' than children in the comparison schools.³¹
121. There has been a large amount of research on tackling obesity in schools. Several national and international reviews have focused on different aspects of

²⁰ These were the UCL/ IOE library database, DERA, google scholar and JSTOR.

²¹ Woo Baidal, JA and Taveras, EM (2013), 'Protecting Progress against Childhood Obesity – The National School Lunch Program'; *The New England Journal of Medicine*, 371(20), 1862–65.

²² Cohen, JF et al., (2014), 'Impact of the new U.S. Department of Agriculture school meal standards on food selection, consumption, and waste'; *American Journal of Preventive Medicine*, 46(4), 388–94.

²³ Moreno, G, Johnson-Shelton, D and Boles, S (2013), 'Prevalence and Prediction of Overweight and Obesity Among Elementary School Students'; *Journal of School Health*, Vol. 83(3), 157–63.

²⁴ Bere, E, Hilsen, M and Klepp, KI. (2010), 'Effect of the nationwide free school fruit scheme in Norway'; *British Journal of Nutrition*, 104, 589–94.

²⁵ Thompson, E et al. (2017), 'The Impact of Multiple Strategies to Encourage Fruit and Vegetable Consumption During School Lunch'; *Journal of School Health*, Vol. 87(8), 616–22.

²⁶ Asada, Y et al., (2017), 'Successes and Challenges in School Meal Reform: Qualitative Insights from Food Service Directors', *Journal of School Health*, Vol. 87(8), 608–15.

²⁷ Turner, G, Owen, S and Watson, PM (2016), 'Addressing childhood obesity at school entry: Qualitative experiences of school health professionals'; *Journal of Child Health Care*, Vol. 20(3) 304–13.

²⁸ Voelker, R (2014), 'Decline in Student Obesity Rate Linked with School-Based Program', *Journal of American Medical Association*, Volume 311(14), 1390.

²⁹ Rush, E et al., (2012), 'A school-based obesity control programme: Project Energize. Two-year outcomes'; *British Journal of Nutrition*, 107, 581–58.

³⁰ Eisenmann, JC, et al., (2011), 'Project FIT: Rationale, design and baseline characteristics of a school- and community-based intervention to address physical activity and healthy eating among low-income elementary school children', *BMC Public Health*, 11(607), 1–10.

³¹ Jones M, Pitt H, Oxford L, Bray I, Kimberlee R & Orme J (2015) 'Pupil survey in local commission areas: Food for Life's impact on primary school children's consumption of fruit and vegetable', UWE Bristol

the problem, looking at interventions carried out with pupils of a range of ages, predominantly in primary schools.^{32,33,34,35,36,37}

122. In one paper, although the association between obesity and educational attainment in children and young people was weak, the authors identified factors that played an important role in this relationship.³⁸ They state that obesity should not be understood solely as a health issue. The review suggests that one of the most noticeable ways in which obesity affects the lives of children and young people is in their social relationships. In this study, both young people and their teachers identified poor mental and emotional health as factors that might be associated with obesity and potentially have a negative impact on academic performance. The authors suggested that stigmatisation, bullying, low self-esteem and young people's exclusion from opportunities for social interaction might underlie the relationship between obesity and lower educational attainment.

³² Williams, AJ, et al., (2013), 'Systematic review and meta-analysis of the association between childhood overweight and obesity and primary school diet and physical activity policies'; International Journal of Behavioral Nutrition and Physical Activity, 10(101), 1–22.

³³ Langford, R et al., (2015), 'Obesity prevention and the Health promoting Schools framework: essential components and barriers to success'; International Journal of Behavioral Nutrition and Physical Activity, 12(15), 1–17.

³⁴ Hendrie, GA et al., (2012), 'Combined Home and School Obesity Prevention Interventions for Children: What Behavior Change Strategies and Intervention Characteristics Are Associated with Effectiveness?'; Health Education & Behavior, 39(2), 159–71.

³⁵ Mead, E et al., (2017), 'Diet, physical activity and behavioural interventions for the treatment of overweight or obese children from the age of 6 to 11 years (review)'; Cochrane Database of Systematic Reviews, issue 6.

³⁶ Al-Khudairy, L et al., (2017). 'Diet, physical activity and behavioural interventions for the treatment of overweight or obese adolescents aged 12 to 17 years (review)', Cochrane Database of Systematic Reviews, issue 6.

³⁷ Aceves-Martins, M et al., (2016), 'Effectiveness of social marketing strategies to reduce youth obesity in European school-based interventions: a systematic review and meta-analysis'; Nutrition Reviews, 74(5), 337–51.

³⁸ Caird, J et al., (2011), 'Childhood obesity and educational attainment: a systematic review', London: EPPI-Centre, Social Science Research Unit, Institute of Education, University of London.

123. Although no evaluation has been carried out of the impact of the addition of healthy eating to the D&T section of the national curriculum for primary schools, various organisations across the UK have evaluated smaller scale interventions based on educational programmes.^{39,40,41,42,43,44,45,46,47,48,49}
124. Most of the literature focuses on the outcome measure of an increase in eating fruit and vegetables. Two studies, though, acknowledged that change in behaviour is unlikely to occur with solely education-based initiatives.^{50,51} Recent research highlights several evidence-based, promising and emerging strategies to consider in reducing childhood obesity in schools. These include increasing structured and unstructured time for physical activity (such as physical activity breaks, also called brain breaks) and increasing access to school equipment.
125. Some studies have found that physical activity in schools is not only helpful for obesity prevention but also actually assists schools in meeting their goals for academic achievement.⁵² Researchers found a positive association between short physical activity breaks (brain breaks) and indicators of cognitive skills

³⁹ Jones, N et al., 'Food sustainability education as a route to healthier eating: evaluation of a multi-component school programme in English primary schools', *Health Education Research*, Volume 27, Issue 3, 1 June 2012, Pages 448–58.

⁴⁰ Orme, J et al., 2011, *Food For Life Partnership Evaluation: Full Report*. Bristol: University of the West of England; www.foodforlife.org.uk/~media/files/evaluation%20reports/good-food-for-all---may-2014.pdf.

⁴¹ Teeman, D et al., 2011, *Qualitative Impact Evaluation of the Food for Life Partnership Programme*. NFER: Slough, UK.

⁴² Van Cauwenberghe E, et al. 'Effectiveness of school-based interventions in Europe to promote healthy nutrition in children and adolescents: systematic review of published and 'grey' literature', *British Journal of Nutrition*, 2010, vol. 103 (pg. 781–97).

⁴³ Rachael Brown and Jane Ogden; 'Children's eating attitudes and behaviour: a study of the modelling and control theories of parental influence'; *Health Education Research*, Volume 19, Issue 3, 1 June 2004, Pages 261–71.

⁴⁴ Spence, S et al., 2013, 'The impact of food and nutrient-based standards on primary school children's lunch and total dietary intake: a natural experimental evaluation of government policy in England', *PloS one*, 8(10), p.e78298.

⁴⁵ Harrison, F and Jones, AP, 2012. 'A framework for understanding school based physical environmental influences on childhood obesity', *Health & place*, 18(3), pp.639–48.

⁴⁶ Haroun, D, et al., 2009, *Primary school food survey 2009*. Sheffield: School Food Trust.

⁴⁷ Evans, CE, et al., 2012, 'Systematic review and meta-analysis of school-based interventions to improve daily fruit and vegetable intake in children aged 5 to 12 y'; *The American Journal of Clinical Nutrition*, 96(4), pp.889–901.

⁴⁸ Harrison, F and Jones, AP, 2012, 'A framework for understanding school based physical environmental influences on childhood obesity'; *Health & place*, 18(3), pp.639–48.

⁴⁹ Lebel, A et al., 'Sugar Sweetened Beverage Consumption among Primary School Students: Influence of the Schools' Vicinity', *Journal of Environmental and Public Health*; 2016.

⁵⁰ Moon AM, et al., 'Helping schools to become health-promoting environments—an evaluation of the Wessex Healthy Schools Award'; *Health Promot Int* 1999; 14: 111–22.

⁵¹ Lister-Sharp, D et al., 1999, *Health promoting schools and health promotion in schools: two systematic reviews*.

⁵² Foster GD et al., (2008). 'A policy-based school intervention to prevent overweight and obesity'; *Journal of Pediatrics*, 121, 794–802.

and attitudes, attention to task, academic behaviour and academic achievement. However, while these interventions have the potential to affect students' physical activity and their academic achievement, further research is needed to understand the factors influencing these enhancements.

126. There is evidence that physical activity among young people has declined in recent decades and that the corresponding increases in obesity may have resulted directly from this.^{53,54} Young people are spending increasing amounts of time in sedentary activities such as watching TV, playing computer and video games and social networking. Active transport particularly to and from school has decreased in the last three decades. Parents have increasingly restricted their children's independent mobility, while technological advances play an important role in the increase in sedentary activities.
127. Many findings challenge PE that attempts merely to address children's increasing obesity.^{55,56,57} They say that schools have a deeper and more important educational role to play in relation to health and activity.^{58,59} In fulfilling this role, schools must acknowledge and build on the social, economic and cultural dimensions of young people's lives. PE, properly planned and carried out, can make an essential contribution to educating young people, and in so doing can enrich their lives and empower them as members of their communities.
128. The relationship between social-economic status and obesity levels has been a focus of several studies.^{60,61,62,63,64} In these studies, socio-economic status and

⁵³ Yeung J, and Hills, AP (2007), 'Childhood obesity - an introduction', in: AP Hills, NA King and NM Byrne (Eds), *Children, obesity and exercise*. Oxon: Routledge, 1–10.

⁵⁴ British Heart Foundation, (2009), *Couch kids: the nation's future*. London: British Heart Foundation.

⁵⁵ Harris J, Cale L and Bromell N (2004), *Children's fitness testing: feasibility study commissioned by the National Assembly for Wales*. Loughborough: Loughborough University.

⁵⁶ Marshall SJ et al., (2004), 'Relationships between media use, body fatness and physical activity in children and youth: a meta-analysis'; *International Journal of Obesity*, 28, 1238–46.

⁵⁷ Biddle S et al., (2003), 'Physical activity and sedentary behaviours in youth: issues and controversies'; *Journal of the Royal Society for the Promotion of Health*, 124(1), 29–33.

⁵⁸ Cale L and Harris J (2013), 'Every child (of every size) matters' in physical education! Physical education's role in childhood obesity'; *Sport, Education and Society*, 18(4), 433–52.

⁵⁹ Kirk, D. (2006). 'The 'obesity crisis' and school physical education'. *Sport, Education and Society*, 11(2), 121–33.

⁶⁰ Eisenmann JC et al., (2011), 'Project FIT: Rationale, design and baseline characteristics of a school- and community-based intervention to address physical activity and healthy eating among low-income elementary school children'; *BMC Public Health*, 11(607), 1–10.

⁶¹ Caird J et al., (2011), 'Childhood obesity and educational attainment: a systematic review', London: EPPSI-Centre, Social Science Research Unit, Institute of Education, University of London.

⁶² Pechey R et al. (2013), 'Socioeconomic differences in purchases of more vs. less healthy foods and beverages: analysis of over 25,000 British households in 2010', *Social Science and Medicine*, 92(100), 22–6.

⁶³ Moreno G, Johnson-Shelton D and Boles S (2013), 'Prevalence and Prediction of Overweight and Obesity Among Elementary School Students'; *Journal of School Health*, Vol. 83(3), 157–63.

⁶⁴ Echeverría SE et al., (2014), 'The Role of Poverty Status and Obesity on School Attendance in the United States'; *Journal of Adolescent Health*, 55, 402–7.

ethnicity were found to be the strongest predictors of the prevalence of overweight/obesity. This is most often related to the quality of consumed food, greater proportions of sugars, sodium and fat and smaller proportions of fibre and proteins as well as a less active lifestyle.

Annex A. Methodology

The development of the research approach

The development of the research was guided by an advisory group representing the following organisations:

- Association for Physical Education
- Department for Health and Social Care
- Department for Education
- One Dance UK
- Sport England
- Youth Sport Trust.

The advisory group reviewed the research questions and advised on the range of practices that we asked inspectors to collect evidence on.

In preparation for visiting schools, we carried out a detailed literature review of existing policy and research. The dimensions considered in the review were: interventions and strategies used with children in an educational context, healthy eating, the role of PE, and the role of social-economic status.

To best explore the research problem, a mixed methods study was designed with the following elements:

- visits and ethnographic observations of 60 primary schools, covering a range of contexts and involving a wide range of professionals related to the issues of healthy living
- online survey of Year 5 and Year 6 pupils in a random sample of primary schools
- online survey of the participating pupils' parents.

Visits to schools

The starting point for the research was that we wanted to place the practices observed in primary schools in the context of the level of obesity within the school. We also wanted to be able to control as much as possible for other factors that we know are linked to higher levels of obesity, such as deprivation. This was so that we could look at schools from the perspective of whether they had higher or lower levels of obesity relative to their context.

The level of obesity was determined on the bases of datasets from the latest National Child Measurement Programme provided by Public Health England (PHE). Obesity within a year group varies considerably from year to year so PHE used three years of data.

In order to account for the effect on context, PHE grouped all schools nationally on the basis of: region; urban or rural; ethnicity; deprivation. Within these clusters of schools, PHE selected schools that were either in the first or fifth quintile, that is, in the top 20% or bottom 20% based on the Year 6 obesity prevalence. This produced around 200 schools.

We were limited in the number of schools we could visit, and we have rules about the frequency with which we visit schools. This meant some schools that had been recently inspected were eliminated from the list. Having eliminated some schools, we used the remainder to select a group that was as balanced as possible against the different contextual factors as possible. The final distribution was as follows:

Obesity Level	Rurality		IMD category			Ethnicity category		Total
	Urban	Rural	High deprivation	Middle deprivation	Low deprivation	Ethnicity category (high mix)	Ethnicity category (low mix)	
Obesity (high)	26	5	9	10	12	12	19	31
Obesity (low)	24	4	10	6	12	10	18	28
Column totals	50	9	19	16	24	22	37	59

All the schools selected for the study were visited by Ofsted inspectors, who collected data from conversations with the school senior managers, governors, PE and healthy living leaders, teachers and staff, catering staff, school nurses, pupils, and parents. Lessons related to healthy eating and physical activity were observed as well as the organisation and content of school lunches, breaks and lunchtime activities, and extra-curricular provision during lunchtime and after school. Observations were recorded in the form of standard reports and the format of reporting was unified between the inspectors to ensure comparability of the data from the visits. All fieldwork was completed in autumn 2017.

Surveys of parents and pupils

Both surveys were administered online through Survey Monkey. Pupils from Years 5 and 6 and their parents were invited to share their views. We received responses to the pupil survey from 33 schools and to the parent survey from 48 schools.

We created an obesity/deprivation quadrant that included high and low obesity and high and low deprivation groups. The number of individual responses received from each school varied markedly. Some care is required in interpreting the findings from these surveys.

Table 8: The number of survey responses in different groups of schools

Type of school	Number of parents (responses from 48 schools)	Number of pupils (responses from 33 schools)
School within a high level of deprivation	507	377
School within a medium level of deprivation	480	699
School within a low level of deprivation	937	946
High obesity school	679	937
Low obesity school	1,245	1,085

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