

Arson Prevention Bureau



School Arson: Education Under Threat



www.arsonpreventionbureau.org.uk



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SCHOOL ARSON: EDUCATION UNDER THREAT

Executive Summary

- School arson fires are costly. In terms of insured damage to schools alone, arson attacks cost just over £65 million in 2001. However, in addition to this cost, deliberately started school fires also waste the resources of the fire brigade and police services, as well as cause considerable disruption and inconvenience to pupils, teachers and parents. Taking into account these additional factors the real cost is nearer to £115 million.
- Since 1994, the number of arson attacks on schools has been in decline – primarily driven by a fall in the number of deliberately started fires occurring outside of school-time. A corresponding fall has not been seen in the number of school arson attacks that occur when pupils are present, and in fact, the last two years (1999 and 2000) have witnessed an increase in this type of fire. This has caused the proportion of all school arson fires represented by school-time attacks increasing from 13% to nearly one-third.



- Around a half of all school-time school fires in England and Wales are arson attacks.
- Virtually all (97%) of school-time school arson fires are started within a building compared to about three-quarters (77%) of those occurring outside of school-time. During school-time arsonists have better access to internal areas, which may also be more secluded than external areas.
- Of deliberately started school-time school fires that occur internally, the majority (59%) started in a cloakroom. In contrast, cloakrooms are one of the least common places for accidental fires to start, accounting for just 5% of all such fires. Also, while arson attacks rarely occur in the kitchen/canteen area, this is one of the most common locations for accidental fires - accounting for a quarter of all such fires. The next most popular locations for school-time school arson fires were classrooms (12%) and storage rooms (11%).
- Deliberately started school fires which occur during school-time are more likely to occur between 1pm and 1.59 pm. There is also a suggestion that they are more likely to occur mid-week.
- While these results should be treated with caution, the data suggests that the regions with the greatest incidence of school-time school arson were the North East, London, East Midlands, North West and East of England, which all experienced rates above the national average of 2.6 deliberate school-time school fires per 100,000 pupils. Wales had the lowest incidence of arson attacks with just 1.8 fires per 100,000 pupils.
- Metropolitan areas have higher rates of school-time school arson fires than non-metropolitan areas.
- According to fire brigade records, individuals under the age of 18 were responsible for 93% of all intentionally started school-time school fires. Just over a quarter were started by children younger than 7 years old.

INTRODUCTION

Arson attacks on schools exact a huge cost in terms of the damage and disruption they cause. Zurich Municipal, the principal insurer of schools, estimates that just over £65 million worth of insured damage¹ was caused to schools by deliberately started fires in 2001. However, the true cost of arson attacks on schools is much higher as each fire results in the use of resources by the fire brigade and police, while staff, pupils and parents can suffer considerable inconvenience and disruption². Taking these factors into account, a recent Government report³ estimates the true cost of these fires at £115 million.

The common perception is that most deliberately started school fires occur outside of school time, that is, in the evening, weekend or during holidays. However, nearly a third of all school arson fires occur when pupils are in the school, and this proportion appears to be rising⁴. This report attempts to gain a better understanding of these school-time school arson fires - the first comprehensive study of such fires in England and Wales.

The report mainly uses data⁵ supplied to the Arson Prevention Bureau (APB)⁶ by the Office of the Deputy Prime Minister (compiled from the fire brigade report forms for every fire attended during the year) and covers fires at primary, secondary and special schools. It should be noted that the fire brigade is not called out to all fires – “unattended” school arson fires tend to be small, cause little damage and are usually dealt with by teachers, caretakers or other passers-by. This under-reporting means that the full extent of the school arson problem is underestimated⁷.

This report starts by looking at trends in school fires in England and Wales for the period 1990 to 2000. An examination is then undertaken of the characteristics of school-time arson attacks, such as where they start, the timing of fires, where in the country they are more likely to occur and who started them. In order to make a comparison, figures for accidental fires are also given, while sections that examine the characteristics of school-time fires, unless otherwise specified, use figures for the period 1998 to 2000⁸. It should also be noted that the data does not allow a separate analysis by type of school, that is, whether the fire started in a primary, secondary or special school.

¹ Includes damage to buildings and contents, the additional cost of temporary accommodation, plus damage costs funded by Local Education Authorities (LEAs).

² For example, school records or course-work may be destroyed, classrooms/facilities may be unusable for a period of time and in extreme cases, entire school buildings may be destroyed.

³ 'The Economic Cost of Fires', Office of the Deputy Prime Minister research study 229, Home Office, October 2001

⁴ School-time fires are defined as those occurring outside of school holidays, Bank holidays and weekends and having the first call to the fire brigade registered between 9am and 3.59 pm.

⁵ The data consists of a sample of fires in England and Wales, rather than all fires. For 1994 to 1999 the databases contain all fires involving casualties but only a sample of other fires. The samples were selected systematically for each brigade, with the following approximate sampling fractions: 1994 – 10 percent; 1995 – 40 percent; 1996 to 2000 – 20 percent. The data have all been weighted to agreed brigade totals.

⁶ The Arson Prevention Bureau, supported by the Association of British Insurers, spearheads a national campaign to reduce the incidence and cost of arson by raising awareness, undertaking initiatives, and working closely with other organisations.

⁷ An earlier study by the APB – “Arson in Schools”, Arson Prevention Bureau Report, July 1998 – found that in 1995 the fire brigade was only called out to 45% of school fires. A further study, carried out by West Midlands Fire Service, conducted in 2000, found that a disproportionate number of fires which went unreported were daytime fires.

⁸ Due to small sample sizes, three years of data were appended together, giving unweighted sample sizes of 261 school-time accidental fires and 237 school-time arson fires.

TRENDS IN SCHOOL FIRES, 1990 TO 2000

Figure 1 shows the number of school fires for the period 1990 to 2000, broken down by whether they were accidental or deliberate. In 1994, there was a significant rise in arson fires, with a corresponding fall in accidental ones. Much of this growth can be explained by a change in the way certain fires were recorded in that year. In particular, some fires that were previously recorded as accidental were reclassified as arson - the main type being those caused by 'playing with fire'⁹.

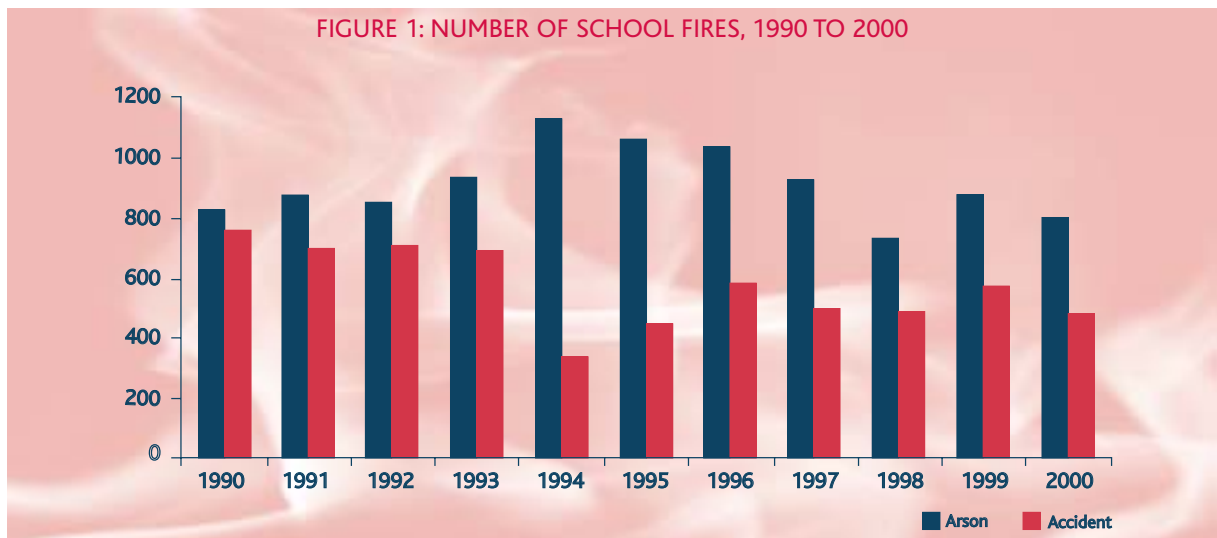
After 1994, the number of school arson fires has generally declined, falling from over 1,100 in 1994 to just under 800 in 2000. In contrast, the number of accidental fires has remained fairly steady, particularly from 1996 onwards. This decline in the number of arson fires after 1994 has seen the proportion of all school fires that are intentionally started decline from 77% in 1994 to 63% in 2000.

Although the overall number of school arson fires has been in decline, the trend towards school-time attacks has been on the increase. Figure 2 shows that the

number of school arson fires that occurred when pupils were present, and when they were not. The trend in the number of arson attacks on schools outside of school-time is pretty clear, since 1994 it has declined.

In contrast, the trend in the number of school-time school arson fires is not clear. Between 1990 and 1994, there was an increase in the number of such fires from just over 100 to nearly 250. After 1994 and up to 1998, the number of school-time school arson fires fell, before rising again to around 250 fires a year in 1999 and 2000.

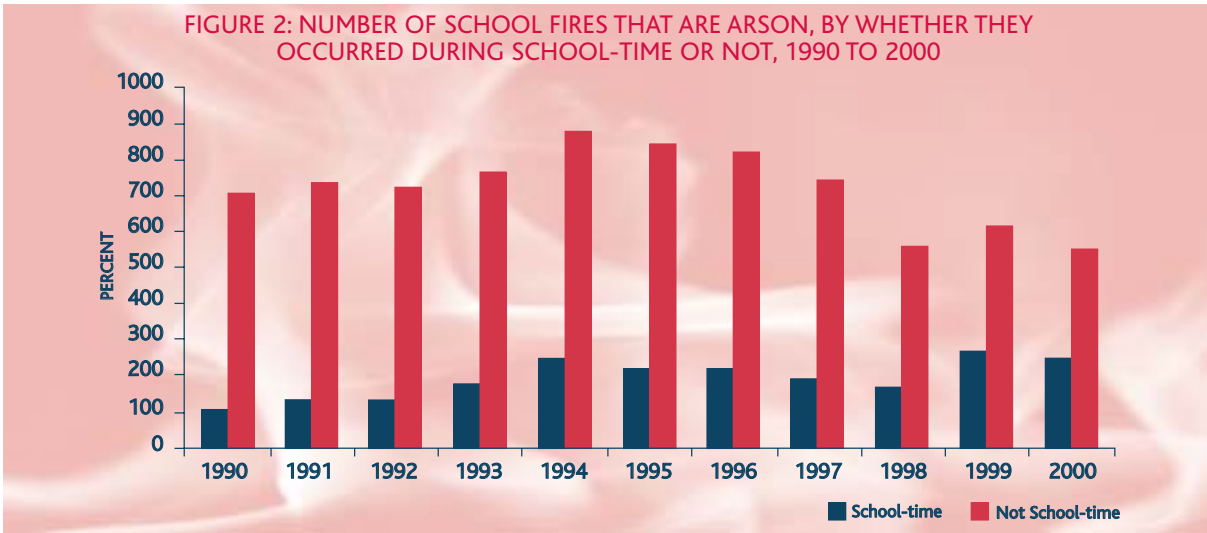
The decline in the number of intentionally started school fires that occur outside of school-time, coupled with the lack of a corresponding decline in the number of school-time attacks, means that arson fires when pupils are present in the school represent an increasing proportion of all school arson fires. Between 1990 and 2000, the proportion of school arson fires represented by school-time attacks increased from 13% to 31% (see Figure 3). In other words, school-time school arson fires are growing in significance.



Source: Office of the Deputy Prime Minister

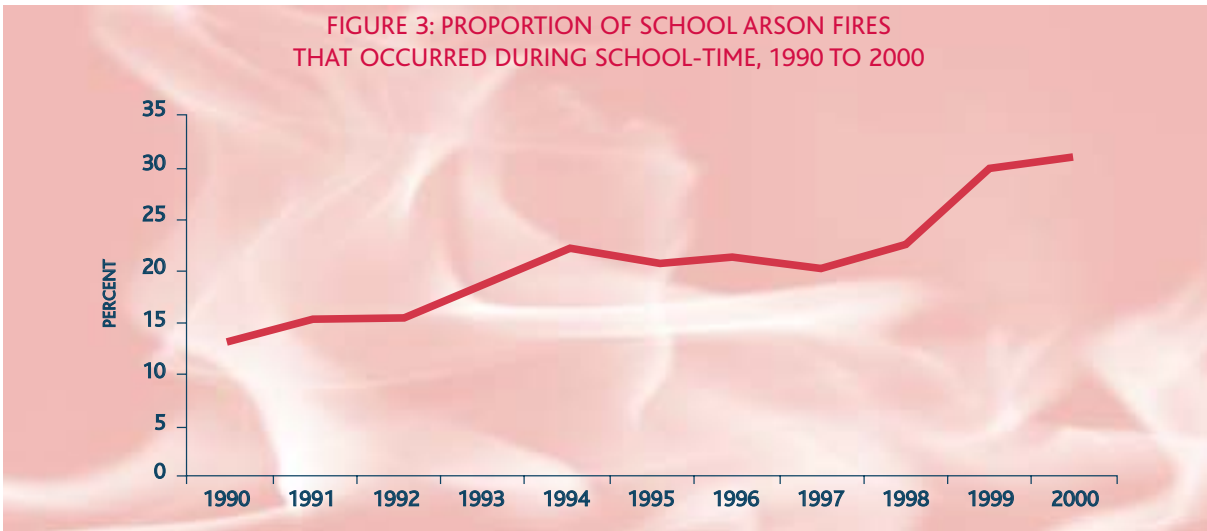
Note: There were changes in the recording of malicious and accidental fires that affect comparisons before and after 1994.

⁹ Some of the 'rise' was offset by other definitional changes in that year which resulted in some



Source: Office of the Deputy Prime Minister

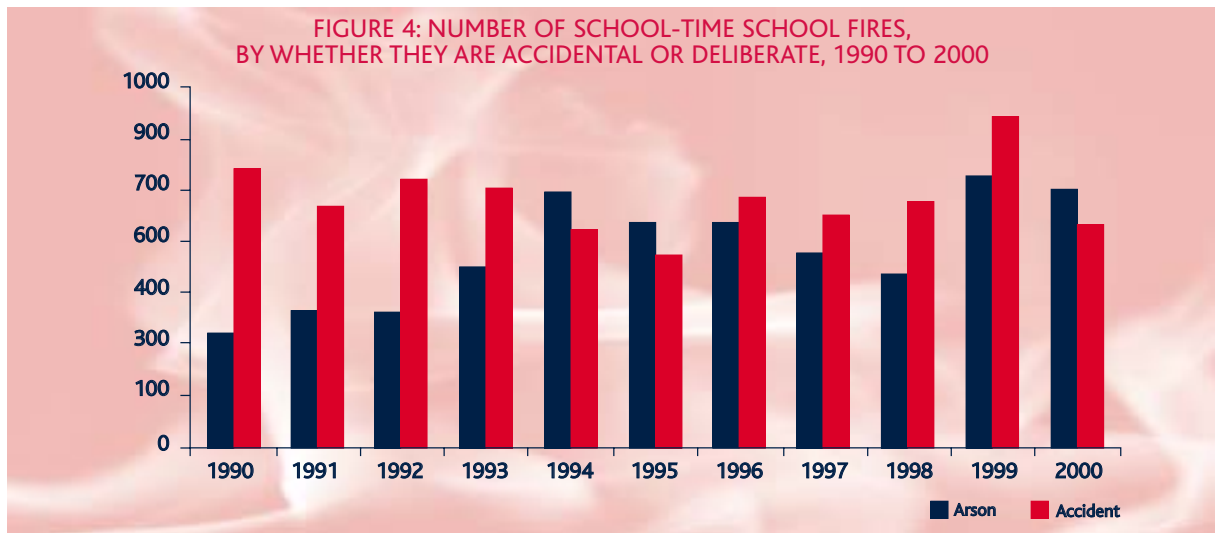
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Source: Office of the Deputy Prime Minister

Note: There were changes in the recording of malicious and accidental fires that affect comparisons before and after 1994.

Comparing school-time arson attacks with school-time accidental fires reveals that over the last few years around a half of all school-time school fires are deliberately started (see Figure 4).



Source: Office of the Deputy Prime Minister

Note: There were changes in the recording of malicious and accidental fires that affect comparisons before and after 1994

WHERE IN THE SCHOOL ARE SCHOOL-TIME FIRES MOST LIKELY TO START?

This section examines where school-time fires, both accidental and intentionally started, are most likely to start. That is whether they are most likely to occur externally or within school buildings, and, if internally, which room they are most likely to start in.

School-time school arson fires are much more likely to start internally, compared to arson fires out of school-time. For instance, 97% of school-time arson fires are started within a school building compared to 77% of those occurring outside of school-time¹⁰. During school-time, arsonists have better access to

internal areas, which in turn may be more secluded than external areas. In contrast, 92% of school time fires that are accidental start within the building – exactly the same proportion as outside of school time.

Of deliberately started school fires that occur internally, the majority (59%) started in a cloakroom (see Table 1). In contrast, cloakrooms are one of the least common places for accidental fires to start, accounting for just 5% of all such fires. Also, while arson attacks rarely occur in the kitchen/canteen area, this is one of the most common locations for accidental fires - accounting for a quarter of all such fires¹¹. The next most popular locations for school arson fires were classrooms (12%) and storage rooms (11%)¹².

¹⁰ This difference is statistically significant at the 5% level.

¹¹ The result for accidental fires in kitchen/canteen areas is not statistically different from the result for accidental fires in classrooms at the 5% significance level.

¹² The results for these two locations are not statistically different at the 5% significance level. In fact, there are few statistical differences between data for minor locations.

TABLE 1: USE OF INTERNAL ROOM WHERE FIRE STARTED

	Arson	Accidental
Cloakroom	59%	5%
Classroom	12%	23%
Storage	11%	7%
Access area e.g. corridor, hall	8%	6%
Other	7%	21%
Areas of assembly	4%	13%
Kitchen /canteen	*	25%
Total	100%	100%

Source: Office of the Deputy Prime Minister

Note: Areas of assembly includes indoor sports use, changing rooms etc. Cloakroom includes lavatories, bathrooms, locker rooms etc. Other includes all other rooms/compartments not listed elsewhere, such as boiler rooms, workshops, offices, laundry rooms etc.

* denotes less than 0.5%. Columns may not add up due to rounding.

Figures relate to the period 1998 to 2000.

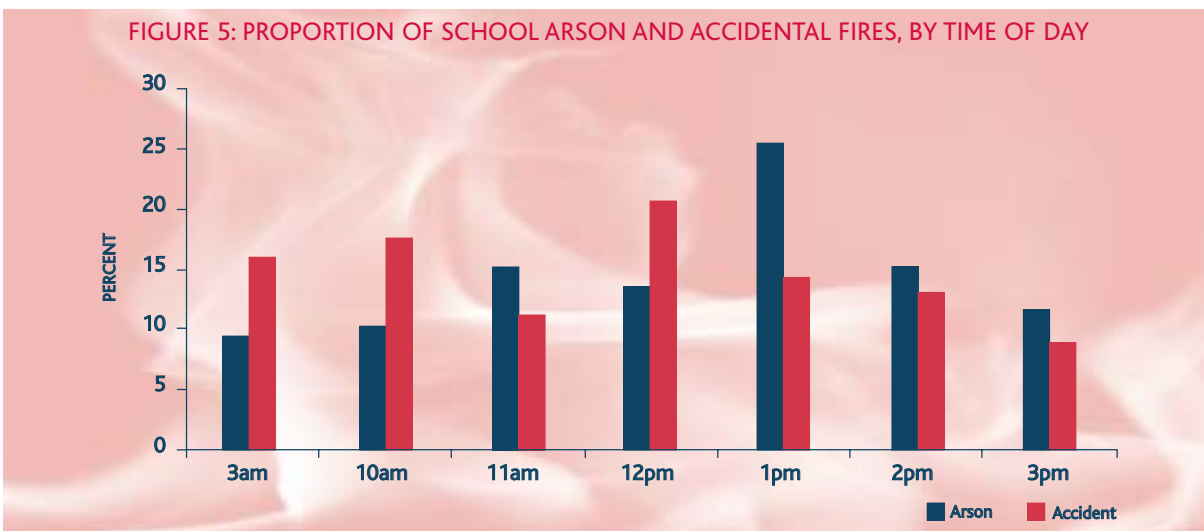
TIMING OF SCHOOL-TIME SCHOOL FIRES

Figure 5 shows the number of arson and accidental fires by time of day, as measured by the time of the first call to the fire brigade. The results suggest that school-time arson fires in schools are more likely to occur toward the end of the lunchtime break or just after, i.e. between 1pm and 2.59 pm. There also appears to be a slightly higher incidence of arson during or just after the morning break. However, a more robust analysis of the data reveals that only the period between 1 pm and 1.59 pm is statistically

different from the other time periods¹³ – there is no significant statistical difference amongst the other time periods.

An analysis of accidental fires suggests that these are more likely to occur slightly earlier than arson fires, just before or during the lunchtime break in the hour starting at 12 pm. This may be associated with the importance of kitchen fires. However, again, many of these time periods are not statistically different¹⁴, although the period 12pm to 12.59 pm is statistically different from the hours starting at 11 am and 3 pm.

FIGURE 5: PROPORTION OF SCHOOL ARSON AND ACCIDENTAL FIRES, BY TIME OF DAY



Source: Office of the Deputy Prime Minister

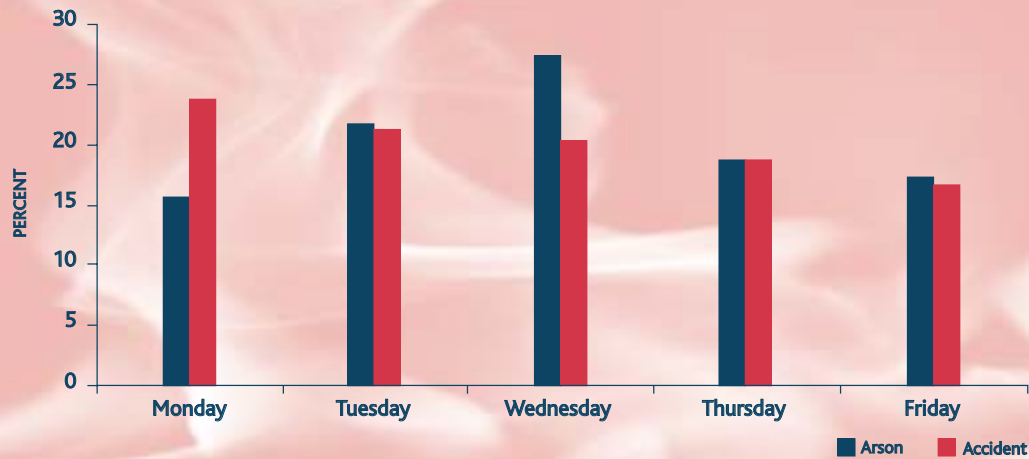
Note: The hour shown is the start of the hour covered, e.g. 1 p.m. covers 1.00 to 1.59 p.m.

Figures relate to the period 1998 to 2000.

¹³At the 5% significance level.

¹⁴At the 5% significance level.

FIGURE 6: PROPORTION OF SCHOOL-TIME SCHOOL ARSON AND ACCIDENTAL FIRES, BY OF DAY THE WEEK



Source: Office of the Deputy Prime Minister

Note: Figures relate to the period 1998 to 2000.

Information on the day of the week fires occur suggests school-time school arson fires are more likely to start during mid-week, particularly Wednesdays. However, statistically many of results are not significantly different from each other¹⁵ – in fact only the results for Monday and Wednesday can be separated statistically.

With accidental fires, although the data suggests that as the week progresses the likelihood of an accidental fire declines, the results for each day are not statistically different from each other¹⁶.

REGIONAL ASPECTS OF SCHOOL-TIME SCHOOL FIRES

London suffered most from school-time arson attacks on schools, while Wales suffered the lowest number (See Figure 7).

However, in order to make a meaningful comparison between the different regions of England and Wales, which differ in pupil population size and number of schools, the number of school-time school arson fires per

100,000 pupils and per 100 schools was also examined. This information is presented in Figures 8 and 9.

In the period under analysis, there were on average 2.6 school-time school arson attacks per 100,000 pupils in England and Wales (represented by the horizontal line in Figure 8). Although difference between the results are not statistically significant¹⁷, there is a suggestion that the North East, London, East Midlands, North West and East of England regions experienced a greater incidence than the national average. In contrast, Wales appears to have the lowest incidence of arson attacks, with just 1.8 deliberate school-time school fires per 100,000 pupils.

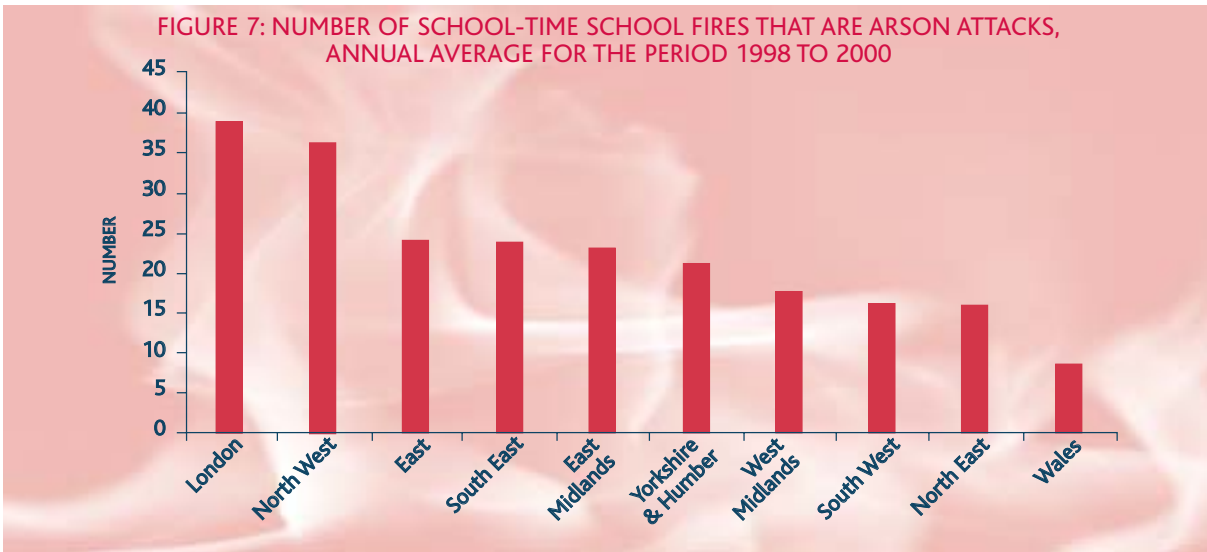
A remarkably similar pattern is seen when the number of school-time school arson attacks per 100 schools is examined (see Figure 9). London, the North East, East Midlands, North West and East of England all appear to be above the national average of 0.8 fires per 100 schools, while Wales again seems to have the lowest incidence. However, it should be noted that only the results for London and Wales are statistically different from each other¹⁸.

¹⁵At the 5% significance level.

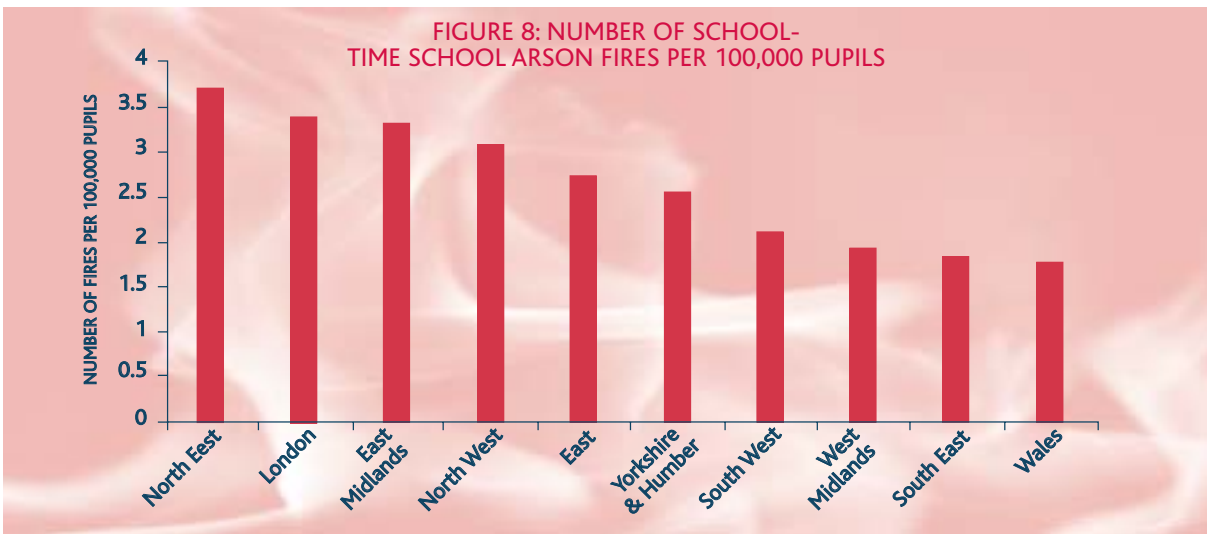
¹⁶At the 5% significance level.

¹⁷At the 5% significance level.

¹⁸At the 5% significance level.



Source: Office of the Deputy Prime Minister
 Note: Figures relate to the annual average number of fires for the period 1998 to 2000. Figures should be treated with caution due to small sample sizes.



Sources: Office of the Deputy Prime Minister and Department for Education and Skills.
 Note: Figures for arson fires are the annual averages based on the period 1998 to 2000. 2000 data used for number of "full-time equivalent" pupils. Figures should be treated with caution due to small sample sizes. None of the results are statistically different from each other at the 5% significance level.

¹⁹The correlation between levels of truancy and number of school-time school fires on an aggregate regional basis was examined. That is, regions with high\low school-time school arson rates were investigated to see if they also had high\low levels of truancy.

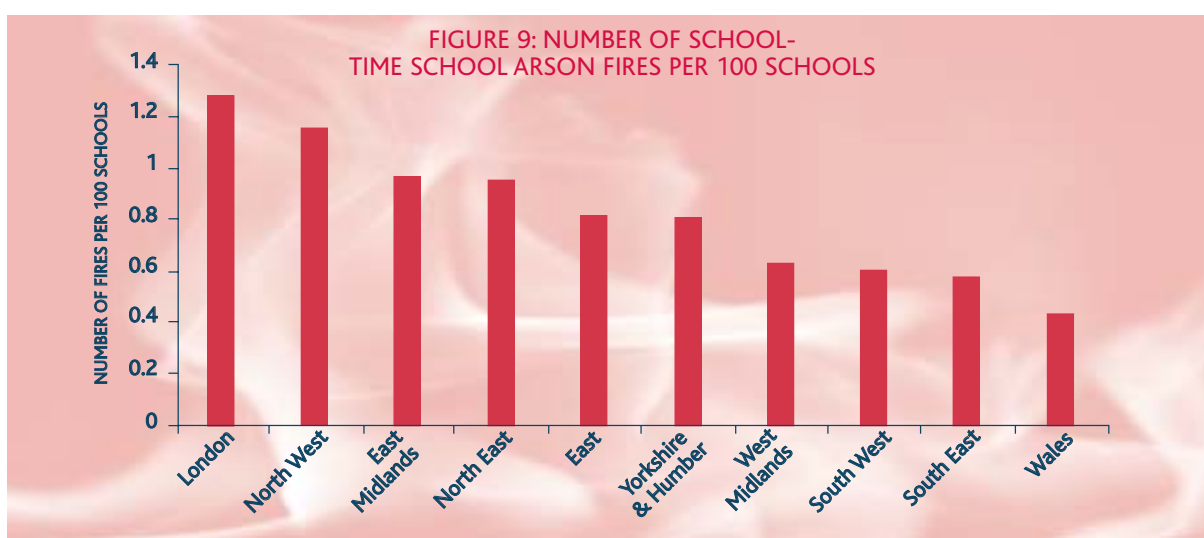
²⁰The analysis was also undertaken on a regional basis.

²¹At the 5% significance level.

The relationship between deliberate school-time school fires and truancy (as measured by unauthorised pupil absence)¹⁹ was investigated to see if arson was linked to some measure of pupil disfranchisement (it could be argued that if a pupils is discontented with school they may be more likely to play truant and/or start schools fires) – however, no such relationship was found. Teacher/ pupil ratios were also examined to see if low teacher numbers

resulted in less supervision and thus a greater opportunity for pupils to start fires – again no relationship was found²⁰.

A statistically significant difference²¹ was found between metropolitan and non-metropolitan areas in England (see Table 2). Generally, metropolitan areas have higher rates of school-time school arson fires than non-metropolitan areas.



Sources: Office of the Deputy Prime Minister and Department for Education and Skills.

Note: Figures for arson fires are the annual averages based on the period 1998 to 2000. 2000 data used for number of schools.

Figures should be treated with caution due to small sample sizes. Only the results for London and Wales are statistically different from each other at the 5% significance level.

TABLE 2: RATES OF SCHOOL-TIME SCHOOL ARSON FIRES, ENGLISH METROPOLITAN VERSUS NON-METROPOLITAN AREAS

	Metropolitan areas	Non-metropolitan areas
Number of fires per 100,000 pupils	3.3	2.3
Number of fires per 100 schools	1.2	0.7

Sources: Office of the Deputy Prime Minister and Department for Education and Skills.

Note: Figures for arson fires are the annual averages based on the period 1998 to 2000. 2000 data used for number of "full-time equivalent" pupils and number of schools.

Metropolitan areas are: Greater Manchester; Merseyside; South Yorkshire; Tyne and Wear; West Midlands; West Yorkshire; and Greater London.

PERPETRATORS OF SCHOOL-TIME SCHOOL FIRES

In the Fire Brigade report, completed for every fire attended, the fire brigade record who or what started the fire. According to this information, children aged under 7 started just over a quarter of school-time school arson fires, while youths (aged between 7 and 17) were

responsible for a further two thirds. Not surprisingly, this means that individuals under the age of 18 were responsible for 93% of intentionally started school-time school fires. Only 13% of accidental fires were caused by children/youths. Adults (individuals aged 18 or over) accounted for just 7% of arson fires, but 42% of accidental fires.

TABLE 3: WHO OR WHAT CAUSED THE FIRE?

	Arson	Accidental
Child	26%	5%
Youth	67%	8%
Adult	7%	42%
Other	N/A	45%
Total	100%	100%

Source: Office of the Deputy Prime Minister

Note: Columns may not add up due to rounding. "Don't know" answers were excluded. Figures relate to the period 1998 to 2000.

CONCLUSION AND RECOMMENDATIONS

Between 1994 and 2000, the overall number of school arson fires has fallen – primarily driven by a fall in the number of intentionally started fires occurring outside of school-time. A corresponding fall has not been seen in the number of school arson attacks that occur when pupils are present, and in fact, the most recent statistics (1999 and 2000) show an increase in this type of fire. This has caused the proportion of all school arson fires represented by school-time attacks to increase from 13% in 1990 to 31% in 2000.

In addition preliminary 2001 statistics¹ show the number of fires in schools up from 1942 to 2281, 17% and it is to be estimated that school arson will be a significant part of this.

The following is a list of recommendations² schools should consider adopting in order to combat daytime school fires.

Education

- Staff should be made aware of the potential for daytime fires to occur - few schools have risk assessments for fire which mention daytime arson as a potential risk. Head teachers should be aware that they are responsible for the legal requirement to carry out and maintain risk assessments in case of fire. (Fire Precautions [Workplace] Regulations 1997 [As amended 1999]) In particular, staff should be made aware of the danger of children being unsupervised in cloakrooms and corridors.
- Parents should be notified about occurrences of fires at their children's school. They should also be informed if arson was the cause or is suspected. This should be repeated whenever an incident occurs.
- Fire Safety Awareness sessions, including the risks of malicious calls, provided by the local fire service should be held at regular intervals for all children, including the very young.
- Regular fire drills should be undertaken as part of the Risk Assessment and records of them should be kept.
- Children should be told regularly that cigarette lighters and matches are not allowed in schools. Any breach should be treated as a serious disciplinary matter.
- Children who are suspected of involvement in starting fires should be considered for referral to Fire Service firesetting aversion schemes. (There are different names for these schemes). Consultation with parents or guardians is essential as these schemes are often conducted at home.
- Head teachers are asked to consider making fire issues and risks a part of everyday school life.
- All fires, no matter how small should be reported to the Fire Brigade. Sometimes waste bin fires and the like are not considered worthy of reporting, or staff feel embarrassed or think of the repercussions. The Fire Brigade will understand and can assist with possible solutions to prevent further occurrences.

Prevention

- New schools should be designed and built with arson in mind. An example being that cloakrooms should be constructed with fire resisting walls and ceilings and have self-closing fire doors. Architects responsible for such new projects and existing alterations should consult with Fire Service and Insurance specialists.
- Stores in and around the school which contain combustible materials should be kept locked.
- Stores that contain chemicals and hazardous materials, often adjacent to chemistry laboratories should be well managed, clean and kept locked. The Fire Brigade should be advised of the location of such rooms for their records.
- Waste bins and wheelie bins should be located well away from the buildings, preferably in locked compounds. Waste skips used for any purpose should be located well away from buildings but not near perimeter fences or walls. Litterbins should be emptied before\at start of lunch break and at the end of each school day.

¹ Fire Statistics, Estimates UK 2001 (ODPM 17/12/2002)

² The APB would like to acknowledge the substantial contribution of Zurich Municipal in drawing up these recommendations.

Detection and Protection

- Automatic fire detection should be considered and include all escape routes, stores, cloakrooms and high-risk areas.
- Coats and other combustibles should not be kept in corridors or escape routes.
- Fire doors should be maintained in good working order and closed at all times.
- Full cost benefit analysis should be undertaken on the installation of sprinkler systems for all new building projects or substantial refits\renovations.
- Automatic detection and fire alarm systems should be connected to a commercial collector station for constant monitoring and immediate transmission of a fire alarm signal to the local authority fire brigade whenever the school is unoccupied.
- Unwanted calls such as malicious calls and system faults should be treated seriously and with the highest priority. Malicious calls are a criminal offence and will be reported to the police by the Fire Brigade.

Building Types – Consortium and other lightweight constructions

This type of construction can present a problem for uncontrolled fire spread especially in roof and ceiling void areas. It is strongly recommended that all such constructions be inspected and any weaknesses in fire compartmentation including roof void areas be addressed.

Advice can be obtained on any of the above issues from your Fire Brigade or insurance company.

FURTHER ADVICE CAN BE FOUND IN:

“How to combat Arson in Schools”

published by the Arson Prevention Bureau and available to download at www.arsonpreventionbureau.org.uk

“The design and protection of new schools”

published by Zurich Municipal Insurance available to download at www.zurichmunicipal.com

