



Safety and class size

With increased pressure on school budgets, class sizes are increasing. We are frequently asked whether there is anything in health and safety legislation which places a limit on class size. Unfortunately, in most cases, the answer is “No” or at least nothing direct and clear-cut.

In Northern Ireland, regulations¹ require that the number of pupils under instruction by one teacher does not exceed 20 for a class in a practical subject (including science), except where approved by the Department. Circular 1978/36 draws attention for the need for schools to obtain the Department's prior approval for each year in which it is proposed to have class sizes in excess of 20 pupils and gives guidance on the circumstances in which such approval would be given. In practice, approval is normally granted to schools to exceed the 20 limit, up to an absolute maximum of 26 (at key stage 3) and 24 (at key stage 4). Permission may be refused if the room is small: 83m² is taken as the standard, and the maximum class size is reduced by one pupil for every 3m² less.

In Scotland regulations² state that the education authority will determine class size and an SED circular issued in the same year gave maximum pupil numbers as the area of the laboratory (in m²) divided by 3.25. For typical school laboratories this would give a class size of around 25, but in 1994 unions negotiated³ a maximum class size for practical science of 20 pupils, reflecting long-standing practice in Scotland.

Scotland and Northern Ireland are the exceptions. As a recent DfEE publication⁴ states:

There is no statutory limitation on class size in any subject in schools in England and Wales.

Some indication of DfEE thinking can be found from comments about laboratory sizes in the same publication:

There are no regulations controlling the size of individual laboratories but adequate space is clearly needed for safe practical work. For 30 pupils at key stages 3 and 4, 85m² is recommended, below 70m² a laboratory will be appropriate for groups of 25 or fewer.

Similar guidance is given in another booklet⁵, where 85m² overall area is recommended for a normal maximum of 30 pupils at KS3. It also states:

As the size of the laboratory reduces, it becomes increasingly important to ensure careful supervision of practical work to maintain safe working practices. A laboratory of less than 70m² will be appropriate for smaller KS3 or KS4 groups or for sixth form groups.

Some teachers had hoped that the Workplace (Health, Safety and Welfare) Regulations 1992 would offer some help, since Regulation 10 states:

¹ Regulation 15 of the Secondary Schools (Grant Conditions) Regulations Northern Ireland (1973) No. 403.

² Schools (General) Regulations Scotland (1975)

³ Scheme of Salaries and Conditions of Service for Teaching Staff in School Education, paragraph 10, sub-section 12.1.

⁴ Safety in Science Education, DfEE, HMSO, (1996).

⁵ Science Accommodation in Secondary Schools, DfEE HMSO, (1995).

Every room where persons work shall have sufficient floor area, height and unoccupied space for purposes of health, safety and welfare.

The accompanying Approved Code of Practice states:

The total volume of the room, when empty, divided by the number of people normally working in it, should be at least 11 cubic metres. In making this calculation a room or part of a room which is more than 3.0 m high should be counted as 3.0 m high. The figure of 11 cubic metres per person is a minimum and may be insufficient if, for example, much of the room is taken up by furniture, etc.

If we take a typical school laboratory to have a volume of 240 m³ (often less), then these requirements would suggest a maximum of 21 pupils plus the teacher. However, a recent leaflet⁶ states:

....11 m³ ... This figure does not apply to teaching areas or meeting rooms, kiosks or shelters.

Interestingly enough, a recent DfEE publication on accommodation for design and technology⁷ in schools does suggest a figure 21 pupils. The Health and Safety Executive have made it clear they would not hesitate to prosecute the employer (i.e. not the class teacher), if over-crowding did lead to an accident, notwithstanding the fact that the 11 m³ rule does not apply.

Whenever a hazardous activity is carried out, or hazardous chemicals or microorganisms are used, the employer should carry out a risk assessment. Undoubtedly, this should include a consideration of class size. There are two factors to consider:

- **Possible overcrowding**

A large number of pupils working close to each other in itself may introduce a hazard. This will depend on the number of pupils, the size of the room, the amount of bench space, and the nature of the activity. Even 20 pupils in a small room could be a hazard. Equally, 50 listening to a chalk-and-talk lecture will present little hazard. However, the DfEE book⁴ states:

As well as overall area, the area of work surface available for each pupil affects safety, 0.36 m² is recommended as a minimum.

There needs to be sufficient space, so that if something goes wrong pupils are far enough apart to prevent injury. A crowded A-level chemistry class may be able to titrate safely, but not carry out organic preparations. Is it actually possible for younger pupils to avoid pointing test tubes at each other? Given good planning and organisation, can pupils collect equipment without bumping into each other? In a large class, can dynamics trolley runways be put down such that pupils can move around safely?

Some times a change of procedure may help. For example, when extracting chlorophyll from leaves replacing Bunsen burners as a source of heat by a kettle or, better, by thermostatic water baths would lessen the risks from overcrowding.

The increase in the amount of science taught means that sometimes very small rooms are pressed into service; a small laboratory intended for A-level work may not safely accommodate 30 pupils in the way a larger laboratory can. When drawing up the Scheme of Work, a science department can try to identify those activities

⁶ Workplace (Health, Safety and Welfare) Regulations (1992): Guidance for the Education Sector, HSC (1996)

⁷ . Design and Technology Accommodation in Secondary Schools, DfEE, HMSO (1995).

which can be carried out safely in their larger laboratories but not in smaller rooms. This may mean swapping rooms for some activities or abandoning them where this is not practicable.

- **Difficulties of supervision**

As class sizes increase, so teachers will find it difficult to supervise adequately what each pupil is doing. The risk here will depend upon the age, ability and, above all, the behaviour of the pupils, and also whether there are any with special needs or in the early stages of learning English, and so on. The skill and experience of the teacher is also important.

Laboratories which are awkward shapes may mean lines of sight are poor, leading to supervision difficulties. It is not reasonable to expect newly qualified teachers to be able to exercise the same supervisory skill as more experienced colleagues. Although most serious accidents in school science happen during teacher demonstrations, pupil misbehaviour is still a significant cause of accidents, but often these have happened in quite small classes. (Of course, such pupils may well have been put into small classes as a deliberate policy).

A local manager, such as a head of science, would be well advised to carry out such a risk assessment and pass on any concerns in writing to their line manager. The DfEE book⁴ states:

Teachers who are concerned that risks in practical work are increased to an unacceptable level because of the class size should report their concerns to the head of their science department and, if necessary, their head teacher. It may be possible to adopt alternative methods for particular pieces of work. However, if the risks cannot be made acceptable, the activity must cease until it can be resumed safely.

A failure to deliver parts of the National Curriculum because of inadequate accommodation could lead to criticism by OFSTED inspectors, or a low position in league tables. An accident resulting from over-crowding could lead to prosecution, a fine, or even imprisonment — but almost certainly for the employer rather than the class teacher.