

**SOCIAL DISTANCING IN SCHOOLS**  
**CALCULATING PUPIL NUMBERS BY ROOM TYPE**

**MAY 2020**

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## 1. SUMMARY

From 20 March 2020, schools across the UK closed for all but the most vulnerable children and for children of critical workers. As a business providing services to schools across the country, this meant adapting to the current needs of our customers in order to continue supporting them through this challenging time.

The government's chief medical advisor has suggested that some form of social distancing is likely to be in place until the end of the year. If schools are to maintain social distancing, they cannot run at full capacity, meaning they will have to find a way to adapt to this 'new normal'.

School Property Matters is the country's foremost specialist in calculating school pupil capacities; therefore, the best way in which we can support the sector at this time is to advise on the pupil capacity of a school when accommodating social distancing.

This document will detail; the current Department for Education guidelines for implementing social distancing in schools, calculations for class sizes within primary and secondary schools, and other factors to consider when deciding how to operate schools at this time.

The key question is whether to split a class of 30 pupils into 2 groups of 15 or 3 groups of 10. The findings below suggest that a maximum of 10 children can fit into the average sized classroom to allow for social distancing, which contradicts the DfE guidance of groups of 15.

## 2. CURRENT DFE POSITION

The DfE plan to begin reopening primary school settings from 1st June at the earliest. This is providing that the 5 key tests set out by Government justify this at the time; including but not limited to seeing the infection rate continue to decrease and that enabling programmes set out in the roadmap are operating effectively. Schools and colleges are being asked to plan ahead on the basis that these factors will be met. The aim being that children in Reception, Year 1 and Year 6 will begin attending school again first, however secondary schools, sixth form colleges & higher education colleges are being asked to begin offering face-to-face support to supplement remote education for those in years 10 and 12 with key exams to take place next year.

When thinking about having children return to school there are many factors to consider, some of these detailed in the DfE guidance include:

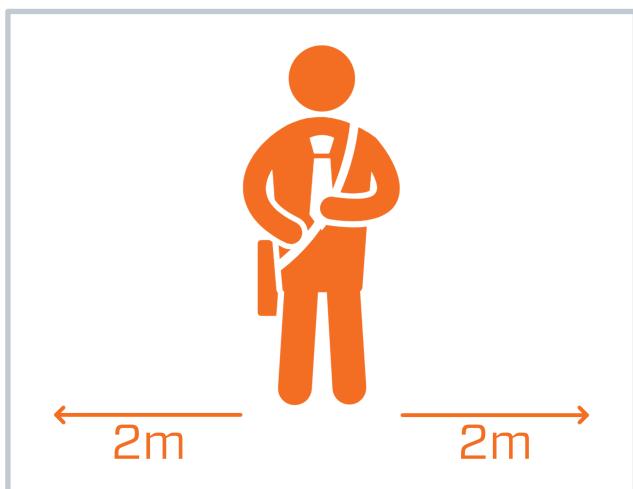
- Effective infection and protection protocol; including, increased hand washing for staff and pupils, not allowing staff and pupils with any symptoms of COVID-19 to enter the setting, cleaning of frequently touched surfaces often and minimising contact and mixing of staff and pupils.
- PPE for staff; ensuring that care normally requiring PPE is continued using PPE, and ensuring that PPE is available should a child become ill with COVID-19 symptoms within the setting and a distance of 2m cannot be maintained.
- Shielding; ensuring that children and staff who are deemed clinically extremely vulnerable do not return to school.

Schools are being advised before re-opening on the 1st of June to refresh risk assessments, organise small class groups, organise seating in classrooms to maintain a 2m distance between pupils, refresh the school timetable, looking at what lessons will be delivered, if any lessons could take place outdoors, and the removal of unnecessary items from classrooms that may be able to be stored elsewhere, including removing soft furnishings or soft toys that are harder to clean.

Regarding class sizes and groups DfE guidance states that early years and primary age children cannot be expected to be kept 2m apart from each other and staff. Instead the advice is that pupils and staff, where possible, only mix in a small, consistent group and that small group stays away from other people and groups.

### 3. CLASS SIZE JUSTIFICATION

Where do you start when trying to figure how many pupils you can fit in a socially distanced school?



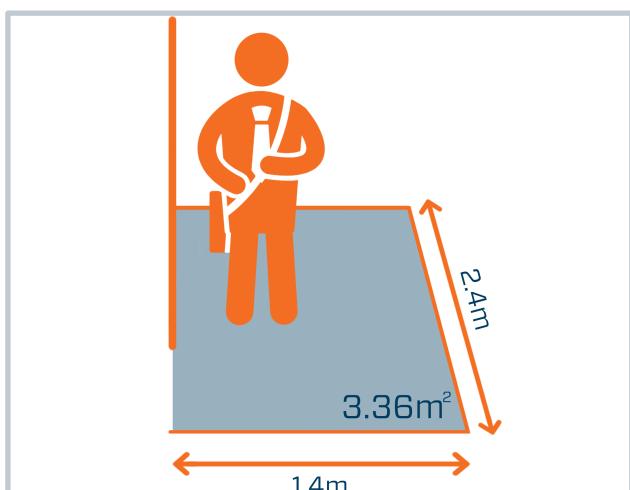
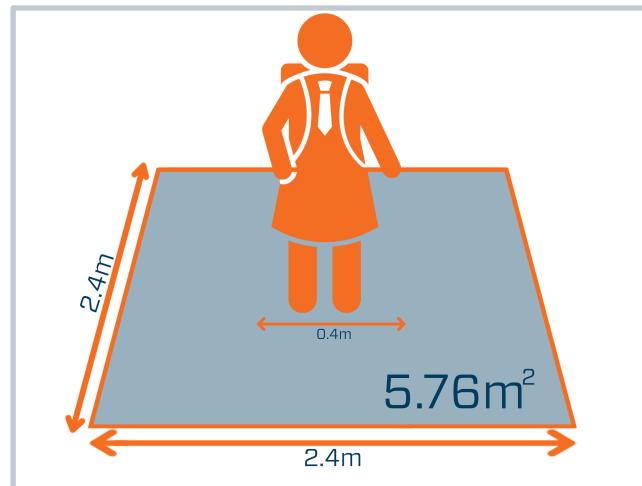
Initially we should accept that this analysis is by pupil numbers and will focus on the teaching space within a school.

Secondly the type of school, Primary, Secondary, or Special, will determine the issues for social distancing.

The third issue is a baseline personal space box each pupil requires in any room to stay 'socially distanced'. Obviously the personal space is actually a circle to get our 2m separation, but round pegs and square holes confuse the maths, so the calculations below are based on a square box per person.

To achieve social distancing, let's assume the body of a pupil is 0.4m width and we want 2m distance between each pupil.

Our personal space therefore needs to be 2.4m square, which equates to an area of **5.76m<sup>2</sup>**.



We can reduce this area for those pupils against the wall of a room as they only need to distance on three sides, their box would be  $2.4m \times 1.4m = 3.36m^2$ .

Let's assume 5 pupils per class can have the reduced space, two down each side and one across the back of the room.

### 3.1. PRIMARY SCHOOLS

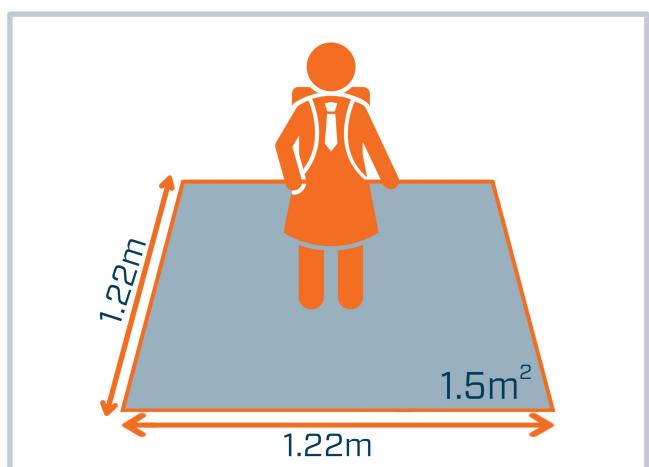
There are two key types of teaching space in a primary school;

GENERAL	SPECIALIST
Classrooms and practical areas where most teaching takes place.	Typically the hall, ICT, library, music or dance room.

**Note:** applying the standard Net Capacity Calculation, spaces are normally built to accommodate 30 pupils. Standard area calculations are taken from the DfE Building Bulletin 103.

#### 3.1.1. General Space

A General space would allow  $1.5m^2$  per pupil plus  $3m^2$ . So a 30 pupil General space would be  $(1.5 \times 30) + 3 = 48m^2$ .



A quick calculation shows that our  $1.5m^2$  per pupil is allowing them a personal space of 1.22m, which means that if they stretch both arms out to each side they should just touch the next pupil's outstretched arm.

Using the socially distanced personal space from section 3, a  $48m^2$  classroom can now fit  $48 / 5.76 = 8.3$  people, which is roughly the teacher and 7 pupils.

If we allow for the fact that 5 pupils will be against the walls and only need  $3.36m^2$  as detailed in section 3.

**It is fair to assume 10 pupils can be taught in our socially distanced classroom.**

#### 3.1.2. Specialist Space

A Specialist space such as a hall is slightly more complex, it allows  $12.5m^2$  per pupil plus 20 pupils.

A  $200m^2$  hall would accommodate  $(200 / 12.5) + 20 = 36$  which is then rounded down to the nearest 30, so is 30 pupils. As our  $5.76m^2$  area per pupil plus the teacher requires  $180m^2$  there is enough space for social distancing, therefore there is no issue with PE or dance in the hall.

Specialist rooms such as ICT, Library and music, are likely to be similar sized to a classroom, so we should again assume a maximum of 10 pupils at any one time.

### 3.2. SECONDARY SCHOOLS

This is a much more complex problem as we have four room types and the added dimension of the timetable. To keep this simple we'll ignore the timetable for now and just focus on the physical pupil capacity of each type of socially distanced room.

Our four types of secondary school room are;

GENERAL TEACHING	LIGHT PRACTICAL
Any room where teaching takes place, which isn't covered by one of the other three categories	Any space equipped with specialist fixtures, such as; ICT rooms, libraries, science laboratories, wet or dry textiles, art, graphics, pneumatics, electronics, and control technology.
HEAVY PRACTICAL	LARGE & PERFORMANCE
Any spaces designed or equipped with specialist fixtures, such as; PE spaces below 120m <sup>2</sup> like fitness suites, food rooms, engineering and multi-materials workshops.	Includes PE spaces over 120m <sup>2</sup> such as sports halls, gymnasia, all halls (including any stage area), dining, drama, dance, music, media spaces, atria, and malls.

**Note:** applying the standard Net Capacity Calculation, spaces are normally built to accommodate 30 pupils. Standard area calculations are taken from the DfE Building Bulletin 103.

#### 3.2.1. General Teaching

The calculation is the same as for a General space in a primary school, we therefore have already worked out that the maximum number of pupils in a General Teaching room will be 10.

#### 3.2.2. Light Practical

The calculation for physical pupil capacity is (area / 2.5) - 4, a Light Practical room will typically be between 65m<sup>2</sup> and 85m<sup>2</sup> depending on its use, ICT is at the lower end of the scale Science Laboratories at the top.

For a small room the calculation for social distancing would be 65 / 5.76 = 11.28, so again applying the assumption about pupils against walls not needing their full personal space box, we can assume a class of 15 could be taught. A larger space could potentially accommodate up to 20 pupils.

#### 3.2.3. Heavy Practical

The physical pupil capacity is calculated as (area / 3.5) - 5, a Heavy Practical space would vary between 80m<sup>2</sup> and 110m<sup>2</sup> depending on its use. For the smaller rooms our social distancing calculation will deliver a physical pupil capacity of 13.88, so again we can assume the room can accommodate 15 pupils. The larger Heavy Practical spaces will probably handle classes of 20 pupils.

### 3.2.4. Large & Performance

Large & Performance spaces are sub-divided in to those less than 75m<sup>2</sup> and those larger than 75m<sup>2</sup>.

For those smaller than 75m<sup>2</sup> we'll use the 75m<sup>2</sup> area, the standard pupil capacity calculation is (area / 2.5) - 4, so the socially distanced capacity will be 13, again we'll round to 15 pupils allowing for the teacher and those against the walls.

The calculation for the larger spaces is (area / 12.5) + 20, the socially distanced pupil capacity of a 120m<sup>2</sup> room will be 20.83, so 25 pupils could be accommodated.

#### **4. PUPIL CAPACITY CONCLUSION**

This is suggesting that all schools should start to work on plans to teach the pupils in classes of 10, contrasting with the government guidelines of 15 pupils per class; if so, should this be one week in and two weeks off? One and a half days in, three days off per week? Should the schools split each day in to three slots? However they choose to progress will be a big issue for parents to work around as they start to head back to their working lives.

## 5. OTHER FACTORS TO CONSIDER

When looking at the practicality of reopening schools, even with incorporating social distancing into the classroom, there are still many other operational factors to consider to ensure pupils are able to follow social distancing throughout the school day. These include suggestions being made by UK government and other UK leaders in education and observations from other countries that are beginning to ease restrictions and return children to school.

### 5.1. TRAVEL AND ARRIVAL

How pupils get to and from school and how arrival and leaving times are managed will need to be taken into consideration. For those traveling on public transport it may be particularly difficult to travel at peak times as social distancing will likely be in place on buses and trains etc.

The flow of pupils in and out of school at the start and end of the day will need to be managed to ensure appropriate distancing can be maintained.

Points to consider;

- Staggered arrival times may be a good avenue to limit the number of children on school buses and other public transport at any one time. Also allocating these times to pupils so they know when to arrive.
- Markings in the playground areas may be useful in directing parents and children where to stand to maintain a 2m distance.
- Pupils entering the school one by one at intervals to prevent crowding.
- If children need to be accompanied only one parent should attend, as per DfE guidance.
- For younger pupils in primary schools parents would usually enter the school to drop off and pick up their children. This may need to be limited to certain year groups to reduce the number of people entering school buildings.
- Ensuring access to hand sanitisers at all entrances and signage encouraging their use.

### 5.2. GENERAL TEACHING ROOMS

A large portion of the school day is spent in general teaching classrooms and these spaces will need to be adapted to accommodate social distancing.

Points to consider;

- Reducing class sizes as discussed in section 3 of this document.
- Room layouts may need to be altered to allow suitable spacing between desks and additional space for the pupils and teacher to move throughout the classroom.
- Additional cleaning between classes - further discussed in section 5.11.
- How children enter and exit the classroom to maintain 2m distancing.
- Timetabling... having staff and pupils split into separate, consistent groups and these groups operating alternate attendance times would increase the ability to contact trace.
- Limiting the use of shared resources and increasing sanitation of these where necessary.

### 5.3. OTHER TEACHING AREAS

Specialist spaces in primary schools and light or heavy practical spaces in secondary schools will need additional consideration as their use may pose a higher risk than general teaching spaces. If these spaces are to remain in use then they will need to accommodate smaller class sizes as detailed in section 3.2. In addition they will need increased sanitation of surfaces and equipment that are regularly touched during lessons. If cleaning is required between each lesson for these rooms, then timetabling will have to factor in a lower utilisation of certain spaces.

As with common areas, hand washing should be encouraged at the start and end of each lesson in these particular rooms.

## 5.4. OUTDOOR PHYSICAL EDUCATION

In the short term, group activities and team sports such as football and netball may need to be put-on hold and Dependent on Government guidelines around sport activities, outdoor PE lessons may be able to carry on as per usual in the near future.

DfE guidance states that outdoor equipment should not be used unless the setting is able to ensure that it is appropriately cleaned between groups of children and young people using it, and that multiple groups do not use it simultaneously.

However, arrangements for use of the changing rooms will need to be taken into account, as detailed in section 5.5 below.

## 5.5. CIRCULATION AND COMMON AREAS

Careful consideration needs to be made to the movement of staff and pupils around the school throughout the school day. Staggering break times / lunch times and other times of circulation around the school may be essential in ensuring large groups of pupils are not able to congregate.

In a primary school setting pupils are typically within a single classroom for the majority of the day and leaving the classroom to take part in sport or library time etc. therefore circulation will perhaps be easier to manage.

Within secondary schools this is not the case as pupils and staff are circulating between lessons throughout the school day. Ideally pupils would enter the lowest number of rooms possible during their school day, therefore adjusting the timetable may be necessary to accommodate this. Pupils could perhaps remain in one classroom within consistent groups with teachers circulating around the classrooms. This would make it easier to pin point areas for additional cleaning should a pupil or member of staff become ill with the virus.

DfE guidance suggests considering one-way circulation, or placing a divider down the middle of the corridor to keep groups apart as they move through the setting where spaces are accessed by corridors.

Common areas such as cloakrooms in primary schools may be difficult to work around and increased cleaning of these areas may be the best option. If pupils are arriving and leaving at staggered times then this should help reduce crowding in these areas.

In secondary schools spaces such as lockers, changing rooms and common rooms may also need increased sanitation and again reduce crowding by staggering entry to these areas.

Hand sanitation should be encouraged on entering and exiting any common areas.

## 5.6. TOILETS

Toilets will need to be cleaned more thoroughly and regularly, as discussed in section 5.11 below. In addition, the number of pupils entering toilets at any one time will need to be reduced and perhaps monitored to avoid congregation in these areas.

## 5.7. BREAK TIMES AND LUNCHTIME

Keeping pupils distanced within teaching areas is relatively easy but break and lunchtimes may prove more difficult to manage. Staggering break times and reducing group sizes may help to lower risk, although this will be difficult to completely control, particularly in younger year groups.

Lunchtimes may also need to be staggered to ensure pupils can sit at suitable distances perhaps in small groups. As with the classroom, these groups of pupils and teachers could be kept consistent to ensure contact tracing can be easily managed.

As with other areas additional cleaning will be required between sittings in eating areas and any areas where food is prepared.

## **5.8. ASSEMBLIES AND SCHOOL EVENTS**

Assemblies will have to be carefully planned if they are to continue as part of the school day. They generally take place in larger spaces such as the hall and if pupil numbers are reduced, 2m distancing could be maintained.

Markings on the floor or spacing of chairs could be used to guide pupils. Entering and exiting the hall at intervals to maintain distance, encouraging hand washing and extra cleaning of the space after use are all points to consider. Assemblies will perhaps be a lower priority in the early stages of reopening but will need to be considered if schools wish to continue as close to normality as possible, particularly in schools where this time is used for prayer.

Events such as Summer Fairs and Sports Days may have to be cancelled in the short term depending on changes to Government guidelines around public gatherings. In the long term these may be able to continue with social distancing in place as outdoor activities are generally a lower risk.

Other events to consider include parents evenings and open days. Schools may need to look into other ways to hold parent consultations such as online video and perhaps some creative thinking will be needed to create virtual tours and guides to prospective students.

## **5.9. STAFF OFFICES AND BREAK AREAS**

As with common areas for pupils, certain spaces for staff will also need to be considered. Staff rooms, break areas and reception areas may need additional cleaning and a rotation system that allows fewer people in these areas at anyone time. Individual staff offices may be best only allowing reduced numbers of people to enter. Again encouraging hand washing on entering and exiting common areas.

## **5.10. EXTERNAL VISITORS**

Careful consideration will need to be taken when deciding the necessity of visitors to schools. Where possible it will be good practice to encourage online communication with visitors to reduce the number of people entering the school buildings. Of course this will not always be possible and visitors will need to be made aware of any rules the school may put in place such as wearing masks and temperature checks etc.

## **5.11. INCREASED HYGIENE AND SANITATION MEASURES**

When schools reopen, allowances will need to be made for increased hygiene and sanitation required to limit the spread of the virus. Classrooms today are far more interactive than they have ever been with access to a wide variety of teaching resources and materials. In order to continue use of these resources / materials they may need to be sanitised after each pupil has used them to help prevent cross contamination.

Having pupils remain in one classroom for the majority of their school day would help limit contamination of surfaces, classrooms would only need to be sanitised after each group had finished their lessons for the day. Children remaining at one, single desk would also limit the spread.

Where timetabling allows, it may be useful to limit the number of rooms pupils enter during their school day thereby limiting contact with surfaces may become easier.

Where possible, doors for frequently used spaces may be left open, therefore reducing contact with handles. This would also mean that sanitisation of doors /handles would only need to be carried out at the end of each school day, rather than throughout.

Allowances will need to be made to ensure pupils are following good hygiene practices, time and space will need to be allotted for children to wash their hands regularly and hand sanitisers may have to be provided outside each room. If each pupil is to use a hand sanitiser before / after handling shared learning resources this will help to limit contamination of these surfaces. Pupils should also wash their hands after leaving the classroom for any reason to help prevent the spread of possible virus outside the classroom. Pupils will need time to make sure they are adequately washing their hands for 20 seconds regularly throughout the day and especially before consuming food.

Toilets will need to be sanitised regularly throughout the day, ideally, sanitisation should take place after each time a pupil has used the toilet. However, this may not be practical so as often as possible may be the best option.

## **5.12. SHIELDING**

Even with the introduction of social distancing in schools there will still be a portion of the school community who may need to be shielded as per government guidelines. A number of both pupils and staff with underlying health conditions (including those with a household member with a condition) may not be able to re-enter the school environment as soon as others.

As a result of shielding there may be a shortage of staff within the school. Teachers able to return to school may therefore need to take on an increased number of classes or alternatively, teachers that need to stay at home may be able to deliver their lessons virtually. Additionally, pupils that need to stay at home will have to be given access to lessons and materials in alternative ways to ensure they are not at a disadvantage.

## 6. SOURCES

<https://www.independent.co.uk/news/uk/home-news/coronavirus-schools-reopen-lockdown-when-children-a9469176.html>

<https://www.google.co.uk/amp/s/amp.ft.com/content/79b6c29c-841b-4592-804e-679e3b0b6bab>

<https://www.theguardian.com/world/2020/apr/21/lockdown-eased-netherlands-and-france-plan-to-re-open-primary-schools>

<https://www.telegraph.co.uk/education/2020/04/20/coronavirus-lockdowns-ease-countries-gradually-reopening-schools/>

<https://www.bbc.co.uk/news/education-52377277>

<https://www.bbc.co.uk/news/uk-scotland-52445877>

<https://www.bbc.co.uk/news/education-52373829>

<https://www.bbc.co.uk/news/uk-scotland-52412171>

<https://www.bbc.co.uk/news/education-52469939>

<https://www.gov.uk/government/publications/coronavirus-covid-19-implementing-protective-measures-in-education-and-childcare-settings/coronavirus-covid-19-implementing-protective-measures-in-education-and-childcare-settings#how-to-implement-protective-measures-in-an-education-setting-before-wider-opening-on-1-june>

