

# Guidance for school Science & Technology coming out of lockdown

*Version 2.0- 8<sup>th</sup> June 2020.*

## Introduction

This document focusses on Science and Technology. More detail, particularly about wider school issues can be found in the official Scottish Government advice which can be found here (<https://www.gov.scot/publications/coronavirus-covid-19-re-opening-schools-guide/>)

While most schools have not been fully shut, the reopening on the 11<sup>th</sup> of August. There will be much preparation that will be needed as part of a careful, phased reintroduction of learners into the school environment, particularly for practical subjects such as science and technology.

The guidance is that schools should be observing social distancing on their return. This currently 2.0 m There is no likelihood of any change to this in the foreseeable future but any change that does happen will be announced by the Scottish Government.

As previously stated, this guidance focusses specifically on Science and technology in schools and colleges but obviously any changes in these areas can only be made as part of a whole school approach and Heads of Department should make sure they liaise with other parts of the school.

The situation will vary significantly across the country: learner rolls, numbers and location of teaching rooms, their dimensions and arrangements will all differ not just from Authority to Authority but from school to school. The advice in this document, therefore, is necessarily general in nature but SSERC will be happy to provide specific advice to schools and colleges if needed.

It is important to emphasise that the whole procedure for making arrangements for re-opening to learners should be led by risk assessment - this risk assessment should directly address any risks associated with coronavirus so that sensible measures can be put in place to minimise those risks for children, young people and staff.



Photo by Jernej Furman on [Flickr](#) under [Creative Commons 2.0 Licence](#)

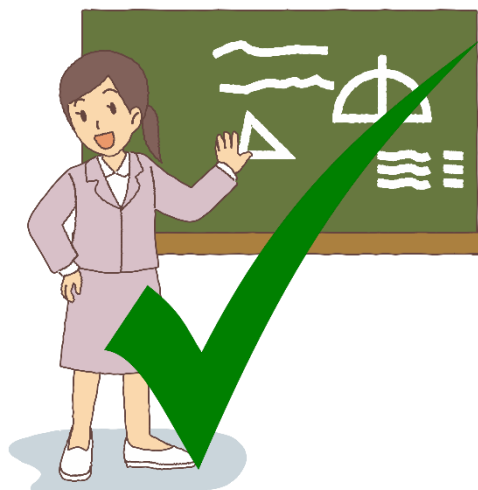


Image - public domain from [openclipart](#)

## Differences from previous versions

- 2.0 In consultation with the Scottish Government, sections offering more general advice for schools have been removed as these are dealt with by government publications. The document now focusses more narrowly on science and technology.
- Reformatting and branding.
- Some changes to phrasing in a few places to increase clarity.
- More guidance (in section on Hygiene) on the cleaning of equipment such as tools and computers.
- New short section with information on other help SSERC can provide.

Further details, as they come, will be addressed via a FAQ section which will be placed at the end of the document.

## Contents

Section	Page
1. <a href="#">Prior to returning</a> – Actions such as safety checks that need to be taken before the school opens properly.	<a href="#">3</a>
2. <a href="#">Maximum number of learners</a> – restrictions on learner numbers and how to calculate how many you can fit in.	<a href="#">6</a>
3. <a href="#">Entry &amp; Exit</a> – how to get learners in and out of rooms and departments safely.	<a href="#">9</a>
4. <a href="#">Managing practical activities</a> – how to carry out practical science and technology safely	<a href="#">10</a>
5. <a href="#">Hygiene</a> – measures that can be taken to minimise infection: PPE, cleaning etc.	<a href="#">13</a>
6. <a href="#">Organisation</a> – ideas for arranging teaching	<a href="#">18</a>
7. <a href="#">What else SSERC is doing?</a> What else SSERC is doing to help during these difficult times	<a href="#">19</a>
8. <a href="#">Wider school issues</a> – Where to find information on matters such as arrival and leaving etc that are larger than just the department.	<a href="#">19</a>

## Prior to Returning

When returning to school there are some important things to consider before 'normal' activities begin again. Most though not all of these are activities for technicians:

- **Taps and Sinks:** - The HSE has recently issued guidance regarding Legionella in workplaces that have been in lockdown. The school/Local Authority should have procedures in place for managing this risk. Consult them before using any water supplies. If they are content that all appropriate measures have been taken then run the water for 5 to 10 minutes through the system to ensure it is working. This will refill any drain traps which have evaporated.
- **Chemical Store:** - Check that the store is secure and has not been tampered with in any way. Chemicals that exist on the latest stocklist are all present and accounted for. There may be specific chemicals that required attention due to shelf life, such as potassium. Look for any distortions in bottles that may indicate pressure build up. If there are any signs of leakage, or any unusual smells, seek guidance immediately.
- **Radioactive Store:** - Check that the store is secure, and all radioactive sources are present and accounted for. Check that the sources are still within their leak test period. If there are any overdue tests or checks, these should be carried out **before** practical work resumes with sources.
- **Electrical Safety:** - It may be that some electrical items are outwith their PAT test period. Check all electrical equipment before use and label and remove any items that fall into this category to be tested. If the testing is done inhouse, then items can be tested on a rolling basis as they need to be used. If it is done externally, contact the company as soon as possible to arrange a test before the start of term – if possible. If testing cannot be done in time, make sure the teachers know so they can plan their lessons accordingly.
- **Equipment yearly checks:** - Fume cupboards, autoclaves, extraction systems, steam engines, and other bits of equipment may be out of their yearly test period. If so, they must be fully tested and comply with all relevant regulations before being used. As with PAT testing. If it is not being done inhouse then contact the testing company as soon as possible to ensure it can be done before the start of term. Again, if there is a delay, let the teachers know to inform their planning.
- **Gas Supply:** - Check all rooms with a gas supply for full functionality. It may have been switched off at the building's main gas valve. Immediately report any gas smells as this may indicate a leak.
- **Electrical systems:** - If any of the rooms have an emergency shut down system, check that it is still fully operational, and all buttons function correctly. Report any faults immediately
- **Eyewash:** - If you have eyewash bottles in labs/workshops, check they are not out of date. If, as is better, you have an eyewash station, ensure the tubing is sterilised and replaced above the tap. (A plumbed in station will only need to be cleaned and run for a while – once Legionella tests have been carried out.
- **Fridges and Freezers:** - Check that these have not been tampered with or switched off. If they have, they will need to be emptied and cleared out – This should be done carefully particularly if there was organic material inside that might have rotted.

- **Microbiology** – Dispose of all sub-cultures and plates. Check the master culture is still in date. Disinfect “Clean Room” surfaces and all storage fridges. While Virkon is a common ‘go to’ disinfectant, any surfactant disinfectant, including a dilute solution of bleach, is suitable. If microbiology work is being undertaken, new cultures might need to be obtained.
- **Machinery** – If there is machinery in technology (or other areas) that needs regular checks, these should be carried out before any use of the machinery.
- **Ventilation:** - It is a good idea to open all windows and let rooms ventilate for at least 5 minutes.

**PPE:** - It should be noted that advice from Health Protection Scotland and the Scottish Government is that there is no need for any PPE to be used other than for the Health and Safety purposes that existed previously as a result of risk assessment. Any PPE should be checked by a competent employee that it is fully functional and has no damage **before** use.

**NB** It may be that your school has donated some of their PPE as a result of COVID-19. If this is the case, no activities that require the use of this PPE should take place until it has been restocked.

Each member of staff should have personal eye protection and should be provided with suitable antiviral wipes for cleaning through the day.

- **Social Distancing** – This does not just apply to classrooms. Technicians should see about measuring and marking out social distancing spaces in the prep room and putting other procedures in place.

Only one person should be in the chemical store at any one time – unless it is an unusually large one. The same applies to other storage spaces.

Technicians should also be a part of the discussions about any rearrangement needed for labs/workshops.

Measurement should also be carried out in workshops and, where possible, workstations moved to create sufficient distance between them.

- **Equipment and ordering** – Given that practical work will be carried out by individual learners now rather than groups, some readjustment will be needed. Once the maximum class sizes are known and audit of equipment will highlight any areas where extra is needed to be bought or where the experiment might need to be re-cast as a teacher-demonstration.
- **Setting out and clearing up** –By far the best option is for equipment to be set out for each learner in trays. More trays may be needed.  
In addition, the setting out and clearing up of practical classes will probably take longer than before so technicians should be consulted about feasibility when any new timetabling arrangements are drawn up. The cleaning and sterilising of equipment between uses will also need to be considered.

**Consultation**

As mentioned in a couple of places above, there are likely to be all sorts of changes needed to how teaching in general and practical science and technology in particular are managed. Extended time needed for setting up and clearing away may affect timetabling. Changes may be needed to experiments. Some equipment will need to be disinfected on a regular basis. More individual kits will be needed which may have purchasing as well as preparation implications, etc, etc.

It is important that technicians are consulted fully before these changes are implemented to avoid the risk of measures being put in place that turn out to be impractical.

## Maximum number of learners per lab/workshop:

### Permanent groupings

The latest government guidance (28<sup>th</sup> May 2020) says

*There may be circumstances in which, while not subject to the exceptions set out above, older children will inadvertently fail to maintain 2.0 m spacings. This may be the case, for example, during social times or specialised group work (e.g. practical elements of science or technology).*

*Every effort should be made to support older children to continue to observe the 2m rule in these circumstances. Therefore, as an additional risk mitigation strategy, older children should be organised into small, consistent groups and assigned clearly defined zones or spaces within which they should endeavour to observe the 2m rule as far as practicable (e.g. a marked off area of an outdoor space).*

This approach has the benefit of ensuring that the 2.0 m rule continues to be followed by older learners whenever practicable, but that, when circumstances are such that accidental encroachments are likely to take place, such interactions are limited to a small number of consistent individuals.

It seems this may have little impact on the actual numbers of learners permitted in each workspace but it will allow for a little more flexibility in terms of the nature of activities that may take place.

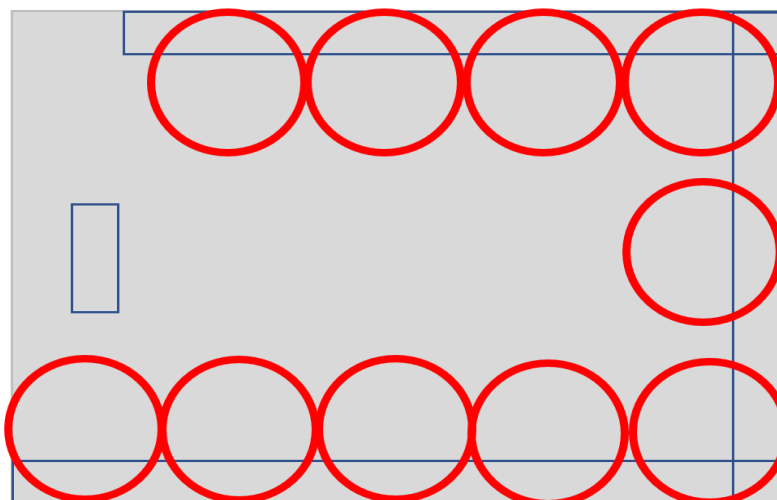
Irrespective of the above, you should set about assessing any teaching spaces (labs/workshops and other rooms) in terms of the current 2.0 m separation.

- This will need to be measured and judged for each room. In a normal sized classroom/lab/workshop, you can probably expect to fit around 7 – 10 learners, depending on the layout, and still maintain the 2m safe zone.

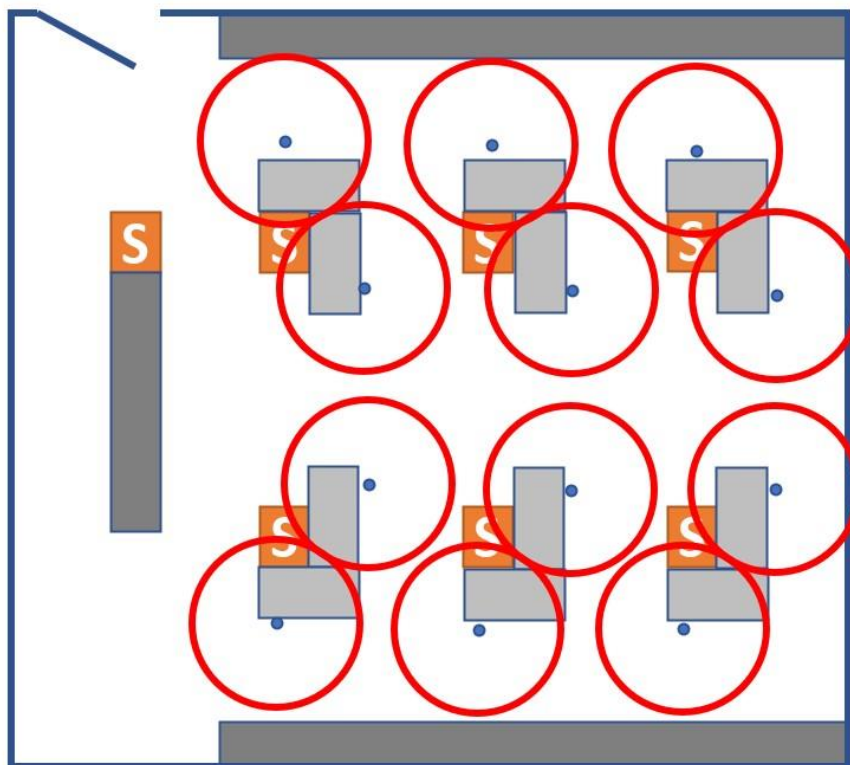
It might be useful to try to get an idea before you go into school. If you know the dimensions of your classroom, on a powerpoint slide make a rectangle to scale. To make it easy, just substitute 1 m of the classroom for 1cm on the diagram – it will be small but you can just zoom in to get it to fill the screen.

Now make a circle 2cm across (to represent 2m) and make copies. Now you can move them around to see how many you can fit in and where they might be. This will save time before you actually attempt measurements 'on the ground'.

Here is an example for a 7x10m room with wall mounted services



Obviously, the presence or absence of service points will make a big difference .  
Here is another example for a 10 x 9 m laboratory containing service bollards (Labelled S)



**It is important to remember though that this will only give you a rough idea. There is no substitute for actually being in the room and measuring.**

- Once you are in the classroom you **will** need to do some actual measuring. We have seen suggestions to make a cross out of 4 metre rulers joined in the middle. By all means do this but it is probably simpler to just tape two together with roughly a 50 cm overlap, this will give you roughly 2.0 m (see below\*). So, if you stand at a learner position and hold out your ruler, the end of it will be where the next workstation is. If you aren't quite sure whether there is room, you can measure more carefully but most of the time the separation will be clear.

*\* your arm span is usually very close to your height. If you are 1m 60 tall, your arm span will be about 80 cm and if you hold out the two-ruler assembly then that's a theoretical 2m 30 – but given that you will be holding it in the palm of your hand that takes it down to just over 2.0 m*

Then by marking on benches and the floor (electrical tape or duct tape is useful for this), you can determine and position workstations within the room. (If you have two people, they can just have a metre rule each). Once this is done you can soon see how many learners the room will safely hold with the learners roughly staying in their allocated seat.

At this date, we would not recommend actually marking out the workstations and their separation just yet in case you can come up with new ideas that may enable a different, better, arrangement. But this exercise will give you a 'worst-case' scenario with the smallest classes you can have which will be useful for planning.

- In technology workshops, the presence of fixed machinery may make this exercise more difficult. It may be that in the case of fixed machinery that is less than 2.0 m apart, it **could** be possible to erect barriers between them. We are currently seeking guidance and clarification about this. But unless specific advice is received, you should assume that the 2.0 m separation is applicable.
- There may be other areas where judicious use of barriers could enable workstations to be closer (eg in IT suites) but, as above, unless there is specific advice from the Scottish Government that this is acceptable, 2.0 m is the separation that should be assumed.
- If your room has moveable tables, you can try out different configurations to ensure the best layout. The presence of fixed bollards with services will give some limitations but there will still be some degree of flexibility.
- Teacher/technician movement around the room will need planning in advance, though given the greater separation that will be in place, this should not prove difficult. You will need to make sure, though, that good access is maintained to doors, emergency equipment etc as well as to all the learner workstations in case of an emergency.
- It will be helpful if each workstation should be clearly labelled with a number, No.1 being furthest from the entry point, No.2 the next furthest and so on ending with the workstation closest to the entry point. (This will help with entry into the room).
- Remember to assign a teacher workstation as well – though this does not need numbering.
- A similar process will be needed for prep rooms. Where there is more than one technician, they should have suitably distanced and marked out workstations. Chemical and other stores should only be used by one person at a time (most can only accommodate one person at a time anyway!).



## Entry and Exit

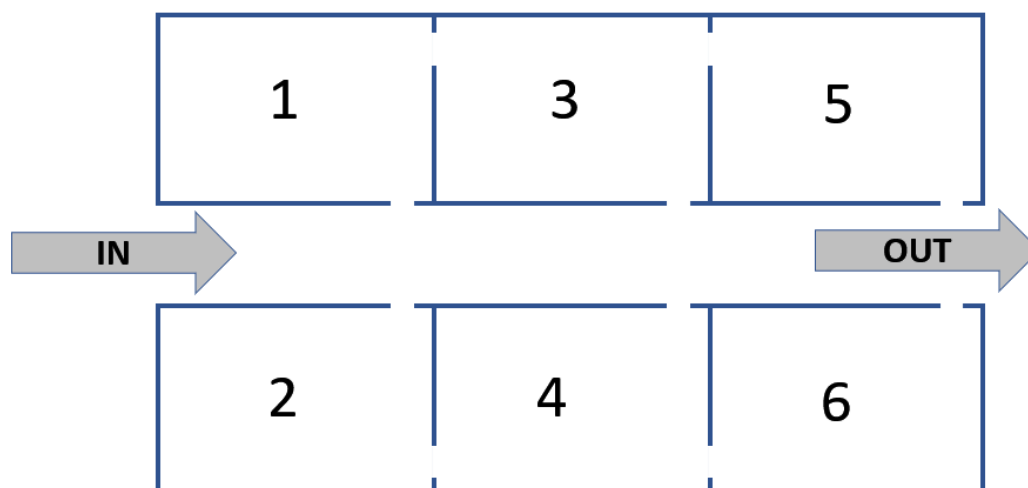
### Into the school

Advice on this is more general and thus outwith the scope of this document. Guidance has been provided by the Scottish government and can be found here (<https://www.gov.scot/publications/coronavirus-covid-19-re-opening-schools-guide/>).

### Entering/leaving the Lab/Workshop

- Where there are two doorways into a classroom, it should be relatively straightforward to arrange a one-way system. This is the most satisfactory arrangement. If not, classes will need to be admitted/dismissed in strict order to ensure that traffic is unidirectional only and that there is minimal mixing.

In an arrangement such as that over the page, with rooms on both sides of a corridor, waiting in the corridor is not likely to be appropriate. The best option would be for classes to wait elsewhere and then be escorted along in order.



When they leave, the learners should be released in room order so that they do not mingle en route out of the department – via the other route.

- Under the direction of the teacher, learners will enter the room individually and make their way to their workplace.

## Managing practical activities

- Having determined the maximum numbers that can be accommodated in each room, the Head of Department (in consultation with other school staff) will need to ensure that there is adequate staff coverage. And to organise it in the way that best suits the school/department

At any one time there will only be a portion of the learners in school. Should there be staff allocated to distance learning activities for those not in school – presumably at least some of these will be running concurrently with in-school activities?

Have there been changes to the level of staffing? Are there new members of staff, possibly even non-teaching staff who may be involved in school to some degree? If so, they will need suitable induction and training (as will their colleagues) to best incorporate them into the system.

- Practical lessons will almost certainly take longer than normal to complete, This is likely to be a particular problem if your school has short lessons. The Head of Department (in consultation with the technician team and senior management) should ensure that the timetable is changed in such a manner as to make the preparation and clearing away of any practical equipment feasible.
- Teachers (in discussion with technicians) will have to plan and take into account requirements for each practical (e.g available equipment) and decide whether it can be safely managed as a class activity (learners working individually not in groups) or needs to become a teacher demonstration.
- Long and complex multi-step practicals are best avoided except for with very experienced learners. It may be helpful to alter learner instruction materials to try to maximise the autonomy with which they can work.
  - It may be useful to have the instructions appearing one step at a time on the teacher's board (one step per powerpoint slide for instance). And learners simply have to wait for the next step.
  - Another option might be in some cases to adapt the 'integrated instruction sheets' as developed by many educators. See this RSC article for more information: <https://edu.rsc.org/feature/improving-practical-work-with-integrated-instructions/3009798.article>
- Learners will obviously have to work individually rather than in pairs or groups. This does not totally preclude group work though. For instance different individuals could investigate different factors affecting the rate of reaction and then share their results (electronically)
- With reduced class sizes schools should have enough equipment to allow learners to work individually – certainly if there was previously enough for working in pairs.
- With learners working individually, some practicals may take longer to complete, but time can be saved by
  - Having reagents pre-weighed or measured.

- Using a 'flipped classroom' approach so that learners familiarise themselves with the experiment before coming into class to carry it out.
- Learners can also share their data after the practical if required.
- Practical equipment will need to be setup at each learner station. This must be done before the lesson, by one, maybe two, members of staff who follow social distancing rules at all times. Setting equipment up in advance in trays will help speed up setting out and clearing away.
- Time must be allocated at the start and end of lesson for setting up/clearing up. This will need to be allowed for in the timetable.
- To avoid learner movement to sinks, each workstation should have in addition to the practical kit for the specific experiment (which will include water for experimental purposes such as dissolving reagents);
  - If not all workstations have access to a sink, a container (or containers) of water may be needed for rinsing equipment of sufficient size without needing to be refilled.
  - A waste container (or containers) where any chemical waste that cannot be disposed of down the sink can be placed for later collection.
  - Again, if not all workstations have access to a sink, there may need to be a container for 'flushable' waste as well that can be collected and washed to waste at the end of the practical.
  - Paper towel or similar for the mopping up of small spills.
  - Practicals which require the learners to make use of sinks/taps (such as distillation), may need a different seating plan. If possible, though, it is best to account for this in the early stages and arrange if at all possible to keep the workstation positioning the same.
  - Note you **can** manage distillation or vacuum filtration without access to a tap. If need be, contact SSERC for more information.
  - There should also be suitable washing/sanitising equipment.
- Once the practical has finished, learners should tidy up their equipment, wash their hands then leave the room in an orderly fashion similar to their entry. (See later section on hygiene). The dismissal of classes, like their arrival, should be coordinated to minimise mixing.
- Once the learners have left, then the teachers / technicians can clear away the trays with the equipment used along with the waste bottles.
- Clearly demonstrations cannot involve learners crowding around the front bench, however they will be needed for many experiments, possible more than before. This can be done by making use of data projectors and digital cameras / visualizers to project what is being demonstrated. Teachers will need to practice beforehand if they are not already experienced in using this equipment.

- Teachers must keep their distance when observing the learners as they work through the practical activity. This may raise H&S concerns, as well as issues around the competency of the learner to carry out the task without the intervention of the teacher. The teacher should risk assess the activity prior to the session, and take into consideration the competency of the learners. But, as mentioned before, a brief spell closer than 2m is unlikely to be a significant risk so if there is danger the teacher should not worry about stepping in to help.
- Maintaining social distancing in lessons will require learners to work with staff and to follow a number of new rules. If this proves too difficult and learners are not following guidance on social distancing (or anything else) the teacher should consider stopping practical work, and having learners work on activities that can be carried out without breaking social distancing rules, such as theory work.
- Where possible, it might be helpful to have learners able to carry out **some** practical work at home. If it is simple, then kits can be sent out and learners can have a ‘cookalong’ approach or work autonomously. It will help break up the routine of home working for learners as well. Details of some possible activities (particularly for chemistry) can be found on the SSERC Home Learning pages.

## Hygiene

- Benches will need cleaning as per the guidelines for all classrooms in the rest of your school. Door handles in particular should be cleaned down on a regular basis.
- Much practical equipment used in science, especially chemistry will not require any additional cleaning, though users should be reminded to regularly wash their hands.
  - Any equipment, that is Hand-Held or Hand-Operated in nature, should be wiped down after use by a learner or teacher. Wherever possible try and limit the amount of shared equipment you use. This may include but is not limited to: -
    - Power Supplies/Signal Generators etc in the Science Department
    - Hand-Tools etc in the CDT or Art Department
    - Hand-Blenders etc in the Home Economics Department.
  - For equipment such as power supplies, cables and crocodile clips proper sterilisation may be tricky. Wiping 10 powerpacks is fairly easy but cleaning all the crocodile clips will be difficult and time consuming.
  - If possible, microscope eyepieces and focussing controls should be wiped with antiviral tissues after each use – unless they are going to be left for longer than 72h between uses or reused by the same learner.
- If wiping down equipment is likely to be too time-consuming, there are a few options:
  - If possible, timetable for staggered usage of equipment where possible so that the equipment can be left for 72 hours between uses.
  - Perhaps better but maybe harder for schools to resource, a set of, say, crocodile clips could be issues for the use of an individual learner for the duration of that unit and then left for 72h or more before being used by another learner.
  - Alter the experiment or the way it is carried out to reduce or ideally eliminate the use of equipment that is difficult to clean rapidly – if it isn't possible then perhaps these activities may need to become teacher demonstrations.

There will always be a balance to be found between effectiveness and practicability. Obviously complete disinfection (by, say, soaking) of every item after every use is the most effective way of eliminating any possible infection. But if the risk of infection is low, it may be that a lesser level of disinfection between uses may be acceptable if it facilitates important activities that might otherwise not take place – SSERC is currently seeking advice on this.

## PPE

As mentioned earlier in this document. This is guidance specifically for the use of PPE in standard Science/Technology activities. There is no need for PPE to be worn more generally.

For detailed advice on this sort of PPE and Covid-19 see the Health Protection Scotland and Scottish Government websites.

- We know many schools have donated all of their PPE to the NHS. You can expect demand for PPE to be very high, so it will take time and money to restock supplies.

- **Eye protection** - teachers should not attempt practicals where appropriate eye protection is required but is not available in school. This may initially limit the practical work that schools can do.

This can be mitigated to an extent in some cases by changing the experiments, reducing concentrations for instance, such that eye protection is no longer needed.

- The safest arrangement is for each learner to have their own, labelled, set of eye protection. That way, there is no risk of cross contamination.
- In many, if not most, schools this is not likely to be the case. If spectacles or goggles are shared between learners these will need sanitising between each use.
- When leaving the lab/workshop, learners should place their used PPE in a washing up bowl (or two) of sterilising solution (have enough solution to cover all PPE). This then starts the sanitising process.

To sanitise goggles/safety specs, they should be fully immersed in a sterilising solution for at least 15 minutes. The eye protection should then be rinsed off with water and allowed to air dry. (This can be speeded up if needed using fans) Once dry check for any damage and then return to use. Avoid drying with towels as this can lead to scratching.

Suitable sterilising solutions are:

- Milton's solution (follow Milton instructions for how to make this up, tablets or fluid is fine),
- dilute bleach (100:1) or
- Virkon (solutions prepared according to manufacturers instructions).

The best option is to do this at the end of each day and leave to dry overnight. If they are needed earlier, fans can be used to speed up the drying. Do not wipe dry it at all possible – this raises the possibility of contamination.

If time really is of the essence, antiviral wipes can be used to wipe down the goggles (or other equipment).

- Learners should be reminded to wash their hands before putting on eye protection.
- **Gloves** – Gloves are rarely required by learners doing practical work. However, where we advise the use of gloves then the correct type should be worn.
- **Lab coats** –as these are not PPE they are not required for practical work, although if anyone wishes to wear their own lab coat there is no problem. Shared or department-based lab coats, however, should be removed from use.
- **Staff** will also need access to their own PPE, each member of staff should have personal eye protection and should be provided with suitable antiviral wipes for cleaning through the day. At the end of the day they should be sanitised in the same fashion as that for learners.

## Hand washing:

By far the best way of ensuring clean hands is washing with soap and water. Obviously there will be issues with access to sinks for a class of learners (even a small class) but there are other possibilities.

- There are a few suggestions for DIY handwash stations – adapted from camping facilities – that could be easily adapted/implemented in schools and would be much more effective. Several of these could be positioned either in corridors or in the classrooms themselves.
- A fairly simple option would seem to be for there to be a class set (for the new current class size) of plastic washing up basins and bars of soap along with paper towels for drying. One at each workstation along with paper towel for drying.
  - If there is not a hot tap at the workstation, then before the lesson a 2-litre bottle of warm water from the tap can be placed at each workstation. If need be this can either be replaced or a second one issued near the end of the lesson. The arrangement of the room should allow for this with minimal risk to the teacher/technician issuing them

After the lesson, the bowl can simply be emptied out and rinsed – the soap will be its own disinfectant.

If the equipment is cleaned before learners use it and their hands are washed before using it, this should greatly reduce possible infection.

- If soap and water is not available, a suitable hand-sanitiser is the next best option.
- Ideally, each learner should be provided with a personal bottle of hand sanitiser by the school, which they can use to clean their hands before and after practical work. If this is not possible, hand sanitiser should be provided in each practical working station.

### Hand Sanitisers

These are less effective than soap and water but better than nothing.

They do tend to be less effective where hands are dirty or greasy – which may be problematic in some school situations.

Alcohol-free sanitisers are less effective. Aim for ones containing at least 60% alcohol. **Some** alcohol-free sanitisers may work but check carefully before ordering them.

**NB If alcohol-based hand sanitisers are used, the bottles should be kept well away from any sources of ignition and no naked flames should be used for several minutes to avoid possible ignition and burns.**

## **Cleaning Computers and other shared electronic equipment,**

This will include any equipment or machinery with keyboards, touchscreens or control panels that are likely to be used by more than one person.

If equipment has not been used for 72h or more, there should be no problem with virus on the keys. So if users wash their hands properly before using them, there should be no contamination issues.

However . . .

It would be sensible to make sure that the keyboards are properly cleaned before term starts, just to be certain you have a good baseline standard of cleanliness. Harmful microbes (and not just coronavirus) cling to dirt, so if your device looks dirty, it really is.

Use a damp, soft, lint-free cloth to wipe away as much visible dirt as possible before any sterilisation. You may need to do this more than once. Keep going until you are satisfied it is properly clean. Use a toothpick on any areas where grime can build up,

To disinfect computers, just like anything else, you need an alcohol-based disinfectant with at least 60 percent ethanol (or 70 percent isopropanol.) You can use aerosols, pump sprays, or wipes, whichever you prefer, just make sure they contain the necessary amount of alcohol.

Because alcohol evaporates quickly, you can spray your gadgets just leave them to dry. This is easy to do regularly. If you need to rub with a cloth, where possible, use wipes or paper towels you can dispose of when you're finished.

NB Alcohols are highly flammable and so should never be sprayed where there is a source of ignition – such as an item of electrical equipment that is plugged in.

Remember that if you are using compressed air cans to clear dust out, they can damage laptops and other all-in-one devices.

If there are any difficult to reach cracks etc, you can use a sharp (but not too sharp) object, like a wooden toothpick, to dislodge any dirt without causing damage to the device.

## **Desktops**

### **Keyboard**

Power down the machine or just unplug the keyboard before starting.

As described above, use a damp, soft, lint-free cloth to get the whole of the keyboard as clean as you can.

Once all dirt has been removed, wipe all the keys and the rest of the keyboard with alcohol wipes and leave to dry.

### **Mice**

Similarly, switch off or unplug before cleaning/sterilising.

Again, use a damp, lint-free cloth to clean your mouse the best you can and dislodge any obvious dirt. Inspect your mouse if you didn't get it all the first time, disinfect any dirty areas again.

Now disinfect with an alcohol spray or wipe. If you're using a spray, leave for a few minutes, and then wipe off any remaining grime with a clean paper towel or cloth.



If your mouse is wired, you can also clean the length of the cord and USB connector with a bit of alcohol.

## **Laptops**

You need to be more careful with laptops than desktop models because the computer's main components are underneath the keyboard and thus more susceptible to damage.

Before you clean it, make sure your laptop is completely powered off and unplugged to avoid any serious damage.

### **Touchpads**

As for the other devices, wipe down thoroughly with a damp (not wet) soft, lint-free cloth to remove as much dirt as possible. Do this more than once if you need.

If your laptop keyboard has separate buttons for right and left click, make sure you use a toothpick to clean any grooves or gaps.

Most trackpads have a lip around the edge that can trap all sorts of grime. Use your toothpick to remove any dirt lodged in there.

Then, using alcohol spray or wipes, thoroughly disinfect the whole of the trackpad.

This might also be a good time to clean and disinfect the area to the left and right of the trackpad, where your hands normally rest.

### **Keyboards**

Use a soft, damp cloth to clean any visible dirt from the keys. Try to remove as much dirt as possible but don't press too hard. Wipe the keys to remove any stubborn grime. Inspect your keyboard thoroughly, and, as before, if you see any remaining dirt, clean it again.

The gaps between the keys on most laptops are small to prevent dirt and dust from getting in there. However, these small gaps still collect dirt from your fingers, so pay attention to them while you're cleaning.

Once it's clean, you can use alcohol wipes or solution to disinfect the surface of your laptop. If using a spray, or a cloth/towel with liquid in, be careful not to get the keyboard too wet.

Let your laptop dry for a few minutes so the alcohol has time to evaporate before you turn it on again.

## Organisation

- Staff training will be needed, for ancillary as well as teaching/support staff to ensure they are familiar any new procedures.
- Unless there is advice from government that states otherwise, physical distancing will remain at the current distance of 2.0 m.
- While they should be avoided wherever possible, very brief interactions within 2.0 m, such as limited numbers of people walking through learning spaces while entering/leaving or to go to the toilet, are considered low risk and are permissible.
- Preparation and clear up time will be longer – in most cases at least – so the timetabling will need to consider this.
- In effect, science and technology in schools will very probably have to switch to a more ‘university-style’ approach. A combination of ‘Lectures’ (lessons delivered by video – live or pre-recorded), self-study and some ‘in-school’, practical sessions.
- The decision about how much ‘in school’ time learners will be able to have and whether or not that should be for practical work, is one for the Local Authorities and School Management. In SSERC’s view, practical work should be prioritised as far as is feasible as it is far harder and in many cases impossible to replicate at home/via video learning. It will be up to the school/LA to decide which year groups should be prioritised for attendance at school.
- It has been suggested that the school estate can be expanded by using other spaces (libraries for instance) for some teaching activities. This should only be done, like everything else, after an appropriate risk assessment. A non-lab/workshop space will limit the nature of practical work that can be done but not eliminate it. For instance, simple circuit work, use of microscopes or some microscale chemistry can, with a little preparation, readily be done in a non-lab setting. Workshop activities in technology may be rather trickier in a non-workshop setting though.

### **Revised lab/workshop rules.**

There will obviously need to be a revision of normal lab/workshop rules. No getting up and moving around. No sharing of eg pencils etc etc. These will need to be circulated to learners before they come into school and displayed prominently in each classroom.

Procedures will need to be put in place to deal with learners who fail to observe the new protocols (eg won't respect social distancing).

Procedures will also be needed for issues like illness in class, dealing with accidents.

There will also need to be procedures in place, on a whole school basis, for toilets. When can learners go? Supervision to ensure no mixing etc.

- While the weather remains good, outdoor learning may be something worth looking at in more detail. While more particularly suitable for younger learners outdoor learning for older age-groups is certainly something that could be looked at. How learning and

teaching is adapted for an outdoor environment should also be considered. The [Outdoor Learning Directory](#) provides links to a variety of resources that can be filtered by subject area and curriculum level.

- Each school is different so each will have to come up with a plan for how much class-time they can allocate to each group, and of that how much needs to be in an actual lab/workshop, and to timetable it to try to maximise opportunities and minimise organisational problems.

## What else SSERC is doing?

- As well as issuing regular updates of guidance documents, we will be available to offer bespoke advice to schools and colleges to assist them with issues they have that may be particular to their establishments.
- All SSERC Professional Learning offerings are being reconfigured and will embed the Covid-19 protocols.
- Our reconfigured courses, in addition to offering the training that is core to them, will also seek to support home/remote learning by modelling good practice and offering advice based on our experiences with distance learning.

## Wider School issues

Such issues are outwith the remit of this document.

The latest government guidance that covers schools in the wider context can be found here. <https://www.gov.scot/publications/coronavirus-covid-19-re-opening-schools-guide/>

Here you will find advice on general school issues, including ones that will impact on science and technology such as:

- Cleaning
- Travel
- Potential infection
- And much more