Irish Science Teachers' Association
Eolaithe na hÉireann

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Experience, knowledge and innovation

A guide to re-opening school science laboratories in line with COVID-19 guidelines and best practice in laboratory safety

ISTA National CPD Programme 2020

Sponsored by Lennox Laboratory Supplies

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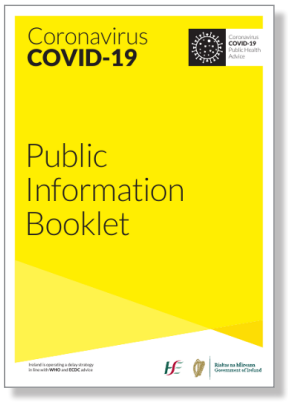
This handbook has been produced by ISTA members for ISTA members.

September 2020

Table of Contents

1. Introduction



The purpose of this handbook is to provide science teachers and laboratory technicians (in the small number of schools that have them) with some useful practical information on how to safely carry out science experiments in light of the COVID-19 pandemic.

In compiling the information in this handbook, we are assuming that all science teachers are familiar with the guidance issued by the Department of Health, National Public Health Emergency Team (NPHET) and by the Department of Education and Skills. Our particular focus in this handbook is to assist science teachers carry out laboratory practical work (student "hands on" laboratory practical work and teacher demonstration experiments) in a safe manner.

The Consortium of Local Education Authorities for the Provision of Science Services (CLEAPSS) is an advisory service in the UK providing support in science and technology for a consortium of local authorities and their schools including establishments for pupils with special needs.

As part of the Royal Society of Chemistry (RSC) 2020 conference week, a presentation on safe practical science was given by Mr. Matt Endean, Deputy Director of CLEAPSS. We wish to thank Mr Matt Endean of CLEAPSS for participating in the ISTA National CPD Laboratory Safety seminar in August 2020 and for all the very helpful information and advice that he has given us.

This handbook features information gathered from a variety of sources, including publications that are freely available from CLEAPSS. Links for further reading of these CLEAPSS publications and in other sources are given in the references section of this handbook. In compiling this information for our ISTA colleagues, we are assuming that schools are fully implementing the general guidelines for all schools as outlined in *Reopening Our Schools The Roadmap for the Full Return to School* (Department of Education and Skills).

As this is an ever evolving situation, the information listed may need to be updated and/or superseded at the time of reading. We will do our utmost to keep this handbook as up-to-date as possible so please check the members section of the ISTA website for additional updated material. We wish to acknowledge the assistance of Lennox Laboratory Supplies for its continuing support of the ISTA National CPD programme. We also wish to thank Mr Rory Geoghegan for typesetting this handbook.

We would welcome any suggestions on improvements of this handbook for the next edition. Please send these suggestions to istamembershipsecretary@gmail.com.

Thank you for your support of ISTA.

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2. Checklist for resuming teaching in your school science laboratory

As a result of school closure on Thursday 12th March 2020, laboratories and chemical stores may not have been checked as part of the usual routine summer holidays work.

The following is a summary of CLEAPSS publication GL345 *Guidance for science departments returning to school after an extended period of closure* (version 1.4). Details of how to access this publication are given in the References section at the end of this handbook.

- Check the **chemical store** with a colleague. Check the quantities and shelf life of chemicals. Check for unusual smells or signs of spills, leakages or breakages.
- Check **equipment that needs testing**, e.g. items such as fume cupboards and autoclaves.
- Check **ventilation**. Open windows and let fume cupboard and other ventilation systems run for about an hour.
- **Electrical items** such as electric kettles and water baths - a quick visual inspection check for any obvious damage or faulty wires. Check that lighting is working.
- **Fridges & freezers** - check these have not been switched off.
- **Water supply** - in each lab and prep room run all taps for at least 10 minutes to run water through the system.
- **Gas supply** - test that the gas supply works in each lab and prep room.
- **Emergency cut off systems**. Test and confirm that all emergency cut off systems for gas and electricity in labs and prep rooms work effectively.
- **Fire extinguishers**. Check any fire extinguishers you have in labs and prep room(s) are in date - any which are out of date will need replacing.
- **Eye wash bottles**. If you have eye wash bottles in your labs check these have not gone out of date. CLEAPSS does not recommend the use of these.
- **Eye protection**. Check stocks of eye protection. Remember these will have to be sanitised before use - see section 3.

3. Using the school science laboratory for teaching and for laboratory practical work

The following is a summary of CLEAPSS publication GL343 *Guide to doing practical work during the COVID-19 pandemic (version 2.04)* and the Department of Education and Skills *Return to school Guidance for Practical Subjects in Post-Primary School and Centres for Education.* Details of how to access these publications are given in the References section at the end of this handbook.

(i) Physical distancing.

- Face coverings should be worn during lessons. If practical, all available space should be utilised and reconfigured to ensure physical distancing. (Department of Education and Skills, 2020, p.6).
- It is also recommended that "group sizes for practical work should be kept as small as resources and space allow and students should work in discrete groups where possible." (Department of Education and Skills, 2020, p. 6)
- **Staff** should aim to maintain a 2 m physical distance from all other members of staff and from pupils.
- Wherever possible **pupils** should aim to maintain a physical distance of at least 1 m.

CLEAPSS comments that "Recent research suggests that the greatest risk to staff is transmission from staff to staff, therefore science staff will have to carefully consider physical distancing rules during break and lunch times when they are likely to congregate in the science staff office or prep room." (CLEAPSS GL343, p. 3)

- **Entry to lab**. A queuing system needs to be set up to help with physical distancing and access to labs. Pupils enter the lab individually.
- **Maximum number of pupils per lab**. The number of pupils that can be accommodated given the 1 metre safe distance rule is estimated by CLEAPSS to be between 17 - 30. However, given the size of laboratories in Ireland, this number is more likely to be in the region of 15 - 20. Science teachers will have to work out this for their own labs.

Note: The term 'physical distancing' is more appropriate for the laboratory environment than 'social distancing' - see https://www.hopkinsmedicine.org/health/conditions-and-diseases/coronavirus/coronavirus-social-distancing-and-self-quarantine

(ii) Inside the laboratory

- **Movement around the lab**. This should be kept to a minimum. Some examples of how to minimise movement around the lab are given in the above CLEAPSS publication, e.g. use of trays to distribute equipment and assigning one person to distribute and collect apparatus.
- **Enhanced cleaning**. The importance of involving students is stressed in the official advice. "The application of enhanced cleaning regimes within laboratories and the need for students to take personal responsibility will be key to successfully keeping the laboratories operational." In addition, it is recommended that " Students should use disinfectant wipes

to clean their bench area and chair/stool on entering the room and before leaving" . (Department of Education and Skills, 2020, p. 6).

- **Ventilation**. Try to keep ventilation as high as is practically possible by opening windows.
- **Sharing of resources and equipment between students**. The official guidance is that "Sharing laboratory resources between groups should be avoided/minimised where possible. Where the sharing of laboratory equipment between students cannot be avoided, each piece of shared equipment should be cleaned/wiped between each use." (Department of Education and Skills, 2020, p. 6)
- **Sharing of personal items by pupils.** Pupils should use their own pens, pencils, rulers, etc and avoid sharing these with others.
- **Cleaning of equipment**. The official guidance is that "where the sharing of laboratory equipment between students cannot be avoided, each piece of shared equipment should be cleaned/wiped between each use. Glassware should be cleaned after use by washing by hand in hot, soapy water using a bactericidal detergent and dried with a paper towel. Other equipment such as mains- powered electrical equipment, gas taps and sockets should be wiped thoroughly, paying particular attention to touch surfaces such as switches. Priority should be given to senior cycle students in relation to the use of microscopes. In doing so, students should use their safety glasses and the lens and focus wheels should be cleaned between each use. (Department of Education and Skills, 2020, p. 6)
- **Quarantining of equipment**. Whilst it is easy to meticulously wash certain items of laboratory equipment such as glassware, other science equipment is not easily cleaned meticulously. CLEAPSS address this problem in a very sensible fashion as follows;

    - *Cleaning may damage the equipment - mechanical damage or the effect of the cleaning product used (e.g. electronic balances & prepared slides)*
    - *The equipment is so intricate that meticulous cleaning is either impossible or will take so long to do that it is impracticable (e.g. microscopes)*
    - *There are too many items to make cleaning feasible in the time available (e.g. 4mm leads and associated crocodile clips)*
    - *Meticulous cleaning is practically possible but there is insufficient technical support to make this process possible*

    As a consequence, CLEAPSS advises that quarantining the equipment for 72 hours will be the only realistic approach for most departments. This approach has the additional advantage that it is arguably more reliable than meticulous cleaning, particularly for intricate items where inaccessible parts may be missed during cleaning. (CLEAPSS GL343, p. 3)

A sample label for equipment quarantined has been devised by CLEAPSS, Figure 1.

This equipment was last used by: .....

They finished using this on (Date): .....

This equipment **MUST NOT** be used before (Date): .....

@CLEAPSS www.cleapss.org.uk science@cleapss.org.uk Tel. 01895 251496 Emergency Phone 07565 114059

Figure 1. Sample label for quarantined equipment (CLEAPSS GL343, p. 13)

CLEAPSS have nicely summarised the key points about cleaning equipment in Figure 2. The advice in the diagram is worth repeating: **Not touching your face and washing your hands are the most effective measures that you and your students can take to reduce the risk of catching the virus by contact with surfaces.**

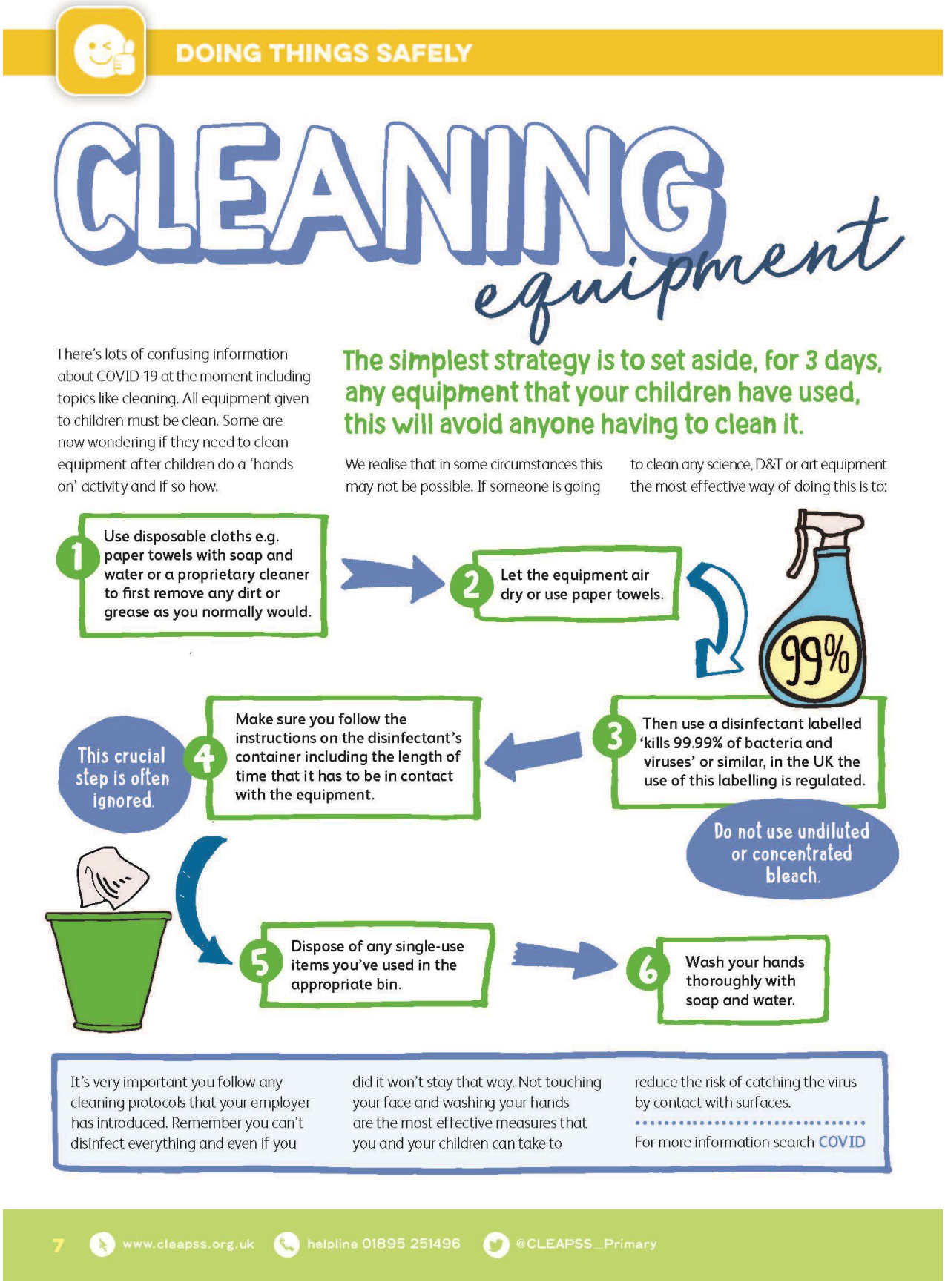

Figure 2. Strategy for cleaning equipment (CLEAPSS GL343, p. 14)

4. Teacher Demonstration Experiments

Teacher demonstration experiments and recorded videos of experiments will probably be more frequently used during the period of this pandemic. It is advisable to try out all demonstration experiments with a colleague before showing a class, especially ones with which you may not be familiar.

Visualiser

Since students will not be allowed to leave their seats and gather around the demonstration experiment, it may need to be scaled up or projected on to a screen using a digital camera or visualiser.

Since demonstration experiments involving students gathering around a fume hood will not be possible, these experiments will have to be pre-recorded and shown to students during the lesson.

The topic of teacher demonstration experiments is covered in the guidance provided by the Department of Education and Skills: “Where an activity requires the use of equipment that is difficult to clean, the activity may instead need to be carried out as a teacher demonstration or virtual demonstration. In order to reduce the need for students grouping together during a teacher demonstration, a visualiser or mobile phone camera could be connected to a data projector. Recording the demonstration would allow students to access it at home for revision. Due to the extra cleaning of equipment required, time must be allocated for this at the start and end of lessons; the measures here are more suitable to double or one-hour lessons rather than to single lessons.” (Department of Education and Skills, 2020, p. 7)

There are many examples of professionally produced video recordings of experiments produced by publishers and specifically tailored for science syllabi in Ireland. In addition, many examples of good videos may be found online.

5. Practical Activities that should not be carried out during the COVID-19 pandemic period

The official guidance is that certain activities should be avoided: "Science departments should revise risk assessments of investigations in line with current public health guidelines. Activities involving saliva, such as cheek cell sampling, the use of saliva as a source of amylase, or the use of straws (for example, blowing into limewater or collecting small organisms using a pooter) should be avoided at present. If students are investigating the effect of exercise on breathing or pulse rate this could be carried out at home and results discussed in class." (Department of Education and Skills, 2020, p. 6).

The Department of Education and Skills also addresses the question of field trips and advises that "visits to a farm or fields in Agricultural Science should comply with the health requirements in place at the time of the visit. If the visit is not possible, plan for school provision of alternative equivalent learning, for example a virtual tour of a farm. (Department of Education and Skills, 2020, p. 6).

CLEAPSS points out the overwhelming majority of science practical activities can be carried out safely with very strict controls in place. However, it advises teachers **not** to attempt the following activities at this time:

- Cheek cell sampling
- Lung volume / capacity & other breathing based activities
- Activities which make use of saliva
- Activities which make use of straws or other equipment for blowing through e.g. blowing through lime water or using a musical instrument which you blow into to create a sound

(CLEAPSS GL343, p. 9)

It points out that once the rate of infection has reduced and/or when more is known about the virus it is likely that these activities will once again be able to be carried out safely.

6. Personal Protective Equipment (PPE)

A list of all PPE available from Lennox Laboratory Supplies is given in Appendix 1 of this handbook. A very useful Excel spreadsheet for completing your order and which lists all prices is available from customerservice@lennox.ie

In the area of lab safety, it is worth noting a few points:

(a) Safety spectacles

The official advice (Department of Education and Skills, 2020) states that "the ideal arrangement for the use of safety glasses is for each student to have his/her own labelled set of eye protection which they store safely and clean each evening. Safety glasses should not be shared between students. Each member of staff should have his/her own personal eye protection." (Department of Education and Skills, 2020, p. 6)

Whilst it should not be a problem for each member of staff to have their own personal eye protection, it could prove difficult for schools to ensure that every student in the school has their own safety glasses.

CLEAPSS recommends that safety spectacles and goggles should be sanitised or quarantined for 72hr between every use

To sanitise eye protection, CLEAPSS recommends that eye protection should be fully immersed in freshly made Milton (or similar 'own brand' equivalent) sterilising solution designed for sterilising babies bottles. For those using Milton, details of how to use Milton fluid or Milton tablets at https://www.milton-tm.com/en/consumer/covid-19-guidelines . Similar instructions are available from other manufacturers.

Note: Milton disinfectant liquid is **NOT** suitable and should not be used as it is designed for floors and other hard surfaces and not for sterilising babies bottles..

- When leaving the lab, pupils should place their used safety spectacles in a container of sterilising solution so that the eye protection is fully immersed. After it has been left for the appropriate time recommended by the manufacturer, the safety spectacles should then be allowed to air dry. It is not recommended to dry them with tissues as this leads to scratching of the lenses.
- Note that CLEAPSS recommends that this procedure should be followed **every time** the eye protection is used because eye protection sits on the face and is very close to the eyes, which is a known route of infection. (CLEAPSS GL343, p. 10)
- If you have a large stock of safety spectacles, quarantining for 72 hours is also another possibility.

(b) Hand sanitisers

- **Hand sanitisers.** The official guidance is that " If practicable, non-alcohol based hand sanitiser or skin friendly disinfectant wipes should be used in the laboratories. If alcohol gels are used, care should be taken to avoid exposure to any source of ignition." (Department of Education and Science, 2020, p. 6).

- In the Eureka Centre UCC hand sanitisers are placed outside the labs in the corridor. All students must sanitise their hands before entering the labs and also on exiting the labs. Research has shown that hand sanitisers with about 70% alcohol content or higher are very effective against the COVID-19 virus. Since alcohol-based sanitisers are a fire risk, they should not be used in laboratories.
- If using these inside the laboratory, make sure that they are non-alcohol based due to flammability of alcohol. This is particularly important if Bunsen burners are being lit! Washing with warm water, soap and paper towels are recommended as best practice but this may not be practical in many school science laboratories.
- CLEAPSS gives good advice that when transferring hand sanitisers from larger containers to smaller ones, the smaller container should be labelled the same as the bulk container to ensure that the user is aware of flammability and any other hazards. (CLEAPSS GL343, p. 10).

(c) Laboratory gloves

- Gloves are only required for certain experiments and CLEAPSS points out that the routine use of gloves by students undertaking practical work is not necessary.

(CLEAPSS GL343, p. 10)

(d) Laboratory coats

- The official guidance is that " Shared lab coats should not be used unless they can be laundered between each use. If necessary, students could wear an old shirt as protection over their clothes" (Department of Education and Science, 2020, p. 6). This advice is also given by CLEAPSS which recommends that shared or departmental lab coats should not be used. Teachers may use their own lab coats if they wish. (CLEAPSS GL343, p. 10).

(e) Face masks / face coverings.

- Government regulations require that all secondary school students and staff wear face masks / face coverings. If carrying out lab practical work that requires the wearing of laboratory grade masks, these will need to be purchased separately.

The updated advice from the HPSC(Health Protection Surveillance Centre) to the Department of Education has recommended that face coverings should be worn by staff members where it is not possible to maintain a physical distance of 2 metres from other staff, parents, essential visitors or pupils. The Department has accepted this recommendation. Accordingly, it is now a requirement for face coverings to be worn by staff members where it is not possible to maintain a physical distance of 2 metres from other staff, parents, essential visitors or pupils. This recommendation and other information on PPE in schools may be found at:

https://www.gov.ie/en/publication/41704-control-measures-covid-19-response-plan-for-safe-reopening-of-post-primary-schools/#use-of-ppe-in-schools

7. Carrying out practical work in classrooms

Access to laboratories may be made more difficult during the COVID-19 pandemic. CLEAPSS advises against using ordinary classrooms for practical under ordinary circumstances (CLEAPSS GL252). However, CLEAPSS also recognised the there may be times when teaching practical science in classrooms may be necessary.

> *A science lab is designed to provide additional layers of support to keep pupils and teachers safe during a practical activity. These may include gas & electrical cut offs, eye irrigation, fire extinguishers, specialist waste systems, and, of course, easy access to technical support.*
>
> *Whilst it may be physically possible to carry out a particular activity in a classroom it is essential to consider how the teacher will respond in the event of an accident or incident. It is at these moments that the lack of normal lab facilities will have the greatest impact on safety.*
>
> *If PPE such as eye protection is needed this will need to be taken to the classroom with the resources for the activity, and returned to the science department after the lesson.*
>
> *Any activity that involves the risk of pupils (or staff) getting a hazardous chemical in their eye will require access to eye irrigation facilities. It is unlikely that the classroom will have a sink and, even if it does, the tap will not likely be suitable for the process. As a general rule, activities where this risk is high should be avoided in classrooms. Where the risk is low, alternatives to traditional tap and sink could include sterile eye wash bottles (which under normal circumstances CLEAPSS advises against) or access to an immediately adjacent toilet with suitable tap. Remember that you will need to administer eye irrigation for at least 10 mins* (CLEAPSS GL252, p. 1)

Care must also be taken when moving equipment to classrooms to avoid times when corridors or other spaces may be particularly busy.

Some teachers may wish to carry out some demonstration experiments in the classroom. CLEAPSS gives some examples of suitable activities.

Example of activity	Additional notes
Low-voltage circuits using batteries, not power packs	Use of power packs requires movement of heavy equipment. Their use will lead to a large number of trailing mains leads as most classrooms do not have mains sockets in accessible positions for pupils. In addition, classrooms do not have the facility to turn off the electricity in an emergency.
Density of an object activities	These can get messy, so you will need to protect surfaces from damage. Carry out the activities in trays.
Hooke's Law	Only use masses up to 100 g
Diffusion activities using household products like perfume	Staff using the room after you may not be so keen on the smell(s) you leave behind!
Measurements of force and speed	These may need the rooms reorganising to allow enough space to carry out activities like measuring friction or speed of toy cars. Ramps are heavy and bulky so will need careful handling and management.
Making models using Molymod kits or craft materials.	These can get messy, so you will need to protect surfaces from damage. Note, any used play dough will need to be disposed of afterwards, and must not be shared.
Chromatography practicals	Only use water as the solvent
Food tests – iodine, biuret in small dropper bottles, grease spot test, dropping tiles	These can get messy, so you will need to protect surfaces from damage.

(CLEAPSS G352, p. 3)

CLEAPSS also points out that some activities should not be carried out in a non-laboratory environment. Some examples of these are:

- Uses of acids or alkalis unless microscale.
- Any practical activities which involve heating chemicals or equipment.
- Use of tea lights or small portable gas burners.
- Microbiology activities.

The above list is not exhaustive and risk assessments should be carried out on all practical work being carried out in non-laboratory environments.

Appendix 1

Examples of practical work that may be difficult to carry out due to group work requirements

Several experiments at Junior Cycle and Leaving Certificate level may be difficult or impossible to carry out by individual students working on their own or due to the risks involved in spreading the virus. Hence these may need to be substituted by videos or demonstration experiments.

Junior Cycle Science

Biology

- Microscopy activities. Microscopes must be wiped down after use with antiseptic wipes. One student at a time observing in the eyepiece. No cheek cell samples. Do not immerse eye pieces in Milton!
- Any experiments involving saliva: e.g. amalyse enzyme activity
- The effect of exercise on breathing rate or pulse.
- To compare carbon dioxide levels in inhaled vs exhaled air
- To show that microorganisms are present in air
- Any animal organ dissection involving students being too close around to view: e.g. heart.

Chemistry

- Rates of reaction experiments involving group work.
- Group work acid-base titration

Physics

- Electrical circuits – group work activities involving leads, power packs, electronics
- Measuring reaction times using meter stick in pairs
- Experiments involving measurements to be taken by members of a group.

Senior Cycle Science

Biology

- Microscopy activities. Microscopes must be wiped down after use with antiseptic wipes. One student at a time observing in the eyepiece. No cheek cell samples. Do not immerse eyepieces in Milton!
- Any experiments involving saliva - e.g. amalyse enzyme activity
- The effect of exercise on breathing rate or pulse.
- To compare carbon dioxide levels in inhaled vs exhaled air
- To investigate the effect of light intensity or carbon dioxide concentration on the rate of photosynthesis.
- Any activities involving growing microorganisms.
- Any animal organ dissection involving students being too close around to view: e.g. heart.

Chemistry

- Measurement of the relative molecular mass of a volatile liquid
- All group work based acid-base and redox titrations
- Rate of reaction experiments – decomposition of hydrogen peroxide, effect of temperature and concentration on the rate of a chemical reaction.
- Preparation and properties of ethene and ethyne
- Preparation of soap
- Preparation of benzoic acid from phenylmethanol

Physics

- Electrical circuits – group work activities involving leads, power packs, electronics
- Experiments involving measurements to be taken by members of a group.

Appendix 2

SIGNS

Image	Product Code	Description
1	ASD1	Oval Floor Graphic “2 m Apart Physical Distance” 600 mm x 350 mm (WxH) Standard Design
2	ASD2	Strip Floor Graphic “Wait on the Line” 2 m x 80 mm (WxH) Standard Design
3	ASD3	Red Floor Graphic 2.8 m x 500 mm (WxH) Standard Design
4	ASD4	Square “Stay Safe Stand Back” Yellow Sticker 400 mm x 400 mm (WxH) Standard Design
5	ASD5	Square “Stay Safe Stand Back” Red Sticker 400 mm x 400 mm (WxH) Standard Design
6	ASD6	Rectangular “Keep Distance While Queueing” Sticker 500 mm x 800 mm (WxH) Standard Design
7	ASD7	Premium Pull Up “Safety Rules” 850 mm x 2 m (WxH) Standard Design
8	ASD8	A2 “This Business is Following COVID Guidelines” Poster 420 mm x 594 mm (WxH) Standard Design
9	ASD9	Circular “Please Sit Here” Sticker 300 mm x 300 mm (WxH) Standard Design
10	ASD10	Circular “Wash Your Hands” Sticker 300 mm x 300 mm (WxH) Standard Design
11	ASD11	Circular “Please Stand Here” Sticker 300 mm x 300 mm (WxH) Standard Design

A 

B 

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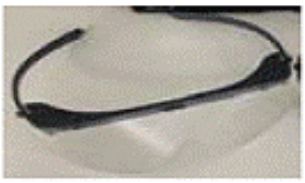
D 

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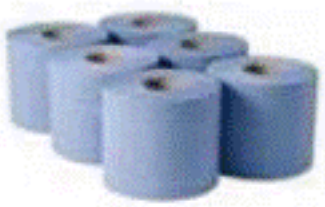
Q 

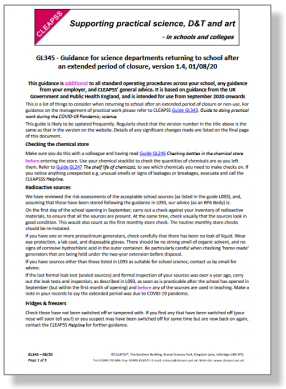
Personal Protective equipment available from Lennox

Note that the letters in the first column refer to the images shown at the bottom of the list.

Image	Product Code	Description	Unit of Sale
A	EDISPRO7	Hand Sanitiser Dispenser 750ml	Each
B	A970000A	Visor/Face Shield	Each
C	AMKB01	Reusable Mask	Each
D	ANINKA	Safety Spectacles, Anti-fog Lens Compatible with Prescription Glasses	Each
E	EBRAN11/405/3	Electronic Infrared Body Thermometer	Each
F	AH10PBX	Pedal Bin - 8 Litre	Each
F	AB81210055	Disinfectant Wipes	Pk 100
G	AFDAFMBD10-T	Type1 Disposable Face Masks	Pk 50
H	A481327LEN	Aprons, White, Roll	Roll of 200
I	CRTSI0321614	78% Ethanol Based Hand Sanitiser Rub	5L
I	CRTSI0321610	78% Ethanol Based Hand Sanitiser Rub	500 ml
J	AGNS	Nitrile Gloves, Size Small	Pk 100
J	AGNM	Nitrile Gloves, Size Medium	Pk 100
J	AGNL	Nitrile Gloves, Size Large	Pk 100
J	AGNXL	Nitrile Gloves, Size Extra Large	Pk 100
K	AGVS	Vinyl Gloves, Size Small	Pk 100
K	AGVM	Vinyl Gloves, Size Medium	Pk 100
K	AGVL	Vinyl Gloves, Size Large	Pk 100
K	AGVXL	Vinyl Gloves, Size Extra Large	Pk 100
L	AGLXS	Latex Gloves, Size Extra Small	Pk 100
L	AGLS	Latex Gloves, Size Small	Pk 100
L	AGLM	Latex Gloves, Size Medium	Pk 100
L	AGLL	Latex Gloves, Size Large	Pk 100
L	AGLXL	Latex Gloves, Size Extra Large	Pk 100
M	AB81210055	Disinfectant Wipes	Pk 100
N	A801	Bactericidal Hand Soap	5L
O	CRTSI0321614	78% Ethanol Based Hand Sanitiser Rub	5L
O	CRTSI0321610	78% Ethanol Based Hand Sanitiser Rub	500 ml
P	A54001	Anti Bacterial Spray Cleaner	750 ml
Q	AVAL-CFBP	Barrel Roll Blue / White	Pk 6

References

The following CLEAPSS resources are freely available for downloading by all schools:


Supporting practical science, D&T and art
- in schools and colleges

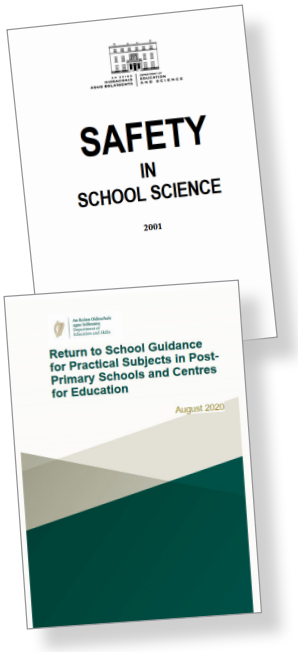
GL345 - Guidance for science departments returning to school after an extended period of closure, version 1.4, 01/08/20

CLEAPSS GL345 – Guidance for science departments returning to school after an extended period of closure
http://science.cleapss.org.uk/Resource/GL345-Guidance-for-science-departments-returning-to-school-after-an-extended-period-of-closure.pdf

CLEAPSS GL343 – Guide to doing practical work during the COVID-19 pandemic
http://science.cleapss.org.uk/Resource/GL343-Guide-to-doing-practical-work-during-the-COVID-19-Pandemic-Science.pdf

CLEAPSS GL352 - Managing practical work in non-lab environments. http://science.cleapss.org.uk/Resource/GL352-Managing-practical-work-in-non-lab-environments-COVID-19-pandemic.pdf

DES publications



Department of Education and Science (2001) *Safety in School Science.* https://www.gov.ie/en/publication/78caf1-safety-in-school-science/

Department of Education and Science (2001) *Safety in the School Laboratory: Disposal of Chemicals.*

Department of Education and Skills (2020) *Return to School Guidance for Practical Subjects in post Primary Schools and Centres for Education.*

Other Government sources and publications

https://www2.hse.ie/coronavirus/

https://www.gov.ie/en/organisation/department-of-health/

https://www.education.ie/en/

https://www.education.ie/en/covid-19/planning-for-reopening-schools.pdf

Notes

Coronavirus
COVID-19

Coronavirus **COVID-19** Public Health Advice

If you have fever and/or cough you should stay at home regardless of your travel or contact history.

If you have returned from an area that is subject to travel restrictions due to COVID-19 you should restrict your movement for 14 days. Check the list of affected areas on **www.dfa.ie**

All people are advised to:

> **Reduce** social interactions
> **Keep a distance** of 2m between you and other people
> **Do not** shake hands or make close contact where possible

If you have symptoms visit **hse.ie** OR phone HSE Live **1850 24 1850**

How to Prevent

Stop
shaking hands or hugging when saying hello or greeting other people

Distance
yourself at least 2 metres (6 feet) away from other people, especially those who might be unwell

Wash
your hands well and often to avoid contamination

Cover
your mouth and nose with a tissue or sleeve when coughing or sneezing and discard used tissue

Avoid
touching eyes, nose, or mouth with unwashed hands

Clean
and disinfect frequently touched objects and surfaces

Symptoms

> Fever (High Temperature)
> A Cough
> Shortness of Breath
> Breathing Difficulties

For Daily Updates Visit

www.gov.ie/health-covid-19
www.hse.ie

Ireland is operating a delay strategy in line with **WHO** and **ECDC** advice

Rialtas na hÉireann
Government of Ireland