



Santa Catholic College

A DIOCESAN SCHOOL OF ANTIPOLO DIOCESE

Science Laboratory Office

THE REVISED MANUAL OF OPERATIONS FOR THE NEW NORMAL SCIENCE LABORATORIES

In response to continually support the program of school and our community to protect and promote the health of the entire CCC Academic Community during COVID-19 Pandemic and pursuant to the protocol issued by the CCC management based on the existing guidelines sanctioned by Inter-Agency Task Force for Emerging Infectious Disease, The Revised Manual of Operations for The New Normal in the Science Laboratory Office will be imposed. This new set of rules and regulations must be observed and followed at all times which aims to guide all the clients and users of the laboratory on how the office will continue operation in this uncertain time.

- **The Science Laboratory Custodian**

GUIDELINES ON SCIENCE LABORATORY OFFICE WORKPLACE PREVENTION AND CONTROL OF COVID-19

To reduce possible transmission and risk of infection on COVID-19 in Science Laboratory Office, the following measures will be imposed strictly:

1. All office transactions will be entertained only thru the office counter. Transactions such as Borrowing Laboratory Apparatus, Reservation of Facilities Needed and Breakages Replacement, or other support services and assistance must be done thru online process.
2. Wearing of Face Mask at all times is still needed while transacting business in the office thru the office counter.
3. Prolonged face-to-face interaction between the laboratory custodian and employees, teachers and students are discouraged.
4. Employees, Teachers and Students must spray alcohol or sanitizers before and after each transaction made. Although, everyone is advised to wash their hands frequently.
5. If there will be a long queue outside the office, a 1-meter physical distancing must be observed.
6. The laboratory custodian will disinfect and clean the science laboratory office regularly.
7. In view of new normal flexible work arrangement, the Science laboratory office will be open every Tuesday, Wednesday and Friday from 9:00 am – 3:00 pm.
8. In view of minimize contact rate policy; all laboratories will have limited people to maintain physical distancing.
9. On reducing the risk of infection from COVID-19, an employee, teacher or student is suspected as having COVID-19 which transacted or use the laboratory facilities, an immediate decontamination of workplace must be carried out. After the decontamination, the office will resume operations after 1 business day.
10. In an event, that the laboratory custodian had a direct exposure with the suspected employee, teacher or student. He/she must undergo a mandatory 14-days home quarantine with specific instruction from the Clinic staff and in accordance with CCC New Normal Protocol.

A. STEPS IN BORROWING LABORATORY APPARATUS AND RESERVATION OF FACILITIES NEEDED

To reduce the possible transmission of COVID-19 and by observing less contact policy, submission of Science Laboratory Supply and Reservation Request Forms (SCILAB FORM 1-A-D & FORM 2) must be done online. Submission must be done three – five (3-5) working days before the actual date of experiment. Inquiries for the available schedule may be done thru the office email provided.

Access the of Science Laboratory Supply and Reservation Request Forms online using the link:

Online Transaction – Google Forms

Grade School - <https://bit.ly/30oiocR>

Junior High School - <https://bit.ly/3f5U57B>

Senior High School - <https://bit.ly/3dQkA0D>

College - <https://bit.ly/2Yo6kWc>

Downloadable and Printable File

<https://rb.gy/a2uaob>

Download the form and fill out legibly (Word Format-Editable). Upon completion submit your request thru our email: cccsciencelab2020@gmail.com

Thru QR- Code

Using any IOS and Android Smart phone, scan the QR Code to access the request forms needed.

Note: Requests not in accordance with existing regulations will not be granted. Please attached also the experiment layout of working area (refer to D.1.7)



3. Have a systematic listing/ grouping of items. Make sure to indicate the following on the requested item:

a. **Apparatus/ equipment**- number of set/ units needed

b. **Glassware**- quantity and capacity

c. **Chemicals/ supplies** - quantity and concentrations

4. Wait for the confirmation email of your approved schedule of reservation and supply for your experiment.

5. In an effort to reduce the risk of infection and to give way decontamination with appropriate disinfectant, **only three (3) laboratory class experiments will be allowed per laboratory area in each day**. Each laboratory class experiments will be held with two to three (2-3) hours' time of interval to ensure the proper disinfection and give ample of time for preparation of the teacher or instructor. Lastly, **No Laboratory Experiment will be scheduled Every Friday** as part of decontamination effort.

6. During checkout procedures of science apparatus equipment, proper social distancing must be observed. Teachers and students must transact checkout procedures only at the office counter. Always remember that all items taken out of the Laboratory stock room are in good condition, clean and must be returned with the same remarks. Double check each material requested especially glassware for even a small scratch, chips, stains or cracks will consider the material invalid to be return and will be charge against the user duration.

7. Every science teacher and instructors are advised to finish their experiments within the given schedule only. In an event that an experiment requires longer observation and procedure, please indicate it properly to the request that will be made.

8. The science laboratory apparatus is not limited for science teachers. Anybody is welcome to borrow any materials provided that teacher will follow steps 1 to 4.

9. For students to perform any given experiments for their research/ investigatory projects or thesis the following procedures must be observed:

- a) Submit a request letter duly accomplished by the student and noted by the science teacher or instructor;
- b) Attach the accomplished Supply and Reservation Request Form and indicate complete details needed. Chemicals requested that is intended for any research or investigatory project will be provided if available at the stockroom. However, these will be charged accordingly or much better if they will replace it with the same quantity and quality; and
- c) C. Wait for the confirmation email of your approved schedule and supply for your experiment.

Note: Always exhibit proper care for the laboratory items borrowed and observes safety all the time while performing the experiments. Always remember that all laboratory items taken out of the laboratory stock room must be returned with the same remarks.

B. STEPS IN RETURNING BORROWED ITEMS

1. Always return borrowed items after the laboratory activities. All teachers are obliged to return their requested items personally with two students for the checking of the items. If in case the teacher has a scheduled class right after the activity, at least three (3) of his/ her most trusted students, must return the requested materials.
2. Return and double- check all laboratory equipment before giving it to the Science Laboratory Custodian for further evaluation.
3. All glass materials/ equipment is requested to be return dry and crystal clean.
4. Proper social distancing must be observed. Teachers and students must transact the said procedures above only at the office counter.

C. BREAKAGE AND REPLACEMENT

1. In case of breakage of any apparatus, Student or Teacher in his/her behalf must file a report using laboratory breakage form and provide a written statement signed by the teacher concerned. It must be submitted online.
2. The laboratory custodian will conduct an investigation for the said breakage and a follow up will be done to inform the concerned teacher about the result of the evaluation.
3. If the breakage of any apparatus is due to negligence and misuse, the equipment has to be paid for or replaced with a new one that is made of the same material, of the same capacity and of the same brand.
4. Students must settle their responsibilities before the dates of final examinations.
- 5.

D. SCIENCE LABORATORY STANDARD OPERATING PROCEDURE DURING “NEW NORMAL”

Specific guidelines and procedures that must be followed to secure a systematic and orderly flow of any experimental procedure.

D.1 For the Science Teacher and Instructor:

1. The Science Teacher and Instructor has the full authority and responsibility for anything that may occur during their time and to the students* during class periods and for all laboratory apparatuses/ equipment used and issued under his/ her assigned class.
2. Each science laboratory teacher and instructor are expected to:
3. File the requisition three - five (3-5) working days before the actual date of experiment and upon receiving confirmed schedule from the office. Laboratory instructor must file complete and specific requisitioned items needed for every experiment. Only requested items will be released;
4. Diligently observed the “No Face Mask, No Entry” policy and implement the same to his/her students. Face mask must be worn at all times and not removed.
5. Wear appropriate Personal Protective Equipment before the entering the laboratory area. “No Complete PPE, No Entry”. Personal Protective Equipment includes but not limited to the following:
 - a. Disposable or Washable Face Mask,
 - b. Laboratory Gown or Coat
 - c. Disposable Latex Examination or Surgical Gloves
 - d. Bouffant Cap
 - e. Safety Goggles or Face Shield (If necessary)
 - f. Shoe Cover (If necessary)
6. Implement and check student’s compliance on wearing appropriate PPE prior to the experiment and before going to the Science Laboratory*;
7. Have a personal hygiene kit and ensure that every student has its own personal hygiene kit. It includes but not limited to the following:
 - a. 70% Isopropyl or Ethyl Alcohol
 - b. Hand Sanitizing Gel (If item A is not available)
 - c. Hand Soap
 - d. Hand Towel
 - e. Tissue
6. Follow Strict Physical Distancing of 1 meter.
7. Follow the assigned working area which follows physical distancing policy.
8. Ensure that students follow other school related health protocols in reducing transmission and risk of infection from COVID-19.*
9. Give guidelines to the students on proper handling of apparatus and chemicals; Pre- laboratory experiment is a great necessity to prevent accidents. Therefore,

Pre-laboratory activities must be given thru online as we adhere less contact policy. *

10. Distribute chemicals and other laboratory apparatus with orderliness and promptness. Never ask the students to get materials from the demonstration table.*
11. Instruct students to bring common household and office materials which the laboratory does not supply. In such case common kitchen necessities (salt, sugar or coffee) needed for the experiment, must be assigned by the teachers to their students. Ensure that these items must be disinfected or clean before using.*
12. Explain procedure in a systematic and in proper manner. Unfinished and inaccurate performance of the experiments is usually due to the teacher's lack of supervision and inadequate explanation of objectives and procedures. Waste of time, materials and manpower should be avoided. Prolonged experiments are discouraged;*
13. Prohibition in smoking, drinking or even eating inside the laboratory area at all times;
14. Not to use Laboratory equipment and apparatuses outside of the laboratory unless necessarily. Proper permission has to be secured from the Science Laboratory Custodian
15. Implement the observance of orderliness and cleanliness at all times. Working areas must be cleaned by disinfecting solution and wiped dry, wastes properly disposed off and tools arranged and properly checked before class dismissal.
16. Allot 10 minutes for cleaning and returning of apparatus to the stock room before the dismissal time. Delicate instruments like microscope, balance and physics instruments must be dry, clean and disinfected properly and free of chemicals
17. Wash hands properly with soap and water after the laboratory experiment and instruct the students to do the same for 20-30 seconds.
18. Advise the students conducting investigatory project or thesis writing to bring their own specimen and materials for experiments. Chemicals used will be charged accordingly.*
19. Make the students aware of the charges for breakages and losses which will be shared equally by each member of the group.*
20. Remind the students to settle all their responsibilities before the final examinations schedule. In case of negligence all broken/ lost materials will be charged to the teachers concerned.*
21. Demonstrate on the proper use of the fire extinguisher, and conduct simple process on the administration of first aid to an injured person, in case of emergencies;
22. Follow procedures on science laboratory evacuation plan in an event when a disaster strikes.
23. Read and understand this revised rules and regulation on the use of the science laboratory before any experiment will be held.

24. Follow all other imposed laboratory rules and regulations not stated herein but issued thru advisory or letter of communication as the need arise.

. *Note: This applies (to students) only if face-to-face learning will be allowed.

E. MINIMIZE CONTACT RATE INSIDE THE SCIENCE LABORATORY

The following flexible measure can be adopted during the experiment inside the laboratory which ensures limited contact or lessen possible transmission such as but not limited Limiting clients engaging to experiment by implementing batch system. This will be done by filling proper reservations ahead of time. Each batch must consist a maximum number of 8-10 users.

F. REDUCING THE RISK OF INFECTION FROM COVID-19

On Reducing the risk of infection from COVID-19:

1.1 In the event that client is suspected as having COVID-19 before or during the laboratory experiment. He/she must:

Immediately notify the science laboratory custodian and the custodian will coordinate with the clinic personnel to attend the teacher or student;

Proceed to the designated isolation in the clinic and never remove his/her mask; and

Must follow all necessary measures to lessen the possible transmission of the virus by following other health protocols.

1.2 The client must comply with all laboratory measures in place for the prevention and control of COVID-19, such as, frequent hand washing, wearing of masks; observe social distancing and all measures taken by the school sanitizer immediately after a cough or sneeze.

1.3 The teacher and student must observe proper respiratory etiquette, coughing and sneezing into tissue or into shirt sleeve if tissue is not available, disposing used tissues properly; and disinfecting hands immediately through proper washing with soap and water or alcohol-based.

Decontamination of Science Laboratory

Science Laboratory must be decontaminated with appropriate disinfectant as per a DOH guideline which is 1:100 formulations. (e.g. ¼ cup of bleach (Sodium Hypochlorite) + 1 gallon of clean water)*

*Assume that ¼ cup (US) is converted to mL which is equivalent to ~60 mL

During decontamination, all the remaining scheduled laboratory activities or experiment will be cancelled to give way sanitization effort. The science laboratory custodian will notify the client regarding of the new approved schedule.

After decontamination of the work area, operations of science laboratory can resume after 24-hours, unless further disinfection and cleaning is required; spread of disease; and seek appropriate medical care if there is persistent fever, when difficulty of breathing has started, or when he/she becomes weak.

G. RULES AND REGULATIONS ON THE CONDUCT OF SCIENTIFIC PROCEDURES USING ANIMALS

In view of ongoing COVID-19 pandemic and as per recommendation of World Health Organization to avoid contact with live animals, the CCC science laboratory office for the meantime will not allow conducting all experiments (including thesis projects) with the use of live animals in any of the common laboratory activities such as but not limited to:

- A. Dissection of Amphibians;
- B. Dissection of Mammalian Heart; and
- C. Pharmacological testing using bacteria, small rodents, rabbits, dogs and cat

H. UNDERSTANDING MATERIAL SAFETY DATA SHEETS

MSDS (Material Safety Data Sheets) are documents required by OSHA's* Hazard Communication Standard that provides information about a chemical, such as the name, manufacturer, ingredients, physical/chemical properties, potential Gire/ explosion/health hazard data, reactivity data, safe handling/usage precautions, and control measures.

MSDS provide sufficient information to enable safe use, storage, handling, and emergency procedures related to potential hazards of the chemical.

Please see the intended MSDS especially in using chemicals before the experiments. MSDS are available at the office of the science laboratory custodian

*Occupational Safety and Health Association (OSHA): the main U.S. federal agency charged with enforcement of safety and health legislation.

J. LAB ON THE GO

What is Lab on the Go?

1. Innovative solution to support science e-learning based classes by using different services in the science available for teachers and students.
2. What services does the Lab on the Go offered?
3. Assistance on Pre-recorded science laboratory activity done by the teacher or instructor inside the science laboratories uploaded in provided LMS or Science Lab YouTube Account.
4. List of Different Web Simulations for different science learning areas*
5. Experiment Manuals made by science teachers that can be done at home. Easy and fast to setup, cost effective and safe to use. (Improvise Materials)

What is the benefit of this program to the students?

1. Convenient access (24/7) in uploaded videos of experiment and activities for further studying and whenever needed.
2. For offline mode, students can have the printed laboratory manuals of experiments and activity made by teachers.
3. Web simulations to augment science learning far beyond concepts and theory.
4. #RoverCuriosity by Making DIY lab experiment guided by the experiment manuals done at the safety of your homes.

*Interactive Web Simulations are licensed under Creative Commons Attributions



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LAB ON THE GO




#RoverCuriosity


A Learning Support Continuity Program

Science Resources to Support Learning During COVID-19




**Materials are licensed under CC 4.0 (Non-Commercial)*

Recommended for Grade School (K-5 Level)

ACCESS LINK	QR CODE
Science Buddies https://bit.ly/2OKr1qV	
Science Buddies – Stem Kit https://bit.ly/3fPg03z	
Science Buddies - Classroom Resources for Teaching the Scientific Method https://bit.ly/2ZLS3Vi	




<p>Virtual Science Education Resources https://bit.ly/3eNct4y</p>	
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Recommended for Grade School and Junior High School (Grade 6-8)

ACCESS LINK	QR CODE
<p>PBS Learning Media https://bit.ly/3jmenfT <i>*May also used for other Grade Level</i></p>	
<p>Scientific America https://bit.ly/30yU7yX</p>	
<p>Skype a Scientist <i>*A free Q and A non-voice and live skype interview (not lecture)</i> https://bit.ly/3jrN4AK</p>	

Recommended for Junior, Senior High School and College
(Science Majors)

(Grades 9-12, College)

ACCESS LINK	QR CODE
<p>National Science Teaching Association Teaching Resources <i>*Includes 5Es Approach</i> https://www.nsta.org/topics</p>	
<p>Phet Interactive Simulations (Browse by filters) https://bit.ly/30t89T2</p>	
<p>American Association of Chemistry Teachers (For Chemistry Subjects) <i>*Simulations</i> https://teachchemistry.org/periodical/simulations</p>	

Merlot Simulations Collection

***Filter Search is Available**

<https://bit.ly/39mEE9u>



CK12 Exploration Series (Beta Program)

Chem Simulations -

<https://bit.ly/39cy6Ks>

Physics Simulations -

<https://bit.ly/3hd6Vlw>

Chem



Physics



Flinn Scientific

Free video labs with related teacher and student guides to help students at home continue making progress on key science topics

<https://bit.ly/2DYowz7>



General Chemistry Interactive Simulations

<http://employees.oneonta.edu/viningwj/sims/>

(To run the program please use or allow the Adobe Flash Player)

***Available for College Use also**



MIT Open Lab Resources

<https://bit.ly/2ZLHHVI>

WARNING:

The experiments described in these materials are potentially hazardous and require a high level of safety training, special facilities and equipment, and supervision by appropriate individuals.



E-Books (Free)

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For College Sciences

Open Stax – Rice University

<https://openstax.org/subjects/science> (Downloadable in PDF Format)

For SHS Sciences (Physics and Biology)

<https://openstax.org/subjects/high-school> (Downloadable in PDF Format)

To search for more eScienceLab Materials and other learning resource. Please use this site

<http://onlinelabs.in/>

The office will continue to update the list of available online science support learning materials. The office also extends its service to all science teacher and instructors for technical support and other services needed.

Last update: July 20, 2020