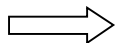


## Prince of Wales Mini School

(Vancouver School Board)  
4750 Haggart Street, Vancouver, BC V6L 2H8  
604-713-8981

# Science Mentorship Program Handbook

Grade 10  
PW Mini School  
Students!



This is *real*  
science.

## Introduction

Prince of Wales Mini School is a district enrichment program offered by the Vancouver School Board. The school was established in 1973 in order to meet the academic and social needs of highly motivated students. We offer an intellectually rigorous academic curriculum, as well as exposure to a variety of enrichment activities.

The Science Mentorship Program is one of our enrichment activities. The goals of the program are:

- **to provide Grade 10 students with a meaningful first-hand science experience** by participating in a research project in a scientific lab, clinic, or field study setting;
- **to foster an appreciation for science** that would otherwise be unavailable within the high school curriculum;
- **to help students make informed decisions** with regard to Grade 11 and 12 course selection, and post-secondary program selection.

Students complete the junior science curriculum (Grades 8 through 10) in 2  $\frac{3}{4}$  years in order to participate in the Science Mentorship Program.

The program involves spending two or three afternoons per week for a period of five weeks between March 1 and April 19, 2018 (excluding a two-week Spring Break from March 19 - 30) in a lab, clinic, or field study location (refer to Science Mentorship Schedule for further details).

Students may work as individuals or in pairs (to be determined by the mentor, the student, and the nature of the research project).

Science is about asking questions and methodically finding answers. The Mentorship Program is most productive for students when they clearly understand the question that their mentor is examining, and they're given a chance to contribute, in a small but meaningful way, to finding an answer to the question.

## Past Student Placements (as examples only)

Healing process after severe burns (Jack Bell Research Centre); Supramolecular materials chemistry (UBC); MRI and PET scans for cancer detection (UBC); Sludge processing (Paradigm Environmental Technologies Inc.); Inherited bleeding disorders (UBC); Immunology of the Canadian Goose (UBC); Pathogenesis of lung fibrosis (Jack Bell Research Centre); Animal surgery (ICORD Building); Nuclear medicine (BC Children's Hospital); Micro fluidics (UBC); Surgical education and innovation (Vancouver General Hospital); Biomass and bioengineering (UBC); Lung cancer (BC Cancer Research Centre); Coping with Rheumatoid Arthritis (UBC); Prostate cancer – gene silencing (The Prostate Centre); Environmental risk assessment (URS Canada); Organic chemistry – petroleum extractions (Cantest Ltd.); Effect of earthquakes on structures (UBC); Cardiology (St. Paul's Hospital)

## Student Responsibilities

### 1. Contact Potential Mentors

Potential mentors should be contacted early in the school year. This individual must be a scientist working in a lab, clinic, or field study setting. Mentors are not remunerated for their time... they are volunteering their time because they want to support individual students and/or the Mentorship Program. In return for their time they will expect well-prepared, engaged, hardworking students.

Possible ways of finding a mentor include:

- speak with a scientist through a direct contact (parent, relative or family friend);
- phone or email a person or organization within your area of interest;
- talk to Grade 11 and 12 Mini School students;
- review the Mini School's list of former mentorship placements (see Mr. Kwan);
- contact an organization that may be able to help you find a mentorship placement (this list is not exhaustive):
  - UBC Let's Talk Science Program
  - BC Innovation Council
  - Society for Canadian Women in Science and Technology (SCWiST)
  - BC Cancer Agency
  - Hospital Departments
  - University Departments
  - Genome BC
  - Youth Science Foundation Canada
  - Private Companies

Remember that you must be able to travel to your mentorship location in a short period of time.

### 2. Submit Information for Approval

Submit a Mentor Approval Form to Mr. Kwan by Friday, November 17. This form must include:

- Student name(s)
- Mentor name (including Ms., Mr., Dr., etc.)
- Mentor title (PhD candidate, Director of...)
- Name of research facility
- Address of research facility (including postal code)
- Mentor's daytime phone number
- Mentor's email address
- Research topic.
- What question is your mentor trying to answer?
- How will you assist in finding an answer to this question?

### **3. Schedule an Initial Meeting**

The student must meet with his or her mentor during early December.

This meeting should include:

- a chance for both student and mentor to see if the placement is a proper fit;
- an opportunity to review expectations;
- complete a *Work Education Agreement* Form (according to Vancouver School Board Policy, students are covered by the Worker's Compensation Act if a *Work Education Agreement* form is completed. This form must be completed and signed by the student, parent, science teacher, and mentor, and submitted to Mrs. Power before the program starts);
- develop a clear set of goals and/or objectives for the mentorship placement (this should appear at the front of the student's journal).

### **4. Enjoy Your Science Mentorship Experience!**

#### **5. Keep a Journal**

Each student is required to keep a journal as a record of their experiences, accomplishments, and time spent in the lab, clinic, or field study setting. There should be one detailed journal entry per mentorship session. The journal will be one part of the student assessment process. These will be checked periodically.

#### **6. Prepare PowerPoint Presentation**

Each student will be required to make a 12-16 minute in-class presentation of their experiences and accomplishments. There will also be an evening of presentations for parents, mentors and school staff. Information, documents and photographs which may aid this presentation should be collected throughout the mentorship experience.

#### **7. Ask Your Mentor to Complete an Assessment**

The *Student Assessment Form* should be completed by Wednesday, April 18 so that it can be returned in a sealed envelope. The student will bring the sealed assessment form to Mr. Kwan as one part of the mentorship assessment process.

## **Parent Responsibilities**

**1. Assist the student in contacting potential mentors (see above).**

**2. Help to ensure that the mentorship placement is safe.**

**3. Develop an appropriate transportation plan with the student.**

#### **4. Complete a *Work Education Agreement* Form**

According to Vancouver School Board Policy, students are covered by the Worker's Compensation Act if a *Work Education Agreement* form is completed. This form must be completed and signed by the student, parent, science teacher, and mentor, and submitted to Mr. Kwan before the program starts.

**5. Attend the Presentation Evening (Date: Wed, May 16, 2018)**

# Mentor Responsibilities

## 1. Provide a Safe Working Environment

Mentors are responsible for providing a safe working environment by:

- providing safety training (as appropriate);
- setting clear expectations with regard to safety;
- providing direct or indirect supervision (as appropriate).

## 2. Schedule an Initial Meeting

The student must meet with his or her mentor during December. This meeting should include:

- a chance for both student and mentor to see if the placement is a proper fit;
- an opportunity to review expectations;
- complete a *Work Education Agreement* Form (according to Vancouver School Board Policy, students are covered by the Worker's Compensation Act if a *Work Education Agreement* form is completed. This form must be completed and signed by the student, parent, science teacher, and mentor, and submitted to Mr. Kwan before the program starts);
- develop a clear set of goals and/or objectives for the mentorship placement;
- mentors are not remunerated for their time... they volunteer because they want to support individual students and/or the Mentorship Program. In return they can expect well-prepared, engaged, hardworking students.

## 3. Provide a Meaningful First-Hand Science Experience

### 4. Assign Readings

It may be beneficial to assign the student readings in order to provide some background knowledge in your area of research.

### 5. Complete a Student Assessment Form

The *Student Assessment Form* should be completed by Wednesday, April 18 so that it can be returned in a sealed envelope. This brief assessment asks you to comment on the student's work habits, research skills, and professionalism. The student will bring the sealed assessment form to Mr. Kwan as one part of the mentorship program assessment process.

# Science Teacher Responsibilities

## 1. Provide an overall structure for the Science Mentorship Program.

## 2. Assist the student in contacting potential mentors.

## 3. Help to ensure that the mentorship placement is safe.

### 4. Complete a *Work Education Agreement* Form

According to Vancouver School Board Policy, students are covered by the Worker's Compensation Act if a *Work Education Agreement* form is completed. This form must be completed and signed by the student, parent, science teacher, and mentor, and submitted to Mr. Kwan before the program starts.

### 5. Evaluate PowerPoint Presentation

The teacher will evaluate the PowerPoint presentation by using the Assessment Rubric (below).

## 6. Organize the Presentation Evening (Date: Wed, May 16, 2018)

## Questions

If you have any questions regarding the program (immediate or at any point during the program), please contact Michael Kwan (Science Teacher):

Prince of Wales Mini School

4750 Haggart Street, Vancouver, BC V6L 2H8

[mkwan@vsb.bc.ca](mailto:mkwan@vsb.bc.ca)

## Science Mentorship Schedule

### Dates at facility (12:45 – 3:15 p.m.)

- Thursday, March 1 (Introduction to project, people and facility; begin work)
- Monday, March 5
- Wednesday, March 7
- Friday, March 9
- Tuesday, March 13
- Thursday, March 15
- Spring Break (March 19 – 30)
- Wednesday, April 4
- Friday, April 6
- Tuesday, April 10
- Thursday, April 12
- Monday, April 16
- Wednesday, April 18 (complete work; complete Assessment forms)

Students are required to complete a minimum of 30 hours of mentorship time. This may require make-up sessions in case of illness or a school field trip.

**In-Class presentation dates** (approx. four presentations per day, integrated with the regular science curriculum):

- Tuesday, April 24
- Thursday, April 26
- Monday, April 30
- Wednesday, May 2
- Friday, May 4
- Monday, May 14
- Wednesday, May 16

### Evening presentation date:

- Wed, May 16 at 7:00 p.m. All parents, mentors and school staff are invited to attend. All Grade 8, 9 and 10 students are required to attend.

## Science Mentorship PowerPoint Presentation (2018)

As stated in the Science Mentorship Program Handbook, each student is required to keep a journal of their experiences, accomplishments, and time spent in the laboratory. Use the information contained in this journal as the basis for your Science Mentorship PowerPoint Presentation.

Your presentation is due on Thursday, April 19 (regardless of your actual presentation date). All photos must be compressed. Please have a copy of your PowerPoint Presentation submitted to Mr. Kwan by the end of the day.

Class presentation dates (selected by random draw):

- Monday, April 23 to Tuesday, May 15.
- Approximately three/four presentations each day, integrated with the regular science curriculum.

Evening presentation date:

- Wednesday, May 16 at 7:00 p.m. All parents, mentors and school staff are invited to attend. All Grade 8, 9 and 10 students are required to attend.

### Assessment Rubric

Assessment Criteria	5	4	3	2	1	X	Mark
<b>Level of Scientific Rigour</b>	An advanced level of scientific rigour is evident in the project(s) and presentation.		A sufficient level of scientific rigour is evident in the project(s) and presentation.		A poor level of scientific rigour is evident in the project(s) and presentation.	x3	
<b>Content: level of understanding</b>	Presentation gives the audience an advanced understanding of the mentorship experience. All relevant aspects (who, what, when, where, how, and why) addressed in adequate detail. Research question clearly stated.	Presentation gives the audience a strong understanding of the mentorship experience. Most relevant aspects (who, what, when, where, how, and why) addressed in adequate detail.	Presentation gives the audience a sufficient understanding of the mentorship experience. Some relevant aspects (who, what, when, where, how, and why) covered in adequate detail.	Presentation gives the audience an insufficient understanding of the mentorship experience. Few relevant aspects (who, what, when, where, how, and why) covered in adequate detail.	Presentation gives the audience a superficial understanding of the mentorship experience. No relevant aspects (who, what, when, where, how, and why) covered in adequate detail.	X 5	
<b>Content: use of photos, graphs or diagrams</b>	Advanced use of photos, graphs or diagrams. All visuals are clearly necessary (not just fillers).	Advanced use of photos, graphs or diagrams.	Sufficient use of photos, graphs or diagrams.	Insufficient use of photos, graphs or diagrams.	Superficial use of photos, graphs or diagrams.	X 2	
<b>Content: personal reflection on mentorship experience</b>	Personal reflection constructive, meaningful and thoughtful. Shows that student made the most of the experience.		Personal reflection is neutral.		Personal reflection is destructive and/or superficial. Shows that student did not take advantage of the mentorship experience.	X 2	
<b>Content: source(s) of information (if appropriate) and credits</b>	Advanced referencing of reading materials related to the subject. Mentor(s) given credit for assistance and/or guidance provided.	Strong referencing reading materials related to the subject.	Sufficient referencing reading materials related to the subject.	Insufficient referencing reading materials related to the subject.	Superficial referencing reading materials related to the subject. Mentor(s) not given credit for assistance and/or guidance provided.	X 2	
<b>Presentation: clarity and organization</b>	Presentation is entirely clear and organized. Everything is easy to read from the back of the room.		Presentation is somewhat clear and organized. Most things are easy to read from the back of the room.		Presentation is unclear and disorganized. Difficult to read from the back of the room.	X 2	
<b>Presentation: communication skills (speaking volume, and clarity, eye contact with audience, not reading off slides).</b>	Presenter communicates information very effectively. Presenter at ease in front of audience.		Presenter communicates information effectively.		Presenter communicates information ineffectively. Presenter is uneasy in front of audience.	X 2	
<b>Presentation: ability to answer questions</b>	Presenter able to answer questions effectively.				Presenter unable to answer questions effectively.	X 1	
<b>Presentation: timing and preparation</b>	12 – 16 minutes Presentation has an appropriate pace. No technical issues with presentation.		9 – 12 minutes or 16 – 19 minutes Some technical issues with presentation.		Less than 9 minutes or more than 19 min. Many technical issues with presentation.	X 1	
						<b>Total =</b>	<b>100</b>