From:	
Sent: Friday, June 07, 2019 2:16 PM EDT	
To:h,k	
Subject: reminder!	

Hi : Reminder to please email the Tsinghua guy so I can go visit them, I really want to! I'll probably be in Beijing early to mid-July and also mid to late August. And many might be there too (maybe). Thanks so much!

From:k h > > h f h, h,k > Sent: Friday, June 07, 2019 3:10 PM EDT
To: To: I and a second
Thanks!
Which one was the again? I'm starting to forget
> On Jun 7, 2019, at 3:09 PM, Zabel, Sally <szabel@fcps.edu> wrote: &gt; &gt; I don't have, but he can reach:mm</szabel@fcps.edu>
> i don t have , but he can reach .
>Original Message > From: The same k
> Sent: Friday, June 07, 2019 2:32 PM
> To:> > Subject:w from Tsinghua
> > Do either of you have 🛲 's email address from Tsinghua. The tall physics teacher guy. >
> I have a who is going to be in Beijing and wants to visit Tsinghua high school.

From: The I, The V The I and A female - she was more my contact; not a teacher
Original Message From: The k Sent: Friday, June 07, 2019 3:10 PM To: The transformed provide prov
Thanks!
Which one was n again? I'm starting to forget
> On Jun 7, 2019, at 3:09 PM, Read, Ready Ready wrote: > > I don't have Read, but he can reach Read: Read many many many many many many many many
<pre>&gt;Original Message &gt; From:k &gt; Sent: Friday, June 07, 2019 2:32 PM &gt; To:,y;;;;;;&gt; &gt; Subject:w from Tsinghua</pre>
<pre>&gt;</pre>

From:							
Sent:	Monday,	June	10,	2019	1:29	PΜ	EDT
To:							

#### Subject: RE: Teaching IBET - Design & Tech Attachment(s): "TJ Chem for PF B Kennedy.pdf"

Hi everyone,

I wanted to follow up with you all about this IBET document.

I have a special request for you. Our current International Partners, Shirble, have specifically asked to know more about the Design & Tech of IBET as they are going to work on building some of their own IBET courses....and the Design & Tech we teach really doesn't have a "course book" you can buy.

They would like to know more about the curriculum design, equipment needed, lab layout, and possible senior work projects for their own version of the lab.

We have had write up information like this about his lab for the International Partners in the past. I have attached it here as an example for you. Don't feel like you have to follow his example exactly, but it gives you a good example of what we are looking for.

If one of you you can write up a similar information packet for the Design & Tech 9 course, the TJPF would like to pay you at a rate of Pay Band 11 for up to 15 hours total of work. We would ask that the project be done over the summer, and given back to us by August 15.

Please let me know your thoughts and if you are interested in completing this over the summer.



From: Sent: Monday, March 18, 2019 1:28 PM

To:

Subject: RE: Teaching IBET - Design & Tech

#### Hi

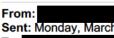
I would need a document that you are comfortable with the TJPF "owning" - with that I mean being able to share with partners asking for this sort of information. Obviously, that means that we are ok with you all excluding items you wouldn't want shared.

They asked for a "comprehensive understanding of the course's design, facility requirements, curriculum, budget, etc". I think including a syllabus that one of you probably has easily available is useful, redacting any information you would want. I know many of the worksheets/tests/quizzes/documents you all use are designed by yourselves. With that in mind, we (the TJPF) are fine with you all excluding giving us any of that information that you all consider to be proprietary.

Attached, please find a document that

put together regarding this information for his Neuro Lab to give you an idea.

If you all are able to do something quickly now, and someone wants to do something more comprehensive at a later date when you have more time (summer, spring break, etc), we are fine with that idea too.



Sent: Monday, March 18, 2019 1:06 PM To:

Subject: RE: Teaching IBET - Design & Tech

Are you wanting a document that covers the subject matter of what we cover? We can outline the year during our CLT on Thursday and see what you think?

#### Subject: RE: Teaching IBET - Design & Tech

Hi everyone,

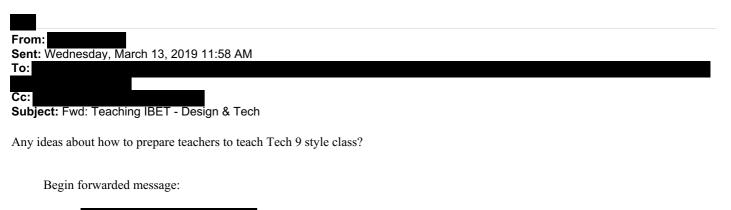
I wanted to follow up with 's below email.

The TJPF is happy to pay one of you to put together a document about how you teach Design & Tech 9. If you only have 1-2 hours to dedicate to the project, we will take whatever you can do!

We would like something quickly (before spring break if possible), and then possibly have something more comprehensive (up to 15 hours, paid) during the summer.

If you are interested, let me know! We can pay you at a rate of FCPS Pay Band 11 per hour (\$37.24).

Thank you!



From: Subject: Teaching IBET - Design & Tech Date: March 13, 2019 at 11:57:00 AM EDT To:

Hi

Shirble is asking how best to prepare teachers to teach the Design & Tech part of IBET.

I know it's a course that TJ designed and therefore there is no textbook.

Is there any written documentation about it like what you prepared for us about your lab (see attached as reminder)? If not, do you think we (the TJPF) could pay one or more Design/Tech teacher(s) to prepare something like this that we could keep and use with International Partners? We would need it soon (not wait until the summer) – probably within a month.

Thoughts? Can I reach out to the Design/Tech teachers? Would you like to prep them?

Thomas Jefferson High School for Science and Technology
Partnership Fund // The Campaign for TJ
Manager, Outreach and Partnerships
703-750-8316 (office)

tipartnershipfund.org

# Thomas Jefferson High School for Science and Technology

y, Director, Chemical Analysis and Nanochemistry Research

## Chemistry Programs and the Chemical Analysis and Nanochemistry Research Laboratory

A. Curriculum and schedule for each grade

n

- B. Establishment, implementation, and evaluation process for each student's project
- C. Information on number of students for each team project and Information on how many projects are guided by the Chemistry Lab Director
- D. Information on how students are selected for the Chemistry Lab
- E. Information on how the Chemistry Lab Director provides targeted guidance for each project
- F. Chemistry Lab Management system.



#### A. Curriculum and schedule for each grade.

- Chemistry 1 Grade 10 (or during Summer after 9<sup>th</sup> Grade)
- AP Chemistry Grade 10 11
- o Organic Chemistry Grade 11 or 12
- o Chemical Analysis and Nanochemistry Research Grade 12.

#### Curriculum Overview:

**Chemistry 1 Honors** focuses on investigating the world of matter and energy through critical inquiry, problem solving, and research. Due to its enabling roles in fields from the life sciences and agriculture to engineering, materials science, and nanotechnology, chemistry is often regarded as the "central science." This unique centrality is emphasized through class dialogue, activities, and laboratory experiments in which students observe and analyze chemical systems in order to bolster conceptual understanding. As fundamentals are developed, students continue to deepen their grasp of the molecular basis of macroscopic properties and phenomena and examine principles and questions of increasing complexity. Upon completion of first-year chemistry, students take the Chemistry SOL end-of-course test.

Advanced Placement Chemistry provides an opportunity for students to make a more comprehensive investigation of some aspects of chemistry than is normally possible in the first-year chemistry course. This college-level course is especially appropriate for students planning careers in chemistry, chemical engineering, or medical science. A lab fee may be required at the discretion of the teacher. Upon completion, students take the Advanced Placement Chemistry examination.

Advanced Placement Chemistry represents a full year (two semesters) of college chemistry. The purpose of this course is to prepare students to take the Advanced Placement examination, for which college credit and/or placement may be given if a qualifying score is achieved. Advanced Placement Chemistry is a second-year, laboratory-centered course that provides an opportunity for students to undertake a more comprehensive investigation of some aspects of chemistry than is usually possible in the first-year Chemistry 1 course. It is designed for students who have completed a core science curriculum and are now ready to pursue more advanced and specialized studies. All students are required to take the Advanced Placement exam.

**Introduction to Organic Chemistry and Instrumental Analysis** is designed for those students who plan to pursue careers in chemical sciences, biological sciences, engineering, or medicine. Students with interests in other sciences gain valuable experiences in dealing with sophisticated topics. The course is also designed to aid students in the development and generation of ideas for Senior Research. Topics include nomenclature, characterization, reactions, synthesis, selected topics related to biochemistry and applications of ChemBioDraw Ultra for molecular modeling. The students will also be exposed to the theory, operation and data interpretation of chemical instrumentation such as infrared and Raman spectroscopy, UV-Vis spectroscopy, fluorescence, liquid and gas chromatography, refractometry, mass spectroscopy, and nuclear magnetic resonance spectroscopy. Approximately one-third the class time will be spent in the laboratory so students gain valuable hands-on experience.

**Chemical Analysis and Nanochemistry Research** provides students the opportunity to complete research projects of their own design. Research can take the form of Project-Based learning, design of novel research areas, or applications of chemistry to solve existing problems. This is an advanced study, college-level class where the primary goal of such advanced study will be for students to develop a deep conceptual understanding through research investigations. The Chemical Analysis Research Laboratory integrates many aspects of Chemistry, including Inorganic and Organic Synthesis and Characterization, chemical nanotechnology, utilization of instrumentation such as Fluorescence, Raman, Fourier Transform-Infrared Spectroscopy (FT-IR), Gas Chromatography, Ultraviolet and Visible Spectroscopy, as well as Instrumentation Development. Such skills and experiences are valuable for those interested in pursuing careers in the natural and physical sciences or areas such as medicine or engineering.

# B. Establishment, implementation, and evaluation process for each student's project

The following are essential expectations and submission requirements for all students:

Every student in the Chemical Analysis Research Lab program must fulfill a number of requirements. Grades will be based upon the degree to which these are met and the quality of the work actually done. Each student will be required to:

- Maintain an individual Project Portfolio in a 3-ring binder (1.5"). Use this to compile all handouts, articles, student work, etc. as related to Senior Research. It should be very neat and organized with dividers and labels. Use a separate binder for course information, labs, and other assignments.
- Maintain an individual Technical Journal that is completed according to prescribed guidelines. Use a bound composition notebook.
- Prepare Progress Reports periodic statements of accomplishments, goals and objectives, as requested.
- Perform Literature Searches of peer-reviewed scientific journals.
- Present seminars on the project and topics of special interest
- Prepare a Research Project Brief (individual) [Primarily the Summer Assignment.]
- Prepare a Research Proposal (individual or group of two)
- Complete Scientific Research (individual or group of two).
- Prepare Visual Displays using Microsoft Publisher, one-page color news style posters of your research.
- Adhere to all necessary Lab Safety and Chemical Hygiene issues.
- Write a Final, Technical Research Report (counts as Final Exam = 20% of grade)
- Prepare a final formal Presentation and Poster summarizing the research project.
- Participate in TJ STAR and Science Fair competitions, compete for Intel Awards, etc.

Students are evaluated in the following areas, several times per quarter:

- Research Progress
- Daily Preparedness and Use of Time
- Independence and Higher Level Thinking Skills
- Chemical Hygiene and Lab Safety
- Research Journal

# C. Information on number of students for each team project and Information on how many projects are guided by the Chemistry Lab Director

The number of students has ranged from 25 - 50 per year over the past 15 years. In a given school year, 3-8 have been involved in off-campus research through the TJ Mentorship Program. For in-school research, students may elect to participate in a team project of two students, or do individual projects. Most commonly, students want to pursue their own interests and ideas so completed individual projects. So, in a given school year the number of projects may range from about twenty to up to forty.

# D. Information on how students are selected for the Chemistry Lab

Students must complete AP Chemistry prior to being admitted to the lab, exceptions will not be made, and strongly recommended as a pre- or co-requisite the Organic Chemistry elective. Work on projects usually begins during the Junior year in the form of topic research and proposal writing. This enables adequate time for acquisition of materials and thorough development of ideas. Students must expect to begin literature searching, idea development and proposal writing prior to the start of their senior year. Since Chemistry overlaps with many science and technology areas, students are encouraged to collaborate with other technology labs in the development of their ideas and in the completion of projects.

#### **Guidelines for Admission:**

- 1) Approval by Lab Director for all components and pre- or co-requisite courses.
- 2) Submission of preliminary proposal in accord with Research Lab requirements (see separate handout).
- **3)** Acceptance of preliminary proposal in terms of viability, resource availability, etc. Students must be certain that TJHSST has the equipment needed for proposed research. Limited funding may be available for basic supplies and chemicals.
- 4) Completion of preliminary proposal over the summer, due in late-August.

TJHSST has the following equipment that students can consider to be used to develop projects and experiments:

- Ultraviolet-Visible Spectroscopy (UV/Vis and Spec 20's)
- Infrared Spectroscopy (FT-IR)
- Refractometry (mainly used to measure refractive index of pure liquids)
- · Micro- and Macro-scale inorganic/organic synthesis and characterization methods
- Fluorometry (fluorescence techniques)
- Raman Spectroscopy
- Electrochemistry (simple eg., pH))
- Gas chromatography/mass spectrometry (requires advance completion of Organic elective)

• Liquid chromatography (requires advance completion of Organic elective)

# E. Information on how the Chemistry Lab Director provides targeted guidance for each project.

The following is a summary timeline of events for students:

- 1) Term 1 Project Development and Introduction to Advance Laboratory Techniques
  - a) Develop project ideas and Research Proposal
  - b) Introductory Analytical Chemistry Laboratory Experiments:
    - (1) Measurement of Iron in Vitamin Tablets by Visible Spectroscopy

(2) Synthesis and Characterization of an Inorganic Nickel Coordination Complex

(3) Physical Properties and Analysis of Organic Molecules

- (4) Infrared Spectroscopy (sampling methods for solids and liquids)
- (5) Determination of Riboflavin using Fluorescence spectroscopy
- (6) Microscale Synthesis of Isopentyl Acetate and Analysis Using Infrared Spectroscopy
- c) Group presentation of major instrumentation theory and interpretation of data
- 2) Term II Project Proposal Action Plans and Begin Research
  - a) Final development of Group Project Proposals
  - b) Ordering of materials

c) Development of Student Newsletter depicting research project using Microsoft Publisher

d) Begin Research

e) Apply for Science Fairs and Awards programs (Intel Science, Siemens-Westinghouse, etc.)

- 3) Term III Continue and complete research
  - a) Research Project Completion
  - b) Presentation of Research Project Results (Powerpoint,)
  - c) Competition in local, regional, state science fairs
  - d) Writing of Final Research Report

# 4) Term IV - Final Research and Project Sharing

a) Finalize Research lab work

b) Complete and Submit Final Research Report (= Final Exam so counts as 20%

of Final Grade)

c) Develop Final Research Project into 80 minute mini-lab for implementation in either Chemistry I or AP Chemistry (could also be two 80-minute portions)d) Exchange and completion of other group mini-labs

e) Final Presentations and Research Symposium

Chemical Analysis and Nanochemistry Senior Research at TJHSST is a culminating educational experience for seniors. It is a culminating senior research experience in that students will have already completed coursework to include Honors Chemistry, AP Chemistry, and Introduction to Organic Chemistry with Instrumental Analysis. As classmates within the Senior Research course students are challenged to work in collaboration with their peers to develop and complete an innovative chemistry-based research project.

Sample projects include areas related to nanochemistry, chemical sensor development, water and soil remediation, green chemistry, polymers and organic synthesis, inorganic synthesis, and a variety of instrumentation-based applications. A unique opportunity for current students involves the development of a comprehensive air quality monitoring program for our school while it is undergoing extensive renovations over the next four years.

Recent and current projects:

- Development of low-cost, highly efficient quantum dot dye-sensitized solar cells.
- Synthesis and degradation of biodegradable polymers.
- Fabrication of permeable reactive barriers for groundwater remediation.
- Green synthesis of gold, silver, and copper nanoparticles.
- Alternative cathodic electron receivers in microbial fuel cells.
- Synthesis, analysis, and measurement of antioxidative effects for natural food protection.
- Anodic wave voltammetry for lead analysis in river sediment.
- Indoor air quality monitoring: CO<sub>2</sub>, CO, moisture, particulates, and mold.
- Using lightsticks and luminescent measurements to evaluate antioxidant effects.
- Development of Raman and SERS Techniques for Pigment Sample Analysis
- Green Synthesis and Fluorescence Analysis of Coumarins
- Optimizing Cyclodextrin-Based Metal Organic Frameworks for Carbon Dioxide Adsorption Efficacy
- Synthesis and Characterization of Iodinated Trispyrazolylborates and Their Complexes
- Synthesizing γ-Al<sub>2</sub>O<sub>3</sub> to Adsorb Heavy Metal Ions from Solution
- Exploring the Correlation Between Mineral Deficiency in Honey and the Prevalence of CCD in the Region

## F. Chemistry Lab Management system.

Figure 1 provides a floor plan layout for the Chemistry Research Lab. In general, the design for the layout was developed to provide specific areas for each of the following:

- 1) Student Lab Bench and Research area space, which includes drawers for storage of materials, glassware, and student safety apparel (goggles, gloves, aprons).
- 2) Instrument placement benchtop space designed to be 36" deep to allow for more instrument space.
- 3) General storage of extra materials and equipment (e.g., beakers, flasks, cuvettes, pipets, tubing, electronics, etc.).
- 4) Special Project Rooms: Designed to house specific equipment and future equipment or student interests. Project Room 1 currently contains laser spectroscopy equipment while Project Room 2 contains the Raman Spectrometer. Such rooms were designed to provide isolated space for such equipment.
- 5) Chemical Storage and Preparation Room: Designed to store all chemicals and student project materials. Room also contains lab refrigerator/freezer, deionized water maker, and laboratory dishwasher, and has additional space for storage of bulk materials and labware.
- 6) Chemical Inventory: Updated several times per year according to county guidelines and regulations. No one is allowed to purchase chemicals that are not approved by Fairfax County Public Schools, although special permissions may be requested. Prohibited items include carcinogens, toxins, etc. that may provide immediate or long-term health issues.
- 7) Lab Safety Equipment the following items are standard in all lab rooms:
  - a. Eyewash Stations.
  - b. Safety Shower
  - c. Fire Blanket
  - d. Fire Extinguisher
  - e. Gas Shutoff.

While working in the lab students are expected to first put on their safety apparel that is to remain on while obtaining project bins from the Chemical Storage Room, and stay on until they are ready to leave the lab area. Detailed Lab Safety Rules are provided in Table 1.



Figure 1. Layout of Chemical Analysis Research Laboratory.

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# Table 1. Detailed Lab Safety Rules.

Science is a laboratory class that conducts hands-on investigations. You will be doing many laboratory investigations that require the use of potentially hazardous chemicals, materials, and equipment. Safety in the science classroom is the #1 priority for students, teachers, and parents. To ensure a safe science classroom, a list of rules has been provided to you in this student safety contract. These rules must be followed at all times. Two copies of the contract are provided. [Adapted from Flinn Scientific Student Safety Contract 2015 with permission. FCPS August, 2016].

#### General

- 1. Follow all instructions and directions carefully. Read all labels and equipment instructions before conducting investigations in the lab.
- 2. Act responsibly in the lab at all times. Do not roughhouse or joke around in the lab.
- 3. No eating or drinking in the lab.
- 4. Never work unsupervised in the lab.
- 5. Do not touch any lab equipment or materials until you have been instructed to do so.
- 6. Unauthorized experiments are not permitted. Do not alter your lab procedure without the approval of your teacher.
- 7. Keep your lab area clean and clutter free before, during, and after an investigation.
- 8. Avoid touching your eyes, nose, or mouth when conducting an investigation in the lab.
- 9. Know the location and procedure for operating all safety equipment in the lab.
- 10. Notify your teacher if you notice anything that may be unsafe.
- 11. Handle all lab waste material as instructed.
- 12. Wash hands with soap and water before leaving the lab when appropriate.
- 13. Do not go in the lab prep room or storage room without your teacher's permission.
- 14. Know the lab procedure for fire drills or other lab interruptions: turn heating elements off, close all containers, and shut off gas.
- 15. Be careful when using sharp objects in the lab. Always carry sharp objects by the handle with the sharp end pointing away from yourself and others.
- 16. Inform your teacher about any medical condition(s) that may affect your ability to work in the lab. Always check with your physician about working in the lab if you have a medical condition.

# **Clothing and Personal Protective Equipment**

- 17. Goggles must be worn at all times when working with chemicals, heat, and glassware. Appropriate dress is required for participation in lab activities (see below).
- 18. Lab aprons are provided and should be used for investigations in the lab involving chemicals, dissections, biological agents, and heat.

#### Accidents and Injuries

19. Promptly report ALL accidents, injuries, and spills to your teacher.

# Handling Chemicals

- 20. Long hair, loose clothing, and jewelry should be pulled back. Closed-toe shoes are required.
- 21. A fume hood must be used for chemicals that need ventilation.

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- 22. When cleaning up after a lab:
  - a. Clean your lab station.
  - b. Handle waste chemicals as instructed.
  - c. Wash hands with soap and water.
- 23. Do not touch or taste any chemicals. If instructed to smell chemicals, waft the vapors from a container. Do not directly smell chemicals from any container.
- 24. Only use a rubber bulb or pipette pump to fill a pipette. Never use your mouth.
- 25. View test tube contents from the side, not above. Follow your teacherdemonstrated technique for mixing chemicals in a test tube.
- 26. Spills must be cleaned up appropriately. In case of a spill, report it to your teacher immediately.
- 27. Acids and bases should be handled with caution. When diluting an acid, always add the acid to the water.
- 28. In case of injury, notify your teacher.
- 29. If a chemical gets on your skin, rinse it with water.
- 30. If a chemical is splashed into your eyes, flush your eyes in the eyewash station for 20 minutes. If wearing contact lenses, remove them as soon as possible.

## Handling Glassware

- **31**. Always check glassware for cracks or chips before use. Never use damaged glassware.
- 32. Report any broken or cracked glassware to your teacher. Broken glass should be disposed of as instructed.

## Heating and Using an Open Flame

- **33**. Long hair, loose clothing, and jewelry should be pulled back before using heat or open flames.
- 34. Never leave an open flame or anything being heated unattended.
- 35. Stay focused and attentive at all times when using an open flame. Never reach over an open flame.
- 36. When heating a test tube, use a test tube clamp and always point the open end of the test tube away from yourself and others.
- 37. Do not heat flammable liquids with an open flame. Never dispense flammable liquids anywhere near an open flame or heat source.
- 38. Glassware and metal stay hot long after heating and look the same as cool equipment. Set them aside to cool on an insulated surface before handling.
- 39. When using a hot plate, do not touch the heating surface.
- 40. Unplug the hot plate when finished and set aside to cool.
- 41. In case of injury from heat, notify your teacher.
  - a. Cool burns by placing the affected area under cold water.

# Handling Electrical and Other Equipment

- 42. Always use the plug not the cord to remove an electrical plug from the socket. Be sure that your hands are dry when touching an electrical switch, plug or wall socket.
- 43. Visually inspect equipment before plugging it into a wall socket. Never use equipment with frayed wires, exposed wires, or loose connections.
- 44. Report damaged equipment immediately to your teacher.
- 45. Discharge electrostatic equipment only as instructed.
- 46. Beware of sharp edges on all lab equipment and use care in working with these

objects.

- 47. Handle heavy objects carefully at all times.
- 48. Never look directly into a laser or point a laser at a person.

## **Handling Biological Material**

- 49. Slide and petri dish preparation require the use of goggles. Goggles may be temporarily removed when viewing specimens through microscopes, but should be worn at all other times when working with biological agents.
- 50. Gloves are required to be worn when using preserved specimens.
- 51. Clean all work surfaces and wash your hands with soap and water after performing experiments involving preserved or live specimens or bacteria.
- 52. All biological materials should be disposed of as instructed.

#### **Student Agreement:**

I agree to follow all of the safety rules of this contract. I realize that I am responsible for following these rules to ensure my own safety and the safety of others. I will work with my teacher and classmates to maintain a safe lab environment. I will follow the oral and written instructions provided by my teacher. I am aware that any violation of this safety contract that results in unsafe lab conditions will warrant disciplinary actions, including but not limited to: being removed from the lab, detention, suspension, and/or expulsion.

Printed Student Name:	
Student Signature:	Date:

#### **Parent/Guardian Agreement:**

I have read the safety rules of this contract and I am aware of measures taken to provide a safe lab environment for my child. I will direct my child to uphold this agreement and follow these rules in the lab.

Printed Parent/Guardian Name:	
-------------------------------	--

Parent/Guardian Signature:	Date:
----------------------------	-------

From:					
Sent:	Tuesday,	June 1	1, 2019	1:20 P	M EDT
To:					
CC:					
Subje	ct: RE: B	ioTech	Lab - wr	ite up f	or TJPF
-					

I am available throughout June over email without a problem. However, June 30 is my last day with the TJPF. After that, you can reach our Executive Director, Tia Kinis, over email with any questions about if you are on the right track – she is cc'd here as a way of introduction if you don't know her.

Thank you so much for your willingness to work with us on this!

Hi

From: Sent: Monday, June 10, 2019 8:28 PM To:

Subject: Re: BioTech Lab - write up for TJPF

Hi

I would be glad to work on this over the summer for you. Are you available during the summer by email? I would like to run a first draft by you prior to the August deadline, to be sure I am on the right track.

Thanks,

From: Sent: Monday, June 10, 2019 1:20:50 PM To: Subject: BioTech Lab - write up for TJPF

Hi

I hope you are doing well.

I have a special request for you. Our current International Partners, Shirble, have specifically asked to know more about ALL our Senior Research Labs as they are going to work on building some of their own.

They would like to know more about the curriculum design, equipment needed, lab layout, and possible senior work projects for their own version of the lab.

We have had Brian Kennedy write up information like this about his lab for the International Partners in the past. I have attached it here as an example for you. Don't feel like you have to follow his example exactly, but it gives you a good example of what we are looking for.

If you can write up a similar information packet for your lab, the TJPF would like to pay you at a rate of Pay Band 11 for up to 15 hours total of work. We would ask that the project be done over the summer, and given back to us by August 15.

Please let me know your thoughts and if this is possible.

Thanks,

Thomas Jefferson High School for Science and Technology Partnership Fund // The Campaign for TJ Manager, Outreach and Partnerships 703-750-8316 (office)

tjpartnershipfund.org

#### From: Sent: Tuesday, June 11, 2019 2:15 PM EDT To: Subject: Fwd: Physics/AP Physics write up - TJPF Attachment(s): "TJ Chem for PF B Kennedy.pdf","ATT00001.htm" Team Leaders, Here's a request that I'm forwarding on to you.

Sent from my iPhone

Begin forwarded message:

From: Date: June 11, 2019 at 2:10:27 PM EDT To: Subject: Physics/AP Physics write up - TJPF

Hi

I hope you are doing well.

I have a special request for you. Our current International Partners, Shirble, have specifically asked to know more about some of our courses as they are going to work on building some of their own, similar to ours.

They would like to know more about the curriculum design/pace of the year, equipment/books/materials needed, class layout, and possible student projects/paper topics for their own version of the classes.

We have had Brian Kennedy write up information like this about his lab for the International Partners in the past. I have attached it here as an example for you. Don't feel like you have to follow his example exactly, but it gives you a good example of what we are looking for.

If you can write up a similar information packet for your Physics/AP Physics class, the TJPF would like to pay you at a rate of Pay Band 11 for up to 15 hours total of work. We would ask that the project be done over the summer, and given back to us by August 15.

Please let me know your thoughts and if this is possible.

Thanks,

Thomas Jefferson High School for Science and Technology Partnership Fund // The Campaign for TJ Manager, Outreach and Partnerships 703-750-8316 (office)

tipartnershipfund.org