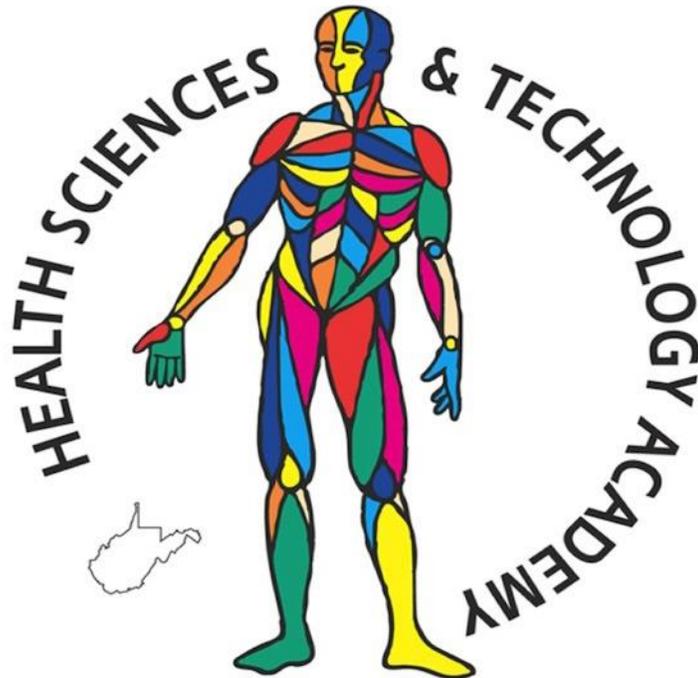


HSTA Club Notebook

2021-2022



Name: _____ Grade: _____

HSTA Region: _____

HSTA High School: _____

Table of Contents

Welcome Letter.....	9
Student Contract.....	10
HSTA 2021-2022.....	12
Attendance.....	12
Community Service	12
HSTA Meetings.....	12
Calendar.....	13
Student and Parent Handbook.....	24
Acronyms and Meanings	24
Most Commonly Asked Questions.....	25
Participation in HSTA.....	27
Student Criteria	27
Application Process	28
Criteria for Successful Participation in HSTA.....	28
HSTA Attendance Policy	30
Science Symposium	31
Summer Institute Camps.....	32
Community Service	33
Summary of Successful Completion of HSTA	33
Benefits for Students.....	35
SAT - ACT Test Fees	35
How Does the HSTA Waiver Work?	35
What Are the Rules to Use the HSTA Waiver?	36
3 Waivers- Undergraduate, Graduate & Health Professional School	37
HSTA, Promise, Other Aid	38
What HSTA does not Cover	39
Final HSTA Waiver Reminders	41

Top Three Facts about the HSTA Waiver	42
HSTA Waiver Rules and Policies.....	43
HSTA Governance.....	45
HSTA Local Governing Board	45
WV HSTA Joint Governing Board	45
Ethics.....	46
Ethics the Belmont Principles	46
The Belmont Principles Diagram.....	47
Ethics – Procedures for recruiting subjects.....	48
Ethics Checklist.....	49
Ethics Research Terms.....	49
Ethics Contract	53
CITI Training Directions	54
Annual Community Research Project Resources	63
HSTA Community Research Project	63
Community Engagement Principles.....	64
Community Research Partnerships.....	65
Who’s Who in HSTA Research Projects?.....	67
Community Research Project Directions	69
Score Sheet	71
Project Types – Procedures A.....	74
Project Selection	76
9 th and 10 th graders	76
11 th and 12 graders.....	76
Research Guide	77
Title	77
Observation.....	79
Justification/Background Research.....	81
In-Text Citations	84

Research Question	85
Stats Chart.....	87
Variables.....	88
Hypotheses.....	90
Procedures A	92
Project Definitions	92
Tips for Writing Procedures	92
Tips for Cover Letter – Human Subjects	94
Tips for Intervention	94
Submitting Surveys and Intervention to CRA and/or HSTA Teacher	95
Tips for Survey	95
10 Tips for Surveys.....	96
Tips for Data Collection Sheet	97
Procedures B	102
Results.....	103
Descriptive Statistics.....	105
Measures of Central Tendency	105
Excel Directions for Mean, Median and Mode	105
Types of Data	106
Visual Representations of Data.....	106
How to construct a Bar Graph	109
Stats Flow Chart	115
What is a p-value?	116
T-Test	119
One Way ANOVA in Excel	120
Chi Square	124
Correlation	126
Regression.....	129
Logistic Regression.....	133
Percent Change.....	133
Conclusion	134
References.....	135
PowerPoint and Presentation Tips.....	138

Lessons.....	141
Kit Materials	141
Lesson #1 – Introduction and Lab/Ethics	141
Introduction to the New HSTA Year	141
Hands on Activity: Lab and Ethics Safety	141
Directions for Lab Safety Activity:.....	141
Directions for Ethics Activity:.....	143
Lesson #2 – Project Selection and Catapult	147
Research Project: Selection	147
Hands on Activity: Catapult Part A.....	147
Lesson #3 -- Project Observation and Catapult.....	149
Research Project: Observation	149
Hands on Activity: Catapult Part B.....	150
Lesson #4 -- OnTrack Directions and Project Observation	152
Research Project:.....	152
OnTrack: Directions and Video	152
Lesson #5 -- Research Question/Variables and Trail Mix	154
Research Project: Research Question	154
Hands on Activity: Trail Mix Recipe.....	156
Lesson #6 -- OnTrack and Research Question/Variables.....	158
Research Project: Research Question/Variables	158
OnTrack.....	158
Lesson #7 -- Guest Speaker and Hypotheses	159
Research Project: Hypotheses	159
Hands on Activity: Guest Speaker or OnTrack.....	160
Lesson #8 -- OnTrack and Hypothesis	161
Research Project: Hypotheses	161
On Track	161
Lesson #9 -- Background.....	162

Research Project: Background	162
Lesson #10 -- OnTrack and Background	166
Research Project: Continue with Background	166
OnTrack:	166
Lesson #11 -- Alka Seltzer Experiment and Procedures	167
Hands on Activity: Alka Seltzer Experiment	167
Research Project: Procedures	170
Lesson #12 -- On Track and Procedures	171
Research Project: Procedures	171
On Track	171
Lesson #13 -- Final Approval	171
Research Project: Final Approval	171
Lesson #14 -- Title, Recruitment/Materials.....	172
Research Project: Title	172
Hands on Activity: Earthworm	172
Lesson #15 -- OnTrack and Research Plan	172
Research Project: Research Plan.....	172
OnTrack.....	172
Lesson #16 -- Toothpick Experiment and Data Collection.....	173
Hands on Activity: Toothpick and T-Test.....	173
Research Project: Data Collection.....	175
Lesson #17 -- OnTrack and Data Collection	175
OnTrack.....	175
Research Project: Data Collection.....	175
Lesson #18 -- Milk Experiment and Data Collection.....	176
Hands on Activity: Milk Experiment and Chi Square	176
Research Project: Data Collection.....	178
Lesson #19 -- OnTrack and Data Collection	179
Research Project: Data Collection.....	179

OnTrack.....	179
Lesson #20 -- Numbers Experiments and Data Collection.....	180
Hands on Activity: Number Experiment.....	180
Research Project: Data Collection.....	183
Lesson #21 -- On Track and Data Collection.....	184
Research Project: Data Collection.....	184
OnTrack.....	184
Lesson #22 -- Paper Experiment and Data Collection	185
Hands on Activity: Paper Experiment	185
Research Project: Data Collection.....	187
Lesson #23 – On Track and Graphing.....	187
Research Project: Graphing	187
OnTrack.....	187
Lesson #24 – On Track and Statistical Analysis	188
Research Project: Statistical Analysis.....	188
OnTrack.....	188
Lesson #25 -- On Track and Conclusion	188
Research Project: Conclusion	188
On Track	188
Lesson #26 -- Vitamin C Experiment and Final Presentation.....	188
Research Project: Final Presentation	188
Hands on Activity: Vitamin C Experiment	188
Statewide Survey Selection	189
Demographics	189
Stress Survey	191
Self Esteem.....	192
COVID/Vaccines.....	193
Physical activity	194
Nutrition.....	195

Sleep	196
Risky Behaviors.....	197
Environmental.....	198
On Track Videos	199

Welcome Letter

Dear HSTA Students,

Welcome to the start of HSTA 2021-22. We are excited to begin a successful year and have prepared for both in person and virtual options as the COVID situation fluctuates. We know you are most successful when you're consistently engaged and participating, so we have worked hard to make that happen.

Let's remember, first and foremost, HSTA is here to help you prepare for college and obtain a tuition waiver, but you must do your part.

ATTENDANCE Attend meetings. Each meeting is a lesson and you build on that knowledge as you work through your research project. Your teacher will set both 1) after school meeting times when school is in session and 2) remote times if school is virtual.

JOBS We know many of you work. If you have a job, talk to your employer to arrange your schedule so you are available for meetings. They will understand and help and if not, ask your Field Site or teacher to help you explain the importance of HSTA.

SPORTS Sports are important, but so is HSTA. Talk to your coach about the importance of your HSTA meetings. They too will understand. Your coaches and teachers can work out a compromise if you bring the conflict to their attention. **100%** of students successfully completing HSTA receive a tuition waiver, fewer than **2%** of high school student athletes are offered athletic scholarships and most are not full rides. HSTA attendance is money in the bank.

ACADEMICS Stay on top of your assignments. If you fall behind, ask for help. Talk to your teacher. Find a study group. Your HSTA teacher and peers will help you.

GRADES You must maintain a 3.0 after your freshman year or you are not eligible for your waiver. You can do this.

FAMILY Your family is a support for you. They want you to be successful. Sometimes, families are under duress and fall upon difficult times. We understand. We've all been there. Your HSTA family is here to help.

In closing, let's remember to look after one another, communicate, be flexible and have a successful year.

Cathy

Interim Vice President Health Sciences

Student Contract

1. I am a United States citizen, a West Virginia resident, and I attend an approved high school in an approved county served by the HSTA program.
2. I will meet or exceed the semester GPA (Grade Point Average) as stated in Section 5 of the HSTA Policy and Procedures Manual: [9th grade – 2.5 both semesters, and 10th to 12th grade – 3.0 both semesters].
3. I agree to attend 70% of all HSTA meetings per semester and attend all HSTA activities or make special arrangements with the HSTA teacher and HSTA Local Governing Board (LGB).
4. I agree to follow my school's 'Acceptable Computer/Internet Use' policy, all HSTA rules and behavioral and safety guidelines, and recommendations from the HSTA teacher and field site coordinator for all HSTA activities.
5. I agree to complete a yearly science project and present the project at the state Science Symposium. I understand that to remain in the HSTA program, my symposium project presentation must receive a passing score designated by HSTA. I understand that I must complete all aspects of my science project by the given deadlines.
6. I agree to attend at least 2 HSTA Summer Institutes camps before my senior year.
7. I agree to complete at least 75 documented hours of community service prior to filling out the HSTA Waiver application my senior year. I understand that the amount of the HSTA waiver granted by a WV college or university will vary, subject to the policies established by each individual WV college or university.
8. If I am suspended or expelled from school for any reason, I understand that I will be suspended or expelled from HSTA. I will immediately contact my HSTA teacher and the Field Site Coordinator as soon as I am suspended or expelled.
9. I understand that I will be placed on probation for only one semester during my entire participation in the HSTA program for not meeting academic, attendance, or behavioral requirements. If I fail to comply with these requirements and/or have any major discipline problems, the LGB can terminate my HSTA Club membership, which would result in forfeiture of my eligibility for the HSTA waiver.
10. I agree that if my HSTA membership is terminated, I have ten working days after receipt of written notification from the LGB to make an appeal for reinstatement to

the program. In my written appeal I must set forth the reasons that I contend the termination decision is in violation of my rights under this agreement.

11. I agree that within ten working days of receipt of the denial of appeal by the LGB, I have the right to make a written appeal to the HSTA Joint Governing Board (JGB).

12. In the event the HSTA Program in my region is discontinued due to the lack of funding or factors beyond the control of HSTA, this contract may be terminated.

13. I give HSTA permission to include my GPA and test scores for program evaluation purposes. My name and other personal information will not be included with this evaluation data.

HSTA 2021-2022

Attendance

You will earn attendance credit by attending club meetings in person and/or online and completing activities. Your HSTA Teacher will discuss how meetings will be conducted during your first HSTA meeting. Per policy, you need to attend at least 70% of your meetings. Note that club meetings are set up to prepare you to complete your annual community-based research project.

Community Service

You need 75 community service by December of your senior year. Check with your HSTA Teacher and Field Site if an opportunity counts towards community service. HSTA will offer a few online opportunities to earn community service hours – check the websites for dates and times.

If you are a freshman, completing your CITI training will earn you three community hours – remember to email your CITI certificate to your Field Site.

Keep track of the community service hours you complete. Make sure to turn your community service sheets into your Field Site. Use this page and the back to keep track of hours. You can also keep a copy of your hours in your notebook or email. Remember you need 75 hours to graduate from the HSTA Program.

HSTA Meetings

HSTA will be in person unless otherwise directed by your HSTA teacher. If COVID related events happen, you will have a printed notebook, a kit full of supplies, and access to a copy of the notebook online to help you stay on track with HSTA. Use the next few pages to write down club meetings dates and times as well as deadlines.

Calendar

Keep Track of club meetings, due dates, and your attendance.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday

Student and Parent Handbook

Acronyms and Meanings

ACT- American College Test- an entrance exam to test college readiness

CRA-Community Research Associate- position of person that helps link HSTA clubs to scientists, labs, and information

FAFSA- Free Application for Federal Student Aid- this form must be filed every year you plan to go to college to qualify for any financial aid (including state aid and HSTA)

FSC- Field site coordinator- the HSTA contact person for parents, students, teachers, and board members

GPA- Grade Point Average- indicates whether you are passing classes and how well you are doing in school

HSTA- Health Sciences and Technology Academy

JGB-Joint Governing Board- statewide board that sets policies and procedures for HSTA and makes sure they are being followed

LGB- Local Governing Board- regional board that makes decisions, sets local policies, and oversees HSTA at the local level

SAT- Scholastic Achievement Test- an entrance exam to test college readiness

Most Commonly Asked Questions

1. *WHAT IS HSTA?*

HSTA, Health Sciences & Technology Academy, is a 9th – 12th grade health, science, technology, and math program which encourages aspirations, opens doors, and empowers minority and underrepresented students and rural communities. The program is a partnership among the state’s Land Grant Universities and 26 counties across the state that seeks to increase the number of African American and underrepresented students in WV who pursue degrees in Health Sciences and STEM (Science, Technology, Engineering, and Math) majors, thereby increasing the number of health practitioners and advocates in the medically underserved communities of West Virginia. This partnership provides the infrastructure and support for community-based science projects mentored by teachers, health professionals, students, and volunteer community leaders during the school year.

2. *WHY DOES HSTA EXIST?*

West Virginia, like many other states, has a severe shortage of health professionals such as doctors, nurses, forensic pathologists, x-ray technicians, and physical therapists, as well as scientists and science educators. HSTA offers educational activities designed to improve academic skills and increase students’ chances of success in college and further into science and health related fields. HSTA’s goals include the following:

- Increase the number of African American and underrepresented students in WV who pursue Health Sciences and STEM majors
- Increase the number of HSTA scholars to successfully complete undergraduate, graduate, and professional degrees
- Increase the number of health practitioners and advocates in medically underserved communities in WV
- Impact health care disparities and promote healthy lifestyles in WV
- Increase community engagement and involvement in health promotion in WV
-

3. *WHAT TYPE OF ACTIVITIES DO THE STUDENTS DO?*

Students attend weekly, after-school meetings, which usually last 1 1/2 - 2 hours per week during their four years of high school.

Students complete and present a yearly science research project at the HSTA Science Symposia in the spring.

Students participate in a weeklong campus-based program at one of several colleges or universities across the state in which they work on projects emphasizing science in ways to develop their knowledge and skills to observe, hypothesize, and develop methods to answer questions which generate knowledge. The hands-on project experiences promote the concept of biology as an experimental science. The students learn to collect, analyze, and interpret data, as well as communicate their results. Self-esteem building, motivation enhancement, leadership development skills, and study skills are incorporated into the experience.

Students may have the opportunity to earn free college credit from a state college or university after their junior year.

Students take science, technology, and health-related field trips.

Students must complete 75 hours of community service work by late winter of their senior year in high school. The final acceptable date will be determined by the HSTA Local Governing Board.

4. HOW MUCH DOES THIS COST?

All activities, including summer camps on college campuses, are free to all HSTA students.

5. WHAT IS EXPECTED OF A STUDENT WHO JOINS HSTA?

Minimum of 70% of the HSTA meetings and activities.

Keep good grades. (Minimum of 2.5 GPA your 9th grade year and minimum of 3.0 for the rest of the high school years.)

Stay out of trouble in school. (HSTA students are required to be above average in behavior as well as grades.)

Prepare and present a yearly science project.

Attend Summer Institute at least two years.

Volunteer 75 hours in the community (a local hospital, church, school, etc.).

6. *WHAT IF A STUDENT DECIDES THEY DON'T WANT TO STAY IN HSTA?*

If a student decides they no longer want to participate in the program, they may resign, and forfeit any chance of gaining a HSTA Tuition Waiver to WV sponsored colleges and universities.

Participation in HSTA

Student Criteria

Students must be a United States citizen and a West Virginia state resident and attend an approved HSTA school as stated in the policy and procedures manual.

Students will be accepted into the HSTA program according to the eligibility requirements prioritized as:

- African American
- Financially Disadvantaged (Free or reduced lunch guidelines used)
- First Generation College Student where neither parents/legal guardian is a four-year college graduate
- Rural

Students must be rising 9th graders.

Student's Grade Point Average (GPA) must be a minimum of 2.5 or higher to be accepted.

Students should have an interest in a Health Science or STEM (Science Technology Engineering and Mathematics) Career.

Application Process

The student must complete a HSTA application and submit the **completed** application and a copy of their grade transcript to the Field Site Coordinator.

NO STUDENTS WILL BE ACCEPTED AFTER October 1st OF THEIR 9TH GRADE YEAR.

Applications will be reviewed and approved by each region's Local Governing Board.

NOTE: Each club has a limited number of slots available each year. All students are welcome to apply and do not need to meet all the criteria

Criteria for Successful Participation in HSTA

Once a student is accepted into the HSTA program, he or she is expected to follow the guidelines listed below and complete all other necessary steps for successful graduation from HSTA.

Student's overall semester GPA will be a minimum of 2.5 in the 9th grade, and a minimum of 3.0 in the 10th, 11th, and 12th grades, based on the previous semester reported GPA. If a student is having problems maintaining the required GPA in any subject, **it is the student's responsibility to notify the HSTA teacher or Field Site Coordinator (FSC) of a problem, as soon as possible, so that any available help can be provided in a timely manner.**

Students must attend a minimum of 70% of all HSTA meetings per semester or make arrangements to be excused with the HSTA teacher.

Students must complete a minimum of 75 documented hours of approved community service prior to completion of the tuition and fee waiver application in their senior year

Students must complete and present a yearly HSTA science project at the HSTA science symposium. Successful completion includes turning in all components by the deadline given by your FSC and receiving a passing score.

If a student is unable to present his/her science project at the science symposium, the student must document the reason for this and submit it to his/her Local Governing

Board at the earliest possible opportunity **before** the scheduled symposium date in order to obtain an approved absence for the symposium.

If the student's absence is approved, the student must present his/her project at a public forum approved by the Local Governing Board.

Students must successfully complete **at least two** of the campus-based summer camps before their senior year.

Students will be on probation for not meeting academic or attendance requirements for **ONLY ONE** semester during their entire participation in the HSTA program. If students fail to meet academic or attendance requirements for a second semester, they will be dismissed from HSTA.

If a student should fail to comply with the program participation requirements, the student will be dismissed from the HSTA program by written notification.

The student has the right to appeal the dismissal decision by notification in writing to the Local Governing Board within 10 working days of receipt of the certified dismissal. [See Website: Students, Teachers & Parents].

If the student does not agree with the appeal decision of the Local Governing Board, he/she may appeal in writing to the HSTA Joint Governing Board or designated committee within 10 working days of receipt of Local Governing Board decision.

Students are responsible for meeting paperwork deadlines. If a student should fail to comply with the program participation requirements, the student will be dismissed from the HSTA program by written notification via certified mail. Please return all paperwork by **specified deadlines** to the **appropriate** person.

Students shall be suspended from HSTA activities if they are suspended from school and these absences count against the required attendance. A student shall be expelled from HSTA if they are expelled from school or placed in an alternative school setting.

HSTA Attendance Policy

A student shall attend a minimum of 70% of all HSTA meetings per semester or make prior arrangements with the teacher.

Students should make every effort to be at every meeting/activity, due to the hands-on science experiments and experiences, which cannot be duplicated.

Students should attempt to arrange all non-emergency dentist & doctor appointments around club meeting days.

HSTA recognizes the importance of a well-rounded student, but when considering participation in an extracurricular activity, students will evaluate its effect on HSTA attendance and must make arrangements with the coach or instructor to allow attendance of club activities.

If a student misses school on the day of the club meeting and the school “excuses” that absence, then such constitutes an excusable HSTA absence.

Excused absences may be made up via approved outside lab work or **approved** documented health-related community service after the date of the absence. Documentation must be handed in to the Field Site Coordinator before the end of the semester to count for that semester.

- Student is to contact the teacher before an absence - if unable to do so in person, a phone call or a note will be acceptable.
- *Usually, games are excused, practices are not. Check with teacher.*
- *Unexcused absences cannot be made up.*

If absent from a meeting or activity, **the student is responsible** for checking with the HSTA teacher to keep up to date on club activities and responsibilities.

Science Symposium

All HSTA students are required to prepare a research science project and do an oral presentation at the HSTA Science Symposium in April or May of each year.

Discussions, team building, research and preparation regarding students' projects will be made during HSTA club meetings throughout the school year. To monitor the science project progress, HSTA requires students to electronically submit paperwork documenting their projects to their Field Site Coordinator, Curriculum Coordinator and Community Research Associate.

Research Document due dates are posted online.

To successfully complete your HSTA symposium, you must complete and turn in all assigned work by the assigned deadlines given by your teacher or Field Site Coordinator. You must also receive a passing score for the project to be complete. Passing scores are determined by the HSTA Joint Governing Board.

Failure to meet deadlines will result in disciplinary actions by the Local Governing Board and may result in dismissal from HSTA.

Symposium project completion and presentation is a mandatory activity for all HSTA students each year for successful completion of the HSTA program.

If the student finds he or she cannot attend the symposium due to serious illness or other valid reasons, the student must:

- Contact the Field Site Coordinator as soon as you see that you may have a problem attending the annual symposium to obtain further instructions.
- Request permission from the Local Governing Board to present the project at a different location and time. **The request must be made at the earliest possible opportunity before the symposium** and must be approved by the Local Governing Board prior to the Science Symposium.
- Present the project before a local public forum as directed by the Local Governing Board and receive a passing score as determined by the HSTA Joint Governing Board.

Summer Institute Camps

Each summer HSTA students in good standing within their local clubs are given the opportunity to attend summer camps on a West Virginia college campus. Students must hand in the appropriate summer camp paperwork by the deadline to qualify.

Students are encouraged to attend all four summer camps. Students MUST complete at least two summers in order to fulfill HSTA graduation requirements.

The camps are:

- Freshmen Camp (A fun introduction to STEM experiences) for students going into the 9th grade.
- Sophomore Camp (In depth exploration of a STEM and/or Health Topic) for students going into the 10th grade.
- Biomedical (Students explore biomedical topics that impact health and wellness) for students going into the 11th grade.
- HSTA Senior Component (Introduction to college life, with a college course when possible) for students going into the 12th grade.

The Freshmen, Sophomore, and Junior Camps are one week long programs. They run from Sunday afternoon through Friday afternoon.

Students going into their senior year are given the opportunity, when funding is available, to attend a WVU college class at no cost. Students who successfully pass the course may possibly be given a chance to earn free college credit. This camp is usually a three-week experience.

Transportation to and from summer camp is provided by buses at no cost to the students. Bus departure and arrival times vary per each region, and students will be notified the last of June of the bus schedule for their area.

Students are required to attend all scheduled classes and events during summer camp.

Although not required, after graduation all HSTA students who are interested in becoming health care professionals are given the opportunity to attend a four-week summer program called HCOP HAPPEN, which further prepares them for college life as well providing them with a college credit class and a stipend. If interested, contact the Field Site Coordinator in January of your senior year for more information.

Community Service

Each student is required to complete a minimum of 75 documented hours of approved community service prior to completion of the tuition and fee waiver application in their senior year. To meet this criterion, proposed community service work must be approved by Local Governing Board (LGB) or their designee.

Many projects qualify as community service and individual regions determine what qualifies in their clubs, your teacher or FSC can tell you what community service projects you can use for HSTA. **If in doubt whether a project qualifies, ask your FSC or LGB.**

Community Service is defined as **volunteer participation**. If you receive pay or are reimbursed for any of these activities, they are considered services rendered, **NOT** community service work.

Documentation of approved community service should include:

- Date, type, and place of activity
- Beginning and ending time frame
- Name of person/facility to whom service was provided
- Signature of authorized facilitator or recipient of services.

Summary of Successful Completion of HSTA

Successful completion of HSTA includes meeting the following factors:

- Meets GPA requirements
- 70% attendance of activities
- Maintains good behavior in school and at HSTA events
- 75 hours of documented approved community service
- Completing, presenting, and passing science symposium projects each year
- Attendance and completion of at least two Summer Institutes camps.

- Submission of the completed HSTA Waiver Application by the specified deadline required by your local governing board.

It is recommended that each student keep a portfolio, notebook, or electronic file of his/her active participation in the HSTA program. This written record will be very beneficial in completing questions on the HSTA waiver application during your senior year of high school, and in renewal of the HSTA waiver when in college or university.

Benefits for Students

In addition to being eligible to receive the HSTA waiver for tuitions for successfully completing the four-year HSTA program, the following incentives are available to all HSTA students:

SAT - ACT Test Fees

HSTA will only pay for a total of two regular admissions (i.e. no late fees) of either the SAT or the ACT testing required for college admittance - this can be

- two fees for taking either the SAT or ACT twice, or
- the fee for taking each test (SAT and ACT) once.

Students must prepay the fees for each test at the time of registering, however, after completing the exam and receiving their test scores, they can then submit a copy of the test results and receipt of payment to the Field Site Coordinator for reimbursement of the test fee. Provisions for prior payment of fees for financially disadvantaged students may be made with some Local Governing Boards.

- HSTA does not cover preparatory courses for ACT or SAT.
- HSTA does not cover graduate school entrance tests including the MCAT or GRE.

How Does the HSTA Waiver Work?

- **It is not money, or a scholarship; but an agreement by WV state run colleges to forgive tuition, or a portion of tuition, for HSTA scholars. This agreement does not apply to private schools, out of state schools, or hospital programs.**
- The HSTA waiver is provided for in WV state code **18B-10-4b** and **18B-10-6**. It states that any student who completes the HSTA program, fulfilling all requirements and obligations, may be entitled to it.

How a college chooses to honor the waiver is up to that college, HSTA home office cannot change how a school chooses to honor the waiver. The individual college sets the rules for how much of the costs it waives, what the requirements are to keep the

waiver, and what programs it covers. **Each college has specific rules for how it applies the waiver.** The best way to find out the rules is to contact the financial aid representative listed in the HSTA Waiver Contacts Directory <http://wv-hsta.org/media/14176/college-directory-2021.pdf>

What Are the Rules to Use the HSTA Waiver?

- Student must be attending a **WV state run public school**
- Student must be enrolled full time
- Student must maintain the GPA that the **college determines** as successful progress
- Student must follow any other rules the college determines. If you are not enrolled fulltime and not making your college's required GPA, you will not be eligible to use your waiver that semester.
- The HSTA waiver is good for 8 semesters of undergraduate school, **and** then you can still use it for graduate and professional school. These are separate waivers and you are entitled to all.
- Colleges usually allow you to use your HSTA waiver for Fall and Spring semesters only (the individual college will determine if and when you can use it for summer school).
- The graduate HSTA waiver is good for the normal amount of time to graduate with a masters or a professional degree. Remember you can use the waiver for undergraduate school **and still** use it for graduate and/or professional school.
 - Complete your waiver maintenance form every year between January and March <http://wv-hsta.org/resources-events/graduate-resources/hsta-waiver-maintenance-form/>

3 Waivers- Undergraduate, Graduate & Health Professional School

- **You can use all three**-separately
- Undergraduate Waiver
 - Good for all majors (Fairmont State does require Health or STEM)
 - 8 semesters or until 1st bachelor's degree is completed, whichever comes first
 - Cannot use it for 2nd bachelor's degree
- Graduate Waiver
 - **Available for only select graduate programs as determined by the granting college or university (Marshall and WVU cover graduate degrees that they see as health, science, or technology, and Concord covers most graduate degrees). See the HSTA website for specific waivers.**
 - <http://wv-hsta.org/resources-events/graduate-resources/>
- Health Professional School Waiver
 - Covers Various Health and STEM PhD and professional degrees
 - Including: Medical School, Dental School, Pharmacy, Nurse Practitioner, and many more

HSTA, Promise, Other Aid

- **The waivers do not cover all college expenses.** There are fees, books, and housing costs to consider.
 - All colleges charge a combination of tuition and fees for the cost of attendance. Tuition is the cost of classes and pays the salary of the professor teaching the course. Fees are charged to help maintain buildings and labs, for sports programs, for student health care, etc.
 - HSTA covers the tuition or a portion of tuition at most institutions.
- **Because there are other costs associated with college, students should complete the FAFSA & search for additional sources of financial aid.**
- **Some colleges give tuition specific scholarships that may pay for some of what HSTA does and this can reduce your HSTA amount. You will have the same portion covered just by another source. Often this is during Freshmen year.**
- Students should apply for PROMISE as well as the HSTA waiver.
- HSTA waiver can be deferred while using PROMISE. Depending on tuition and fee rates at the college, the Promise may cover more than HSTA or HSTA may cover more than PROMISE. Some schools may combine HSTA and Promise to cover costs.
- Your overall financial aid budget could also change your HSTA amount. Schools are not allowed to give more than the federal government allows.
- It is very important to talk to your HSTA designated financial aid counselor at your college (in HSTA waiver application packet) to determine the best and most efficient way to use all of your financial aid. **Make sure you only talk to the financial aid counselor listed on the College Directory- they are the one who have the HSTA eligibility list and they are the ones who are the HSTA experts. Other counselors at the school may not know about or understand how HSTA works. That is why it is very important to see the counselor listed on the HSTA College Directory provided for you.** This list is also available online at <http://wv-hsta.org/media/14176/college-directory-2021.pdf>

- **The HSTA waiver does not expire with time.** If it is more beneficial you can use your Promise scholarship first and then HSTA. Should you need to take time off from school, your HSTA waiver will still be available. Just make sure to notify the HSTA home office and your school ahead of time. The undergraduate portion of your HSTA waiver is good until you use it for 8 semesters, or until you get a bachelor's degree, whichever comes first. Remember after you use your undergraduate waiver, you still have graduate waiver for graduate or professional school. **You get to use both!!**

What HSTA does not Cover

- Online classes are sometimes billed differently. This means HSTA MAY NOT cover them. Please check with financial aid before registering for online courses.
- Studying Abroad (i.e. in a foreign country) is not normally covered by the HSTA waiver. This is because even though you may be in a program with a WV school, much of the time the tuition is being paid to the foreign college either directly or by your college.
 - **If you want to study abroad, make sure the WV school will be paid the tuition and not the foreign school (can vary from course to course) or you won't be able to use your HSTA waiver for this.** Foreign colleges don't honor the HSTA waiver. They are not covered by the WV legislature and the agreement to waive tuition for HSTA students. So you can't use your waiver when they are receiving the tuition.
- Programs that Partner with Hospitals
 - **If the program or courses, you are taking are through a hospital then tuition goes to the hospital so the college can't waive it= HSTA can't be used for programs where the tuition goes to a hospital. The hospital is not a state school and therefore does not have to honor HSTA.**
 - Some of these programs start off in the college where HSTA applies and then switch ½ way through to courses at the hospital where it does not- They often don't warn you in advance. So if you plan to go into a program

that will eventually have training at the hospital, you will need to plan for paying for those portions of courses through the hospital.

- At Market Cost Special Graduate degrees
 - Some graduate school majors are self-sustaining and billed at an “market value cost” These may not be covered or only partially covered. This will be noted on the HSTA graduate majors list.

Final HSTA Waiver Reminders

Remember all schools set their own policies on eligibility, tuition vs fees, extra costs etc. and every individual case is different.

- Certain programs cost more than others in the same school
- Some schools partner with others, but share a financial aid office
- No one person can keep up with all costs and changes

WE ARE HERE TO HELP YOU and so is your HSTA financial aid counselor.

- You can contact her at the HSTA office whenever you have a question:
kkasten@hsc.wvu.edu 304-293-0769
- It pays to be proactive!

This means it is **IMPERATIVE** to only speak with the financial aid counselor on **The College Directory**

- Don't talk to just any counselor. USE THE LIST!
- **Make an appointment and talk to the HSTA financial aid contact at your school and discuss what is best for YOU!**

Top Three Facts about the HSTA Waiver

Due to the changing economy and the higher education policy, the waiver can get complex. There may be different circumstances for each student. Please email Kas Kasten with any questions at kkasten@hsc.wvu.edu or (304) 293-0769.

1. There is more than one waiver

- Students are entitled to both a HSTA undergraduate waiver in any major and a graduate waiver in Health and STEM related fields.
- HSTA waivers cover 8 undergraduate semesters.
- They can use the graduate waiver regardless of how many undergraduate semesters they used.
- Currently WVU, Marshall, and Concord provide the HSTA graduate waiver. Eligible majors are listed on the HSTA website.

2. HSTA is not a FREE RIDE

- The HSTA waiver will be for different amounts and may cover different percentages of costs depending on the college a student attends.
- There is no scholarship money--the college provides a waiver.
- How a college chooses to provide the waiver is up to that college.
- HSTA's central office cannot change how a school chooses to honor the waiver.
- The individual college sets the rules for how much of the cost it waives, what the requirements are to keep the waiver, and what programs it covers.
- A student's other financial aid may impact the amount of their waiver.
- Waivers only cover tuition or a portion of tuition; they do not cover fees, books, housing, etc.

3. HSTA can only be used in West Virginia institutions that are supported by the state

- The legislation for HSTA only covers state-supported institutions.
- Private institutions, hospitals, out of state colleges/universities, and adult education that is run by the county do not have to honor the waiver. **Programs*

provided at the VoTech that are run through a state college like New River will provide the waiver, but not those run through the county.

- Some private colleges/universities give a small stipend, but it is a much smaller amount than the percentage given by state-supported institutions.
- Regardless of any other reciprocal agreement between WV and another state, between WVU and another college, or how close another institution is to the WV border, the HSTA waiver is not accepted at any out of state institution.

HSTA Waiver Rules and Policies

1. The HSTA waiver is only available to students who successfully complete all aspects of the HSTA program.
2. The HSTA waiver is allowed for in the WV State code and is only provided by WV State run Colleges. Private schools, hospitals, and out of state colleges are not governed by the WV State code and therefore do not have to provide the waiver.
* A few private colleges will give a small stipend for HSTA students.
3. HSTA students must be enrolled fulltime and making satisfactory progress as determined by federal financial aid guidelines and the college they attend
4. **WV State run colleges provide the waiver so they establish rules and amounts student will receive.** HSTA provides them with no funding, so amounts are strictly determined by the colleges based on their budgets. *Fairmont State/Pierpont only provide the waiver for Health and STEM majors.
5. **HSTA can only be used for tuition.** Normally, this is only the “base tuition” of a college’s cost. It does **NOT** cover special program fees, or other fees, books or housing.
6. Your other financial aid may affect the amount of your waiver, and therefore the waiver amounts may vary among students. You should contact your financial aid counselor (see attached list) about your waiver and how it fits in with your financial aid the semester before or at least 3 months before coming to campus.
7. HSTA graduates will receive 8 semesters of a waiver for your undergraduate degree unless you graduate early. The HSTA undergraduate portion can only be used for your first bachelor’s degree. (no second bachelors, regardless of how many semesters of HSTA waiver you used for the first degree)
8. If you stay in a Health or STEM major you will then qualify for a Graduate school waiver at WVU, Marshall, or Concord. This is a whole new waiver you can use on top of your undergraduate waiver.

9. A HSTA student qualifies for 1) 1 undergraduate waiver, 2) 1 master's level waiver if they attend a qualifying school and major, and 3) 1 Professional school waiver if they attend a qualifying school and major (such as medical school, pharmacy school, dentistry etc.) Marshall, WVU and Concord are currently the only colleges providing the graduate and professional school waivers. You can find a list of qualifying graduate and professional school majors on the HSTA website:
<http://wv-hsta.org/resources-events/graduate-resources/hsta-eligible-majors/>
10. If you have questions regarding your waiver now or in the future, please contact the HSTA Transitions and Records Coordinator Kas Kasten at 304-293-0769 or kkasten@hsc.wvu.edu We are here to help you.

HSTA Governance

HSTA Local Governing Board

HSTA decisions and administration are made at the local level by a local governing board (LGB) **If you have an issue that needs to be reviewed by the local governing board, please contact either your local Field Site Coordinator or one of your Local Governing Board representatives for meeting dates and times.** [See website]

The Local Governing Board (LGB) takes its responsibility to students and to the HSTA program seriously. When HSTA policy calls for the dismissal of a student, the student has the right to appeal to the Local Governing Board for reinstatement in the HSTA program. It is vital that the student make the most effective presentation possible during the appeal process. Proper guidelines are designed to help the student make an appeal for reinstatement before the Local Governing Board and can be found on the website.

WV HSTA Joint Governing Board

The HSTA Joint governing board sets the overall policies and procedure for HSTA and ensures they are followed correctly by the Local Governing Boards (LGBs). The HSTA Joint Governing Board is made up of representatives from all the HSTA regions across the state. The HSTA Joint Governing Board and its subcommittees have final authority over any HSTA decisions.

Ethics

Ethics the Belmont Principles

You are conducting research and are responsible for the ethical treatment of any and all subjects. It is mandated by law that you adhere to strict rules.

THE REASON THESE RULES WERE DEVELOPED IS BECAUSE OF THE UNETHICAL TREATMENT OF RESEARCH SUBJECTS

These rules are known as **THE BELMONT PRINCIPLES**.

Respect

This principle focuses on respect for individuals. Part of respecting an individual has to do with respecting their autonomy or right to self-determination and to make their own decisions and choices. The rules for informed consent in medicine derive from the principle of autonomy. In medicine, there is also a special emphasis on respecting individuals from vulnerable populations.

Permission forms or consent forms explain to participants or guardians the information about the procedure or event, what to expect, and any and all possible consequences, good or bad, which may result. It allows the participant the ability to (self-determine) and make their own decisions as whether they participate or not.

Beneficence (Do Good/ Do no harm)

Do Good (beneficence) stresses directly helping others, acting in their best interest, and being a benefit to them. It requires positive action.

Do No Harm (no maleficence) relates to one of the most traditional medical guidelines, the Hippocratic Oath (first of all, do no harm). It requires individuals to not intentionally or directly inflict harm upon others.

Justice (Be fair)

This principle relates to “Giving to each that which is his due” (Aristotle.) It dictates that persons who are equals should qualify for equal treatment and that resources, risks and costs should be distributed equitably.

Some ethicists also add:

Care

Focus on the maintenance of healthy, caring relationships between individuals and with a community. The principle of care adds context to the traditional principles and can be used in a complementary way alongside them. (Northwest Association for Biomedical Research, 2009)

The Belmont Principles Diagram



Ethics – Procedures for recruiting subjects

Respect: When recruiting subjects to participate in a survey, you first explain to them what the survey is about, (subject), why you are conducting it, (for a research project for HSTA to learn about _____), how you are going to protect their autonomy, (they can chose to not participate or may cease to participate if they become uncomfortable), and how you will protect their anonymity, (no names or identifiers will be used). Then, depending upon the level of research you have a permission slip signed and returned or, if an IRB project, you obtain consent, (and assent if the subject is under 18), on the IRB permission forms.

Beneficence: Explain to the subjects how your research may benefit them or others by increasing or improving the knowledge about what you are testing. For instance, explain how 10 minutes of morning exercise might improve math scores.

Justice: Make sure that you treat everyone equally. This means being fair. You need to offer participants the same opportunity (to use equipment, earn a prize, learn material).

Care: Be sure that what you are doing does not pit one faction against another.

Ethics Checklist

Before you begin your research, make sure you have covered these points in your recruiting speech to participants.

Did you:



Explain what the research or project is about (Your question)

Explain why it is being conducted

Explain why you want them to participate

Explain what they will be asked to do

Explain when and how they will be asked to do it

Explain how you will measure it

Explain how you will protect their privacy and information

Explain how they don't have to participate or may opt out at any time

GET permission (Depends on Project)

Explain how what is learned may benefit them or others

Explain how safeguards are in place to prevent harm

Choose your participants fairly (not pick one group over another because you like them better)

Provide all subjects the same opportunity

Ethics Research Terms

Assent: If participants are under the age of 18 they cannot grant consent. Their parent or guardian must do this. Assent is an explanation of the research written on the level of the participant and is signed by them in conjunction with the

Consent: Signed by the adult. It literally means to acknowledge or agree. Not all studies involving minors require signed assent in addition to consent.

Belmont Report: Report by the U.S. National Commission for the Protection of Human Subjects in Biomedical and Behavioral Research in 1979, which has had a significant influence over human subjects research ethics, regulation, and policy.

Beneficence: The ethical obligation to do good and avoid causing harm.

Care: Be sure that what you are doing does not pit one faction against another.

CITI training: Collaborative Institutional Training Initiative or CITI. It is a college level ethics training that all researchers affiliated with a University or Institution must complete before beginning any research.

Coercion: Using force, threats, or intimidation to make a person comply with a demand.

Compliance: In research, complying with laws, institutional policies and ethical guidelines related to research.

Conduct: Action or behavior. For example, conducting research involves performing actions related to research, such as designing experiments, collecting data, analyzing data, etc.

Confidentiality: The obligation to keep some types of information confidential or secret.

Consent: A process where the researcher gives the participant a written explanation of the procedures that covers any risks involved and probable consequences and the alternatives. It is important that the researcher explains these to the participant. The participant is allowed to ask and have answered any questions.

Discrimination: Treating people differently based on irrelevant characteristics, such as skin color, ethnicity, or gender.

Ethics (or morals): 1. Standards of conduct (or behavior) that distinguish between right/wrong, good/bad, etc. 2. The study of standards of conduct.

Exemption: A level of award given by the IRB which states that the proposed research is of minimal risk to subjects. An example of an Exempt project is:

Will students' reaction time differ when testing dominant and non-dominant hands?

Often a letter of consent is required from participants that explains what is to occur and when it is going to happen. (A permission slip)

Expedited: An award given by the IRB states that the proposed research is of minimal or slight risk to subjects and will require: Consent if subject is 18 years of age or Parental consent (if subject is under 18, and in addition sometimes, student Assent) An example

of an expedited proposal was *the My First Patient* project. Participants had a finger stick blood draw, their cholesterol checked, and height and weight measured.

Full Review: A project that requires a full review will be presented to the whole IRB panel and carefully examined for safeguards and protections for participants. Informed Consent and Assent, (if under 18) will be required. An example of a project that requires full review would be the testing of a new cancer drug on patients to measure its effectiveness

Honesty: The ethical obligation to tell the truth and avoid deceiving others. In science, some types of dishonesty include data fabrication or falsification, and plagiarism.

Human Subject: A living individual involved in research where data is collected from them.

Human Subjects Research: Research involving the collection, storage, or use of private data or biological samples from living individuals by means of interactions, interventions, surveys, or other research methods or procedures.

IRB Document: Document that is also the detailed research plan. It is submitted to the IRB Panel for approval. It includes any and all procedures, background research, timelines, questions, etc. that the researchers intend to use or perform. This is a legal and binding document and once approved by the IRB, becomes the legal research protocol. If a researcher deviates from the approved plan he/she is in violation of law and can be fined \$250,000.00 and get up to 25 years in jail per count.

IRB- Internal Review Board: Every institution that conducts research has an IRB panel. These men and women must review all research submissions to make sure that all research is legal, ethical and moral. The panel is composed of members who understand the law and guidelines as well as the subject matter of what is being researched.

IACUC- International Animal Care and Use Committee: To work with any vertebrate you must complete extensive CITI ethics training and develop and research plan that suits the IACUC laws and guidelines. This is a long and arduous process that is difficult for undergrads to obtain unless they are working in a certified research lab. It must have all details included such as feeding, cleaning, exercise schedules, just for example. Housing requirements, temperature control, contact time, and a care and living plan for the animal after the experiment are a few of the other plans that have to be considered.

Invertebrate: Organisms that neither possess nor develop a vertebral column.

Justice: Make sure that you treat everyone equally, be fair.

Minimal Risk: The level of harm or discomfort the research subject may face will not be greater than experiences in their normal daily life.

Plagiarism: Misrepresenting someone else's work (e.g. words, methods, pictures, ideas, or data) as one's own without giving them credit.

Protected Health Information (PHI): Any information in the medical record or designated record set that can be used to identify an individual.

Respect: The concept that all people deserve the right to fully exercise their autonomy. Showing **respect** for persons is a system for interaction in which one entity ensures that another has agency to be able to make a choice.

Sensitive Topics: Any interview, survey or questionnaire that proposes to investigate opinions and/or experiences regarding personal topics like sexual information, drug use, mental health, traumatic experiences, etc. (Speak with a CRA if you have questions.)

Vertebrate: Animal with a spinal cord surrounded by cartilage or bone.

Vulnerable Populations: Certain human subjects are grouped as vulnerable populations and require special treatment with respect to safeguards of their well-being. Examples: pregnant women, human fetuses and neonates, children, cognitively impaired persons, prisoners, students and employees, and educationally disadvantaged individuals.

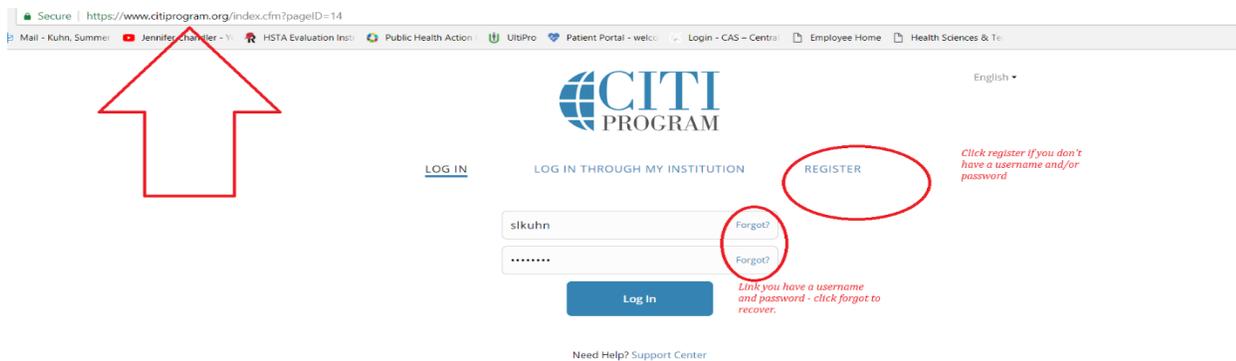
Ethics Contract

- I understand and will put into practice always the Belmont Principles.
- As a Researcher or Investigator, I will conduct my research with integrity and safeguard my research participants/subjects and any data I may gather.
- I will protect all participants/subjects and adhere to the research standards set forth in federal and state code.
- I will design my research to be fair and provide the same opportunity to all subjects. I will adhere to my approved research protocol.
- When recruiting subjects/participants I will explain:
 - what the research is about
 - why it is being conducted
 - why I want them to participate
 - what they will be asked to do
 - how and when they will be asked to do it
- I will explain how the research data will be measured and collected and the plan to protect their privacy and information.
- Furthermore, I will explain to the subject/participant how the knowledge learned from the research may be of benefit to them or others.
- I will explain any possible harm that may occur during the research, and the safeguards in place to prevent such harm.
- I will assure them that they may chose not to participate or may opt out of participation at any time with no repercussions.
- I understand the importance of research and will conduct my research with honor and integrity.

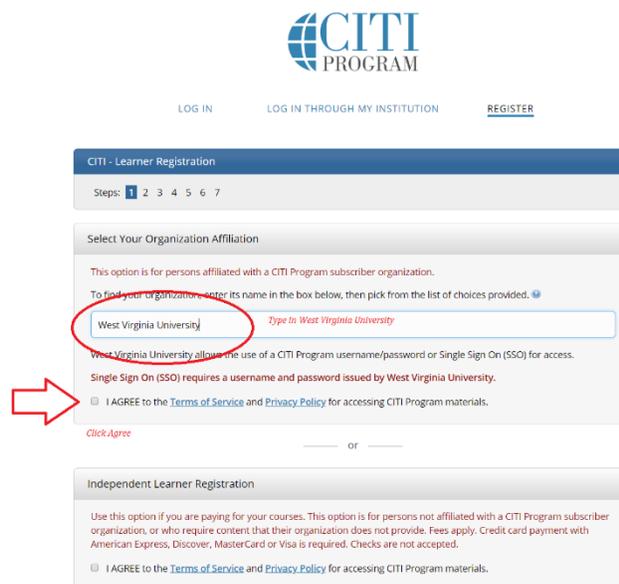
CITI Training Directions

CITI training is Collaborative Institutional Training Initiative or CITI. It is a college level ethics training that all researchers affiliated with a University or Institution must complete before beginning any research. It teaches why we must have training so that studies like Tuskegee, Willowbrook, or Nazi experiments never occur again. **Everyone must complete the training during their freshmen year.** This training is good for four years. **Due December 1.** Website: <https://www.citiprogram.org/>

1. Google CITI Training Login – It will bring you to this page. If you don't know/have a username and password, click on Register.



2. Type in West Virginia University. Click I agree.



3. Click on I affirm... Then the Continue to...

The screenshot shows the 'CITI - Learner Registration' page at Step 1. The header includes the CITI PROGRAM logo and navigation links for LOG IN, LOG IN THROUGH MY INSTITUTION, and REGISTER. The main content area is titled 'Select Your Organization Affiliation' and includes a search box with 'West Virginia University' entered. Below the search box, there are two checked checkboxes: 'I AGREE to the Terms of Service and Privacy Policy for accessing CITI Program materials.' and 'I affirm that I am an affiliate of West Virginia University.' At the bottom, there are two buttons: 'Continue To Create Your CITI Program Username/Password' (circled in red) and 'Continue To SSO Login / Instructions'. A red arrow points to the first button.

4. Type in your information in the red circle, then click on Continue to Step 3

The screenshot shows the 'CITI - Learner Registration - West Virginia University' page at Step 2. The header includes the CITI PROGRAM logo and navigation links for LOG IN, LOG IN THROUGH MY INSTITUTION, and REGISTER. The main content area is titled 'Personal Information' and includes a red circle around the 'First Name', 'Last Name', 'Email Address', and 'Verify email address' fields. The text 'Type in information' is written in red next to the circle. The fields contain the following information: First Name: Vickie, Last Name: Kuhn, Email Address: vkuhn7@gmail.com, and Verify email address: vkuhn7@gmail.com. Below the red circle, there are fields for 'Secondary email address' and 'Verify secondary email address'. At the bottom, there is a blue button labeled 'Continue To Step 3'.

5. Fill in all the information in the red circle. Click on to Step 4.

LOG IN LOG IN THROUGH MY INSTITUTION REGISTER

CITI - Learner Registration - West Virginia University

Steps: 1 2 3 4 5 6 7

Create your Username and Password

* Indicates a required field.

Your username should consist of 4 to 50 characters. Your username is case sensitive; "A12B34CD" is the same as "a12b34cd". Once created, your username will be part of the completion report.

* User Name
vkuhn

Your password should consist of 8 to 50 characters. Your password IS case sensitive; "A12B34CD" is not the same as "a12b34cd".

* Password * Verify Password
.....

Please choose a security question and provide an answer that you will remember. NOTE: If you forget your login information, you will have to provide this answer to the security question in order to access your account.

* Security Question
What's your pet's name?

* Security Answer
Ellie

Continue To Step 4

6. Enter United States and Click to Step 5.

English ▾

CITI PROGRAM

LOG IN LOG IN THROUGH MY INSTITUTION REGISTER

CITI - Learner Registration - West Virginia University

Steps: 1 2 3 4 5 6 7

* Indicates a required field.

* Country of Residence

Search for country: Enter full or partial name (e.g., "United States") OR your country's two or three character abbreviation (e.g., "US", "USA"), then pick from the list of choices provided.

United States

Continue To Step 5

Need Help? Support Center

7. Click No, Skip the next one, then answer the last two.

* indicates a required field.

* Are you interested in the option of receiving Continuing Education Unit (CEU) credit for completed CITI Program courses?

CITI is pleased to offer CE credits and units for purchase to learners qualifying for CE eligibility while concurrently meeting their institutions training requirements.

CE credits/units for physicians, psychologists, nurses, social workers and other professions allowed to use AMA PRA Category 1 credits for re-certification are available for many CITI courses – with that availability indicated on course and module listings. **Please register your interest for CE credits below** by checking the "YES" or "NO" dots, and, when applicable, types of credits you wish to earn at bottom of page. Please read texts entered for each option carefully.

Yes

At the start of your course, you will be prompted to click on a "CE Information" page link located at the top of your grade book and to VIEW and ACKNOWLEDGE accreditation and credit designation statements, learning objectives, faculty disclosures, types, number and costs of credits available for your course.

Yes

No

The CE functionality will not be activated for your course. Credits and units will therefore not be available to you for purchase after you start your course. You can change your preference to "YES" before such time however by clicking on the "CE Credit Status" tab located at the top of your grade book page.

No

If you picked "YES", please check below the one type of credit you would like to earn

- MDS, DOs, PAs - AMA PRA Category 1 Credits TM
- Psychologists - APA Credits
- Nurses - ANCC CNE
- Other Participants - Certificates of Participation
- Social Workers - Florida Board of Clinical Social Work, Marriage & Family Therapy and Mental Health Counseling

Nothing here

* Can CITI Program contact you at a later date regarding participation in research surveys? ⓘ

- Yes
- No
- Not sure. Ask me later

Click an answer

* Can CITI Program contact you at a later date with marketing information? ⓘ

- Yes
- No

Click an answer

Continue To Step 6

8. Fill in everything in red. Then click on to Step 7.

CITI - Learner Registration - West Virginia University

Steps: 1 2 3 4 5 **6** 7

Please provide the following information requested by West Virginia University

* Indicates a required field.

Language Preference
English ▾

* Institutional Email Address
You can include any personal email address here.
vkuhn7@gmail.com

Gender
▾

Highest Degree
▾

Employee Number
▾

* Department
HSTA

* Role In Research
Student Researcher - Undergraduate ▾

Address Field 1
▾

Everything else is optional to fill it. Click on to step 7.

9. There will be a list of questions. Click on the following courses:

Question 3

HUMAN SUBJECT RESEARCH (IRB)

Please select the following required course(s) that pertains to your research (more than one can be chosen): Initial Courses:

- Biomedical Research Investigators (Human Subject Research)
- Social & Behavioral Research Investigators (Human Subject Research)
- IRB Members (Human Subject Research)
- IRB Chair Member
- Abbreviated Social/Behavioral Research Training (Human Subject Research)**
- Abbreviated Biomedical Research Training (Human Subject Research)
- Refresher Courses
- Biomedical Research Investigators (Refresher)
- Social & Behavioral Research Investigators (Refresher course)

10. Then scroll to the very bottom and click on Submit

 You are now enrolled in the course(s) you selected.

Show Courses for:

West Virginia University



Institution List

West Virginia University

Active Courses

[Learner Tools](#)

West Virginia University

Abbreviated Social/Behavioral Research Training (Human Subject Research)

Stage 1 - Basic Course

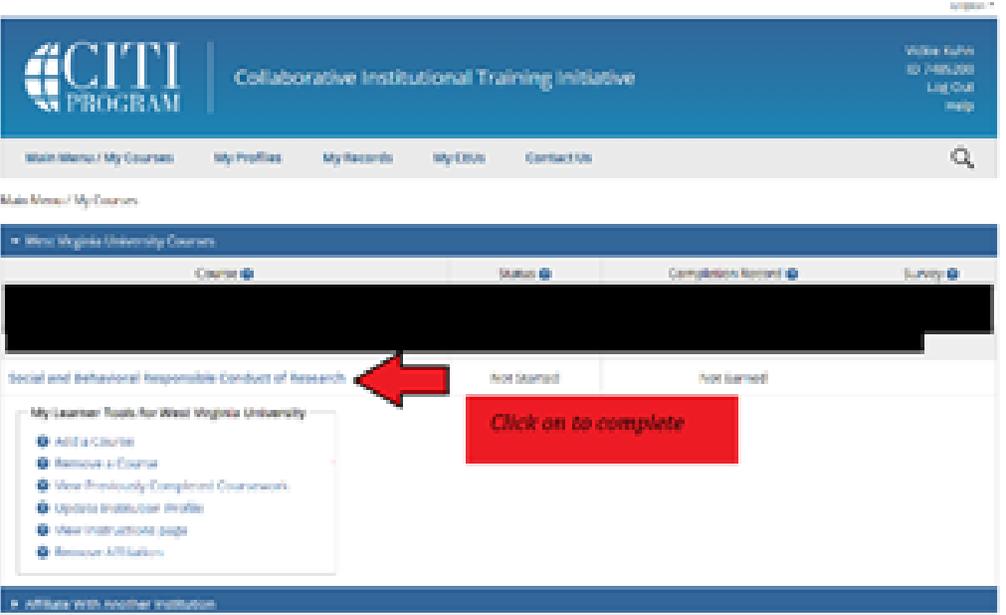
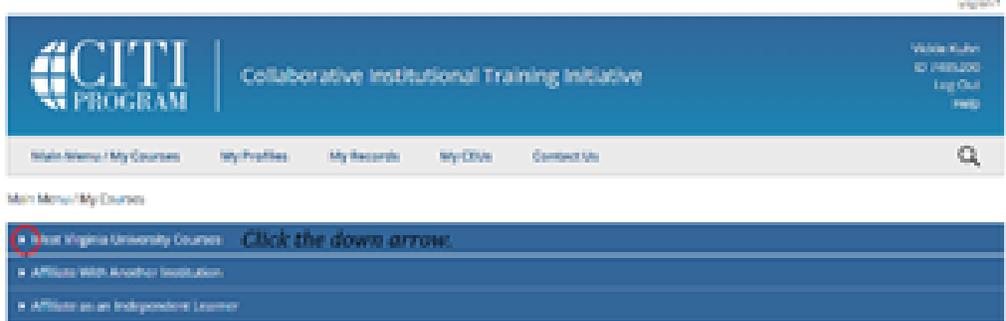
7 / 8 modules completed



Continue Course

11. Click the icon to start or continue your course.

12. Click the down arrow on West Virginia University Courses. Then Click on each course to complete it.





Home > Previously Completed Coursework

i The My Records section provides access to course completion data for both your current active affiliations and for past affiliations that are no longer active.

West Virginia University Records

Human Research

Abbreviated Social/Behavioral Research Training (Human Subject Research)

Stage	Record ID	Passing Score	Your Score	Start Date	Completion Date	Expiration Date	Gradebook	Completion Record
Basic Course	11605839	80%	90%	24-Oct-2013	24-Oct-2013	23-Oct-2016	View	View-Print-Share

Biomedical Research Investigators

Stage	Record ID	Passing Score	Your Score	Start Date	Completion Date	Expiration Date	Gradebook	Completion Record
Basic Course	19563274	80%	81%	24-Oct-2013	17-May-2016	17-May-2019	View	View-Print-Share



Home > View-Print-Share Completion Record

View-Print-Share Completion Record - 19563274

Name: **Summer Kuhn** (ID: 3839903)
 Institution: **West Virginia University** (ID: 827)
 Course: **Biomedical Research Investigators**
 Stage: **Stage 1 - Basic Course**
 Completion Date: **17-May-2016**
 Expiration Date: **17-May-2019**
 Record ID: **19563274**

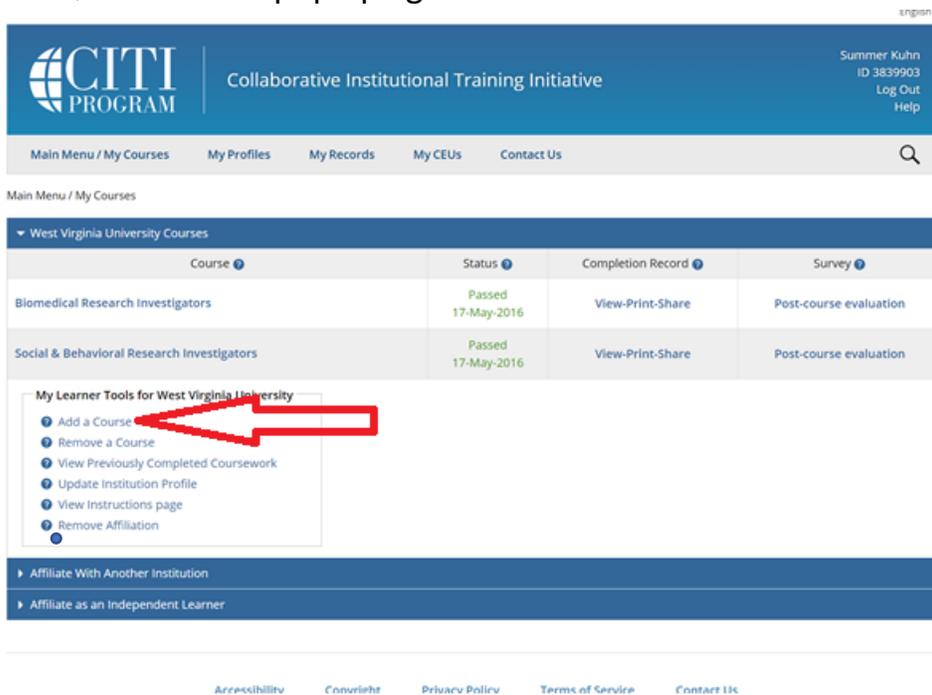
Completion Reports are two-part transcripts of your course work, and include all quiz scores. Part 1 reflects quiz scores at the time you completed and passed the course. Part 2 includes scores for any subsequent quiz attempts.

To view or print the **Completion Report** for this course, click on the link below.
 To share the **Completion Report**, copy the link below and paste it into an email or other communication.

www.citiprogram.org/verify/?k578a9206-9a0e-4cbb-88d1-5aa65ef2a497-19563274

Email certificate your Field Site. Due December 1st.

13.To add a course: You are on the Main Menu/My Courses. Click Add a Course. Then the Questions will pop up again.



Click on:

Question 3

HUMAN SUBJECT RESEARCH (IRB)

Please select the following required course(s) that pertains to your research (more than one can be chosen): Initial Courses:

- Biomedical Research Investigators (Human Subject Research)
- Social & Behavioral Research Investigators (Human Subject Research)
- IRB Members (Human Subject Research)
- IRB Chair Member
- Abbreviated Social/Behavioral Research Training (Human Subject Research)
- Abbreviated Biomedical Research Training (Human Subject Research)
- Refresher Courses
- Biomedical Research Investigators (Refresher)
- Social & Behavioral Research Investigators (Refresher course)

Annual Community Research Project Resources

HSTA Community Research Project

As a HSTA student, you are required to conduct a community research project that sets out to improve the wellbeing of your community. You will complete four projects over the course of your HSTA career. You may work in a group of three or less HSTA students (check with your Field Site to see if this is different for your region, but your group can be no bigger than three HSTA students). Your HSTA teacher, HSTA peers, and Community Research Associate (CRA) will help guide your projects.

Summary of Project Logistics:

1. All 9th and 10th graders will select a project from the Statewide Survey Selection (Pages 189-198).
2. All 11th and 12th graders can select their own community research topic and/or engage with a Statewide intervention project. All 11th and 12th graders must be approved by HSTA Teacher and CRA. All students will work during their club meetings to complete the project using Research Documents and the PowerPoint Guide.
3. There are specific deadlines that you will need to follow. You will submit project information to your HSTA teacher for comments/score.
4. Once you have an approved project from CRA and HSTA teacher you may start to collect data.
5. During data collection, make sure to communicate with HSTA teacher, Field Site and CRA with updates and any problems.
6. As you work on data analysis again make sure to communicate with updates and issues.
7. Your final presentation must be submitted to REDCap the last Friday of April and then you will present at a symposium.

Community Engagement Principles

"Community engagement is about relationships between and among communities, researchers, and research institutions."

Nine Principles of Community Engagement

Before Starting...

1. Be clear about the population/communities to be engaged and the goals of effort.
2. Know the community, including its norms, history, and experience with engagement efforts.

For Engagement to Occur...

3. Build trust and relationships and get commitments from formal and informal leadership.
4. Collective self-determination is the responsibility and right of all community members.

For Engagement to Succeed...

5. Partnering with the community is necessary to create change and improve health.
6. Recognize and respect community cultures and other factors affecting diversity in designing and implementing approaches.
7. Sustainability results from mobilizing community assets and developing capacities and resources.
8. Be prepared to release control to the community and be flexible enough to meet its changing needs.
9. Community collaboration requires long-term commitment.

Community Research Partnerships

Research with community involvement benefits both communities and researchers. It is important to remember the goals and roles of each party when working within such a partnership. By combining the unique resources of both the community and the University, the goals of each group may be better accomplished. The community brings knowledge and understanding of community norms as well as the concerns related to research participation held within their community. The University researcher brings resources and experimental expertise to the partnerships.

There are many terms that are specific to University-Community Research partnerships that may be used within the course of the project. These terms have been defined below for clarification.

Community – A group of people who have something in common. Communities may be defined as a geographic or political area like a neighborhood or town. Other ways to define a community include groupings of people with similar characteristics such as race, ethnicity, age, or gender. Additionally, a community may result from a shared interest or practice.

Community Based Research – Research that draws on the community's resources in terms of subjects, data, personnel, material, or other support

Community Based Participatory Research – A specific model of community-based research in which the researcher and individuals in the community create a partnership that identifies questions of mutual interest, conducts studies that reflect mutual input and derive outcomes that provide mutual benefit. (Israel, Schulz, Parker, Becker 1998)

Community Partner – Individuals within the community who may fairly represent their interests, needs, and/or concerns because they are both knowledgeable about and empowered to represent that community.

Collaboration – Researchers usually collaborate with others. A true collaboration involves planning together, sharing resources, and managing resources together. Collaboration is best when all groups understand each other's point of view, communicate openly, and trust each other.

Data Collection Plan – A written plan describing exactly how the researchers will collect information. This plan usually describes who collects the information, when, where and how.

Dissemination – Spreading the news about how a research project was done and what was discovered. **The purpose of dissemination is to make sure the research is useful to many people, not just the ones who did the project.** When a research project is planned, it is important to think about how the results will be disseminated to the people who are most likely to benefit from it.

Human Subjects – A living individual about whom an investigator obtains either data through interaction or intervention with the individual or identifiable private information.

Human Subjects Protection Certification – All investigators conducting research with humans are required to complete an education program and become “Certified” in human subject’s protection.

Informed consent – Researchers need informed consent from people before they can include them in their research. After the researcher has explained the purpose, type of information being collected, and the way the information will be used, the person can then freely choose to be in the research study. If, after the explanation, the person freely chooses to be in the research study, they have given informed consent.

Instrument (Data Collection Instrument) – Researchers often call the ways they collect data “instruments.” What they mean is anything they use to collect and organize information such as surveys, intake forms, attendance records, or tests.

Intervention – A word for any program that tries to make a change, such as improving heart health, decreasing hospitalizations from falls, or increasing the skills of hospital interpreters.

IRB (Institutional Review Board) – Most research projects are reviewed by an IRB. An IRB is a committee made up of researchers and community representatives who make sure the research projects will not hurt anyone and adhere to ethical guidelines.

Protocol - A protocol is an action plan for a research project. A protocol should tell what the project will do, how many people will be in it, who is eligible to participate, what interventions they will be given, what tests or surveys they will be asked to do and how often, and what information will be gathered.

Research - To understand researchers, it is important to think about what research really is. At the most basic level, research is the search for knowledge. The knowledge gained from research can help us to understand and solve problems. There are many ways to do research. You can do research in a library or on the Internet to learn specific

information about the world. However, research is not limited to looking up information that is already available. Research can help discovery new information and create new knowledge.

Who's Who in HSTA Research Projects?

If the research project is a partnership with a scientist from a University →

HSTA Students' Roles

- Act as community partner and community investigator.
- Make sure they know about the study's development, implementation, analysis and dissemination of findings as well as the timelines for each of these steps.
- Adhere to the requirements of the IRB protocol for the collection, use, and security of data.
- Take steps to maximize the benefit of the research to the larger Community.

University Partners' Roles

- Be familiar with the important issues facing the community that would be appropriate for a research study.
- Educate/train community partners/community investigators about the process of research development, approval, implementation, analysis, and dissemination as well as the timelines for these steps.
- Ensure that community partners fully understand the purpose and the implications of the proposed research.
- Involve community partners in the planning of studies.
- Involve community partners in discussions about uses of data to be collected, including a dissemination plan for the sharing of the research findings with the community.
- Be willing to address research questions important to the community group

If the research is a HSTA student created project →

HSTA Students' Roles

- Act as the primary investigator/researcher

- Be familiar with the important issues facing the community that would be appropriate for a research study.
- Educate/train community partners/community investigators about the process of research development, approval, implementation, analysis, and dissemination as well as the timelines for these steps.
- Ensure that community partners fully understand the purpose and the implications of the proposed research.
- Involve community partners in the planning of studies.
- Involve community partners in discussions about uses of data to be collected, including a dissemination plan for the sharing of the research findings with the community.
- Be willing to address research questions important to the community group

Community Members' Roles

- Make sure they know about the study's development, implementation, analysis and dissemination of findings as well as the timelines for each of these steps.
- Adhere to the requirements of the IRB protocol for the collection, use, and security of data.
- Take steps to maximize the benefit of the research to the larger community.

Community Research Project Directions

1. The Research Project PowerPoint Guide can be found on the HSTA Website.
2. Project selections are on page 76.
3. Scoring (Score sheet can be found on pages 71-75.)
 - Teachers will give a point for each fully completed item.
 - There are **42 possible points** from Contracts through Procedures including Reference slide
 - You must complete all 42 items to be approved.
 - At symposium, judges will give a point for each correctly completed content line.
 - To pass you will need to receive at least **20 out of 24 points**.
4. Deadlines
 - Follow deadlines given by our HSTA teacher and/or Field Site.
 - All approvals must be earned before or on Meeting #13. *If you don't have an approved project you will receive notification for non-compliance and will have 10 days to get an approved project OR be dismissed from the program.*
 - To help judges at symposium, all symposium score sheets will have student name(s), school/region, and research question and/or title. CRAs will contact teachers to update research questions and/or titles two week before the first symposium.
 - **Final Deadline**
 - ***ALL presentations will need to be uploaded to REDCap by the last Friday of April (April 29, 2022). This will be the final presentation that you will present during symposia. Presentations will be pre-loaded for symposia; no changes can be made after April 29th.***
<https://redcap.wvctsi.org/redcap/surveys/?s=Y9HE9PHCTC>

▪ ***Final Symposium Dates***

May 7th Northern Symposium

May 14th Southern Symposium

Ohio/Marshall

Kanawha

Mon/Marion

Raleigh

BWRC

Boone

Eastern Panhandle

Cabell/Lincoln

MT HSTA

Mingo/Logan

Greenbrier/Fayette

McDowell

Mercer

5. Scheduling Issues for Symposium

- We understand that sometimes circumstances arise that require special attention to students' attendance.
- If you have a conflict, please email your Field Site before **April 15, 2022**. This email should state why you have a conflict. The following circumstances are acceptable reasons for a schedule change:
 - Prom – If you have prom, you can request to present during the morning session.
 - College graduations – Students with immediate family members graduating may be excused.
 - Serious illness
 - Other valid reasons could include:
 - Funeral
 - Wedding
 - Other major family events

Score Sheet

Your presentation should contain all the content on the score sheet and your presentation slides should be in the same order as the score sheet.

- Title, Observation, Background Information, Research Question, Hypotheses, Variables, Procedures A & References will be scored by **HSTA Teacher**.
- To pass you will need to receive all **42** points **AND** have been approved by teacher/CRA.
 - 9th/10th Graders Approved by HSTA Teacher and use Statewide Survey
 - 11th/12th Graders Approved by HSTA Teacher and CRA
- Procedures B, Results, Data Analysis, Conclusion, & Presentation Skills will be scored at **Symposium**. To pass you will need to receive at least **20 out of 24** points.

CONTENT		0 or 1
Contracts <i>2 pts</i>	Completed CITI/Ethics Contract: Due Date December 1 st	
	Completed CITI/Lab/Safety Contract: Due Date December 1 st	
Title <i>3 pts</i>	Title was a complete statement/question	
	Title matched the research question	
	Title clearly defined the purpose of the project	
Observation <i>3 pts</i>	Observation stated the project's problem clearly	
	Observation included why this project was important to the community and me	
	Observation included a short summary of project including project type: prevalence, intervention, human experiment, or non-human experiment	
Justification/ Background Research <i>7 pts</i>	Background information was related to the research question	
	Background information was referenced using correct in-text APA citations for four sources	
	Background information is cited from at least two academic resources (i.e., Government Agency, Google Scholar)	
	Background information had at least two facts from each source totaling at least 8 facts	
	Background information was highlighted in bulleted format, not in paragraph form	
	Background information was not plagiarized (meaning summarized in own words)	
	Background information was limited to 20% of quotes	
Research Question <i>3 pts</i>	Research question was a focused and specific question	
	Research question was researchable	
	Research question was measurable	
Variables	Correct independent variable(s)	

4 pts	Correct dependent variable(s)	
	Correct control variable(s) (If no control, state no control)	
	Correct constant variables (At least three)	
Hypotheses 4 pts	Hypothesis was based on research question and variables	
	Hypothesis is testable by a statistical test	
	Explain why this is your hypothesis using some of your background research	
	Null Hypothesis was stated correctly	
Procedures A 11 pts	Project Procedures are listed below: Prevalence, Human Intervention, Human Experiment and Non-Human Experiment	
Procedures B 2 pts	Procedures are written in past tense	
	Results displayed pictorial evidence of research study (photos)	
Results 6 pts	Results displayed raw data in a chart	
	Results included descriptive statistics (averages, percentages, etc.)	
	Results included a properly labeled graph(s) (title, key, x-axis, y-axis)	
	Results including graphs and charts were explained well	
	Correct Number of Participants/Replications <ul style="list-style-type: none"> ➤ Prevalence – 100 Participants ➤ Intervention – 30 Participants (Pre/Post) ➤ Human Subjects – 30 Participants in each group (at least one control/one experimental) ➤ Experiment – at least 5 replications in each group (at least one control/one experimental) 	
	Results displayed data that matched research question	
Data Analysis 4 pts	Data analysis included a statistical test used to test the hypotheses	
	Data analysis included an explanation of why that statistical test was used	
	Data analysis included a p-value	
	Data analysis included an explanation of the statistical significance of statistical test	
Conclusion 5 pts	Conclusion included a brief summary of the project	
	Conclusion interpreted the data to conclude if it supported/rejected hypotheses	
	Conclusion answered the research question	
	Conclusion discussed limitations	

	Conclusion discussed how student(s) would implement change and/or bring awareness to their community	
References <i>5 pts</i>	Reference slide included 4 or more academic sources	
	Reference slide had ONLY in-text citations that were included as full references	
	References were in the correct APA format	
	References were listed in alphabetical order	
	References were listed with hanging indents	
Presentation Skills <i>7 pts</i>	Student(s) spoke clearly during the presentation	
	Student(s) could answer questions with confidence	
	Student(s) didn't read slides word for word	
	Student(s) presented slides in the correct order	
	Presentation had limited spelling/grammar errors	
	Presentation's background (color/animation) was not distracting	
	Presentation's text size/font were consistent	

Project Types – Procedures A

<u>Prevalence</u> <input type="checkbox"/>	<u>Intervention</u> <input type="checkbox"/>	<u>Human Experiment</u> <input type="checkbox"/>	<u>Experiment</u> <input type="checkbox"/>
Procedures were numbered <input type="checkbox"/>	Procedures were numbered <input type="checkbox"/>	Procedures were numbered <input type="checkbox"/>	Procedures were numbered <input type="checkbox"/>
Procedures identified all safety precautions (including how participants' identity will be kept confidential) <input type="checkbox"/>	Procedures identified all safety precautions (including how participants' identity would be kept confidential) <input type="checkbox"/>	Procedures identified all safety precautions (including how participants' identity would be kept confidential) <input type="checkbox"/>	Procedures identified all safety precautions <input type="checkbox"/>
Procedures explained who the study population was <input type="checkbox"/>	Procedures explained who the study population was <input type="checkbox"/>	Procedures explained who the study population was <input type="checkbox"/>	Procedures explained what plant, natural resource, invertebrate (other) the project was experimenting with <input type="checkbox"/>
Procedures explained what the study population did <input type="checkbox"/>	Procedures explained details of the of the intervention <input type="checkbox"/>	Procedures explained what the study population did <input type="checkbox"/>	Procedures explained details of the experimental environment and/or change in environment (if you have more than one experimental group explain differences among all groups) <input type="checkbox"/>
Procedures explained how at least 100 participants were recruited <input type="checkbox"/>	Procedures explained how at least 30 participants were recruited <input type="checkbox"/>	Procedures explained how at least 30 participants were recruited for EACH group (experimental & control) <input type="checkbox"/>	Procedures included a control group <input type="checkbox"/>

Procedures included a copy of the measurement tools (Example: Survey/observation sheet) <input type="checkbox"/>	Procedures included a copy of the pre and post measurement tools (Example: Survey/observation sheet) <input type="checkbox"/>	Procedures included a copy of the measurement tools (Example: Survey/observation sheet) <input type="checkbox"/>	Procedures included a list of materials <input type="checkbox"/>
<u>Prevalence</u> <input type="checkbox"/>	<u>Intervention</u> <input type="checkbox"/>	<u>Human Experiment</u> <input type="checkbox"/>	<u>Experiment</u> <input type="checkbox"/>
Procedures included a participant cover letter explaining the project <input type="checkbox"/>	Procedures included a participant cover letter explaining the project <input type="checkbox"/>	Procedures included a participant cover letter explaining the project <input type="checkbox"/>	Procedures explained that there were at least 5 replications per experimental group <input type="checkbox"/>
Procedures included data collection sheet <input type="checkbox"/>	Procedures included data collection sheet <input type="checkbox"/>	Procedures included data collection sheet <input type="checkbox"/>	Procedures data collection sheet <input type="checkbox"/>
Procedures explained how data was collected <input type="checkbox"/>	Procedures explained how pre and post data was collected <input type="checkbox"/>	Procedures explained how data was collected <input type="checkbox"/>	Procedures explained how data was collected <input type="checkbox"/>
Procedures included how data will be analyzed <input type="checkbox"/>	Procedures included how data will be analyzed <input type="checkbox"/>	Procedures included how data would be analyzed <input type="checkbox"/>	Procedures included how data would be analyzed <input type="checkbox"/>
Procedures provided clear description of project <input type="checkbox"/>	Procedures provided clear description of project <input type="checkbox"/>	Procedures provided clear description of project <input type="checkbox"/>	Procedures provided clear description of project <input type="checkbox"/>

Project Selection

9th and 10th graders

Follow the instructions on the PowerPoint Presentation Guide to complete your **Community Research Project Presentation**. You will submit the PowerPoint to your HSTA Teacher/CRA via DropBox/Email/Google Drive. Please keep in mind the following things before beginning:

- Your project topic must be from the Statewide Survey. (See Pages 189-198)
- You must earn 42 points from your HSTA Teacher to be approved **before** you can collect data.

11th and 12 graders

Follow the instructions on the PowerPoint Presentation Guide to complete your **Community Research Project Presentation**. You will submit the PowerPoint to your HSTA Teacher/CRA via DropBox/Email/Google Drive. Please keep in mind the following things before beginning:

- You must earn 42 points from your HSTA Teacher and have an approved project by CRA **before** you can collect data.
- **ALL sensitive and/or protected health information MUST BE APPROVED BY CRA and/or WVU-IRB. (example: blood pressure, weight, sex, drug use, etc.).**
- **Any research on vertebrate animals must BE APPROVED BY CRA and/or WVU-IACUC.**
- **No culturing bacteria.**
- **ALL SURVEYS AND INTERVENTION OUTLINES MUST BE APPROVED BY YOUR CRA BEFORE BEGINNING THE PROJECT.**

Research Guide

Title

Score Sheet – Worth 3 points, scored by HSTA Teacher

- *Title is a complete statement/question*
- *Title matches the research question*
- *Title clearly defines the purpose of the project*

Tips

1. Brainstorm ideas and phrases

- a. Write down on paper some thoughts and ideas of what your title could be

2. Match the project content to the title

- a. Your title has to be descriptive
- b. It needs to clue your audience in to what your project is about (Look at your Research Question)

3. Use what you have

- a. May find a title buried in your project
- b. Copy down any sentence that may work for a title
- c. Shorten it to make it more useful

4. Take some time to play with the title

- a. Try to rearrange and play around with it to get the best title
- b. Trade in less specific words for more specific words

5. Make sure you include your main point

- a. When you're writing your title, it's good to include at least an indication of your conclusion in your title
- b. Make sure you include the key words

WITH ALL THAT BEING SAID, MAKE SURE THAT YOUR TITLE:

- Condenses the project's content into a complete statement and/or question
- Has no spelling errors
- Has no abbreviations
- Has no technical jargon
- **Matches your research question**
- Clearly defines the purpose of your project
- Should also include:
- First and last name (all students in the group)
- School name
- Region
- HSTA teacher's name

Observation

Score Sheet – Worth 3 Points, scored by HSTA Teacher

- *Observation states the project's problem clearly.*
- *Observation includes why this project is important to the community and me.*
- *Observation includes a short summary of the project, including project type: prevalence, intervention, human experiment, or non-human experiment*

Tips

Before you begin any project, it is important to understand the community in which the project will be delivered. Anything you do requires you to be familiar with the people, the history, and the issues that face the community. Before you start any HSTA project, take the time to understand the community as a whole and then look at the different problems that are present.

There are many reasons to do research on a particular issue:

- When you want to alert the community about an issue that needs attention.
- When it's important in order to further the public interest.
- When you want to impact a specific issue in your community.

To incorporate community and design, a true community-based project incorporates community members and/or community stakeholders in every phase of the project. The guidelines below are to help you incorporate these stakeholders into your project.

1. The observation/ statement of problem should come from a true community issue.
 - a. Whether it starts with a statistic or just a concern by members of the community, it needs to reflect something that is tied to the community.
 - b. Talk to people in your community and find out what issues they see as important and build your project from there.
2. Where did your idea come from? Did it come from:
 - a. Data
 - b. A community issue that you have observed
 - c. A conversation or meeting you had with a community member/stakeholder
 - d. Healthy People 2020
 - e. A priority area from the WV Bureau of Public Health
 - f. An interest you have

3. What information do you know about the problem you are trying to address?
 - a. Talk to community members/stakeholders about the problem
 - b. Look at data from WV BPH or Healthy People 2020
 - c. Gather information from as many sources as possible
4. Make sure your problem is clearly stated
 - a. What is a problem facing your community? Make sure it is a real issue in the community
 - b. Back up the problem with statistics and facts
 - c. Why is this a problem?
5. Explain how the problem will be addressed in the community
 - a. Tell what your project will do to deal with this problem
 - b. Give a brief description of your project and how it will involve the community
6. Explain how this project idea will improve the community
 - a. Tell how your project will make a positive impact on your community
 - b. Tell how you will share your research findings with your community

Justification/Background Research

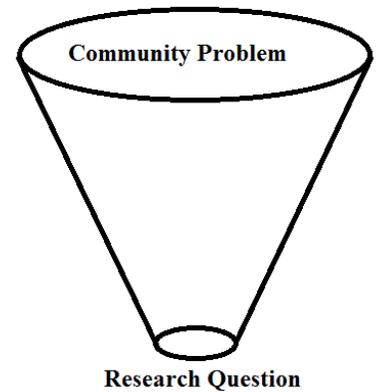
Score Sheet - Worth 7 Points, scored by HSTA Teacher

- *Background information is related to the research question*
 - Make sure your background information is about your research question.
 - Talk about what is known about the topic and why the study is needed.
- *Background information is referenced using correct in-text APA citations for 4 sources.*
 - Resources used to explain background information are to be cited in the text (See handout on In-Text Citations).
 - All in-text citations are the **same ones** that will be on your reference slide.
- *Background information is cited from at least two academic resources.*
 - Government Agencies, Google Scholar, other databases.
- *Background information has at least two facts from each source, totaling at least 8 sources*
 - You will use at least four references and from each reference you will have at least two facts listed, totaling at least eight facts.
- *Background information is highlighted in bulleted format, not in paragraph form.*
 - Your background should be a summary of what you have learned about your observation/topic.
 - Do not write paragraphs on these slides.
- *Background information is not plagiarized.*
 - Everything should be a summary of what you have learned **in your own words**.
 - Limit the number of direct quotes used.
 - Plagiarism is a severe problem and could result in a discussion with the Local Governing Board.
- *Background information was limited to 20% of quotes.*

Tips

1. When you research websites, take notes on what you read and write down the link so that you can come back to it later.

2. You need to explain what your topic is, why it is important to the community, and set the tone for your research project. Think of this as a funnel - you start with a broad opening and end with a narrow opening. You need to start your background research with basic information about your topic then narrow it down, so it leads right into your research question.



You want to give your audience a little more information about the topic you are researching before you start talking about the actual research project. Here is an exercise that might help develop and write your background slides.

Step 1: Write down your community problem. Try to sum this problem up in one or two words.

Step 2: Write down your research question.

Step 3: You want to have a general slide about the community problem. You want to talk about the topic in a broad way with community data if you can.

Step 4: Now you want to start getting more narrow, leading background information to your research question. Take the question apart and list your variables

Step 5: You need to have a slide for each variable. Here you need to define and/or explain the importance of this variable. Something simple-you don't have to go into detail.

Step 6: You need to bridge the gap between the two variables. How are they connected?

Step 7: Before you leave the background slide, make sure you have led your audience to the research question.

Prevalence Study Example following the above steps.

1. Obesity and Lack of Exercise
2. Is there a relationship between BMI and how much exercise a person gets in one week?
3. General Slide
 - a. What does obesity and exercise look like in the community
4. Variables
 - a. BMI
 - b. Exercise
5. Define Variables
 - a. BMI
 - i. What is it
 - ii. How do we find it
 - iii. What does it tell us
 - iv. Community importance - support with statistics
 - b. Exercise
 - i. What is it
 - ii. Why is it important
 - iii. How do we do it
 - iv. Community importance - support with statistics
6. Bridge
 - a. How does exercise influence BMI - back up with evidence.
7. Connect community and research question

In-Text Citations

Score Sheet – Worth 2 points (1 in Background Research and 1 in References), scored by HSTA Teacher

- *Background information was referenced using correct in-text APA citations for four sources.*
- *References slide had ONLY in-text citations that were included as full references.*

Tips

1. When using APA format, follow the author-date method of in-text citation. This means that the author's last name and the year of publication for the source should appear in the text.
 - a. For example, **(Parrish & Linder-VanBerschot, 2010)**, and a **complete reference should appear in the reference list at the end of the paper.**
 - b. **Multicultural instruction is an important tool in the classroom, however it is often difficult to incorporate. (Parrish & Linder-Vanberschot, 2010).**
2. When citing 2 to 5 authors, list all the authors' last names with the ampersand (&) between the last 2 author's names. **(Kernis, Cornell, Sun, Berry, & Harlow, 2014)**
3. When citing 6 or more authors, use the first author's name followed by et al. **(Harris et al., 2009)**
4. If "Anonymous" is used by the author, treat it as the author's last name. On the Reference list, use Anonymous as the author. **(Anonymous, 2012)**
5. If the author is an organization or a government agency, cite the organization as the author. **(American Psychological Association, 2015)**
6. If the work does not have an author, cite the source by its title.
7. Titles of books and reports are italicized or underlined. **(*Report on Lung Cancer in WV*, 2010)**
8. Titles of articles, chapters, and web pages are in quotation marks. **("High Blood Pressure in Youth", 2005)**
9. If the work does not have a date, use the abbreviation n.d, which stands for no date. **(*Tips to help you organize*, n.d.)**
10. **Once again, MAKE SURE that EVERY in-text citation is also listed on your Reference list.**

Research Question

Score Sheet - Worth 3 Points, scored by HSTA Teacher, Approved by CRA for 11th and 12th graders

- *Research question is a focused and specific question.*
 - Is not too broad or general.
- *Research question is researchable.*
 - Has a clear meaning of what you want to research.
 - It is not a question you can Google.
- *Research question is measurable.*
 - It clearly explains what you plan to measure and how.

Tips

1. Research question should be clear and focused. They “[... should address what the variables of the experiment are, their relationship, and state something about the testing of those relationships.” (Thompson Writing Group: Duke University, 2014)
2. Stay away from common sense questions – the more specific you are in your research the more likely common-sense answers will not relate.
3. Your research question is the center of your research project and directs hypothesis, variables, procedures and your conclusions.
4. If you have trouble coming up with a research topic “Choose a general topic of interest, and conduct preliminary research on this topic in current periodicals and journals to see what research has already been done. This will help determine what kinds of questions the topic generates.” (Thompson Writing Group: Duke University, 2014)
5. “[... research question should address what the variables of the experiment are, their relationship, and state something about the testing of those relationships.” (Thompson Writing Group: Duke University, 2014)
6. Explain on your slide how addressing this research question will improve your community. How will your project make your community better?

Researchable/Measurable Research Question Examples

- Does McDonald's or Burger King make a better burger?
 - This question is not researchable as it is worded because it has no concrete meaning. What does "better" mean? Better in terms of nutrition? Better tasting? Better value? Fewer calories? Better for making your kids happy? This question could become researchable only if you define its terms.
- Is there a link between hours of television viewing and obesity rates in children aged 8-14?
 - This question is researchable. It has a clear meaning of who and what you will research and explains what you will measure.
- Are females smarter than males?
 - This question explains the variables that will be measured: gender and intelligence; but it does not explain how, needs more details.
 - Revised question: Did females age 16-18 score higher than males age 16-18 on the ACT during 2016?
- Will plants grow faster with water or no water?
 - This is common sense because plants need water. However, if you were to change the water to gray water or different natural water supplies or different concentrations of water supplements this would be a researchable project.

Thompson Writing Group: Duke University. (2014). *What makes a good research question?* Retrieved August 2016 from http://twp.duke.edu/uploads/media_items/research-questions.original.pdf

Stats Chart

Use the stats chart to help create a research question

- **Categorical variables:** can take only a limited number of values (often just two). Example: Survival (Values could be Survived/Died), Answer (e.g., Yes/No), Gender (Male/Female).
- **Continuous variables:** can potentially take ANY value between some lower and upper bound. Example: Weight, Height, Speed, Test Score (if numerical).

		Dependent Variable (Y)	
		Categorical	Continuous
Independent Variable (X)	Categorical	<p><u>G-test/Chi Square</u></p> <ul style="list-style-type: none"> • Difference among gender (male/female) and if they have had the flu shot (Yes/No) • Difference among grade levels (ninth, tenth, eleventh, and twelfth) and if they are present at an event (Yes or No) 	<p><u>ANOVA/T-Test</u></p> <ul style="list-style-type: none"> • Difference among gender (male/female) and social support scores • Difference among age groups (13-19; 20-29; 30-39) and weight (examples: 100, 110, 150, 97)
	Continuous	<p><u>Logistic Regression</u></p> <ul style="list-style-type: none"> • Does body weight (example 100, 97, 250, 116) influence heart attacks (Yes/No) 	<p><u>Correlation</u> (Tells how much one variable tends to change when the other changes)</p> <ul style="list-style-type: none"> • Does rain fall (example 11, 12, 13 inches) relate to temperature (example 60, 80, 75 degrees) <p><u>Regression</u> (IV influences DV; looking for a cause and effect)</p> <ul style="list-style-type: none"> • Weight (example 100, 110, 120, 97) influence cholesterol level (example 160, 170, 180 mml)

Variables

Score Sheet - Worth 4 Points, scored by HSTA Teacher, Approved by CRA

- *Correct independent variable.*
 - *measured, manipulated, or selected by the experimenter to determine its relationship to an outcome*
 - **Experimental, Manipulated, Treatment, Grouping Variable**
- *Correct dependent variable.*
 - *observed and measured to determine the effect of the independent variable*
- *Correct control variables.*
 - the group that has no 'treatment' so you can use it to compare to the 'treatment' groups to observe a change
 - not all projects have a control variable. If there is no control, state "no control"
- *Correct constant variables.*
 - elements of the project that stay the same throughout the project – like water temperature, survey questions, etc.
 - list at least 3 constants
 - all projects have constant variables

Tips

1. IV is what you change/set, DV is what you measure
2. Control gets no 'treatment', constants stay the same throughout the experiment

Examples

- Among HSTA students in WV, does McDonalds or Burger King have a better tasting hamburger?
 - IV – McDonalds and Burger King hamburgers
 - DV – taste test results
 - Control – None
 - Constants – condiments on the hamburger, all HSTA students from WV, taste test scale
- Is there a link between hours of television viewing and obesity rates in children aged 8-14?
 - IV– number of hours watching TV

- DV – obesity rate
- Control – None
- Constants – obesity scale, the age of children, how the number of TV hours are recorded
- Do females age 16-18 score higher than males age 16-18 on the ACT during 2016?
 - IV – Gender
 - DV – ACT Score
 - Control – None
 - Constants – age, ACT test (may have not taken test on the same day but during the same year), same year
- Will plants have a higher growth rate with water supplements Sea Veg, Seachem, or Natural Leaf after 6 weeks?
 - IV – water supplement treatment: Sea Veg, Seachem, or Natural Leaf
 - DV – growth rate
 - Control – plants with just water
 - Constants – plant type, plant food, plant environment, ruler to measure height, number of plants in each treatment, time

Hypotheses

Score Sheet - Worth 4 Points, Scored by HSTA Teacher, Approved by CRA

- *Hypothesis is based on research question and variables*
 - Hypothesis has to match the research question and variables
- *Hypothesis is testable by a statistical test*
 - If you can't use a statistical test on your hypothesis, then it is not testable
- *Explain why this is your hypothesis using some of your background research*
 - Explain why you expect these results based on what you've learned from your background research
- *Null Hypothesis is stated correctly.*
 - States that there is no significant difference between your study population(s)

Tips

1. Hypothesis (plural: hypotheses) is a prediction about the outcome of study and based on a person's observations, previous knowledge, and/or experience.
 - a. The Null Hypothesis states that we will observe no difference, or we will observe no change. This is what we assume in research.
 - b. The Alternative Hypothesis is what we are testing or seeking to find in the research. It states that there will be a change or a difference.
2. Use background information to help you take a stance on what you believe will happen and why.
3. If you get stuck just go back to basics: **If... then... because...**
 - a. If [*we compare something about the independent variable*], then [*this is the outcome we expect*], because [*rationale*].
 - b. If [*something happens to the independent variable*], then [*this is the outcome we expect*], because [*rationale*].

Examples

- Among HSTA students in WV, does McDonald's or Burger King have a better tasting hamburger?
 - Alternative Hypothesis: If HSTA students from WV complete a taste test between McDonalds and Burger King hamburgers, then we will find they prefer McDonalds because McDonalds has better ketchup.
 - Null Hypothesis: There will not be a significant difference between taste test results among McDonalds and Burger King hamburgers.
- Is there a link between hours of television viewing and obesity rates in children aged 8-14?
 - Alternative Hypothesis: There will be a positive correlation between the number of hours children age 8-14 watch TV and their obesity rate, due to the sedentary habits of watching too much TV.
 - Null Hypothesis: There will be no correlation between the number of hours children aged 8-14 watch TV and their obesity rate.
- Do females age 16-18 score higher than males age 16-18 on the ACT during 2016?
 - Alternative Hypothesis: There will be a true difference in ACT scores among females and males who are 16-18 years of age because research indicates females study more.
 - Null Hypothesis: There will be no difference in ACT among females and male who are 16-18 years of age.
- Will plants have a higher growth rate with water supplements Sea Veg, Seachem, or Natural Leaf after 6 weeks?
 - Alternative Hypothesis: Plants in the Sea Veg group will have a higher growth than the Seachem or Natural Leaf groups, due to the natural vitamins in the water.
 - Null Hypothesis: There is will no difference among the water supplement groups and growth rates.

Procedures A

Score Sheet - Worth 11 Points, scored by HSTA Teacher, Survey and Intervention Outline
Approved by CRA

- *Project Chart is on pages 74-75*

Project Definitions

- A **prevalence study** is a study that looks at the population during a given time. If you test the 9th graders at your school during September, their attitudes could change if you test them again in May.
- An **intervention** is a 'program' designed to make a change among a group of individuals. This change can be a behavior change (i.e. eating healthy) or improvements in health status (i.e. lowering blood pressure).
- A **human experiment** is an experiment that is conducted with humans to measure an effect. For example, you can experiment to see if students test better if they study with iPads or books.
- A **non-human experiment** is a traditional science experiment where you test a hypothesis. For example, you can measure different amounts of light on bean growth and different amounts of caffeine on zebra fish.

Tips for Writing Procedures

1. In the Materials and Methods section, you explain clearly how you conducted your study in order to: (1) enable readers to evaluate the work performed and (2) permit others to replicate your study.
2. You must describe exactly what you did: what and how experiments were run, what, how much, how often, where, when, and why equipment and materials were used.
3. You should maintain a balance between brevity (you cannot describe every technical issue) and completeness (you need to give adequate detail so that readers know what happened).
4. CITI training. Why they need to include it in the procedures? Even if they have completed this training (trainings are good for three years), they still need to include it as a procedure step. It needs to be first on the procedure slide for everyone who is doing a human subject study. This shows that they were trained how to complete a human subject experiment/intervention without harm to the human subject, etc. Names on list - The training list will need to be updated. This is a safety produce.
5. Safety produces need to be included in the main procedures. They are not

- separate from the other procedures they need to be included as a step and as you complete them.
6. Order your procedures chronologically or by type of procedure and then chronologically within type of procedure using sub-headings, where appropriate, to clarify what you did. Number the procedures as steps, don't write the procedures like you would in a research paper, i.e. paragraph form.
 7. Use the past tense and the third person to describe what you did. For example: "The sample was incubated at 37°C for 3 days." - NOT: "I incubate the sample at 37°C for 3 days." This is very important for the final presentation, remember when you present the final presentation you have already completed the whole project.
 8. Describe your experimental design clearly, including the hypotheses you tested, variables measured, how many replicates you had, controls, treatments, etc.
 9. Explain why each procedure was done.
 10. Identify the source of any specific type of equipment, tool, ETC which is critical to the success of the experiment. Describe in detail any modifications to equipment if needed.
 11. Identify treatments using the variable or treatment name, rather than an ambiguous, generic name or number (e.g., use "healthy donors" rather than "group 1").
 12. Describe statistical tests and the comparisons made; ordinary statistical methods should be used without comment; advanced or unusual methods may require a literature citation.
 13. Show your Materials and Methods slides to other students, teachers, parents, ETC and ask whether they would have difficulty in understanding and/or repeating your study.
 14. Don't mix results with procedures.
 15. Omit all explanatory information and background - save it for the discussion.

Scientific, Medical and General Proofreading and Editing. "Twelve Steps to Writing an Effective Materials and Methods." Retrieved Nov 2013 from <http://www.sfedit.net/methods.pdf>

Tips for Cover Letter – Human Subjects

1. You need to a paragraph explaining what your project is about and what you are asking participates to do.
2. You can also use this cover letter as a recruitment flyer/letter.
3. Explain in simple terms
 - Display transparency of project
 - Explain who you are
 - Why you are doing this project
 - What the project is about
 - What participates have to do in the project
 - How their data will be protected
 - Remember to tell participates this is voluntary
 - What will you do with the data/results

Tips for Intervention

1. An intervention is a ‘program’ designed to make a change among a group of individuals. This change can be a behavior change (i.e. eating healthy) or improvements in health status (i.e. lowing blood pressure).
2. Interventions can be educational programs, change in policies, improvements to the environment and/or health promotion campaigns.
3. Interventions that use a mixture of approaches are usually the most effective in producing change.
4. Interventions should at least run for 6 weeks.
5. Intervention needs to be more than just one 20-minute presentation during a class period.
6. Be creative when you design your intervention.
7. You can also find lots of interventions from online searches – see what others have ready done. (Remember to cite your resources)
8. Find a community member that is an expert on your topic.

Helpful Resources:

- <https://ctb.ku.edu/en/table-of-contents/analyze/where-to-start/design-community-interventions/main>
- <http://trythiswv.com/>
- <https://www.cdc.gov/violenceprevention/pdf/chapter1-a.pdf>
- <https://jech.bmj.com/content/jech/early/2015/11/15/jech-2015-205952.full.pdf>
- <https://thisispublichealth.org/>

Submitting Surveys and Intervention to CRA and/or HSTA Teacher

1. If you are running the intervention, then all materials need to be submitted for review:
 - a. Handouts, PowerPoint, detailed outline of what individual will do, etc
2. If you have a guest speaker coming in, you still need to submit a detailed outline of what that person will cover.
3. If you have a 'program,' the individuals will follow submit that 'program.'
4. If you have lessons you are teaching, submit the lessons.

Tips for Survey

1. Start on your survey early to get feedback.
2. See if there are surveys already published. Example – there are many surveys that have been published that measure stress levels, environmental safety, community walkability, etc.
3. Think about how you will 'score' data. Will you look at all the questions or individual questions?
4. Think about how you will record data into excel. See example data collection sheets.
5. Does your survey measure what your research question is asking?
6. For your pre and post surveys, make sure you have asked the same questions on both surveys.
7. If you have an intervention, make sure the questions in your survey are based on information presented in the intervention. Don't ask questions that you aren't going to present information on during the intervention.
8. You want to measure the change in the scores, weight, BMI, etc. between pre and post surveys. Therefore, you DO NOT want to ask questions like "Have you ever had energy drinks?", but instead "How many energy drinks have you had in the last 2 weeks?" The answer to the first question would not change even after an intervention, but the answer to the second question could change after an intervention.
9. The number of survey questions depends on the project – talk with CRA and/or HSTA teacher for help.

10 Tips for Surveys

1. **Make Sure That Every Question Is Necessary**

You're building your survey to obtain important insights, so every question in the survey should play a direct part. It's best to plan your survey by first identifying the data you need to collect and *then* writing your questions.

2. **Keep it Short and Simple**

Respondents are less likely to complete long surveys, or surveys that bounce around haphazardly from topic to topic. Therefore, make sure your survey follows a logical order and that it takes a reasonable amount of time to complete.

3. **Ask Direct Questions**

Vague or poorly worded questions confuse respondents and make your data less useful. Strive for clear and precise language that will make your questions easy to answer.

4. **Ask One Question at a Time**

Take a closer look at questions in your survey that contain the word "and" —it can be a red flag that your question has two parts. Here's a sample: "Which of these cell phone service providers has the best customer support *and* reliability?" In this case, a respondent may feel that one service is more reliable, but another has better customer support.

5. **Avoid Leading and Biased Questions**

Some descriptive words and phrases may interject some bias into your questions, or point the respondent in the direction of a particular answer. In particular, scrutinize adjectives and adverbs in your questions. If they're not needed, take them out. In addition, an unbalanced response scale can lead a respondent in the same way a poorly worded question might. Make sure your response scales have a definitive midpoint (aim for odd numbers of possible responses) and that they cover the whole range of possible reactions to the question.

6. **Speak Your Respondent's Language**

Use language and terminology that your respondents will understand. Make words and sentences as simple as possible and avoid technical jargon. However, don't oversimplify a question to the point that it will change the way the question will be interpreted.

7. **Use Response Scales Whenever Possible**

Response scales that give the direction and intensity of attitudes provide rich data. By contrast, categorical or binary response options, such as true/false or yes/no response options, generally produce less informative data.

8. Avoid Using Grids or Matrices for Responses

Oftentimes respondents don't fill in grids correctly or accurately according to their true feelings. Also, grids aren't mobile-friendly. It's better to separate questions with grid responses into multiple questions in your survey with regular response scales.

9. Rephrase Yes/No Questions if Possible

Many yes/no questions can be reworked by including phrases such as "How much," "How often," or "How likely." Make this change whenever possible and include a response scale for richer data.

10. Take Your Survey for a Test Drive

Ask at least five people to test your survey to help you catch and correct problems before you distribute.

from <https://www.qualtrics.com/blog/10-tips-for-building-effective-surveys/>

Tips for Data Collection Sheet

- Project that has summation to get a total score.
- Prevalence Example: Is there a difference among gender and math scores?
- After you score each 'test/survey,' enter your total scores for each participant.
- Run an unpaired t-test because there are two different groups.

Total Score - High Score = 100/100		
Participant #	Female	Male
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		

- Intervention Example: Is there a difference in stress scores after the intervention?
- Test/Survey will need to have a 'code' to match pre and post.
- After you score each 'test/score,' enter your total scores for each participant. Surveys will have a coding system, replacing words with numbers (categorical coding).
- Run a paired t-test because the same people take the pretest/survey as the posttest/survey.

Total Score - High Score = 100/100		
Participant #	Pre Survey	Post Survey
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		

- Project that has individual questions. Make sure to enter all the data.
 - If you have a Likert Scale (Strongly Dislike, Dislike, Neutral, Like, Strongly Like) – you can label the 'words' with numbers (categorical coding). Strongly Dislike = 1, Dislike = 2, Neutral = 3, Like = 4, Strongly Like = 5.
 - Make sure to write at the questions or summarize the questions. Then enter the categorical coding in the blanks.
 - Example research question: Is there a difference among 9th and 12th graders and question number 1?
 - Run a t-test unpaired t-test because there are two different groups.

Participant #	Question 1		Question 2		Question 3		Question 4		Question 5	
	9th	12th								
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										

Project that has Yes or No.

- Make sure to enter the question or summarize the question. Then enter Yes or No in blank boxes.
- Research Question: Difference among grade levels and if they are present at an event? You would run a chi square, no need to use “categorical coding.”

Participant #/Code	Present at Event	
	Yes	No
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

- Project that has three groups.

- Make sure to label your columns to match what you are collecting.
- Research Question: Difference among age groups and weight?
- You would run an ANOVA because you have three groups to compare.

Participant #/Code	Age Groups		
	13-19	20-29	30-39
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

- Project where you are looking for how much one variable tends to change when the other changes, collecting both the independent and dependent variable.
 - Make sure to label your columns. Column Rain Fall and Temperature will be collected at the same time, then repeated. Procedures will need to explain the how and when records were collected.
 - Research Question: Does rainfall relate to temperature?
 - You would run a correlation.

Record	Rain Fall	Temperature
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

- Project where you are looking to see if independent variable influences dependent variable, looking for cause and effect.

- Make sure you label your columns. Column Weight and Cholesterol Level will be collected at the same time, then repeated. In this case, you would record at least 100 individual's weight and cholesterol level.
 - Research Question: Does weight influence cholesterol level?
 - You would run a regression.

Participant #/Code	Weight	Cholesterol Level
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

- Non-human study, collecting data over time.
 - Make sure to set up your data sheet to collect data over time and record data for each group.
 - Research Question: Does plant height differ among fertilizer?
 - You would run an ANOVA

Height of plants, 4 different treatments: water, water with 10% fertilizer, 20% fertilizer,				
Trials	Plant 1 - Control (cm)	Plant 2 - 10% solution (cm)	Plant 3 - 20% solution (cm)	Plant 4 - 30% solution (cm)
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				

Procedures B

Score Sheet – Worth 6 points, scored by symposium judges

- *Procedures are written in past tense*
- *Procedures displayed pictorial evidence of research study (photos)*

Tips

1. Procedures need to be in past tense. You have completed the project and will present what you have done.
2. Take pictures to document your research
 - a. Intervention
 - i. Take pictures of what you did for your intervention (your presentation, posters, cooking, etc)
 - ii. Take pictures of the participants (with their permission)
 - iii. Take pictures of the materials you used for your intervention
 - b. Prevalence
 - i. Take pictures of the participants taking the survey (with their permission)
 - ii. Take pictures of the event where you are giving out the surveys (health fair, ball game, assembly, etc)
 - c. Human subject experiment
 - i. Take pictures of what the participants are doing for your experiment (walking with a pedometer, drinking no pop for a month, listening to music to lower blood pressure, etc)
 - d. Non-human experiment
 - i. Take pictures of your set-up (show your equipment, the chemicals used, the charts you are comparing your outcomes with--pH, turbidity, etc)
 - ii. Take pictures throughout your experiment (what the plants looked like weekly, the algal growth when applying different fertilizers to water runoff, etc)

Results

Score Sheet – Worth 6 points, scored by symposium judges

- *Results display raw data in a chart*
- *Results include descriptive statistics (averages, percentages, etc.)*
- *Results include a properly labeled graph(s)-(title, key, x-axis, y-axis)*
- *Results including graphs and charts are explained well*
- *Results include the correct number of participants/replications*
 - Prevalence – 100 participants
 - Intervention- 30 participants (Pre and Post)
 - Human subjects – 30 participants in each group (control and experimental)
 - Experiment-at least 5 replications in each group (control and experimental)
- *Results display data that matches research question*

Tips

1. Raw data needs to be in a chart. You don't have to try to explain all your raw data, we just want to see the raw data. Then in your descriptive statistics you can go into detail about your data.
2. Use descriptive statistics.
 - a. Size of your population
 - b. What percentage were male and female
 - c. The average age of your population
 - d. The average growth of the plants
 - e. The mean score on the pre and post tests
3. Include charts and graphs that display the results of your data
 - a. A chart that shows the average pre and post test scores of the males and females
 - b. A chart that shows the average growth each week of the plants over a 6-week period
 - c. A bar graph that compares the 9th, 10th, 11th, and 12th grade responses to a specific question on the prevalence survey
 - d. A line graph that shows runners' increase in speed over time

4. The graphs need to be labeled
 - a. If you have a line graph, make sure you label what the numbers on the x-axis and y-axis mean
 - b. If you have a chart, title it by summarizing what the chart is about.
5. Correct number of participants/replications
 - a. Make sure you plan for this during your procedures.
 - i. Prevalence – 100 Participants
 - ii. Intervention – 30 Participants (Pre/Post)
 - iii. Human Subjects – 30 Participants in each group (at least one control/one experimental)
 - iv. Experiment – at least 5 replications in each group (at least one control/one experimental)
6. Make sure that your data matches your research question. If your research is: How does blood pressure effect weight?, then your data should include blood pressure and weight.

Descriptive Statistics

Measures of Central Tendency

- Mean-average of the numbers or arithmetic mean
 - Add up all the values and divide by the number of pieces of data
 - Is a good measure of center when there are no outliers or extreme numbers (i.e. a zero on a test)
- Median-middle value in a data set
 - Order the numbers from least to greatest and find the number in the middle
 - Is a good measure of center when there are outliers (i.e. a classmate with 12 siblings)
- Mode-most common value
 - Find the value that occurs the most often

Excel Directions for Mean, Median and Mode

How to find mean, median, and mode on Excel.

1. List your data in a column.
2. In any open cell type one of the following:
3. For mean, =average(
4. For median, =median(
5. For mode, =mode(
6. Select the cells with your data in it.
7. Press ENTER

The image shows three sequential screenshots of an Excel spreadsheet. Each screenshot has columns A, B, and C, and rows 1 through 15. The data in column A is: 88, 94, 72, 56, 84, 99, 78, 76, 82, 90, 78. The first screenshot shows the data being entered. The second screenshot shows the formula =MEDIAN(A2:A12) entered in cell B14. The third screenshot shows the formula =mode(A2:A12) entered in cell B14. The status bar at the bottom of each screenshot shows the active formula: AVERAGE(number1, [number2], ...), MEDIAN(number1, [number2], ...), and MODE(number1, [number2], ...).

	A	B	C		A	B	C		A	B	C
1	Test Scores			1	Test Scores			1	Test Scores		
2	88			2	88			2	88		
3	94			3	94			3	94		
4	72			4	72			4	72		
5	56			5	56			5	56		
6	84			6	84			6	84		
7	99			7	99			7	99		
8	78			8	78			8	78		
9	76			9	76			9	76		
10	82			10	82			10	82		
11	90			11	90			11	90		
12	78			12	78			12	78		
13				13				13			
14	=average(A2:A12)			14	=MEDIAN(A2:A12)			14	=mode(A2:A12)		
15	AVERAGE(number1, [number2], ...)			15	MEDIAN(number1, [number2], ...)			15	MODE(number1, [number2], ...)		

You can also find the descriptive statistics by looking at the Summary Statistics:

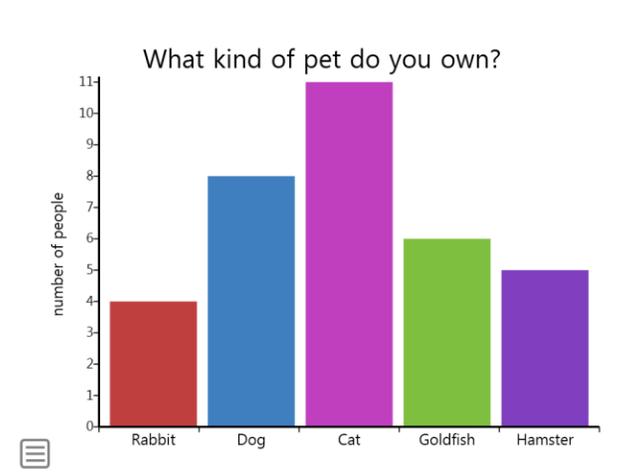
1. Click on blank cell.
2. Click on Tools icon in top tool bar, then Data Analysis.
3. Click on 'Descriptive Statistics' and hit 'ok'.
4. Highlight your column of data for 'Input Range', check 'Summary Statistics', then 'ok'.
5. You can rename the new worksheet or copy/paste where desired.

Types of Data

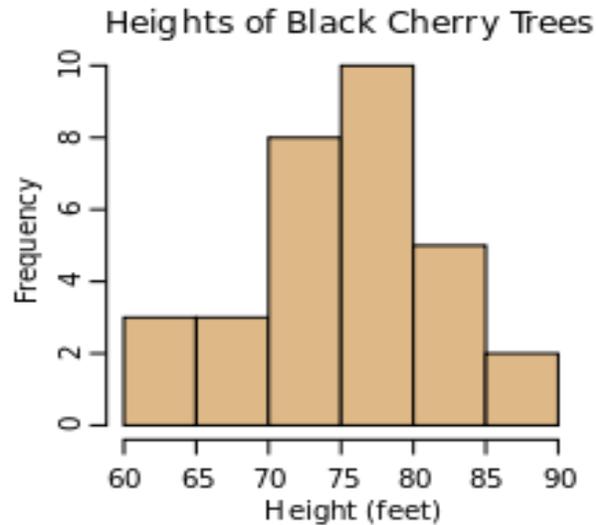
- **Numerical**-These data have meaning as a measurement, such as a person's height, weight, IQ, or blood pressure; or they're a count, such as the number of stock shares a person owns, how many teeth a dog has, or how many pages you can read of your favorite book before you fall asleep. (Statisticians also call numerical data *quantitative data*.)
- **Categorical**-Categorical data represent characteristics such as a person's gender, marital status, hometown, or the types of movies they like. Categorical data can take on numerical values (such as "1" indicating male and "2" indicating female), but those numbers don't have mathematical meaning. You couldn't add them together, for example. (Other names for categorical data are *qualitative data*, or *Yes/No data*.)

Visual Representations of Data

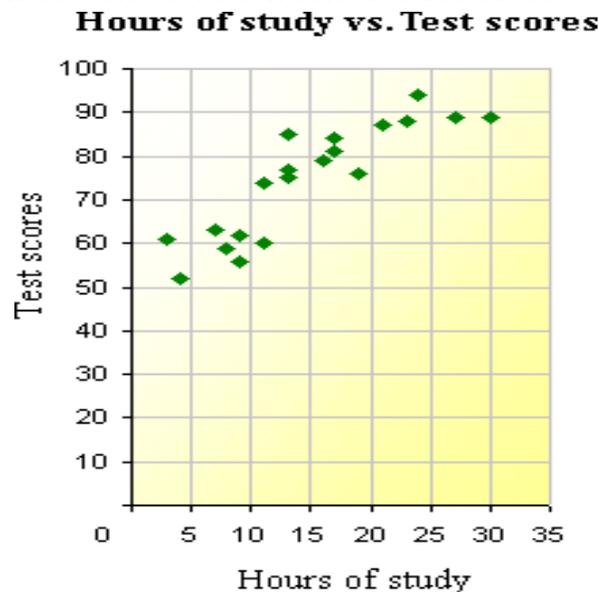
- **Bar Graph**-a graph that uses horizontal or vertical bars to display data to compare quantities.
 - Usually represents categorical data (i.e. how many people have brown, blonde, or red hair).



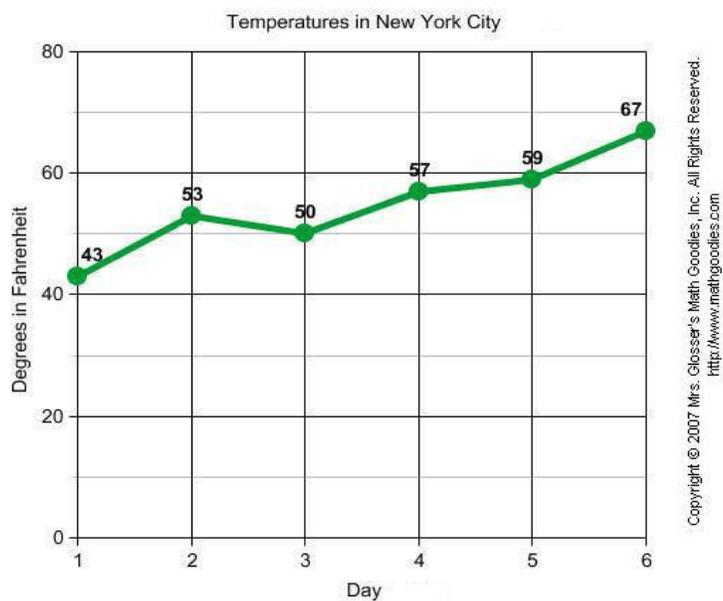
- **Histogram**-a visual way to represent continuous frequency data using bars.
 - Usually represents numerical data (i.e. number of students who get certain scores on a test).
 - The numerical data can be represented in ranges (i.e. scores of 71-75, 76-80, 81-85, etc.)
 - The bars are connected because the data is continuous.



- **Scatter Plot**-a graph of plotted points that shows the relationship between two data sets
 - Used when you are showing the relationship between two variables.
 - Data is not continuous.
 - Used to show correlation between two variables.



- **Line Graph**-a graph that uses segments to connect data points to show changes in data.
 - Data is continuous.
 - May show how something changes over time.



- This is in no way a comprehensive list of charts and graphs. There are others that may be used to describe statistics.
- These can all be created in Excel by selecting the data set (or two if creating a scatter plot or line graph), and clicking on the “Insert” tab and “Charts.”
- It is important to select the one that is appropriate for your data set(s).

How to construct a Bar Graph

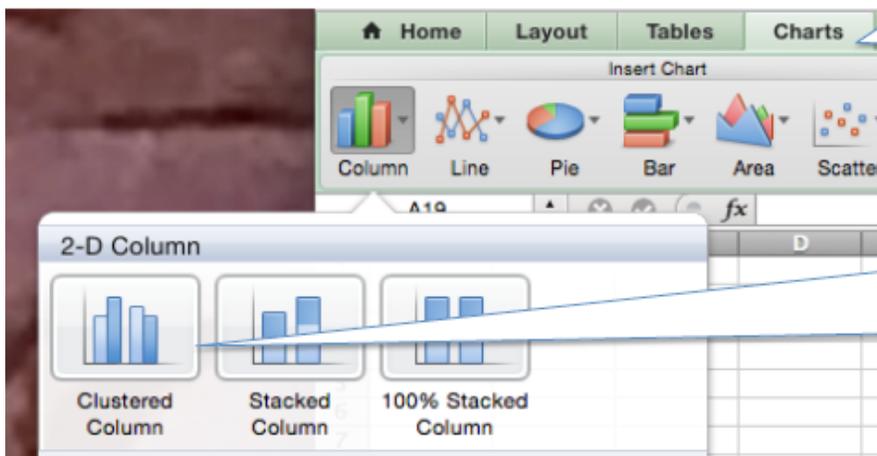
How to Construct a Bar Graph of Two Sample Means, Including Error Bars, Using Excel

1. Organize the data you would like to graph in two columns.

Species 1	Species 2	
23	35	
27	28	
29	32	
23	26	
25	34	
21	29	
24	37	
27	25	
25	35	
26	34	
25	31.5	Mean
2.3570226	4.19655944	Standard Deviation
0.74535599	1.32706862	SEM
1.4608709	2.60100669	95% CI

Highlight the column labels and the two means. (In a PC you can select multiple rows by holding down the ctrl key and in a Mac the command key.)

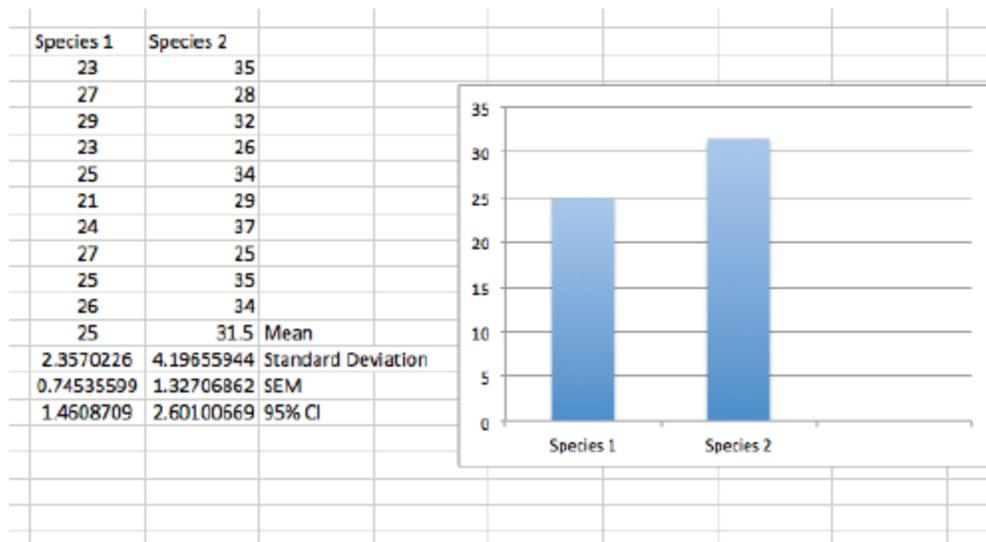
2. Select the "Charts" ribbon and click the "Column" charts.



Select the "Charts" ribbon.

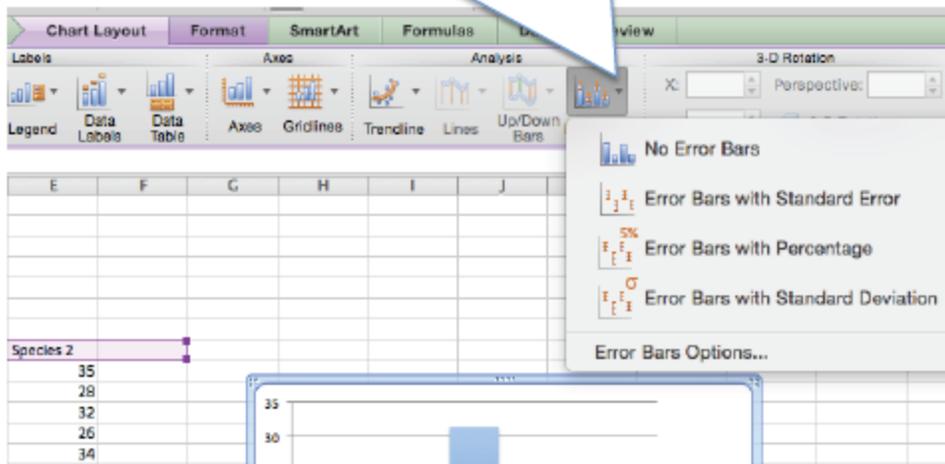
Select the "Column" charts and click on "Clustered Columns."

3. The bar graph will appear on the Excel spreadsheet.

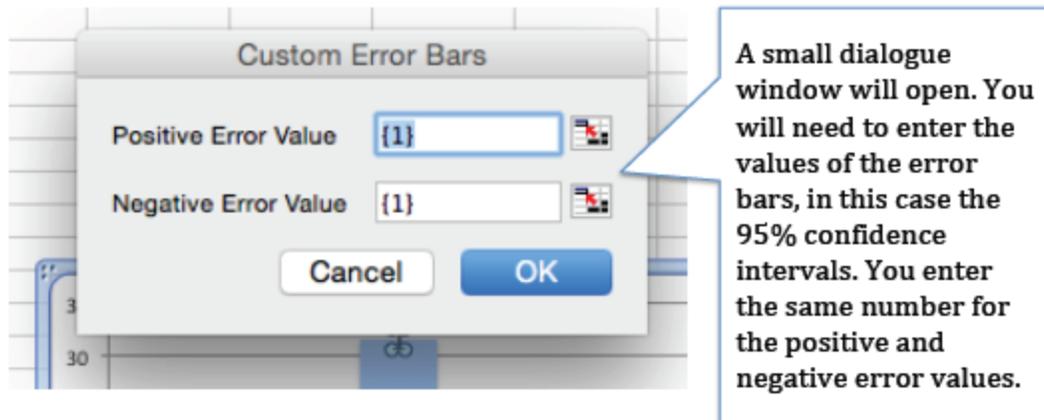
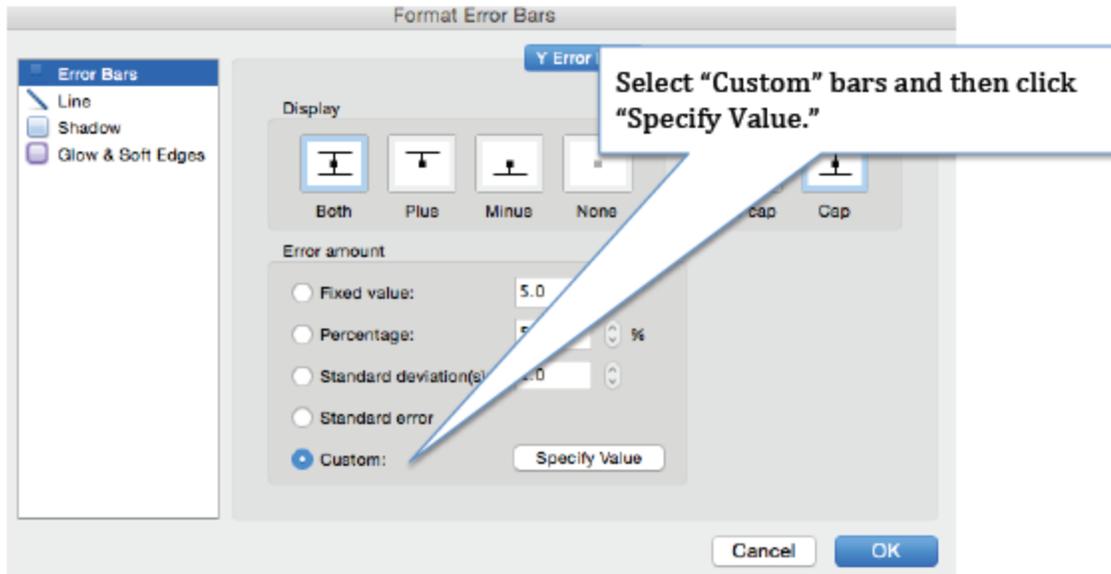


4. Next you will add error bars to the graph.

Depending on your version of Excel, there should be a selection under "Chart Layout" for adding error bars. Select "Error Bar Options."



5. Select “Custom” bars and enter your values as shown here.



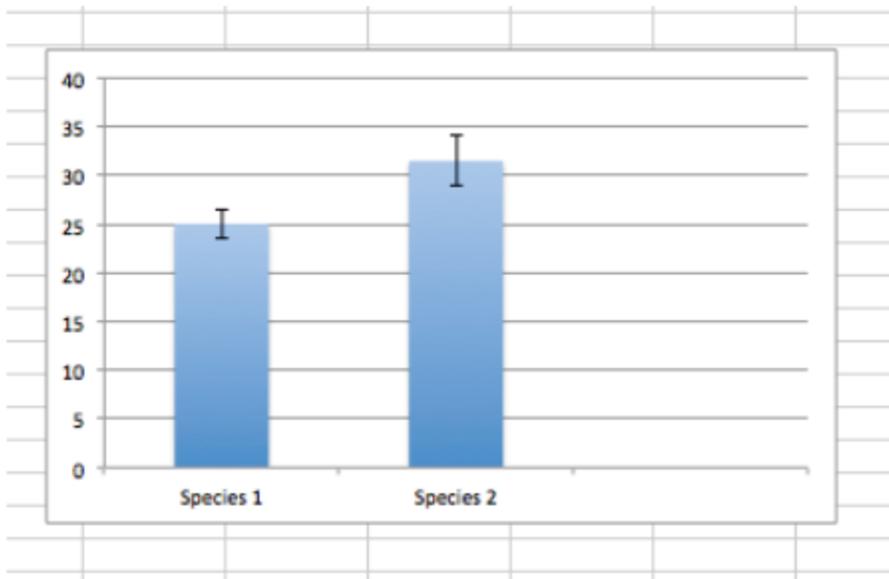
You can either manually enter the 95% CI values for each group separated by a comma (i.e., 1.461, 2.601) or select the two cells where the 95% CI values are entered. Once you have added your values to both the positive and negative error value fields, click "OK."

27	25	
25	35	
26	34	
25	31.5	Mean
2.3570226	4.19655944	Standard Deviation
0.74535599	1.32706862	SEM
1.4608709	2.60100669	95% CI

Custom Error Bars

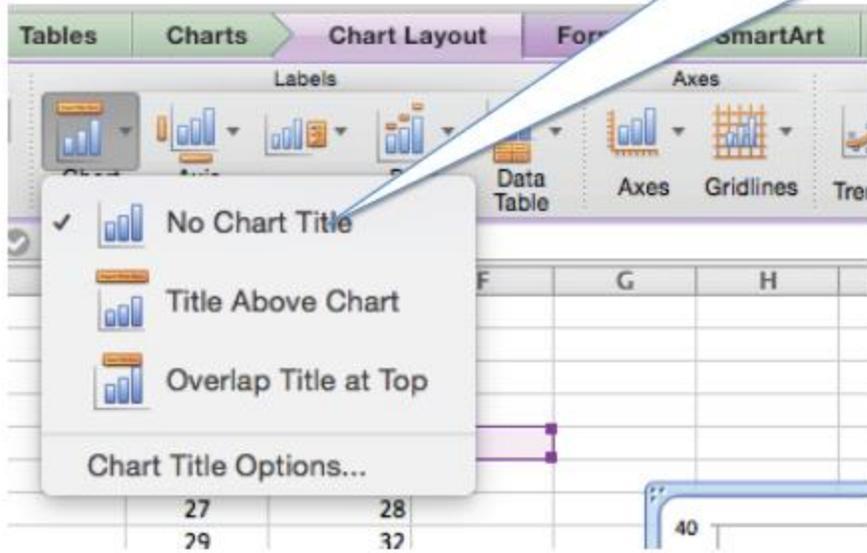
Positive Error Value:

Negative Error Value:

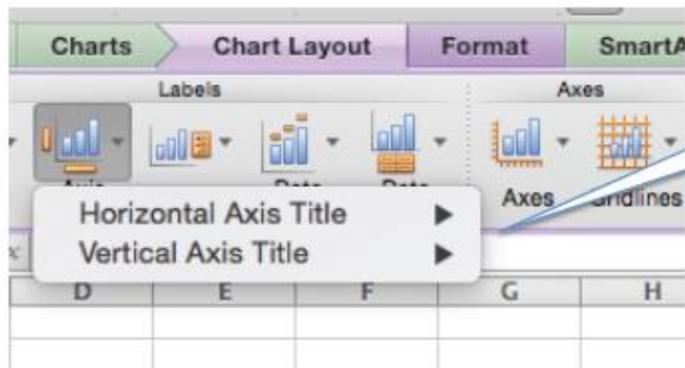


6. Once the error bars are entered, you will add labels to the x and y axes and an overall title for the graph.

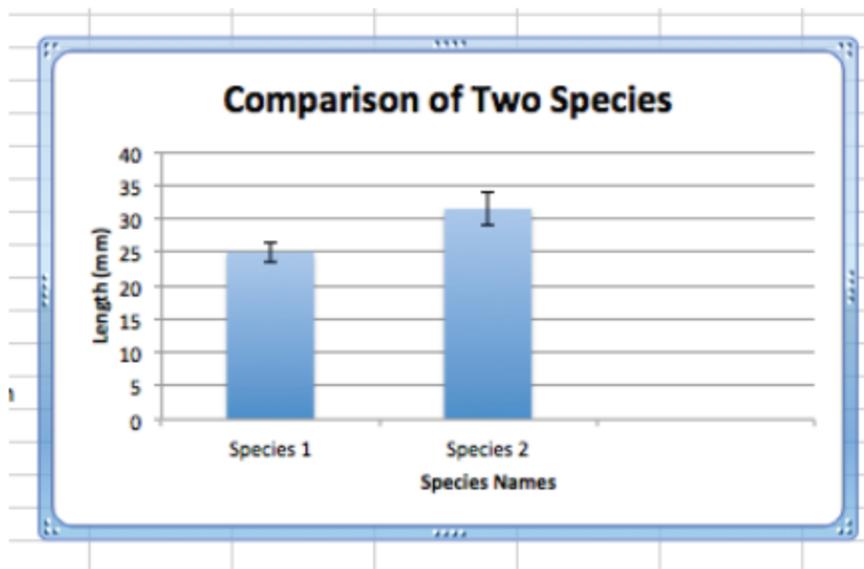
Select your choice of title under the "Chart Layout" options.



Then select your chose of axes labels.



7. Check that everything looks right and then save your graph.



If you need directions for another graphs, ask your HSTA Teacher for help and/or look on the internet for Excel tutorials.

<https://www.excel-easy.com/examples/line-chart.html> - Line Graph

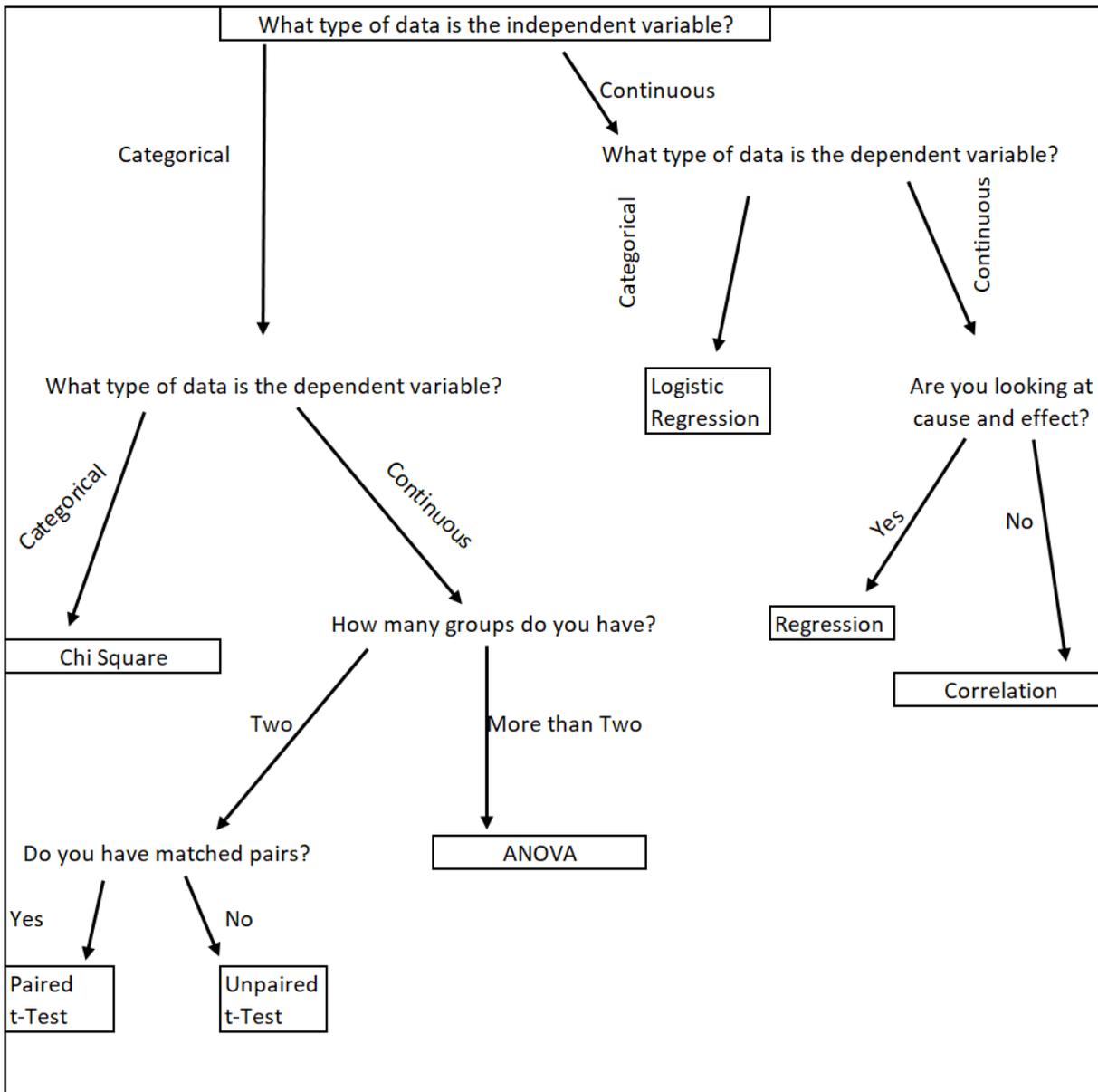
<https://www.excel-easy.com/examples/scatter-plot.html> - Scatter Plot

Date Analysis

Score Sheet – Worth 4 points, scored by symposium judges

- Data analysis includes a statistical test used to test the hypothesis
- Data analysis includes an explanation of why that statistical test was used
- Data analysis includes a P-value
- Data analysis includes an explanation of the statistical significance of statistical test

Stats Flow Chart



- Categorical variable: limited number of values [i.e. Survival (Values could be Survived/Died), Answer (e.g., Yes/No), Gender (Male/Female)]

- Continuous variable: potentially take ANY value between some lower and upper bound [i.e. Weight, Height, Speed, Performance on a Test (if numerical)].

What is a p-value?

Imagine that one day, Kobe Bryant (the famous basketball player) got into a 1 on 1 match with a, say, ten-year-old kid. Piece of cake for Kobe, right?

But it turned out that Kobe lost the game.

Whattttttttt?

Kobe was beaten in a 1 on 1 match against a little kid! Fans were shocked. And frustrated. And angry.

The reasoning goes like this: If Kobe had played as usual, he would have been highly unlikely to be defeated. But he lost the game! So fans had every reason to cast doubt on his fair play. (I'm so sorry, Kobe).

To put it another way, the reasoning goes like this: We have a *hypothesis*: Kobe rocks as usual. If the hypothesis had been true, the *probability of him losing* would have been soooooooo small, say, less than 5%. But he lost the game. So the unlikelihood was considered as evidence against his fair play.

In medical studies, the authors do almost the same thing. They propose a hypothesis (the full name is *null hypothesis*), which is "a statement suggesting that nothing interesting is going on, for example, that there is no difference between the observed data and what was expected, or no difference between two groups." [2] Then the authors calculate the *probability (p-value)* of the collected data, given that the null hypothesis was true. If the *p-value* is too small, they have every reason to cast doubt on the accuracy of the null hypothesis. Then, they reject the null hypothesis, and accept the "inverse hypothesis" (*alternative hypothesis*).

See?

The *p-value* reflects the strength of evidence against the null hypothesis. Accordingly, we'll encounter two situations: the strength is *strong enough* or *not strong enough* to reject the null hypothesis.

From <https://www.students4bestevidence.net/p-value-in-plain-english-2/>

**What does it mean for there to be a statistically significant difference??? Or not???
Statistically significant.**

It's a phrase that's packed with both meaning, and syllables. It's hard to say and harder to understand.

Yet it's one of the most common phrases heard when dealing with quantitative methods.

While the phrase statistically significant represents the result of a rational exercise with numbers, it has a way of evoking as much emotion. Bewilderment, resentment, confusion and even arrogance (for those in the know).

I've unpacked the most important concepts to help you the next time you hear the phrase:

Not Due to Chance

In principle, a statistically significant result (usually a difference) is a result that's not attributed to chance.

More technically, it means that if the Null Hypothesis is true (which means there really is no difference), there's a low probability of getting a result that large or larger.

Statisticians get really picky about the definition of statistical significance, and use confusing jargon to build a complicated definition. While it's important to be clear on what statistical significance means technically, it's just as important to be clear on what it means practically.

Consider these two important factors.

1. **Sampling Error.** There's always a chance that the differences we observe when measuring a sample of users is just the result of random noise; chance fluctuations; happenstance.
2. **Probability; never certainty.** Statistics is about probability; you cannot buy 100% certainty. Statistics is about managing risk. Can we live with a 10-percent likelihood

that our decision is wrong? A 5-percent likelihood? 33 percent? The answer depends on context: what does it cost to increase the probability of making the right choice, and what is the consequence (or potential consequence) of making the wrong choice? Most publications suggest a cutoff of 5%—it's okay to be fooled by randomness 1 time out of 20. That's a reasonably high standard, and it may match your circumstances. It could just as easily be overkill, or it could expose you to far more risk than you can afford.

In Summary:

- Statistically significant means a result is unlikely due to chance
- The p-value is the probability of obtaining the difference we saw from a sample (or a larger one) if there really isn't a difference for all users.
- A conventional (and arbitrary) threshold for declaring statistical significance is a p-value of less than 0.05.
- Statistical significance doesn't mean practical significance. Only by considering context can we determine whether a difference is practically significant; that is, whether it requires action.

From <https://measuringu.com/statistically-significant/>

T-Test

If you want to see if there is a difference between two groups, you can test for a significant difference using a t-test. By doing a t-test, you get a p-value:

If you get a p -value of **less than .05 or 5%**, then **there is significant difference**.

This means that you can safely say at least 95% of the time you see a difference.

If you get a p -value of **more than .05 or 5%**, then **there is no significant difference**. This means the data is similar more than 5% of the time.

1. Open Excel

2. Create a chart like

IV-1	IV-2
DV	DV
DV	DV
DV	DV

3. Label IV and record DVs

4. Fill in the columns with results

5. Click on a blank cell where you want to have the t-test appear

6. Click on 'Formulas', 'More Functions,' 'Statistical,' and then 'TTest'

7. For 'Array 1' highlight the first column of the numbers

8. For 'Array 2' highlight the second column of the numbers

9. For 'Tails' type in 2 (You will almost always be doing a two-tailed test, meaning your data goes in two directions - higher or lower, as opposed to one direction)

10. For 'Type'

Choose "1" (paired t-test) if you are comparing a pre/post measurement taken on the same group

Choose "2" (unpaired t-test) if you are comparing one measurement taken on two different groups

11. Click OK and the t-test result will appear.

12. You will get a P-value.

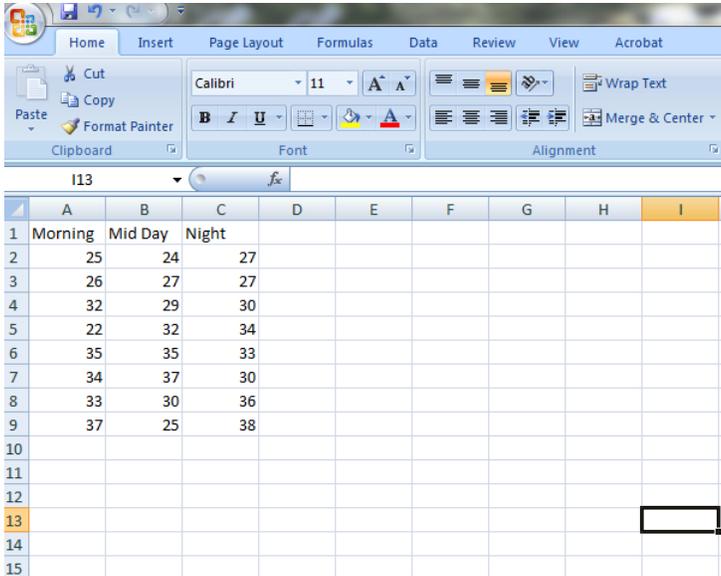
If it is less than 0.05 then yes, then there is a difference between columns 1 and 2.

If it is more than 0.05, then no there is not a difference between columns 1 and 2.

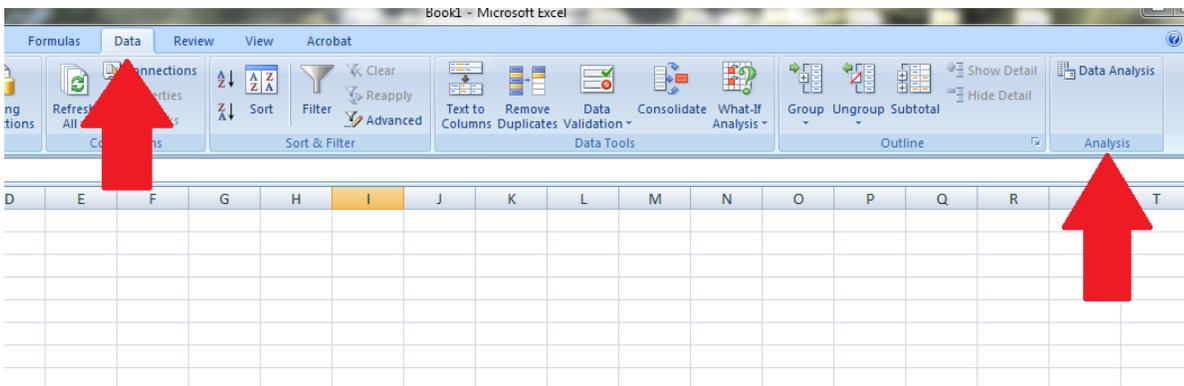
One Way ANOVA in Excel

If you want to compare three or more independent variables by measuring one dependent variable.

1. Open Excel.
2. Enter Data.



3. Click on Data. Look at the right side of the screen - Is there a Data Analysis icon?

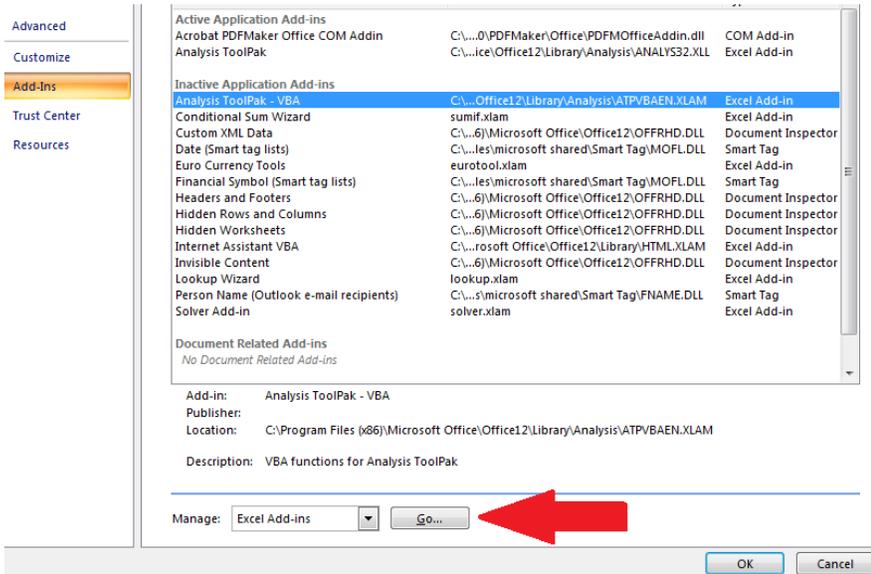
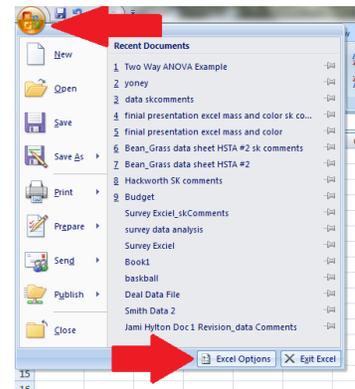


4. If not, Click on the Start Button and then Excel Options

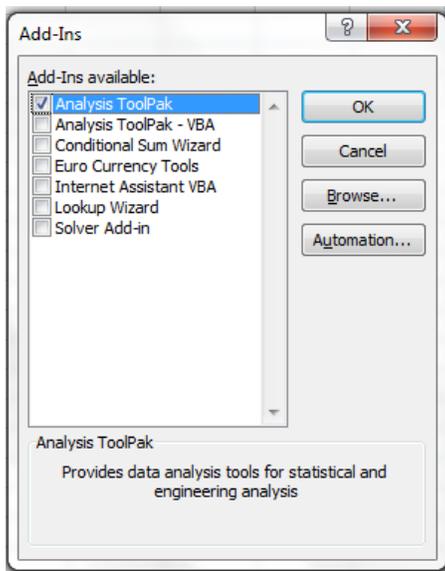
5. Click Add Ons

6. Click on Analysis ToolPak

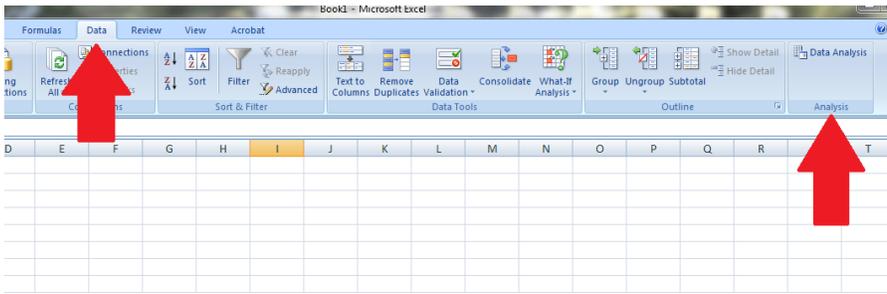
7. Click on Go



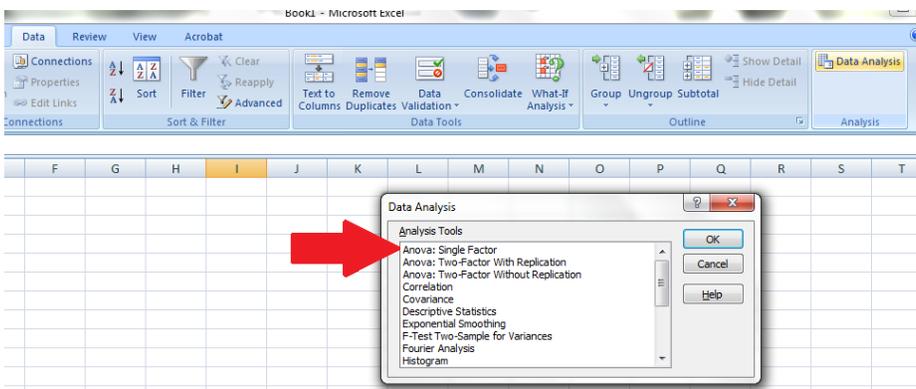
8. Make sure the Analysis ToolPak is selected and click ok.



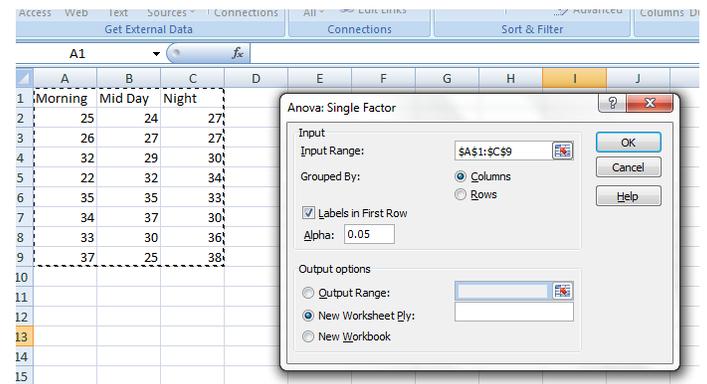
9. Now click on Data and on the right side of the screen the Data Analysis icon will be there.



10. Click Data Analysis and then select ANOVA: single factor and click OK. If you have two factors you will need to complete a ANOVA: Two-Factor with Replication.



11. Now highlight all columns including the labels. Click Labels in First Row and then Ok.



12. An ANOVA chart will appear.

	A	B	C	D	E	F	G	H
1	Anova: Single Factor							
2								
3	SUMMARY							
4	<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>			
5	Morning	8	244	30.5	29.42857			
6	Mid Day	8	239	29.875	21.26786			
7	Night	8	255	31.875	16.41071			
8								
9								
10	ANOVA							
11	<i>Source of Variance</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>	
12	Between Groups	16.75	2	8.375	0.374401	0.6922	3.4668	
13	Within Groups	469.75	21	22.36905				
14								
15	Total	486.5	23					
16								
17								
18								

13. Now look at the p-value

If you get a *p*-value of **less than .05 or 5%**, then **there is significant difference**. This means that you can safely say at least 95% of the time you see a difference.

If you get a *p*-value of **more than .05 or 5%**, then **there is no significant difference**. This means the data is similar more than 5% of the time.

14. Now look at F and compare it to F Crit. If F is larger than F Crit you have a significant difference.

15. Remember this test just tells you there is a difference, not where the difference is.

16. You can also add standard deviation. This is a great way to measure how spread out your numbers are. To find standard deviation take the square root of the variance.

17. Graph the average value for each group and add standard deviation bars.

Chi Square

Remember to use a Chi Square when you have categorical data. Categorical data results in category data, not numerical data. For example, questions like “What gender are you?” “What is your major?” “What state do you live in?” are considered categorical results. Questions such as “How much do you weight?” “How tall are you?” “How old are you?” are considered numerical results.

There are several types of chi squares depending on the way the data is collected and the hypothesis that is being tested. Below is an example of a simple chi square.

You can also use an online chi square calculator. Example:

<https://www.socscistatistics.com/tests/chisquare2/default2.aspx>

1. Make sure to chart and enter your variables and observed data points.
Example: List your independent variable down the row and dependent variable across the columns.

	A	B	C	D	E
1	Observed				
2		Republican	Democrat	Independ	Total
3	Males	120	90	40	250
4	Female	110	95	45	250
5	Total	230	185	85	500
6					
7					

2. Next, determine the expected variables using the following formula:

Expected value = (row sum * column sum) / table sum. Example:

	A	B	C	D	E	F	G	H	I	J	K
1	Observed										
2		Republican	Democrat	Independ	Total						
3	Males	120	90	40	250						
4	Female	110	95	45	250						
5	Total	230	185	85	500						
6						Formula Break Down					
7	Expected						Expected				
8		Republican	Democrat	Independ	Total		Republican	Democrat	Independent	Total	
9	Males	115	92.5	42.5	250	Males	$(230*250)/500$	$(185*250)/500$	$(85*250)/500$	250	
10	Female	115	92.5	42.5	250	Female	$(230*250)/500$	$(185*250)/500$	$(85*250)/500$	250	
11	Total	230	185	85	500	Total	230	185	85	500	
12											
13											

3. Next in excel, click in an empty cell and type in =chitest(). It should look like =chitest(actual_range, expected_range). Highlight only the actual range (no total numbers) put a , then highlight the expected range (no total numbers). Hit enter.
4. This will give you a p-value. A small p -value (typically ≤ 0.05) indicates strong evidence against the null hypothesis, so you reject the null hypothesis. A large p -value (> 0.05) indicates weak evidence against the null hypothesis, so you fail to reject the null hypothesis.
5. Explain results in your conclusion.

Correlation

Simple linear correlation is a measure of the degree to which two variables vary together, or a measure of the intensity of the association between two variables.

You need to show that one variable is affecting another variable.

The parameter being measured is ρ (rho) and is estimated by the statistic r , the correlation coefficient. r can range from -1 to 1, and is independent of units of measurement.

The strength of the association increases as r approaches the absolute value of 1. If r is 1, then the columns of data are related 100% of the time. If r is less than 1, then the columns of data are somewhat related.

As the correlation coefficient approaches 0, then the columns of data are less related.

Graphing Correlation

Scatter plots or line graphs are a useful means of getting a better understanding of a correlation.

In general, scatter plots may reveal a

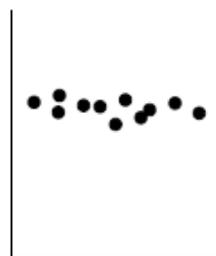
- **positive correlation** (high values of X associated with high values of Y)
- **negative correlation** (high values of X associated with low values of Y)
- **no correlation** (values of X are not at all predictive of values of Y).



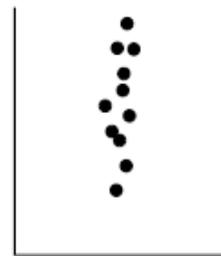
(A) Positive Correlation



(B) Negative Correlation



(C) No correlation



(D) No correlation

Excel Directions for Correlation Coefficient (r):

1. Open Excel
2. Create a chart
3. Fill in the columns with results
4. Click on a blank cell where you want to have the correlation appear
5. Click on 'Formulas', 'More Functions,' 'Statistical,' and then 'CORREL'
6. For 'Array 1' highlight the first column of the numbers
7. For 'Array 2' highlight the second column of the numbers
8. Click OK and the correlation result will appear. This number is the *Correlation Coefficient (r)*.

	A	B
1	Values 1	Values 2
2	2	6
3	3	2
4	5	8
5	4	7
6	0.2	4
7	0.5	0.11
8	8	1.66
9	1	2.88
10	0.6	1.99
11	0.2	1.55
12		

9. Now that you have a correlation coefficient, you need to compute a p-value to represent the probability that this data would have arisen if the null hypothesis was true.

First, you need to find t from the following formula: where r = coefficient of correlation n = total number of variants, (n-2) = degree of freedom.

$$\frac{r * \sqrt{n-2}}{\sqrt{1-r^2}}$$

Second, you need to find tdist in excel. Type =tdist(t vaule, df, 2): where t value is calculated in step 9.1, df = degree of freedom (n-2), 2 is just the number two to represent a two tailed test.

The p-value will appear.

A small p-value (typically ≤ 0.05) indicates strong evidence against the null hypothesis, so you reject the null hypothesis.

A large p-value (> 0.05) indicates weak evidence against the null hypothesis, so you fail to reject the null hypothesis.

p -values very close to the cutoff (0.05) are considered to be marginal (could go either way).

Example:

	A	B
1	Values 1	Values 2
2	2	6
3	3	2
4	5	8
5	4	7
6	0.2	4
7	0.5	0.11
8	8	1.66
9	1	2.88
10	0.6	1.99
11	0.2	1.55
12		

Correlation Coefficient = 0.299515

The result is 0.299, which is not a perfect correlation between fields but not that much negative as it is in the range of 0 to +1.

Interpreting a Correlation Coefficient

Size of the Correlation	Coefficient General Interpretation
0.8 to 1.0	Very strong relationship
0.6 to 0.8	Strong relationship
0.4 to 0.6	Moderate relationship
0.2 to 0.4	Weak relationship
0.0 to 0.2	Weak or no relationship



Regression

1. Click on blank cell.
2. Click on Tools icon in top tool bar, then Data Analysis.
3. Click on 'Regression'.
4. Highlight the first column of data for the Input Y Range (dependent variable),
5. Highlight the 2nd column of data for the Input X Range (independent variable), then 'ok'.
6. Check" the box beside "Line Plot Fit" (before you click "OK"). This will embed a very nice chart that plots predicted against actual values.
7. View Correlation Coefficient (Multiple R), *P-value* (significant if < .05),
8. and slope (coefficients of intercept and X variable).
9. You can rename the new worksheet or copy/paste where desired.

Excel Easy. (2017). Regression. Retrieved August 12, 2017 from <http://www.excel-easy.com/examples/regression.html>

This example teaches you how to perform a regression analysis in Excel and how to interpret the Summary Output.

Below you can find our data. The big question is: is there a relation between Quantity Sold (Output) and Price and Advertising (Input). In other words: can we predict Quantity Sold if we know Price and Advertising?

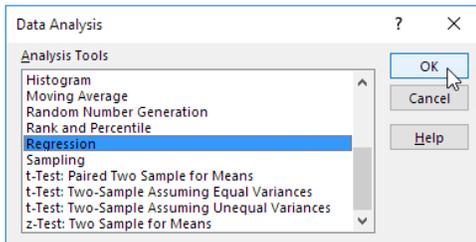
	A	B	C	D
1	Quantity Sold	Price	Advertising	
2	8500	\$2	\$2,800	
3	4700	\$5	\$200	
4	5800	\$3	\$400	
5	7400	\$2	\$500	
6	6200	\$5	\$3,200	
7	7300	\$3	\$1,800	
8	5600	\$4	\$900	
9				

1. On the Data tab, in the Analysis group, click Data Analysis.



Note: can't find the Data Analysis button? Click here to load the [Analysis ToolPak add-in](#).

2. Select Regression and click OK.



3. Select the Y Range (A1:A8). This is the predictor variable (also called dependent variable).

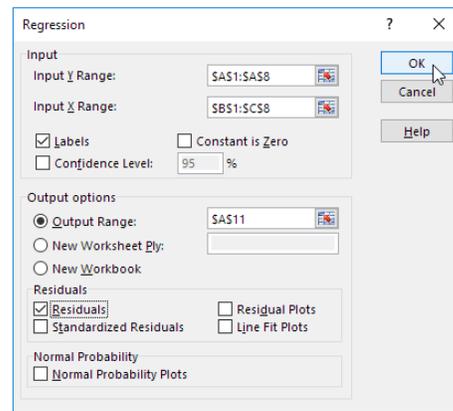
4. Select the X Range(B1:C8). These are the explanatory variables (also called independent variables). These columns must be adjacent to each other.

5. Check Labels.

6. Click in the Output Range box and select cell A11.

7. Check Residuals.

8. Click OK.



Excel produces the following Summary Output (rounded to 3 decimal places).

R Square

R Square equals 0.962, which is a very good fit. 96% of the variation in Quantity Sold is explained by the independent variables Price and Advertising. The closer to 1, the better the regression line (read on) fits the data.

11	SUMMARY OUTPUT	
12		
13	<i>Regression Statistics</i>	
14	Multiple R	0.981
15	R Square	0.962
16	Adjusted R Square	0.943
17	Standard Error	310.524
18	Observations	7
19		

What Is R-squared?

- R-squared is a statistical measure of how close the data are to the fitted regression line. It is also known as the coefficient of determination, or the coefficient of multiple determination for multiple regression.
- The definition of R-squared is fairly straight-forward; it is the percentage of the response variable variation that is explained by a linear model. Or:
- $R\text{-squared} = \text{Explained variation} / \text{Total variation}$
- R-squared is always between 0 and 100%:
- 0% indicates that the model explains none of the variability of the response data around its mean.
- 100% indicates that the model explains all the variability of the response data around its mean.
- In general, the higher the R-squared, the better the model fits your data. However, there are important conditions for this guideline that I'll talk about both in this post and my next post.
- R-squared *cannot* determine whether the coefficient estimates and predictions are biased, which is why you must assess the residual plots. R-squared does not indicate whether a regression model is adequate. You can have a low R-squared

value for a good model, or a high R-squared value for a model that does not fit the data!”

Frost, J. (2013, May 30). Regression Analysis: How Do I Interpret R-squared and Assess the Goodness-of-Fit? Retrieved from <http://blog.minitab.com/blog/adventures-in-statistics-2/regression-analysis-how-do-i-interpret-r-squared-and-assess-the-goodness-of-fit>

Significance F and P-values

To check if your results are reliable (statistically significant), look at Significance F (0.001). If this value is less than 0.05, you're OK. If Significance F is greater than 0.05, it's probably better to stop using this set of independent variables. Delete a variable with a high P-value (greater than 0.05) and rerun the regression until Significance F drops below 0.05.

Most or all P-values should be below 0.05. In our example this is the case. (0.000, 0.001 and 0.005).

20	ANOVA						
21		<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>	
22	Regression	2	9694299.568	4847149.784	50.269	0.001	
23	Residual	4	385700.432	96425.108			
24	Total	6	10080000.000				
25							
26		<i>Coefficients</i>	<i>Std Error</i>	<i>t Stat</i>	<i>P-values</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
27	Intercept	8536.214	386.912	22.062	0.000	7461.975	9610.453
28	Price	-835.722	99.653	-8.386	0.001	-1112.404	-559.041
29	Advertising	0.592	0.104	5.676	0.005	0.303	0.882
30							

Coefficients

The regression line is: $y = \text{Quantity Sold} = 8536.214 - 835.722 * \text{Price} + 0.592 * \text{Advertising}$. In other words, for each unit increase in price, Quantity Sold decreases with 835.722 units. For each unit increase in Advertising, Quantity Sold increases with 0.592 units. This is valuable information.

You can also use these coefficients to do a forecast. For example, if price equals \$4 and Advertising equals \$3000, you might be able to achieve a Quantity Sold of $8536.214 - 835.722 * 4 + 0.592 * 3000 = 6970$.

Residuals

The residuals show you how far away the actual data points are from the predicted data points (using the equation). For example, the first data point equals 8500. Using the equation, the predicted data point equals $8536.214 - 835.722 * 2 + 0.592 * 2800 = 8523.009$, giving a residual of $8500 - 8523.009 = -23.009$.

33	RESIDUAL OUTPUT		
34			
35	<i>Observation</i>	<i>Predicted Quantity Sold</i>	<i>Residuals</i>
36	1	8523.009	-23.009
37	2	4476.048	223.952
38	3	6265.938	-465.938
39	4	7160.883	239.117
40	5	6252.733	-52.733
41	6	7095.058	204.942
42	7	5726.330	-126.330
43			

Logistic Regression

Below are two useful resources about logistic regression:

- <http://blog.excelmasterseries.com/2014/06/logistic-regression-performed-in-excel.html>
- <http://www.youtube.com/watch?v=EKRjDurXau0>

Percent Change

- To calculate the percentage increase:
- Increase = New Number – Original Number
- Then: Divide the increase by the original number and multiply the answer by 100
- % increase = Increase / Original Number * 100
- If your answer is a negative number, then this is a percentage decrease

Conclusion

Score Sheet: Worth 5 Points, scored by symposium judges

- *Conclusion slide includes an accurate summary of the project*
- *Conclusion slide Interprets the data to conclude if the data supported or rejected the hypothesis*
- *Conclusion slide answers the research question*
- *Conclusion slide discusses limitations*
- *Conclusion slide discusses how students would implement change and/or bring awareness to their community*

Tips:

1. A summary is good – it allows the reader to recap what the research was about.
2. Interpret what your data is saying – just don't say the p value was...we rejected... talk about what that means and relate it back to your observation. Before you present make sure to discuss your findings with many people – other peers, teacher, parents, etc.
3. What was the answer to your research question? Was the intervention meaningful, did the fertilizer help, were seniors more educated, etc.
4. The limitations of the study are characteristics of design or procedures that impacted or influenced the setup, data collection or interpretation of the results of your study. Keep in mind that acknowledgement of a study's limitations is an opportunity to make suggestions for further research.
 - a. Discusses workable solutions to your limitations.
5. Finally, what does this all mean to the community? How will you spread your knowledge and/or create change? End on a positive note.

References

Score Sheet – Worth 5 Points, scored by HSTA Teacher

- *Reference slide includes 4 or more academic sources.*
- *Reference slide has ONLY in-text citations that are included as full references.*
- *References are in the correct APA format.*
- *References are listed in alphabetical order.*
- *References are listed with hanging indents.*

Tips

1. APA (American Psychological Association) style is most commonly used to cite sources within the social sciences.
2. The reference list provides the information necessary for a reader to locate and retrieve any source you cite in the body of the paper.
3. EACH source you cite in the paper must appear in the reference list.
4. LIKEWISE, every entry in the reference list must be cited in your text.
5. References are always listed in alphabetical order, are double spaced, and have a hanging indentation. Indent after 1st line (one half inch).
6. Author names are inverted (last name first and then only initials of author(s) first name and/or middle name).
7. If there is no author, the reference citation starts with the first word of the article title.
8. Capitalize the major words in a journal title, but capitalize only the first letter of the first word of an article title.
9. Put the date that you accessed the information off of the internet.

Citation for a book:

Author. (Date of publication). *Title*. Place of publication: Publishing company.

Smith, J. (2007). *How to succeed in college*. Littletown, Ohio: Jones Publishing.

Citation for a journal article:

Journal article with a doi (digital object identifier)

Author. (Date of publication). Title of article. *Italicized title of journal, magazine or newspaper*, Volume(Issue), Pages. doi (digital object identifier)

Ke, F., & Hoadley, C. (2009). Evaluating online learning communities.

Educational Technology Research & Development, 57(4), 487-510.

doi: 10.1007/s11423-009-9120-2

- 1) Journal article without doi - If no doi is assigned to the content and you retrieved it online, include the home page URL for the publisher of the journal, newsletter, or magazine in the reference citation.

Author. (Date of publication). Title of article. *Italicized title of journal, magazine or newspaper, Volume(Issue), Pages.* Retrieved date from <http://www.xxxxxxxxxx>

Parrish, P. & Linder-VanBerschot, J. (2010). Cultural dimensions of learning: Addressing the challenges of multicultural instruction. *International Review of Research in Open & Distance Learning, 11(2), 1-19.* Retrieved August 18, 2016 from <http://www.irrodl.org/index.php/irrodl>

Citation for an Internet site:

Author. (Date of publication). Title of page OR *Italicized title of site.* Retrieved date from web address.

- 1) Newspaper article found on the Internet:

Baker, J. K. (2000, January 23). Is your profile on Facebook? *New York Times.*

Retrieved August 18, 2016 from <http://www.nytimes.com>

- 2) Stand-alone document (site) on the Internet, no author, title of site, no date:

Tips to help you organize. (n.d.). Retrieved August 18, 2016 from

<http://www.organizetips.com/course2.htm#5ds>

- 3) Article found on the Internet from the WebMD website:

Hypertension/high blood pressure center: Symptoms of high blood pressure.

(2012, May 19.) Retrieved August 18, 2016 from <http://www.webmd.com/hypertension-high-blood-pressure/guide/hypertension-symptoms-high-bloodpressure>

References

- Baker, J. K. (2000, January 23). Is your profile on Facebook? *New York Times*. Retrieved August 18, 2015 from <http://www.nytimes.com>
- Hypertension/high blood pressure center: Symptoms of high blood pressure. (2012, May 19.) Retrieved August 18, 2016 from <http://www.webmd.com/hypertension-high-blood-pressure/guide/hypertension-symptoms-high-bloodpressure>
- Ke, F., & Hoadley, C. (2009). Evaluating online learning communities. *Educational Technology Research & Development*, 57(4), 487-510. doi: 10.1007/s11423-009-9120-2
- Parrish, P. & Linder-VanBerschot, J. (2010). Cultural dimensions of learning: Addressing the challenges of multicultural instruction. *International Review of Research in Open & Distance Learning*, 11(2), 1-19. Retrieved August 18, 2016 from <http://www.irrodl.org/index.php/irrodl>
- Smith, J. (2007). *How to succeed in college*. Littletown, Ohio: Jones Publishing. *Tips to help you organize*. (n.d.). Retrieved August 18, 2016 from <http://www.organizetips.com/course2.htm#5d>

PowerPoint and Presentation Tips

Score Sheet – Worth 7 Points, scored by symposium judges

- *Students speak clearly during the presentations*
- *Students are able to answer questions with confidence*
- *Students didn't read slides word for word (used presentation and /or note cards for support)*
- *Students present slides in the correct order*
- *Presentation has limited spelling/grammar errors*
- *Presentation's background (color/animation) is not distracting*
- *Presentation's text size/font are consistent throughout slide show*

Tips

1. Follow the order of the rubric.
 - a. Title the slide with the same title as the rubric is titled.
 - b. This makes for less confusion and is easier for the judges to follow and grade.
 - i. Example—***Justification/Background Research*** (not ***Types of Diabetes***)
2. One thing at a time.
 - a. What should be on the screen is the thing you are talking about.
 - b. The audience will instantly read every slide as soon as it's displayed. They will be three steps ahead of you, waiting for you to catch up rather than listening with interest to the point you're making.
 - c. Plan your presentation so just one new point is displayed at any given moment.
 - d. Bullet points can be revealed one at a time as you reach them.
 - e. Charts can be put on the next slide to be referenced when you get to the data the chart displays.
 - f. Control the flow of information so that you and your audience stay in sync.
3. No paragraphs.
 - a. Your slides are the **illustrations** for your presentation, **not** the presentation itself.
 - b. They should **underline** and **reinforce** what you are saying as you give your presentation.

- c. Save the paragraphs of text for your script to use on your notecards.
 - d. For bullet points, use the **6 x 6 Rule**. One thought per line with no more than 6 words per line and no more than 6 lines per slide
4. Pay attention to design.
- a. Avoid the temptation to dress up your pages with cheesy effects and focus instead on simple design basics:
 - i. Use a sans serif font for body text. Sans serifs like **Arial**, **Helvetica**, or **Calibri** tend to be the easiest to read on screens.
 - ii. Use decorative fonts *only* for slide headers, and then *only* if they're easy to read. Stick to a classy serif font like **Georgia** or **Baskerville**.
 - b. Color schemes.
 - i. Dark text on a light background is easiest to read.
 - ii. If you must use a dark background, make sure your text is quite light (white, cream, light grey, or pastels) and increase the font size.
 - c. Align text left or right.
 - i. Centered text is harder to read and looks amateurish.
 - ii. Line up all your text to a right-hand or left-hand baseline – it will look better and be easier to follow.
 - d. Avoid clutter.
 - i. A headline, a few bullet points, maybe an image – anything more than that and you risk losing your audience as they sort it all out.
 - e. Pay attention to spelling and grammar
5. Use high quality graphics.
- a. Use images only when they add valuable information or make an abstract point more concrete.
 - b. Add pictures of your project to your PowerPoint so the audience can see what you have done
 Examples: Pictures of the set up of your experiment, the results, etc
 Pictures of the grade school students participating in your exercise program
 Pictures of you taking senior citizens' blood pressure
 - c. Do not use PowerPoint's built-in clipart. The entire concept of clipart has run its course – it just doesn't *feel* fresh and new anymore.
6. Think outside the screen.

- a. You are the focus when you're presenting, no matter how interesting your slides are.
 - b. Give some thought to your own presentation manner – how you hold yourself, what you wear, how you move around the room.
7. Have a hook.
- a. Open with something surprising or intriguing, something that will get your audience to sit up and take notice.
 - b. The most powerful hooks are often those that appeal directly to your audience's emotions – offer them something awesome or scare the pants off of them.
8. Make your voice interesting.
- a. Speak clearly and slowly
 - b. Always speak as if you were speaking to a friend, not as if you are reading off of note cards (even if you are).
 - c. If keeping up a lively and personable tone of voice is difficult for you when presenting, do a couple of practice run-throughs.
9. Do not read
- a. **Do not** read your slides word for word. The audience can read. Just explain in your own words what you want to say.
 - b. If you are using note cards, **do not** write down the same thing that is on the slide. Again...your audience can read. Your note cards should elaborate on what is written on the slides.

Lessons

Kit Materials

Your kit will house most of the materials for your hands-on activities in the event of COVID related shutdowns/quarantines. Below is a list of materials that you should have in your kit, materials you will need from home, and/or materials you will get in person during a regular club meeting.

Lesson #1 – Introduction and Lab/Ethics

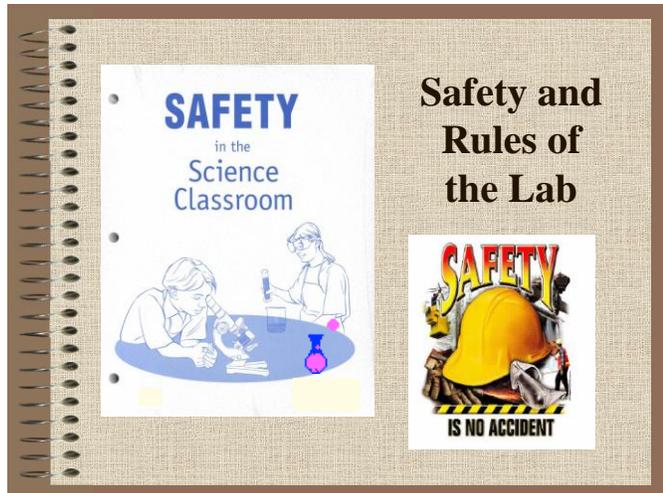
Introduction to the New HSTA Year

Hands on Activity: Lab and Ethics Safety

Materials – Internet and Notebook.

Directions for Lab Safety Activity:

1. Go to the online notebook and follow along with the PowerPoint.



2. Discuss the PowerPoint as a club.
3. Watch this six minute **video clip of Miss Carrie Less** exhibiting all the wrong lab safety procedures: https://www.youtube.com/watch?v=5IJ_aCfnRTs
4. Brainstorm as a group positive alternatives to Miss Carrie Less' poor laboratory behavior.
5. Then in the space below, draw a cartoon showing **6** things that students **SHOULD NOT DO** in the laboratory. Share the cartoon with your HSTA club.

6. Finally, read over the lab safety contract for the HSTA Term 2021-2022.

Lab Safety Contract

- I have read over the Lab Safety PowerPoint Presentation and have watch the Lab Safety Video.
- I will conduct myself in a responsible manner at all times in the laboratory, no horseplay.
- I will follow all written and verbal instructions carefully. If I do not understand a direction, I will ask my teacher before proceeding.
- Any time chemicals, heat, or glassware are used, I will wear protective eye wear.
- I will not eat food, drink beverages, or chew gum in the laboratory area.
- I will know the locations and operating procedures of all safety equipment, including the first aid kit, eyewash station, safety shower, fire extinguisher, and fire blanket. I will also know where the fire alarm and the exits are located.
- I will always work in a well-ventilated area.
- I understand that all chemicals should be considered dangerous.
- If a chemical should splash in my eye(s) or on your skin, immediately flush with running water from the eyewash station or safety shower for at least 20 minutes. I will also notify my teacher immediately.
- I will dispose of all chemical waste properly. Refer to the Flinn Safety website: <http://www.flinnsci.com/homepage/sindex.html>
- I will wash my hands with soap and water after performing all experiments.
- I will always use caution when using knives and other sharp instruments.
- I will dress properly during a laboratory activity. Long hair must be tied back, dangling jewelry and loose or baggy clothing must be secured, and shoes must completely cover the foot.
- I will report any accident (spill, breakage, etc.) or injury (cut, burn, etc.) to your teacher immediately. Never dispense flammable liquids anywhere near an open flame or source of heat.
- I will exercise extreme caution when using a heat source. Light gas (or alcohol) burners only as instructed by your teacher.
- If I have any allergies, I will let my teacher know, please specify: _____
- I will cooperate to the fullest extent to maintain a safe lab environment.

Directions for Ethics Activity:

1. The ethics handbook is on pages 45-61 You can find definitions and a copy of the contract.
2. Read the following and complete the questions below.

All research involves ethical considerations. Such concerns do not mean that the research is unethical, but rather that the researcher must do whatever she or he can to minimize ethical risks. Institutional review boards (IRBs) look over research proposals to safeguard participants and researchers. There are few hard-and-fast rules about what is and is not acceptable. IRBs generally engage in a kind of cost–benefit analysis. Common ethical concerns include:

1. Informed consent

- People should not be forced to be into research.
- People have the right to withdraw from the research at any time with no penalty.
- There should be informed consent. If deception is involved, there should be a debriefing.
- To consent, people must be told something about the purpose of the research.

2. Anonymity/confidentiality

- The source of the data should be anonymous or kept confidential to protect people’s privacy.

3. Long-term harm

- While it is acceptable to cause people minor discomfort during the research, no lasting physical or psychological harm should result from their participation.

Task: Imagine you have been assigned the task of sitting on an Institutional review board (IRB) and have been asked to consider the following research proposals. Each proposal involves ethical issues. Read each proposal and answer the questions below:

#1

Tyrone wants to study the impact of watching sexually suggestive/explicit television on people’s attitudes toward sex. He plans to test ninth graders because he believes they are still young enough to be highly impressionable. He will solicit volunteers to come after school. Half will be assigned to watch one hour of sexually explicit clips from a cable TV show while the other half will view an hour of clips from the same show that deal with nonsexual topics. After watching the TV shows, all participants will fill out a questionnaire about the attitudes toward sex.

1. What additional information might you want to know about the study in order to decide whether or not it should be approved?
2. What are the benefits that might result from this research? What are the potential harms?
3. If you were on an IRB reviewing this proposal, what would your recommendation be?

#2

Priya is interested in whether listening to music while working out makes people exercise harder. She plans to ask college students to come to the gym and run on a treadmill for half an hour either while listening to music or in silence. The dependent measure will be the number of miles run in that time period.

1. What additional information might you want to know about the study in order to decide whether or not it should be approved?

2. What are the benefits that might result from this research? What are the potential harms?

3. If you were on an IRB reviewing this proposal, what would your recommendation be?

#3

Charlotte wants to research the effect of labeling students (gifted vs. struggling) on their achievement in second grade. She proposes that students in an elementary school's second grade be divided into reading groups in which ability levels (as determined by previous test scores) are evenly mixed. One group will be told they are gifted readers, another group will be told that they are struggling readers, and a third group will be told nothing at all. Charlotte theorizes that by the end of the second-grade year, the students in the "gifted" level group will outperform those in the "struggling" group on the same reading test.

1. What additional information might you want to know about the study in order to decide whether or not it should be approved?

2. What are the benefits that might result from this research? What are the potential harms?

3. If you were on an IRB reviewing this proposal, what would your recommendation be?

FINALLY Look in your email for the REDCap link to sign your Lab and Ethics Safety Contract for 2021-2022 HSTA Term.

Lesson #2 – Project Selection and Catapult

Research Project: Selection

- Review project information on page 76.
- HSTA teacher will let you know if you can work in groups. Groups are no more than three individuals.
- You should leave the club meeting with a project in mind.
- Over the next few weeks, you will continue to prepare your project for data collection.

Hands on Activity: Catapult Part A

Materials – Internet and Notebook, Ping Pong Ball, Spoon, Paint Stirrer, and Tape

Objective: Design a way to launch a small ball off the floor so you can catch it.

Directions:

1. Watch a short video Bentley Systems engineer Murray Fredlund.
 - a. Video Link: https://youtu.be/xmP_ArRo6v0
2. Materials
 - a. Ping Pong ball
 - b. Plastic Spoon
 - c. Paint Stirrer
 - d. Spool
 - e. Tape
3. Complete Catapult Research Plan
 - a. Only use the given material to design a catapult to launch the ping pong ball.
 - b. Draw your design. (Use additional paper if needed)

 - c. How will you measure how high the ball travels?

- d. Now build your design and test it.
- e. What went wrong and/or how can you improve your design?

- f. Draw your new design – remember to use only the materials you have. (Use additional paper if needed)

- g. What went wrong and/or how can you improve your design?

- h. Go through the design process one more time. Draw your design. (Use additional paper if needed)

- i. What went wrong and/or how can you improve your design?

- j. Now pick the best design and share with other groups. What design worked the best?

- k. Save your materials! Next meeting, we will design catapults using materials around the classroom or your home.

Lesson #3 -- Project Observation and Catapult

Research Project: Observation

Directions: Complete Research Worksheet #1 and email your response to your HSTA teacher. If you are in a group, each person needs to email the HSTA teacher for credit.

- *We are going to start filling out the project PowerPoint. Use the Research Worksheets to fill in your PowerPoint. We recommend after you complete the worksheets and get feedback from your teacher, fill in your PowerPoint. You can download a blank PowerPoint from the website. Make sure you save a copy and if you are in a group, make sure you save in a group location.*

Have you completed your CITI training? Circle one. Yes or No

Have you completed your Ethics and Safety training? Circle one. Yes or No.

Observation

1. What do you think the problem is that the project is trying to address?
Observation stated the project's problem clearly.

2. Have you observed this problem in your community? Explain this problem in your community and/or in general.
Observation included why this project was important to the community and me.

3. What is the project about? Give a short summary of the project in your own words. Observation included a summary of the project including project type: prevalence, intervention, human experiment or non-human experiment.

Lesson #4 -- OnTrack Directions and Project Observation

Research Project:

Make sure your observation section is complete and start typing your information into the PowerPoint Guide. **Make sure to save this PowerPoint.** You will be adding to it each week. If you are in a group, all your partners need a copy and/or access to the file.

OnTrack: Directions and Video

OnTrack to Post-Secondary Education (OTPSE) is an online college and career readiness curriculum designed to help students, parents, counselors, educators, and after-school program staff successfully navigate the post-secondary education obtainment process. Through grade-specific video modules, OTPSE provides 9th-12th grade students with the knowledge and confidence to complete their high school experience and create a viable post-secondary education plan. Using the prescribed OnTrack steps, students are better prepared to navigate high school, understand the postsecondary application process, gain acceptance to an institution of their choice, and receive financial aid to support their attendance. Students can invite a mentor (parent, guardian, teacher, etc.) to share the OnTrack curriculum and assist them in the post-secondary obtainment process. On Track is a gifted service of the Uncommon Individual Foundation (UIF); offered to students, mentors, schools, and community-based organizations at no cost.

At the end of the notebook is a list of all the videos On Track provides per grade levels. The videos highlighted will be completed during HSTA meetings. You are more than welcome to complete more videos in your grade level to earn prizes. On Track will announce various prizes throughout the year.

1. Before you sign up, watch this walkthrough video, which explains how to use the program: <https://ontrack.hosted.panopto.com/Panopto/Pages/Viewer.aspx?id=6ee44496-8d5d-4d40-80e8-aaae014c60d0>
2. Then go to ontrackpse.com and click the Sign Up button.
3. To sign up [Make sure to select the Correct Grade Level]
 - a. Account Type: Student
 - b. School: HSTA [Region]
 - c. Access Code _____ (HSTA or Field Site will give it to you)
 - d. Counselor: [Region] Counselor

- e. WRITE DOWN your OnTrackID: OT_____ [This will be emailed to you]
- f. Write down your Password: _____ [This will be emailed to you]

Save it in your phone or email the information to yourself.

- 4. The sign-up process is 3 quick pages and then a pre-survey. Complete the survey to win prizes from On Track. If you have problems creating a login, visit the HSTA website to learn how turn off the **pop-up blocker**.
- 5. Make sure you complete the pre-survey, and you can start working on assigned videos. Note: If it kicks you out of the program, sign back in after completing the pre survey.
- 6. Look on pages 199-216 to see what videos to complete. You can complete as many as you want.
- 7. In the space below, write a short summary of the video or if you have any questions about college. Remember to reach out to your HSTA teacher and/or Field Site if you have any questions. Keep track of the videos you complete on pages 199-216.

Lesson #5 -- Research Question/Variables and Trail Mix

Research Project: Research Question

1. To start off, write down a basic question about your project.
2. Now read pages 85-87 giving tips and examples of research questions. Re-write your question based on tips and examples.
3. Write down your Independent and dependent variables. They don't have to be perfect or correct, write down what you think they should be.
 - Independent Variable – What you are controlling/changing:

 - Dependent Variable – What you are measuring:

Hands on Activity: Trail Mix Recipe

Materials – Provided in Club

What is a trail mix?

“Trail mix or scroggin is a type of snack mix, typically a combination of granola, dried fruit, nuts, and sometimes candy, developed as a food to be taken along on hikes. Trail mix is designed to be an ideal snack food for hikes because it is lightweight, easy to store, and nutritious--providing a quick energy boost from the carbohydrates in the dried fruit or granola, and sustained energy from fats in nuts.

The combination of nuts, raisins and chocolate as a trail snack dates at least to the 1910s, when outdoorsman Horace Kephart recommended it in his popular camping guide.

Common ingredients may include:

- Nuts, such as almonds or cashews
- Legumes, such as peanuts or baked soybeans.
- Dried fruits such as raisins, cranberries, apricots, apples, banana chips, sultanas or candied orange peel
- Chocolate: chocolate chips, chunks, and M&M's
- Breakfast cereals such as granola
- Rye chips
- Pretzels
- Seeds, such as pumpkin seeds or sunflower seeds
- Carob chips
- Shredded coconut”

Reference Link: https://en.wikipedia.org/wiki/Trail_mix

Your HSTA Teacher will give you various ingredients to create a trail mix worth 100 calories. [If you are at home, look at the traditional list of ingredients and complete the activity below. If you do not have the traditional ingredients, try your best to create trail mix.]

Write down at least 5 trail mix ingredients, serving size, and calories.

Ingredient	Serving Size	Calories

Create a 100-calorie trail mix.

- What did you include in your trail mix?
- Did you try something new?
- Was the 100-calorie snack enough to eat?

Lesson #6 -- OnTrack and Research Question/Variables

Research Project: Research Question/Variables

How do you feel about your research question?

How did you use the feedback from the HSTA Teacher/CRA?

You should have a final research question and matching variables. Write your research question and variables. Make sure to include control and constants.

Make sure to update your PowerPoint.

OnTrack

In the space below, write a short summary of the video or if you have any questions about college. Remember to reach out to your HSTA teacher and/or Field Site if you have any questions. Keep track of the videos you complete on pages 199-216.

Lesson #7 -- Guest Speaker and Hypotheses

Research Project: Hypotheses

Read pages 90-91 giving tips and examples of hypotheses.

1. Use your research question and variables to write your hypothesis and null hypothesis.
2. They don't have to be perfect or correct, just write down what you think they should be.
 - The Null Hypothesis states that we will observe no difference, or we will observe no change. This is what we assume in research.
 - The Alternative Hypothesis is what we are testing or seeking to find in the research. It states that there will be a change or a difference.

Note:

A null hypothesis states there is no difference between your independent variables. The alternative hypothesis states there will be a difference between your independent variable and is usually something the researcher thinks will be true.

3. Read back over the examples of hypotheses (pages 89-90). Rewrite your hypotheses.
4. Now switch with another group or individual. Have them read through your hypotheses. Give each other feedback.
5. Read over the feedback and rewrite your hypotheses again.
6. Turn in your hypotheses to the HSTA Teacher/CRA for feedback.

Hands on Activity: Guest Speaker or OnTrack

This meeting may be a guest speaker or an OnTrack session.

If OnTrack: In the space below, write a short summary of the video or if you have any questions about college. Remember to reach out to your HSTA teacher and/or Field Site if you have any questions. Keep track of the videos you complete on pages 199-216.

Lesson #8 -- OnTrack and Hypothesis

Research Project: Hypotheses

1. How do you feel about your hypotheses?
2. How did you use the feedback from the HSTA Teacher/CRA?
3. You should have final hypotheses. Write your hypotheses--both null and alternative.
4. Make sure to update your PowerPoint.

On Track

In the space below, write a short summary of the video or if you have any questions about college. Remember to reach out to your HSTA teacher and/or Field Site if you have any questions. Keep track of the videos you complete on pages 199-216.

Lesson #9 -- Background

Research Project: Background

1. Read pages 80-82 giving tips and examples of background.
2. Look over the score sheet and make sure you address all the items. Fill in the information below. (You will have two meetings to complete your background research.)

Source #1

Write or copy and paste the website link:

What is the title?

Who wrote it?

When was it written?

What date did you access it?

In-Text Citation

Full Reference

Write two facts from this source (Remember to summarize in your own words)

Fact #1

Fact #2

Source #2

Write or copy and paste the website link:

What is the title?

Who wrote it?

When was it written?

What date did you access it?

In-Text Citation

Full Reference

Write two facts from this source (Remember to summarize in your own words)

Fact #1

Fact #2

Source #3

Write or copy and paste the website link:

What is the title?

Who wrote it?

When was it written?

What date did you access it?

In-Text Citation

Full Reference

Write two facts from this source (Remember to summarize in your own words)

Fact #1

Fact #2

Source #4

Write or copy and paste the website link:

What is the title?

Who wrote it?

When was it written?

What date did you access it?

In-Text Citation

Full Reference

Write two facts from this source (Remember to summarize in your own words)

Fact #1

Fact #2

Lesson #10 -- OnTrack and Background

Research Project: Continue with Background

Finish background and make sure to update your PowerPoint.

OnTrack:

In the space below, write a short summary of the video or if you have any questions about college. Remember to reach out to your HSTA teacher and/or Field Site if you have any questions. Keep track of the videos you complete on pages 199-216.

Lesson #11 -- Alka Seltzer Experiment and Procedures

Hands on Activity: Alka Seltzer Experiment

Materials – Alka Seltzer tablets, marker, and three cups.

Directions: Write procedures to test the following research question.

Research Question: What is the effect of temperature on the chemical reaction time between an Alka-Seltzer tablet and water?

Complete the following sections:

1. Write down the research variables
 - a. Independent Variable – Water Temperature: Hot water out of the sink, room temperature water, water with ice cubes.
 - b. Dependent Variable - Time
 - c. Control – Room temperature water
 - d. Constants – Alka Seltzer tablets, timer, and cup size

2. Write down a hypothesis and a null hypothesis

3. Procedures: Write down the procedures as a club. Remember it is important that everyone collect the data the same way. How will you test the effect of an Alka-Seltzer in three different temperatures? How will you keep time? Use the space below to write procedures. *Complete #3-4 before you start your experiment.

4. Data Collection Table: Enter the time in seconds for the Alka-Seltzer to dissolve in each water environment. Add more rows if you need them to enter club data.

Student #	Room Temp Water	Hot Water	Ice Water
Student 1			
Student 2			
Student 3			
Student 4			
Student 5			
Student 6			
Student 7			
Student 8			
Student 9			
Student 10			

5. Now run your experiment and record all the club data into your Data Table.
6. Enter all the data into excel and find the averages for each water environment.

7. Looking at the averages, write a conclusion statement. Remember to look back at your hypothesis and null hypothesis. You will not determine if there is a statistical difference, but you can make a general conclusion statement based on the averages.
 - a. What were same limitations of the experiment?

 - b. What would you do differently?

Research Project: Procedures

1. Read pages 92-101, giving tips and examples of procedures.
2. Look over the score sheet on pages 71-73 to make sure you address all the items. Use the space below to draft your procedures.
 - a. If you are a 9th/10th grader, your survey is already created. Pages 189-198
 - b. If you are a 11th/12th grader, you will need to find/create a survey/intervention or experimental design. CRA must approve all 11th/12th grade surveys/interventions and/or experimental design. You will work with your HSTA teacher to get approved.
3. Start writing your procedures. (Use additional paper if needed)

Lesson #12 -- On Track and Procedures

Research Project: Procedures

1. Continue with procedures.
2. Share your procedures with peers for feedback.
3. Remember, if you are a 11th/12th grader, you will need to find/create a survey/intervention or experimental design.
 - a. CRA must approve all 11th/12th grade surveys/interventions and/or experimental design.
 - b. You will work with your HSTA teacher to get approved.
4. Make sure to update your PowerPoint.

On Track

In the space below, write a short summary of the video or if you have any questions about college. Remember to reach out to your HSTA teacher and/or Field Site if you have any questions. Keep track of the videos you complete on pages 199-216.

Lesson #13 -- Final Approval

Research Project: Final Approval

You should have the slides *Observation* through *Procedures*, and *References* completed. Use this meeting to finish your slides and submit to your HSTA teacher.

Lesson #14 -- Title, Recruitment/Materials

Research Project: Title

1. Read pages 77-78, giving tips and examples on how to write a title.
2. Look over the score sheet (pages 71-73) and make sure you address all the items.
3. Update your PowerPoint.

Hands on Activity: Earthworm

Materials – Provided in Club

Directions and materials will be provided in the club or a home activity will be given.

Lesson #15 -- OnTrack and Research Plan

Research Project: Research Plan

Use this meeting to plan your research timeline and make sure you have all your materials.

OnTrack

In the space below, write a short summary of the video or if you have any questions about college. Remember to reach out to your HSTA teacher and/or Field Site if you have any questions. Keep track of the videos you complete on pages 199-216.

Lesson #16 -- Toothpick Experiment and Data Collection

Hands on Activity: Toothpick and T-Test

Materials – Toothpicks

Directions: Complete the toothpick experiment and run a t-test with club data.

Research Question: Will there will be difference in the number of toothpicks HSTA students can break with their dominant hand compared to their other hand in 45 seconds?

Complete the following sections:

8. Write down the research variables
 - a. Independent Variable
 - b. Dependent Variable
 - c. Controls
 - d. Constants
9. Write down a hypothesis and a null hypothesis

10. Procedures: Write down the procedures as a club. Remember it is important that everyone collects the data the same way. How will keep time? Will everyone start with their dominant hand? How many toothpicks will you start with? Use the space below to write procedures. * Complete #3-4 before you start your experiment.

11. Data Collection Table: Enter the number of toothpicks you broke with each hand. Add more rows if you need them.

Student #	Dominant Hand	Non-Dominant Hand
Student 1		
Student 2		
Student 3		
Student 4		
Student 5		
Student 6		
Student 7		
Student 8		
Student 9		
Student 10		

12. Now run your experiment and record all the club data into your Data Table.

13. Enter all the data into excel and graph the averages. Draw your bar graph below. Remember you need a title and to label the x and y axis.

14. Now perform a t-test in excel. (Use page 119 in your notebook to help you.)

a. What was the p-value?

b. What does the p-value tell us?

c. Write a conclusion statement. Remember to look back at your hypothesis and null hypothesis.

d. What were some limitations of the experiment?

e. What would you do differently?

Research Project: Data Collection

Write a short summary of the work you have completed and/or need to complete.
Continue to collect data.

Lesson #17 -- OnTrack and Data Collection

OnTrack

In the space below, write a short summary of the video or if you have any questions about college. Remember to reach out to your HSTA teacher and/or Field Site if you have any questions. Keep track of the videos you complete on pages 199-216.

Research Project: Data Collection

Write a short summary of the work you have completed and/or need to complete.
Continue to collect data.

Lesson #18 -- Milk Experiment and Data Collection

Hands on Activity: Milk Experiment and Chi Square

Materials – Ziplock baggies, three cups, and marker. *Milk and Vinegar not provided.

Directions: Complete the milk experiment and run a Chi Square with club data.

Research Question: Will there will be difference in the appearance of milk curdles in three different water environments (Room Temperature, Hot Water from Faucet, and Ice)?

Complete the following sections:

1. Write down the research variables
 - a. Independent Variable
 - b. Dependent Variable
 - c. Controls
 - d. Constants
2. Write down a hypothesis and a null hypothesis

3. Procedures: Procedures are provided for you. Look over the list and make sure you did not need to expand on anything. For example, how will you label the zip bag with milk in it? If you are at home, do you need to make sure everyone is using the same milk brand/percentage? * Complete #3-4 before you start your experiment.
 - a. Label each zip bag with one of the following labels: cold, room temperature, hot.
 - b. Add 50 mL (or about 3.38 Tablespoons) of milk to each zip bag. Close it tightly.
 - c. Place the first bag of milk in a bowl and surround the bag with crushed ice. Place the second bag of milk in an empty bowl. Place the third bag of milk in a bowl and fill the bowl with hot water from the faucet. Leave the bags of milk in the bowl for 10 min.

- d. Remove the bags from the bowls. Quickly unzip each bag and add 6 mL of vinegar to each bag. Reseal and return to the appropriate bowls.
- e. Describe the appearance of the curdles using the following symbols:
 - i. SC---small curdles with milk generally not separated and still white in color
 - ii. MC---moderate curdles with milk beginning to separate and show yellow color
 - iii. LC---large curdles with milk separated a showing yellow color
- f. NOTE: To reduce odor, do not unzip the bags after you have added vinegar. Dispose of the bags as directed by your teacher.
- g. Enter the data in a class data table. Compile data from your peers, so that you have more trials.

4. Data Collection Table: Enter the code for the appearance. See #3e for codes. Add more rows if you need them.

Student #	Room Temp	Hot Water	Ice Water
Student 1			
Student 2			
Student 3			
Student 4			
Student 5			
Student 6			
Student 7			
Student 8			
Student 9			
Student 10			

5. Now run your experiment and record all the club data into your Data Table.

6. Enter all the data into excel and graph the averages. Draw your bar graph below. Remember you need a title and label the x and y axis.
7. Now perform a Chi Square in excel. (Use page 123-124 in the notebook to help you.)
 - a. What was the p-value?

 - b. What does the p-value tell us?
 - c. Write a conclusion statement. Remember to look back at your hypothesis and null hypothesis.

 - d. What were some limitations of the experiment?

 - e. What would you do differently?

Research Project: Data Collection

Write a short summary of the work you have completed and/or need to complete.
Continue to collect data.

Lesson #19 -- OnTrack and Data Collection

Research Project: Data Collection

Write a short summary of the work you have completed and/or need to complete.

Continue to collect data.

OnTrack

In the space below, write a short summary of the video or if you have any questions about college. Remember to reach out to your HSTA teacher and/or Field Site if you have any questions. Keep track of the videos you complete on pages 199-216.

Lesson #20 -- Numbers Experiments and Data Collection

Hands on Activity: Number Experiment

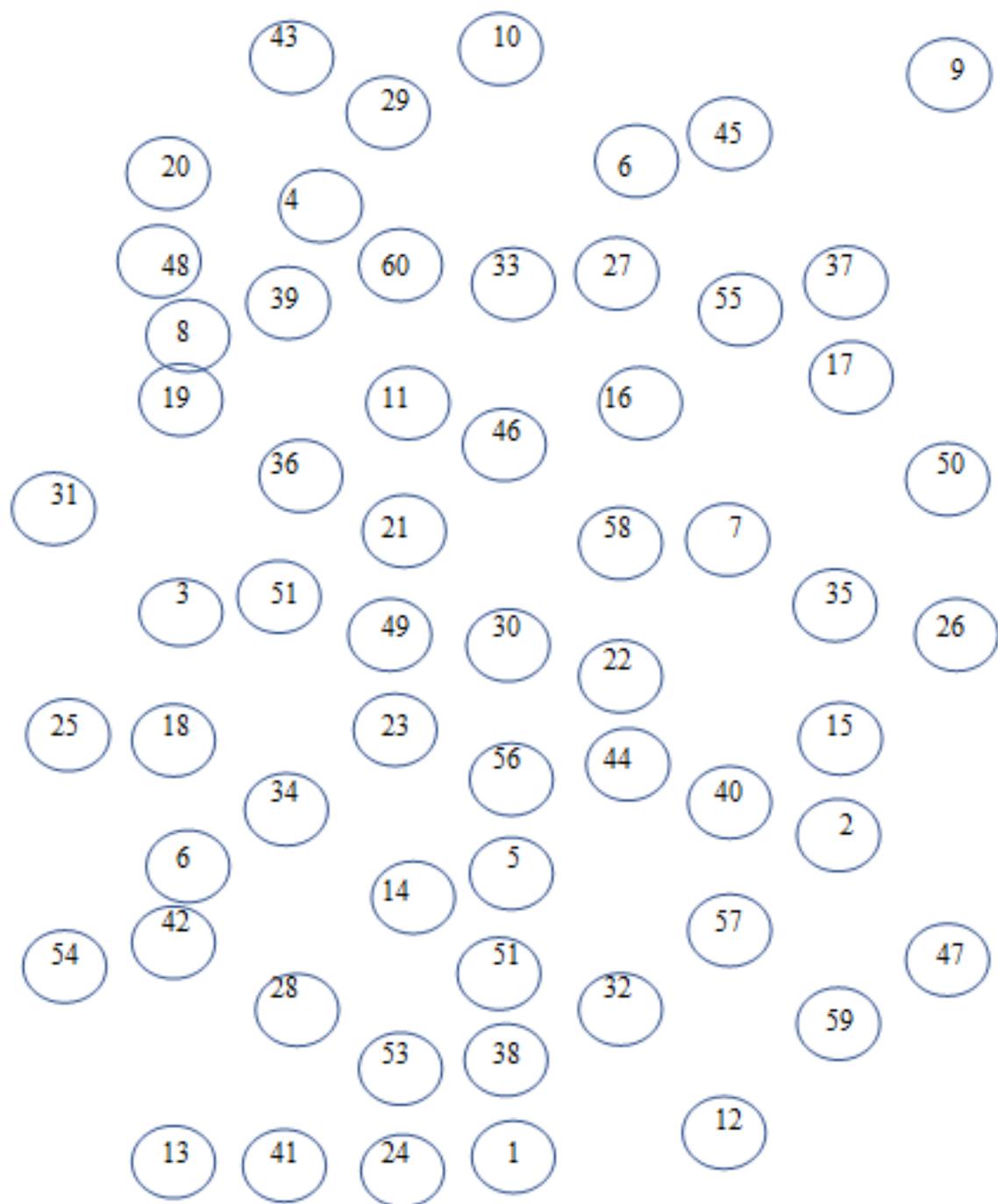
Directions: Complete the numbers experiment and run an ANOVA with club data.

Research Question: Will there be a difference in the number of numbered circles a person counts after three trials?

Complete the following sections:

1. Write down the research variables
 - a. Independent Variable
 - b. Dependent Variable
 - c. Control
 - d. Constants
2. Write down a hypothesis and a null hypothesis

3. Procedures: Procedures are provided for you. Look over the list and make sure you did not need to expand on anything. For example, how will you keep time? *
Complete #3-4 before you start your experiment.
 - a. The handout is on page 181, do not turn to that page until you start the experiment. The handout contains circled numbers from 1 to 59.
 - b. At your teacher's signal, turn the handout over.
 - c. Place your finger on #1, then on #2, and so on until time (30 sec) is called.
 - d. Keep your finger on the last number you reached.
 - e. Record your number in the data table. Turn your handout over.
 - f. Repeat these steps 2 more times for a total of 3 trials.



4. Data Collection Table: Add more rows if you need them. Enter the numbered circle you reach at the end of each trial.

Student #	Trial #1	Trial #2	Trial #3
Student 1			
Student 2			
Student 3			
Student 4			
Student 5			
Student 6			
Student 7			
Student 8			
Student 9			
Student 10			

5. Now run your experiment and record all the club data into your Data Table.
6. Enter all the data into excel and graph the averages. Draw your bar graph below. Remember you need a title and to label the x and y axis.

7. Now perform a ANOVA in excel (Use pages 120-123 in the notebook to help you).
 - a. What was the p-value?

 - b. What does the p-value tell us?

 - c. Write a conclusion statement. Remember to look back at your hypothesis and null hypothesis.

 - d. What were some limitations of the experiment?

 - e. What would you do differently?

Research Project: Data Collection

Write a short summary of the work you have completed and/or need to complete.
Continue to collect data.

Lesson #21 -- On Track and Data Collection

Research Project: Data Collection

Write a short summary of the work you have completed and/or need to complete.
Continue to collect data.

OnTrack

In the space below, write a short summary of the video or if you have any questions about college. Remember to reach out to your HSTA teacher and/or Field Site if you have any questions. Keep track of the videos you complete on pages 199-216.

Lesson #22 -- Paper Experiment and Data Collection

Hands on Activity: Paper Experiment

Materials – ruler, three cups, paper towels. *Scissors not provided.

Directions: Complete the numbers experiment and run an Correlation with club data.

Research Question: What is the relationship between absorption (height measured) and time?

Complete the following sections:

1. Write down the research variables
 - a. Independent Variable
 - b. Dependent Variable
 - c. Control
 - d. Constants

2. Write down a hypothesis and a null hypothesis

3. Procedures: Procedures are provided for you. Look over the list and make sure you did not need to expand on anything. For example, how will you keep time? * Complete #3-4 before you start your experiment.
 - a. Cut paper towel into strips, 2 cm x 22cm.
 - b. Fill a container (cup or bowl) with water. Add several drops of food coloring (optional).
 - c. Place the paper towel strip 1 cm into the (colored) water for the time interval designated: 10, 15, 20, 25, and 30 seconds.
 - d. At the end of each time interval, *quickly* mark the water levels with a pencil. Then, measure the height the liquid rose in cm and record the data.
 - e. Repeat Steps 1 through 4 for a total of 3 trials for each time interval or record club data.
 - f. Calculate the mean height the liquid rose (cm) for each time interval.

8. Data Collection Table: Add more rows if you need them. Enter height in cm and average each time interval.

Student #	10 Seconds	15 Seconds	20 Seconds	25 Seconds	30 Seconds
Student 1					
Student 2					
Student 3					
Student 4					
Student 5					
Student 6					
Student 7					
Student 8					
Student 9					
Student 10					
	10 Seconds	15 Seconds	20 Seconds	25 Seconds	30 Seconds
Average Height cm					

9. Now run your experiment and record all the club data into your Data Table.
 10. Draw your scatter pot. Remember you need a title and to label the x and y axis.

11. Now perform a correlation in excel (Use pages 126-128 in the notebook to help you.)

- f. What was the p-value?
- g. What does the p-value tell us?

- h. Write a conclusion statement. Remember to look back at your hypothesis and null hypothesis.

- i. What were some limitations of the experiment?

- j. What would you do differently?

Research Project: Data Collection

Write a short summary of the work you have completed and/or need to complete. Continue to collect data.

Lesson #23 – On Track and Graphing

Research Project: Graphing

This meeting you should have all your data. Look over pages 105-114 to help you complete your descriptive analysis and to graph your data.

OnTrack

In the space below, write a short summary of the video or if you have any questions about college. Remember to reach out to your HSTA teacher and/or Field Site if you have any questions. Keep track of the videos you complete on pages 199-216.

Lesson #24 – On Track and Statistical Analysis

Research Project: Statistical Analysis

Look over pages 115-133 to help you complete your statistical analysis.

OnTrack

In the space below, write a short summary of the video or if you have any questions about college. Remember to reach out to your HSTA teacher and/or Field Site if you have any questions. Keep track of the videos you complete on pages 199-216.

Lesson #25 -- On Track and Conclusion

Research Project: Conclusion

Look over page 134 to help you complete your conclusion.

On Track

In the space below, write a short summary of the video or if you have any questions about college. Remember to reach out to your HSTA teacher and/or Field Site if you have any questions. Keep track of the videos you complete on pages 199-216.

Lesson #26 -- Vitamin C Experiment and Final Presentation

Research Project: Final Presentation

Make sure to update your final presentation by April 29th. Failure to do so will result in not being able to present at symposium.

Link: <https://redcap.wvctsi.org/redcap/surveys/?s=Y9HE9PHCTC>

Hands on Activity: Vitamin C Experiment

Materials and directions provided in club.

Statewide Survey Selection

Demographics

<u>Question</u>	<u>Choices</u>
Birth date	[OPEN ENDED]
Weight	[OPEN ENDED]
Height	[OPEN ENDED]
Please estimate your yearly household income.	Less than \$10,000 \$10,000-\$19,000 \$20,000-\$29,000 \$30,000-\$39,000 \$40,000-\$49,000 \$50,000-\$59,000 \$60,000-\$69,000 \$70,000-\$79,000 \$80,000-\$89,000 \$90,000-\$99,000 \$100,000-\$149,000 \$150,000 or more Prefer not to say
Are you Hispanic or Latino?	1, Yes 2, No 3, Don't know
How would you describe yourself? Select all that apply.	1, American Indian or Alaska Native (Eg: Navajo nation, Blackfeet tribe, Mayan, Aztec, Native Village or Barrow Inupiat Traditional Government, Nome Eskimo Community, etc) 2, Asian (Eg: Chinese, Filipino, Asian Indian, Vietnamese, Korean, Japanese, etc) 3, Black or African American (Eg: African American, Jamaican, Haitian, Nigerian, Ethiopian, Somalian, etc) 4, Hispanic, Latino or Spanish origin (Eg: Mexican or Mexican American, Puerto Rican, Cuban, Salvadoran, Dominican, Colombian, etc) 5, Middle Eastern or North African (Eg: Lebanese, Iranian, Egyptian, Syrian, Moroccan, Algerian, etc) 6, Native Hawaiian or Other Pacific Islander (Eg: Native Hawaiian, Samoan, Chamorro, Tongan, Fijian, etc) 0, White (Eg: German, Irish, English, Italian, Polish, French, etc) 7, Other race, ethnicity or origin
With which gender do you most closely identify?	1, Woman 2, Man 3, Other
What is your zip code?	[OPEN ENDED]
What is your highest education level?	0, Less than 8th grade 1, Some high school, no diploma 2, Current high school student 3, High School Graduate 4, Completed a GED 5, Went to a business, trade or vocational school 6, Some college credit, but no degree 7, Current college student 8, Associate's Degree 9, Bachelor's Degree 10, Graduate Degree
What is your current occupation?	1, student 2, self-employed 3, employed 4, retired 5, military 6, part time 7, not able to work 8, homemaker 9, unemployed - looking for work 10, unemployed - not looking for work
Are you a first-generation college student (i.e. are you the first person in your immediate family to go to college)?	1, Yes 2, No 3, Don't know
With which religion do you most closely identify?	1, Christianity/Catholicism 2, Judaism 3, Islam 4, Buddhism 5, Hinduism 6, Atheism/Agnosticism 7, No religious affiliation

General Health	
In general, how would you rank your current physical health?	1, Excellent 2, Good 3, Fair 4, Poor
In general, how would you rank your current mental health?	1, Excellent 2, Good 3, Fair 4, Poor

Family Health	
<i>Have you, or anyone in your family, been diagnosed with:</i>	
Diabetes?	1, Yes 2, No 3, Don't know
High blood pressure?	1, Yes 2, No 3, Don't know
A mental illness (depression, anxiety, bipolar disorder, schizophrenia, etc.)?	1, Yes 2, No 3, Don't know

Stress Survey – Score all the questions for a total stress score.

	Never	Almost Never	Sometimes	Fairly Often	Very Often
In the last month, how often have you been upset because of something that happened unexpectedly?	<input type="radio"/>				
In the last month, how often have you felt that you were unable to control the important things in your life?	<input type="radio"/>				
In the last month, how often have you felt nervous and "stressed"?	<input type="radio"/>				
In the last month, how often have you felt confident about your ability to handle your personal problems?	<input type="radio"/>				
In the last month, how often have you felt that things were going your way?	<input type="radio"/>				
In the last month, how often have you found that you could not cope with all the things that you had to do?	<input type="radio"/>				
In the last month, how often have you been able to control irritations in your life?	<input type="radio"/>				
In the last month, how often have you felt that you were on top of things?	<input type="radio"/>				
In the last month, how often have you been angered because of things that were outside of your control?	<input type="radio"/>				
In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	<input type="radio"/>				

Self Esteem - Score all the questions for a total self-esteem score.

On the whole, I am satisfied with myself.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

At times I think that I am no good at all.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

I feel that I have a number of good qualities.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

I am able to do things as well as most other people.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

I feel I do not have much to be proud of.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

I certainly feel useless at times.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

I feel that I'm a person of worth, at least on an equal plane with others.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

I wish I could have more respect for myself.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

All in all, I am inclined to feel that I'm a failure.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

I take a positive attitude toward myself.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

COVID/Vaccines

Have you received your COVID-19 vaccine?	1, Yes 2, No
If you have not already, do you plan to receive your COVID-19 vaccine?	1, Yes 2, No
Does your school or workplace provide COVID-19 testing?	1, Yes 2, No 3, Don't know
<i>Please rank how much you agree with the following statements:</i>	
Healthy people do not get COVID-19.	1, Strongly disagree 2, Disagree 3, Neutral 4, Agree 5, Strongly agree
If I do not get my COVID-19 vaccine, I will feel vulnerable to COVID-19.	1, Strongly disagree 2, Disagree 3, Neutral 4, Agree 5, Strongly agree
Healthy people do not need the COVID-19 vaccine.	1, Strongly disagree 2, Disagree 3, Neutral 4, Agree 5, Strongly agree
COVID-19 is just like the common cold.	1, Strongly disagree 2, Disagree 3, Neutral 4, Agree 5, Strongly agree
I am concerned about the side effects and/or ingredients of the COVID-19 vaccine.	1, Strongly disagree 2, Disagree 3, Neutral 4, Agree 5, Strongly agree
I trust my doctor when they tell me the COVID-19 vaccine is safe.	1, Strongly disagree 2, Disagree 3, Neutral 4, Agree 5, Strongly agree
Information on the Internet discourages me from getting the COVID-19 vaccine.	1, Strongly disagree 2, Disagree 3, Neutral 4, Agree 5, Strongly agree

Physical activity

In a typical week, how often do you engage in light exercise (ex. walking, yoga, gardening)?	1, Never 2, 1-2 hours per week 3, 3-4 hours per week 4, 5-6 hours per week 5, 7+ hours per week
In a typical week, how often do you engage in moderate exercise (ex. jogging/running, aerobics, swimming)?	1, Never 2, 1-2 hours per week 3, 3-4 hours per week 4, 5-6 hours per week 5, 7+ hours per week
In a typical week, how often do you engage in intense exercise (ex. weight lifting, team/competitive sports)?	1, Never 2, 1-2 hours per week 3, 3-4 hours per week 4, 5-6 hours per week 5, 7+ hours per week
Would you say that you are physically more active, as active, or less active than other people your age?	1, More active 2, Less active 3, Same
Compared to your own level of physical activity one (1) year ago, would you say you are now more active, as active, or less active than you were then?	1, More active 2, Less active 3, Same
Do you feel that you get enough exercise that you need, or less than you need?	1, As much as needed 2, Less than needed
Do you follow a regular routine of exercise?	1, Yes 2, No
Do you have any medical limitations preventing you from exercise?	1, Yes 2, No
How would you rate your current level of fitness?	1, Perfect 2, Good 3, Average 4, Poor
Has a medical professional recommended a specific exercise plan for you?	1, Yes 2, No

Nutrition

<i>In a typical week, how often do you:</i>	
Eat meals from fast food restaurants?	1, Never 2, 1-2 times per week 3, 3-4 times per week 4, 5-6 times per week 5, 7+ times per week
Eat high calorie snacks such as chips, cookies, candy bars, ice cream, etc.?	1, Never 2, 1-2 times per week 3, 3-4 times per week 4, 5-6 times per week 5, 7+ times per week
Eat at buffet restaurants?	1, Never 2, 1-2 times per week 3, 3-4 times per week 4, 5-6 times per week 5, 7+ times per week
Eat a serving of vegetables? (1 serving = 1 cup)	1, Never 2, 1-2 times per week 3, 3-4 times per week 4, 5-6 times per week 5, 7+ times per week
Eat a serving of fruits? (1 serving = 1 cup)	1, Never 2, 1-2 times per week 3, 3-4 times per week 4, 5-6 times per week 5, 7+ times per week
In general, how healthy is your overall diet?	1, Excellent 2, Good 3, Fair 4, Poor
Has a doctor or other healthcare professional recommended a reduced-calorie or other specific diet for you?	1, Yes 2, No 3, Don't know
How often do you use the Nutrition Facts label when deciding to buy a food product?	1, Never 2, Rarely 3, Sometimes 4, All the time
Do you use multivitamins/minerals to supplement your diet?	1, Yes 2, No
In an average day, how many caffeinated drinks do you consume (ex. coffee, tea, soda, energy drinks)?	1, None 2, 1-2 drinks per day 3, 3-4 drinks per day 4, 5-6 drinks per day 5, 7+ drinks per day

Sleep

In general, how would you rate the quality of your sleep?	1, Excellent 2, Good 3, Fair 4, Poor
How often has poor sleep troubled you in the past month?	1, Never 2, Rarely 3, Sometimes 4, All the time
On average, how many nights do you get poor sleep per week?	1, Never 2, 1-2 nights per week 3, 3-4 nights per week 4, 5-7 nights per week
How often do you feel sleepy in the day time?	1, Never 2, Rarely 3, Sometimes 4, All the time
On average, how long does it take you to fall asleep?	1, Less than 10 minutes 2, 10-20 minutes 3, 20-30 minutes 4, 30-45 minutes 5, 45-60 minutes 6, Longer than an hour
How often do you utilize sleep aids?	1, Never 2, Rarely 3, Sometimes 4, All the time
If you wake up in the middle of the night, how long do you stay awake?	1, Less than 10 minutes 2, 10-20 minutes 3, 20-30 minutes 4, 30-45 minutes 5, 45-60 minutes 6, Longer than an hour
Approximately how many hours of sleep do you get in a 24 hour period?	1, Less than 3 hours 2, 3-5 hours 3, 5-7 hours 4, 7-9 hours 5, More than 9 hours
Do you have a family history of sleep disorders (ex. insomnia, sleep apnea, narcolepsy, RLS, etc.)?	1, Yes 2, No 3, Don't know
On average, how long does it take you to wake up/get out of bed in the morning?	1, Right away 2, Less than 10 minutes 3, 10-20 minutes 4, 20- 30 minutes 5, Longer than 30 minutes

Risky Behaviors

Use tobacco products. Check all that apply.	1, Cigarettes 2, Cigars 3, Pipes/loose leaf tobacco 4, Vapes 5, Chewing tobacco 6, Snuff 7, Hookah
Drink alcoholic beverages such as beer, wine, and spirits (hard liquor).	1, Never 2, 1-2 times per week 3, 3-4 times per week 4, 5-6 times per week 5, 7+ times per week
Text while driving.	1, Never/I don't drive 2, Rarely/only when necessary 3, Sometimes 4, All the time
Speed while driving.	1, Never/I don't drive 2, Rarely/only when necessary 3, Sometimes 4, All the time
Skip school.	1, Never/I don't attend school 2, Rarely/only when necessary 3, Sometimes 4, All the time
Ever gotten into a fight/physical altercation with a peer(s).	1, Yes 2, No
Used social media for reprehensible/punishable actions (ex. bullying, sending nude photographs, cheating, etc.)	1, Yes 2, No/I don't have social media 3, Prefer not to say
Engaged in recreational drug use (ex. marijuana, LSD)?	1, Yes 2, No 3, Don't know 4, Prefer not to say
Engaged in the use of narcotic drugs/controlled substances (ex. OxyContin, cocaine, fentanyl, meth, other prescription pain killers)?	1, Yes 2, No 3, Don't know 4, Prefer not to say
Engaged in sex without the use of pregnancy or STI prevention?	1, Yes 2, No 3, Don't know 4, Prefer not to say

Environmental

Do you have a smartphone(s) that can access the Internet?	1, Yes 2, No
Does your current home have reliable Wi-Fi/Internet access?	1, Yes 2, No
Does your current home have reliable cellular service?	1, Yes 2, No
Does your current home have access to clean drinking water?	1, Yes 2, No
Approximately how far away from your home is the nearest grocery store?	1, Walking distance, or less than 5 minutes by car 2, 5-10 minutes by car 3, 10-20 minutes by car 4, 20-30 minutes by car 5, More than 30 minutes by car
How often do you worry about where your next meal will come from?	1, Never 2, Rarely 3, Sometimes 4, Often/Most days
Do you or the head of your household (parents/guardians) have access to a working and reliable vehicle?	1, Yes 2, No
How often do you worry about your household's ability to pay necessary utility bills (heat, electric, water, gas, etc.)?	1, Never 2, Rarely 3, Sometimes 4, Often/Most days
Do you need to leave your home to do laundry?	1, Yes 2, No
Approximately how far away from your home is the nearest doctor's office or hospital?	1, Walking distance, or less than 5 minutes by car 2, 5-10 minutes by car 3, 10-20 minutes by car 4, 20-30 minutes by car 5, More than 30 minutes by car

Video #:	On Track Videos:	Description:
9.1	Introduction to 9th Grade	Overview of what students will learn this year and how to use the OnTrack platform.
9.2	Attendance and Getting Organized	Discusses the importance of attending school daily and class preparation.
9.3	Self-awareness and Conflict Resolution	Discusses the importance of knowing yourself and resolving issues in a positive manner.
9.4	What is GPA and Why Is It Important?	Discusses why students should try to keep their GPA as high as they can throughout high school.
9.5	Getting to Know Your Teachers	Discusses why students, from the start of high school, need to make good impressions on their teachers.
9.6	How High School Is Different Academically	Discusses what students can expect to see differently while navigating the academic space of high school.
9.7	Note Taking	Shows how to become a better note-taker, and how to continue improving on this skill.
9.8	Developing Strong Study	Discusses how students can pinpoint what study habits are best for them and work to

	Skills	improve them.
9.9	Math and Science Study Tips	Discusses good studying strategies for math and science classes.
9.10	Sharpening Your Writing Skills	Discussion of how to become a better writer, both for high school classes and beyond into the rest of a student's life.
9.11A	De-bunking College Fears	In this module, we debunk common college fears for students.
9.11B	College Costs	Discussion of what costs are associated with how college, and how students will be able to pay for them.
9.12	Making New Friends	Discusses the ways students can reach out to others and make friends in a new environment.
9.13	The Importance of Going to College	Discusses why it's important to go beyond high school to some form of post-secondary education.
9.14	Types of PSE Institutions	Discussion of the different post-high school options that are out there for students.
9.15	Goal Setting as a 9th Grade	Discussion of how students can successfully set and achieve goals both in high school and beyond.
9.16	Financial Goal Setting	Discussion of how to set good financial goals so that students can save money to put toward college.
9.17	Developing Agency for College	Explanation of how students can navigate the world, especially once they go off on their

		own to college.
9.18	Creating a Brag Sheet	Discusses what a brag sheet is and how students can create one for when they're applying to colleges as a senior.
9.19	Bullying and Cyberbullying	Discussion of what bullying is, how students can recognize it, and how they can work to make sure bullying doesn't happen.
9.20	Peer Pressure	Discussion of how to deal with negative peer pressure when faced with it.
9.21	Using Social Media Well	Discussion of how students can be smart about using social media.
9.22	Respecting Yourself	Discussion of how, in order to respect others, students first have to respect themselves.
9.23	Talking With Parents and Adults About Going to College	Discussion about how students can start the college conversation with parents, guardians, and other adults in their lives.
9.24	Choosing Your Classes	Discussion of what students should consider as they're picking their classes for next year.
9.25	Role of the Counselor	Discussion of the ways a counselor can help students.
9.26	Extracurriculars and Electives	Discussion of how students can be smart about the extracurriculars and electives they choose.
9.27A	Basics of Researching a Career	Steps students can take in 9th grade to start thinking about possible career options.
9.27B	Career Planning -	How to take the My Next Move/O*Net

	Assessment Tool	Interest Profiler
9.28	Responsible Spending	Discussion of the good habits students can start forming around how much money they spend.
9.29	How to Succeed In Classes You're Struggling In	Discusses how to get help and improve in classes where students aren't doing well.
9.30	What is Mentoring?	Explanation of what mentoring is and why it's helpful for high school students to have mentors.
9.31	Decision Making and Problem Solving	Discussion of how to improve one's decision making ability.
9.32	Being a Good Citizen	Discussion of how to be a good citizen in the communities that students are part of.
9.33	Cultural Literacy and Social Sensitivity	Discussion of why it's important for students to be culturally literate and socially sensitive.
9.34	Budgeting	Discussion of how to budget well so that students can save money for when they need it.
9.35	529 Savings Plan	Discussion of how to open a savings plan.
9.36	What is a Major?	Defining what a major is so students know how to start thinking about what they might want to major in.
9.37	How to Start Researching Colleges	A tutorial on how students can start looking at the many college options they have.
9.38	9th Grade Wrap-up	A wrap-up of the year, and discussion of what students can do in the summer.

10.1	Introduction to 10th Grade	An overview of the main module topics for this year.
10.2	You Get the Grades You Deserve	Discussion of why, if students don't put in the work, they likely won't get the grades they're hoping for.
10.3	Test Taking	Discussion of how students can get better at taking tests and get good grades on them.
10.4	Tips for Researching	Discussion of how students can go about doing research for papers and projects they have in high school.
10.5	Plagiarism	Discussion of plagiarism and how students can avoid it.
10.6A	Writing Essays and Research Papers	Tips on how students can improve their writing both in high school and beyond.
10.6B	Importance of Good Grammar and Proofreading	Tips on how students can improve their grammar, which will help them both in school and in the working world.
10.7	Keeping Balance in Your Life	Discussion of how students can keep balance in their life to avoid stress.
10.8	You Learn Better When You Focus	Discussion of how students can keep themselves from being distracted when studying and doing homework in order to improve their learning ability.
10.9A	PSAT Overview	Discussion of what the PSAT is and why it might be helpful for students to take.
10.9B	ACT Aspire Overview	A look at what the ACT Aspire is and why it might be helpful for students to take.

10.10	How to Handle Bullying	Discussion of some of the ways students can deal with a bully if they're being bullied or see it happening to someone else.
10.11	Removing Personal Barriers to Success	Discussion of some of the things inside each person that may hold them back from being their best selves.
10.12	Becoming a Leader	Discussion of how students can become a better leader both for themselves and others.
10.13	First Generation College Students	Module about being the first in your family, or even one of the first, to go to college.
10.14A	Public Colleges	Explaining what public colleges are and what they offer students.
10.14B	Private Colleges	Explaining what private colleges are and what students can expect when researching them.
10.15A	Community Colleges	Explaining what community colleges are and why they're a good fit for some students.
10.15B	Tech/Trade Schools	Explaining what trade schools are and why they might be right for some students.
10.16	Overview of Big Future	Discussion of the website Big Future and an explanation of how it can be helpful for students as a 10th grader.
10.17	Social Media and College Admissions	Discussion of social media profiles - keeping in mind that they can be seen by college admissions officers and future employers.
10.18	Utilizing Academic	Discussion of how students need to reflect on their work and consider the areas in

	Feedback	which they can improve - then seek out help in those areas.
10.19	Obtaining a Work Permit	Discussion of how students can get a work permit so that they're able to get a part-time job if that's something they're interested in.
10.20	Job Interview Advice	Tips to help students prepare for job interviews, including some questions they can expect to be asked and some questions they should ask possible employers.
10.21	Dress for Success	Advice on how students can dress professionally for both job interviews and for when they start a new job.
10.22	Understanding Your Take Home Pay	Discussion of why some money will be taken out of a student's paycheck each time they get one.
10.23	Handling Disappointments	Discussion of how students can handle disappointment if they're faced with it in their life.
10.24	Career Planning - Exploration	How to use the O'Net Interest Profiler results to begin exploring careers that might interest students.
10.25	Goal-Setting Toward a Career	How students can set good goals to help them reach the careers that interest them.
10.26A	Finding and Identifying Mentors	Discussion of why it's important for students to have mentors, where they can find them, and how they can be helpful.
10.26B	Creating a Post-Secondary Support Team	Discussion of how students can find their college support team in preparation for the

		college application process.
10.27	Talking to Adults About Their Careers	Adults that students come across every day can be helpful just by talking to them about what they do and how they found their careers.
10.28	Thinking About College Majors	It's not too early for students to start considering what they want to major in when they get to college.
10.29	Financial Aid 101	An overview of the different options students have to help pay for college.
10.30	Scholarships Through Extracurriculars	Discusses how a student's extracurriculars can help them fund going to college.
10.31	Choosing Your Classes	Discussion of how students can make sure they have the best schedule possible for 11th grade.
10.32	Email Etiquette	How to make sure students email professionally.
10.33	Critical Thinking	Discussion of the importance of critical thinking and how students will need this skill throughout their life.
10.34	Community Service	Discussion of why it's important for students to get involved in their community.
10.35	Graduation Requirements	This module is about making sure students are on pace to graduate by the end of their 12th grade year.
10.36	Finding a Banking Partner	Discusses the questions that students should consider when picking a bank or credit union

		for their money.
10.37	Developing a Purchasing Strategy	Discusses how students can improve their ability to make smart decisions with their money.
10.38	Make Your Summer Count	How students can use their summer to be productive along with having fun and relaxing.
11.1	Introduction to 11th Grade	An overview of the topics students will be seeing in 11th grade.
11.2	Higher Level Study Skills	How students can improve their study skills in order to keep up with tougher schoolwork.
11.3	Sharpening Writing Skills	Discusses how students can improve their writing skills by reading and writing often.
11.4	ACT Essentials	An overview and explanation of what students can expect from the ACT.
11.5	SAT Essentials	An overview of what students can expect from the SAT, and where to find resources to prepare for it.
11.6	Registering + Fee Waivers for the SAT/ACT	A walk-through of where students can go to register for either of these standardized tests. Also, how they can get fee waivers for them.
11.7A	Finding Specifics on College Websites	How students can find information about colleges they're interested in attending.
11.7B	College Fairs	How students can find college fairs, prepare for them, and what to bring when they attend one.

11.8	Decision Making and Problem Solving	Discusses how students can create a good framework for making good decisions throughout the different phases and aspects of their lives.
11.9	Getting Parents/Guardians Involved	Students should try to make the college search process a collaborative one with their parents and guardians.
11.10	Creating a College List	A guide to how students can build their college list so that it has a wide variety of schools that could be good fits for them.
11.11A	What You Should Look for in a College Academically	A discussion of what should be important to students in a college when their considering its academic profile.
11.11B	What's Important to you in a College Socially	The social aspects of college students need to consider before putting a college on their list.
11.12	Bad Reasons to Select a College	Discussion of reasons students shouldn't use as their main reason to pick a school.
11.13A	Types of College Admissions	Here are the different types of admissions students come across when applying for post-secondary schools.
11.13B	Dual Enrollment	Dual enrollment is a good option for getting college credits while students are still in high school.
11.14	Developing a Resume	We discuss what should go on a student's resume and how to make it stand out.
11.15	Talking to Mentors About College and Career Planning	Here's what students should be talking to their mentors about when it comes to their

		college and career options.
11.16	How to Handle Stress	A discussion of tips for dealing with stressful situations.
11.17	Questions to Ask About a College	A discussion of what questions students should be asking about colleges to get as much information as they can before applying to a school.
11.18	Family Pressures Conflicting With Your Goals	What to do if students are faced with a variety of family pressures that might affect their post-secondary decision.
11.19	How to Start Saving Money	Explanation of why it's so important to save for when something unexpected happens.
11.20A	What is Credit?	An explanation of credit and how students encounter it throughout their life.
11.20B	How to Have a Good Credit Score	A discussion of how a student can keep their credit in good shape.
11.21	Managing Debt	A discussion of how a student can either stay out of debt, or manage the debt they do have.
11.22A	Differences Between a Major and a Minor	These are two terms a student will see as they are looking at schools and we want them to know the difference.
11.22B	Liberal Arts Majors vs. Professional Majors	A discussion of how these types of majors differ so students know those differences when deciding on a major.
11.23	Residency Status for Public Colleges	Here's some info to help students figure out what their "in-state" will be when applying to

		colleges.
11.24	Components of the Application	Here's what students will need to complete when their doing applications as a senior.
11.25A	Introduction to the Common Application	An explanation of the Common App and why it can be helpful.
11.25B	College Application Fee Waivers	How to save money on college applications.
11.26	College Visits	Discusses how to make sure students are prepared to make the most of their when they go on college visits.
11.27	Meeting With College Representatives	College reps are a great source of information - students should make sure to ask them questions they have throughout the application process.
11.28	Diploma Double Check	This module helps students make sure they are on pace to graduate, and taking the classes they need to get into the college they want to attend.
11.29	Last Minute Studying	We take students through some tips to help them with any last minute studying they may have.
11.30A	College Costs	Here are the main costs that students can expect to see when looking at the total cost of colleges.
11.30B	Understanding the Role of the FAFSA	We explain what the FAFSA is and why it will be so important for students next year to help them get money for college.

11.31	Paying for College	We talk about the different methods students can use to help them pay for college.
11.32A	Career Planning - Decision Making	Before senior year, it's time for students to consider which major/career path might be the best one for them.
11.32B	High Demand Professions	Here are some of the professions that have the most demand for new employees.
11.33	Real World Experience	A discussion of how students can get experience and see what the careers they're interested in are like on-the-job.
11.34	Scholarship Options	A discussion of how to search for scholarships, and tips to make sure students are applying for ones that they can actually get.
11.35A	Narrowing Down Your List	It's important for students to get their list down to a manageable number for when they're applying to colleges next year.
11.35B	Organizing Your College Application Info	Discussion of how students can use their free time in the summer to organize their college application information.
11.36	Letters of Rec, Transcripts, and Essays	Here is what students will need to keep in mind as they're gathering materials for their college applications this summer and next fall.
11.37	Time Management	Discussion of how students can develop and improve their time management skills, which are going to be needed throughout their life.

11.38	Summer To-Do List	Here are some things to keep in mind for the summer.
12.1	Introduction to 12th Grade	An overview of the types of topics students will be seeing this year.
12.2	Applying to College Timeline	This module helps students plan for the year ahead so they can get all their applications, both school and scholarships, in on time.
12.3A	Report or Retake (SATs/ACTs)	It's important for students to decide now if they need to retake either of these tests so that they can register for them soon.
12.3B	Last Minute College Visits	The Fall of a student's senior year is a chance to see college campuses before they decide whether or not to apply to those schools.
12.4	Avoiding Application Stress	Here are some tips on how students can plan well to alleviate some of the stress of applying to colleges.
12.5	Components of the Application	Here is what students need to complete their applications and make sure they get them done on time.
12.6A	Application Essays Overview	We go over why college applications are important to write, and how to begin brainstorming for them.
12.6B	Writing Your Personal Statement	We dig deeper into specifics on how to write a good personal statement.
12.7	Letters of Recommendation	Advice on whom to go for letters of rec and how to make sure students get the best possible recommendation.

12.8	Working With Parents or Mentors on Applications	Discusses the help students need in the college application process.
12.9	How To Stand Out As An Applicant	Some tips on making sure an application is as good as it possibly can be.
12.10A	Overcoming a Low GPA	Helpful tips for what students can do if their GPA isn't as high as they'd like it to be for applying to colleges.
12.10B	Overcoming a Low ACT or SAT Score	Tips on what students can do if their standardized test scores aren't as high as they'd like them to be.
12.11	Role of the Financial Aid Office	Discussion of what students need to know about how the financial aid office can help.
12.12A	Scholarships	Discussion of how students can find scholarships.
12.12B	Grants	Discussion of how students can find grants, and why they're so helpful in paying for college.
12.13	Setting a Leadership Example for the Underclassmen	Discussion of why as a senior, it is important for students to set a good example for the younger students and how to do so.
12.14	Social Media and the College Application Process	Discussion of how students can be smart about how they use social media.
12.15	Are You Independent or Dependent?	This module helps students figure out if they're dependent or independent for the purpose of filling out the FAFSA.
12.16	Creating an FSA ID	This module teaches students how to create

		an FSA ID in order to be able to complete the FAFSA.
12.17A	FAFSA Overview	This module goes through what the FAFSA is, why it's important to fill out, and when they can fill it out.
12.17B	What You Need to Complete the FAFSA	This module goes through the documents students and their parents (if you're a dependent student) will need to complete the FAFSA.
12.18A	FAFSA Student Walkthrough	First of three modules that takes students through how to fill out the FAFSA.
12.18B	FAFSA Parent Walkthrough	This part of the FAFSA Walkthrough takes students and parents through the information that parents of dependent students will need to fill out.
12.19	FAFSA Wrap-Up	Final module on the FAFSA, taking students through the important final steps and notes for completing the FAFSA.
12.20	Avoiding Burnout	A few tips to help overcome senioritis.
12.21	Being Undeclared	Tips for students on how to figure out what major is best for them if they haven't decided on a major yet for college.
12.22	AP Exams	Discussion about how students can prepare for the AP exams if they are taking an AP course.
12.23	Resistance Skills	In this module, students discuss how they can say no in difficult situations.

12.24	Self-Advocacy	Discusses how students can advocate for themselves, especially if they go away to college.
12.25	Graduation Requirements	Discusses how students can make sure they're on-track to graduate before the school year is over.
12.26	Being Waitlisted	Discusses what a student's next steps are if they've been waitlisted.
12.27	What To Do After You're Accepted	Discusses some of the steps a student can take after they're accepted to a school.
12.28A	Financial Aid Letters	Goes over why a student's financial aid letter is so important and how to read it.
12.28B	What To Do If You Have a Shortfall	Discusses what a shortfall is and if a student has one, what to do.
12.29A	Student Loans 101A	Discusses the different types of loans students can get to help pay for college.
12.29B	Student Loans 101B	Discusses the terms associated with paying back loans.
12.30	Finalizing Your Financial Aid	Discusses how to finalize any loans students have for college, and what they should do if they have the option to make money via work study.
12.31	Changing Majors	Discusses how to switch majors, or find other options, if that is what a student wants.
12.32	Changing Career Paths	Discusses the steps students can take to change career paths if they decide the one they're on isn't right for them.

12.33	Post-Secondary Mentors	Discusses the importance of looking for mentors when students are in college to help them navigate their post-secondary years.
12.34A	Preparing for More Independence in College	This module discusses how students can get ready for increased independence, especially if they'll be living on their own for the first time.
12.34B	How to Budget When You're On Your Own	Discusses the best ways students can budget once they are independent.
12.35	Establishing Healthy Relationships at College	Discusses the importance of communicating well with people students are meeting for the first time, or living with, at college
12.36	Time Management and Organization for College	This module will give students several methods on how to plan for their schoolwork efficiently.
12.37	Preparing for College Classes	Discusses how students can get ready for their college classes as the school year comes to an end.
12.38	Spending Time and Saying Goodbye to Family and Friends	This is the final module - thanks for taking part in OnTrack!