***Kea’au High School***

16-725 Kea’au-Pahoa Road

Kea’au, Hawaii 96749

Phone: 808-313-3300

Fax: 808-982-4224



STEM Certificate Handbook

**STEM PROJECT TIMELINE**

|  |  |  |
| --- | --- | --- |
| **Item:** | **Check:** | **Due Dates:** |
| STEM Project Proposal and Parent Consent Form due to STEAM Project Committee |  | No later than mid-quarter 1 |
| Initial conference with school mentor |  | Second week of September |
| Formal Letter of Intent due |  | No later than end of 1st quarter |
| Outline for research paper due |  | Second week of November |
| 1st Draft research paper due |  | First week of December |
| Final draft, research paper due |  | Second week of January |
| Prepare for Oral Presentations |  | February.-March |
| Outline for presentation |  | Early February |
| Oral presentations |  | Early March |

KEEP COPIES OF ALL FORMS; TURN IN ONE COPY OF EACH FORM TO YOUR SCHOOL MENTOR

**STEM Honors Certificate Requirements**

The requirements for receiving the STEM Honors Recognition Certificate are as follows:

* **4 credits of math:** the 4 credits must include one credit for Algebra 2 and 1 credit beyond Algebra 2.
* The credit beyond Algebra 2 must be earned via the following courses or equivalent AP of IB or Running Start math courses:
* Algebra 3, Trigonometry, Analytic Geometry, Pre-Calculus, Probability, Statistics, Introduction to College Mathematics, or Calculus.

**AND:**

* **4 credits of Science:** Of the 4 credits, 1 credit must be in Biology 1 or equivalent IB Biology, or AP Biology courses

Successful completion of a STEM Capstone Project in one of the approved ACCN courses

**STEM PROJECT OVERVIEW**

Description

The STEM (Science, Technology, Engineering, and Math) Project is an inquiry-based, problem solving project, over and above the student’s regular classroom activities. It is a student-driven project, incorporating disciplines across the curriculum, which represents a “learning stretch.”

Objectives

Students will:

* Plan and implement a project to address their individual essential question.
* Integrate skills learned in various subject areas and become independent, self-confident learners.
* Work with an advisor, community mentor and/or other community resources as deemed appropriate.
* Maintain current timesheet of field research if applicable.
* Explore, develop, research, analyze and develop a comprehensive paper.
* Present their project results to an audience of their peers and/or other adult evaluators.

Initial Requirements:

* Typed proposal & Letter of Intent
* Parent permission
* School and/or community mentor approval

**Three Key Components (3 P’s):**

1. Paper (Inquiry-based research paper, 5-10 pages)
2. Product or Project
3. Presentation (Oral presentation before a panel)

KEY TO THE SUCCESS OF YOUR PROJECT IS THE ASSISTANCE OF A MENTOR; APPROACHING AND COLLABORATING WITH A SCHOOL STAFF MEMBER SHOULD BE YOUR FIRST TASK IN THIS PROCESS. YOU WILL NEED TO MEET WITH THIS PERSON WEEKLY THROUGHOUT THE COMING YEAR.

**ALL FORMS AND DOCUMENTS NEEDED FOR STEM PROJECT ARE AVAILABLE ON THE KEA’AU HIGH SCHOOL WEBSITE:** [**http://keaauhs.k12.hi.us/**](http://keaauhs.k12.hi.us/)

Project Choices:

The product/field work must be done on the student’s own time. Product development shall be accomplished by relating an essential question to the project thesis.

***Student Personal Interest—Project/Product and Action:*** The project/product and action associated with the student’s personal interest must be related to the essential question and project thesis.

* *Problem-based (inquiry-based):* Student begins with a problem or issue and will come up with possible solutions. The research-driven thesis will be developed and the student will have to act on this thesis. (*Example:* conduct a problem-based research project or science project)

IN ALL CASES, STUDENTS SHOULD BE COGNIZANT OF THE NEED TO CHOOSE PROJECTS THAT ARE DOABLE WITHIN THE BOUNDS OF AVAILABLE RESOURCES.

Kea’au High School

**PROPOSAL FOR STEM PROJECT**

Student Name (print): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Email: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Student Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Parent/Guardian Name (print): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Parent/Guardian Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Tentative Project/field work**—explain exactly what you plan to do and how you will develop your essential question(s)— (may attach additional sheets if necessary):

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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What **prior knowledge** do you bring to this topic/project (what do you already know about it)?

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What **difference** will this project make? (What do you hope to accomplish and how will this project impact the community, environment, and people’s lives?)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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RETURN FORM TO YOUR TEACHER MENTOR

**STEM PROJECT**

**Parent/Guardian Consent/Liability Release Form**

**Kea’au High School**

To the Parents/Guardians of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:

Your son/daughter is about to embark upon an exciting educational journey! The STEM Projectwill provide enormous benefits for your child both now and in the future.Successful completion of the STEM Projectis a valuable tool in determining yourchild’s mastery of the General Learner Outcomes and the Hawaii Content and Performance Standards.

Please take some time to discuss the project with your child, and initial each of the items below indicating that you have read, understood, and approve of each. RETURN FORM TO STEM PROJECT TEACHER MENTOR

\_\_\_\_\_ I approve of my child’s selected research paper topic.

\_\_\_\_\_ I approve of my child’s selected project, and understand that much of the work will be

completed outside of normal school hours.

\_\_\_\_\_ I acknowledge that the mentor selected is at least 21 years old, and is not a relative of my child.

\_\_\_\_\_ I understand that all transportation for work outside of the school day is the responsibility of

the student and/or parent.

\_\_\_\_\_ I understand that all costs and risks associated with the project are the responsibility of the

student and/or parent.

\_\_\_\_\_ I understand that the final project must be physically at school the day of the STEM Project

presentation. If the product is a service or activity, it must be documented by written affidavit, photos and/or a video.

\_\_\_\_\_ I understand that integrity and honesty are just as important as all other components of the

STEM Project. Any suspicion that my child has plagiarized or has been dishonest in any

aspect of the STEM Project process may result in a referral to the school’s STEM Project

Advisory Team, administration, or other appropriate authority.

\_\_\_\_\_ I understand that all portions of the STEM Project (the research paper, the project, and the presentation)

must be completed with a passing score in order to receive the STEM Honors Recognition Certificate.

A student will be given the opportunity for one revision of up to two components if a passing score is not received the first time.

I understand that the school, complex area, State, and their agents are not responsible for all potential risks resulting from the STEM Project. Accordingly, I release Kea’au High School, the Kea’au-Ka’u-Pahoa Complex Area, the Hawaii State Department of Education and their agents from all claims arising from any financial obligation incurred, and damage, injury, or accident suffered while my child participates in the STEM Project.

Parent/Guardian’s Name (Print): Parent/Guardian’s Signature: Date:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_

Student signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**CHOOSING A TOPIC**

One of the most important aspects of choosing a topic for your research and product is that you have a ***learning stretch***. This stretch means that you must push yourself to go above and beyond what you already know. This project is an opportunity for you to practice skills in the ‘real world’ while pursuing a subject of personal interest. Selecting the idea is a personal challenge. **YOU, *not* your teachers, *not* your parents, but YOU**, get to decide. It is important to find a topic that truly interests YOU. The best projects – challenging, engaging, meaningful and fun – begin with a compelling personal, social, or environmental reason for topic choice. You must be actively engaged in the entire process and so this is your opportunity to become an explorer, artist, builder, scholar, scientist, author – whatever YOU want. Consider the following questions as you prepare to select a topic:

* What do you care about?
* Within the next three years, what do you hope to have accomplished?
* What would you like to learn more about?
* What do you wish would happen in your life, your community, the world?
* What can you do to make the World a better place?

**FOCUSING YOUR PROJECT**

Now that you have an idea for a topic, you will need to make sure that it is focused and **doable**. Remember, your Project and your research paper go hand-in-hand: you may be working on them simultaneously. Ask yourself these questions to focus your project:

1. What is the resource availability of your topic choice? Are there people in your community who can help you? Are there books and reliable websites about the topic?
2. How does the project fit into your time management requirements? Will you be able to complete it in the time allotted (i.e., by March of your senior year)? How much time will you have to work on it during your senior year?
3. Can you develop a strong thesis statement for your research paper that articulates an insight or position valuable enough to write about and that can be persuasively supported by evidence and analysis?

Here are some common problems that must be avoided in order for you to have a successful STEM Project:

**1. Paper Topic:**

* Too broad (“Global Warming”)
* Too narrow (“Recycling cans for your own personal family”)
* Too shallow (“Ways to make money through recycling cans”)
* Inappropriate (has been overdone or not enough of a learning stretch)

**2. FieldWork:**

* Too vague
* Age/Legal Barriers
* Too complex or insufficient background
* No hands-on activity: “hanging out” or merely observing is not enough of a stretch
* Dangerous
* Transportation problems

Sample Projects / Research Topics

* Design an exercise program for parents / “Effective physical conditioning techniques for the middle-aged”
* Organize and direct a beach cleanup & report on findings to wider community / “Marine pollution and how to prevent it”
* Design and build a home foundation that will survive a natural disaster / “Building foundations”
* Study the latest research on exoplanets
* Near earth asteroids and determining methods of finding approaching asteroids when between the Earth and the Sun
* Presentation to middle school students / “Causes & Effects of Crystal methamphetamine: Teen drug use in Hawaii”
* The effects of opioids on the brain and long term dangers of addiction and effects
* The aesthetic value of art in educational settings and the measurable impact on student learning
* The impact of invasive species on our fragile, Island environment
* The physics of light spectrums and uses in astronomy, chemistry, fireworks, etc
* Resonate frequencies and their effects on architecture (bridges, buildings, etc).
* The science behind comfort animals and human response across disabilities

Kea’au High School

**ACADEMIC HONESTY POLICY**

Kea’au High School is committed to the principles of academic integrity. Students are responsible for upholding the highest standards of honesty at all times. Examples of activities in violation of the KHS academic integrity policy include but are not limited to the following:

1. 1. Cheating-

A. Acquiring or providing answers for any assigned work or examination from an unauthorized source.

B. Working or collaborating with others on an assignment when paired or group work has not been specifically assigned by the teacher.

C. Looking at another person's paper during an examination

D. Using a “cheat sheet” or other unauthorized notes during an exam or quiz.

E. Providing the contents of an examination or quiz to another person who will be taking the examination or quiz.

1. 2. Plagiarism-

A. Failing to acknowledge and cite all sources utilized in a project.

B. Using the ideas, data, or language of another without acknowledgement.

C. Turning in work which has been copied or purchased in whole or in part from other individuals or sources including the internet.

If a student is found in violation of the Academic Integrity policy, they will be given a zero on the assignment and referred to their counselor.

Kea’au High School

**STEM PROJECT RESEARCH PAPER GUIDELINES**

Your research paper should be **a problem-based research product**. It must be related in some way to your Project field work. Biographical, career exploration, informational, how-to papers, or previously submitted papers will not be accepted.

\*Student-mentor agreements

1. Before beginning your research paper, and while completing your research, you will develop a **THESIS STATEMENT, due on \_\_\_\_\_\_\_\_\_\_\_.** (Mentor to determine)

The Thesis Statement:

* is a short paragraph statement about the topic being examined.
* is specific and clear.
* states your opinion.
* is arguable (there are other viewpoints).
* is supportive with evidence from your research and your own analysis.

2. The next step is an **OUTLINE and list of Authentic SOURCES, due on \_\_\_\_\_\_\_\_\_\_\_.** (Mentor to determine)

The outline is a plan for what is going to be in your research paper, i.e.:

1. Introduction/thesis

2. Supporting point 1

a) Possible detail

3. Supporting point 2

a) Possible detail

4. Supporting point 3

5. Conclusion

The list of Sources does not have to be in proper APA format at this point; it is simply a draft.

3. The RESEARCH PAPER must consist of the following:

* Title Page
* Five-ten pages (2,000-3,000 words) of narrative; full page graphics do not count in page requirements
* First line of each paragraph must be indented 5 spaces
* Must include in-text parenthetical citations
* Works cited page
  + Minimum of 5 sources
  + Sources need to be peer reviewed, and from various modalities/genres
* APA format
  + Entire paper (with possible exception of title page) should be typed in 12 pt. font, double-spaced, Times New Roman or Ariel
  + One-inch margins all around
  + Page numbers and last name in upper right corner required (use header and footer function).**RESEARCH PAPER RUBRIC**

**(Points given need not be in whole numbers; decimals may be used)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Advanced**  **4** | | **Proficient**  **3** | **Partially Proficient**  **2** | **Novice**  **1** | **SCORE** |
| **Form (APA)** | | | | | | |
| **MANUSCRIPT FORM**  **(Typing/spacing,**  **Page number/order, Heading/title)** | **No errors** | | **Two or fewer errors** | **Four or fewer errors** | **Five or more errors** |  |
| **DOCUMENTATION** | **All in-text citations and works cited page are APA correct, all researched info documented** | | **A few minor errors in documentation and works cited page, all researched info documented** | **Some errors in documentation and works cited page, more citations of researched items is needed** | **Many errors in documentation, works cited page, inadequate amount of citations to support position** |  |
| **BIBLIOGRAPHY**  **(Annotated for at least five typed entries)** | **No errors** | | **Two or fewer errors** | **Four or fewer errors** | **Five or more errors** |  |
| **Mechanics, Usage, Grammar** | | | | | | |
| **SENTENCE**  **FLUENCY**  **(Fused Sentence/Run-on Error, Comma Splice/Comma Fault Error, Mixed Construction, Garbled Sentence, Stringy Sentences, Parallelism)** | | **Sentences well built, strong and varied structure make it easy to read aloud** | **Text flows, sentences somewhat varied, relatively easy to read aloud** | **Sentence structure awkward rather than fluid, reader must slow down** | **Writing difficult to follow or read aloud, sentences are incomplete, run-on, and/or awkward** |  |
| **CAPITALIZATION**  **UTILIZATION**  **PUNCTUATION**  **SPELLING** | | **Strong control of standard writing conventions, few errors** | **Reasonable control of standard writing conventions, some editing necessary** | **Limited control of standard writing conventions, errors starting to impede readability** | **Little or no control of standard writing conventions, extensive errors make it difficult to get message** |  |
| **GRAMMAR**  **(Subject/verb agreement, tense agreement, adjective adverb usage, misplaced and dangling modifiers, double negatives, etc.** | | **Strong control of grammar conventions, few errors** | **Reasonable control of grammar conventions, some editing necessary** | **Limited control of grammar conventions, errors starting to impede readability** | **Little or no control of grammar conventions, extensive errors make it difficult to get message** |  |
| **VOICE** | | **Clear sense of “writing to be read”, brings topic to life, strong audience awareness** | **Writer’s voice is formal and engaging with some sense of “writing to be read”** | **Writer’s voice may emerge at times, little sense of reader /writer interaction** | **No audience awareness, voice is flat, lifeless and impersonal** |  |
| **WORD CHOICE**  **(incorrect word usage, contractions, slang, abbreviations, 1st/2nd person pronouns, shift in tense** | | **Language is natural, interesting, figurative and precise** | **Language is functional and occasionally goes beyond ordinary** | **Language is predictable, ordinary and/or repetitious** | **Language is limited, monotonous, and/or misused** |  |
| **Content** | | | | | | |
| **INTRODUCTION**  **(clearly stated, introduces the topic of the paper and the main points to be discussed)** | **Clearly stated, introduces the topic of the paper and the main points to be discussed.** | | **Clearly stated, introduces the topic of the paper.** | **In the introduction, the explanation of topic is confusing.** | **Don't know the exact topic.** |  |
| **THESIS** | **Arguable thesis,**  **Compellingly supported with opposition clearly refuted** | | **Arguable thesis with clear supporting detail** | **Thesis unclear, simple, with minimal development or support** | **Lacking central thesis, consistency and/or purpose** |  |
| **CONCEPT DEVELOPMENT** | **Demonstrates complete understanding of the subject. Shows higher critical thinking skills with a well developed, detailed, relevant and accurate treatment of the subject** | | **Shows understanding of the subject matter. Develops a easily followed train of thought with documented support, that is carried throughout.** | **Some of the concepts discussed are covered in a confusing manner. There is inadequate documentation of the thought process.** | **Thinking scattered, Little concept development. No evidence of original thought.** |  |
| **ORGANIZATION** | **Sequence and structure strong, precise introduction and conclusion** | | **Generally clear and logical organization, structure a bit predictable** | **Structure inconsistent, undeveloped or obvious text, intro or conclusion** | **Lacks organization structure, no apparent intro and/or conclusion** |  |
| **ACCURACY**  **AND**  **CITATION** | **Selection of supporting resource material is authoritative, current and pertinent. All supporting documentation is properly cited.** | | **Some of the selection of supporting resource material is authoritative, current and pertinent. All supporting documentation is properly cited.** | **Little of the selection of supporting resource material is authoritative, current and pertinent. Some supporting documentation is properly cited.** | **None of the selection of supporting resource material is authoritative, current and pertinent. No supporting documentation is properly cited.** |  |
| **OVERALL**  **RATING** | **(PASS) (FAIL) Total Points Earned/Possible Points**  **42 POINTS NEEDED TO PASS** | | | | | **/52** |

**PRESENTATION GUIDELINES**

# I. Presentation of the STEM Paper and Project Activity

* + Describe what you did for your project
  + Describe thesis research paper
  + Connect content of paper to project activity
  + Explain what you learned about the overall topic and about yourself
  + Describe whether the research you completed affects your future plans and how you can use what you learned from this project later on in life.

# II. Procedure & Times

* Formal Presentation: Thesis, research paper and project activity = 8 - 15 minutes
* Question and Answer Session = 5 minutes
* Judges Scoring = 5 minutes
* An audio/visual aid is **required**. This should be no longer than 2 minutes of the presentation.
* The use of PowerPoint is not limited to 2 minutes but viewed as presentation tool.

# III. Presentation Performance Evaluation

* Audience: Community Members, KHS Staff members, students (3-4 members total on each panel)
* Areas to be evaluated with feedback

1. Content

2. Organization

3. Delivery

4. Professionalism

5. Impromptu Skills (Q & A)

# IV. Tips for Giving Quality Presentations

* Work on volume and pace
* Concentrate on pronunciation and enunciation
* Eye contact is important. Do not read, but speak to the entire audience
* Posture – hands not in pockets, holding a chair, etc. – use gestures where applicable.
* Anticipate questions and be ready to answer
* Avoid “filler” words such as “um” and “ah.”
* 3 x 5 cards are the only acceptable notes, but do not read from them.

# V. Guidelines for Appropriate Attire

Your attire is the first impression you make on others.

Attire is part of the professionalism of the presentation

**Dress as if you were going to an important job interview**.

**PRESENTATION RUBRIC**

(Points given need not be in whole numbers; decimals may be used.)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CONTENT | Advanced  4 | Proficient  3 | Partially  Proficient  2 | Novice  1 | SCORE: |
| Presentation  Content | Learning stretch was evident and presented clearly and concisely.  All main ideas and points presented are supported by many accurate and relevant details. Essential question, research thesis, and project outcomes are related to the project and are addressed clearly and concisely. | Personal challenges (learning stretch) presented were clearly related to the project. Main ideas and points presented are supported by accurate and appropriate details. Essential question, research thesis, and project outcomes related to the project are addressed. | Learning stretch presented was somewhat related to the project.  Some main ideas and points presented are supported by accurate and appropriate details.  Essential question, research thesis, and project outcomes that are related to the project are somewhat addressed. | Learning stretch was not presented. Few ideas and points presented are supported by accurate and appropriate details.  Essential question, research thesis, and project outcomes that are related to the project are minimally addressed. |  |
| Organization | There is an attention-getter and a clear introduction, body, and conclusion.  Ideas flow in a logical manner which maintains  panel’s attention  throughout presentation.  Adheres to time  restraints. | Clear introduction, body, and conclusion. Ideas flow in a logical  manner. Adheres to time restraints. | Introduction, body, and conclusion are present, but not as well-defined as they should be. Ideas flow in a somewhat logical manner. Does not adhere to time restraints. | No clear introduction, body and conclusion. Ideas flow in an illogical manner. Does not adhere  to time restraints. |  |
| Professionalism | Punctual, well-prepared, addressed panel with respect and confidence. Very professional.  Clothes are neat and appropriate; well groomed. | Punctual, prepared,  addressed panel with respect.  Mostly professional demeanor. Clothes and grooming are appropriate. | Prepared, addressed panel  with some respect.  Sometimes displayed professional demeanor. Clothes and grooming somewhat appropriate. | Not prepared, addressed panel with minimum respect.  Not professional. Clothes are inappropriate.  Not well-groomed. |  |
| Delivery | Word choice and style are appropriate, creative, and exciting. Transitions are  used appropriately and effectively. If used, slang is meaningful adding to presentation effectiveness.  Volume, rate, clarity,  pace is used effectively  throughout the whole  presentation effectively engage the audience. Poise and posture  enhance the presentation.  Not reading; completes  entire presentation  without notes. Makes eye contact with all members of the audience effectively.  Use of slides (Power Point) or other audiovisual aids enhances the presentation. | Word choice and style are appropriate. Transitions are used appropriately, speech flows. If used, slang is appropriate.  Volume, rate, clarity, pace are used to effectively engage the audience.  Poise and posture are appropriate. Not reading, not bound to notes or cards. Makes appropriate eye contact with audience. Appropriate use of slides (Power Point) or other  audiovisual aids which complement the presentation. | Word choice and style are somewhat appropriate.  Transitions are sometimes used appropriately. If used slang is somewhat appropriate  Appropriate volume, rate, clarity, pace throughout the most of presentation.  Poise and posture are mostly appropriate.  Some reading, somewhat bound to notes or cards.  Makes some eye contact with audience. Uses of slides (Power  Point) or audiovisual aids which somewhat  complement the presentation. | Word choice and style are not appropriate.  Transitions are not  appropriately speech does not flow. If used, slang is not appropriate  Appropriate volume, rate, clarity, pace.  Poise and posture are not appropriate.  Reading notes or cards. Minimal eye contact with audience. Fails to use slides (Power  Point) or any audiovisual aids. |  |
| Impromptu  Skills (Q & A) | Very relaxed. Delivers answers with extreme confidence. Pauses appropriately if necessary.  Answers accurately reflect project outcomes. Responses are to the point, accurate, and appropriate. | Confident and relaxed. Pauses appropriately if necessary.  Responses reflect project outcomes accurately and are appropriate. | Slightly anxious. Answers without prior thought.  Responses somewhat  reflects project  outcomes with some inconsistencies. | Very anxious and unable to answer questions.  Responses do not answer  questions accurately and/or are inconsistent. |  |

|  |  |  |
| --- | --- | --- |
| **OVERALL RATING** | (Pass) (Redo) 14 pts needed to pass Total Points Earned/Possible Points | **\_\_\_\_**  **20** |

**PROJECT SELF-EVALUATION**

Real learning, deeply embedded and remembered, often occurs because of reflection and hindsight. Take some reflective time to answer the guide questions below about your project and what you learned while completing it. This self-evaluation will help you in preparing your Oral Presentation.

* Explain several interesting ideas or facts you learned about your research topic:
* If you were to start your project over, what would you change and why?
* Who or what helped you the most when you were writing your paper/completing your field work? How?
* What was the biggest problem related to researching or writing your paper and/or your field work you had to solve? What was the solution?
* What helpful and realistic tip or bit of advice would you give to someone who is going to be writing his/her STEM Project paper next year? Why?
* What aspect(s) of your project makes you feel most satisfied or proud? Why?

**STEM PROJECT EVALUATION RUBRIC FOR MENTORS**

Good mentors are a vital part of a successful STEM Project. We appreciate your willingness to have helped us this year by mentoring a student. As the person who has worked most closely with the student, we need your input in assigning a grade. Please use this STEM Project Evaluation Rubric to assess your mentee and return it to STEM committee ***no later than March 31st.*** You may send it ***in a sealed envelope*** with the student if you desire, as well.

Student Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Project: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Mentor’s Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Mentor’s Signature:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_

In addition to the rubric on the following page, your comments and explanations are important to us and to the student. Please write these in the space below or on a separate sheet as you wish.

Thank you for sharing your expertise with the students of KHS

STEM PROJECT EVALUATION RUBRIC FOR MENTORS

(Points given need not be in whole numbers; decimals may be used.)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **STEM PROJECT**  **FIELD WORK RUBRIC** | **Advanced**  **4** | **Proficient**  **3** | **Partially Proficient**  **2** | **Novice**  **1** | **Points Achieved** |
| **Effort/Time** | Student invested extra time and put in tremendous effort to create an exemplary project | Student put in adequate time and effort to complete the project | Student put in some time and effort but not enough to be satisfactory | Student did not put in sufficient effort or invest time to complete project |  |
| **Evidence of planning and endeavor to fully explore possibilities of ways to complete project** | Extensive planning is evident and student fully explored various avenues | Satisfactory planning and some exploration of other possibilities to complete project | Some planning and exploration evident | Little planning or exploration in evidence |  |
| **Problem Solving (student should ask for guidance, but then be able to solve problems as they occur as to physical limitations and logistics)** | Exceptional ability to solve problems as they occurred and student may even have gone beyond help of mentor to other resource | Satisfactory ability to solve problems as they occurred and ability to ask for and accept help as needed | Some ability to solve problems as they occurred, asked for help if needed | Difficulty solving problems as they came up in completing project and may not even have asked for help |  |
| **Evidence of Learning** | Exceptional evidence that the student not only learned the concepts and skills necessary, but went beyond to learn even more | Satisfactory evidence that student did learn the concepts and skills needed to complete the project | Some evidence that student did take away some concepts or skills | Little evidence that the student learned much from completing the project |  |
| **Use of Sources/Materials related to project** | Exemplary use of sources and materials that may enhance the project due to student’s mastery and manipulation | Satisfactory evidence that student used sources and materials in an adequate manner to complete the project | Some evidence that sources and materials were well utilized | Little evidence that sources and materials were well utilized well |  |

|  |  |  |
| --- | --- | --- |
| **OVERALL RATING** | (Passing score = 15 points) Total Points Earned/Possible Points) | **\_\_\_\_**  **24** |