Vicksburg Community Schools Proposal Form with Guidance

Please review *VCS General Guidelines for Program Review and Proposal Development* prior to completion of this form. Send completed *Proposal Form* and supporting documents to the Curriculum office by March 1st. **Note:** The first page of this form is the cover sheet and proposal checklist for use as you edit or create your final draft to ensure each section has the required information. The proposal request form begins on page 3.

Title of Proposal: Miller & Levine Biology

Proposal Author(s): Kim Armitage, Noreen Heikes, Mandy Keiser, Tina Porter, Liz Ratashak, Troy Smith

Department and Curriculum Area: Science - Biology Building: Vicksburg High School

Committee Members: Kim Armitage, Noreen Heikes, Mandy Keiser, Tina Porter, Liz Ratashak, Troy Smith, Gail Van Daff

- This proposal is for:
  - X Textbook and other teaching resources *(requires planned pilot process as part of the proposal request)*
  - ☐ New courses or course revisions
  - ☐ Full program or curriculum area reviews
  - ☐ Program or curriculum area modifications
  - ☐ Supplemental Instructional/Intervention Resource

- Proposal Background & Overview – Write a narrative that includes:
  - X Relevant background/history.
  - X Problem or other basis for the proposal (i.e. student needs, etc.).
  - X Reasons for making the change.
  - Targeted School Improvement Goals

- Complete Description of Proposed Change(s):
  - X List all major changes, components and/or strategies of the proposal.
  - X Give rationale for each change (base the rationale on research or best practice information).
  - X Include new course/textbook title, course/textbook replaced, credit, and prerequisite(s).
  - X Attach the current content expectations, course outline, and/or general syllabus.

- Implementation Plan
  - X Give a full explanation of the implementation timeline, action items, and responsibilities for implementing.
  - X Itemize, in detail, all proposal costs. Include 1st year costs and a budget to maintain the proposal after implementation. Include resources needed to support change. (texts, soft/hardware, web-based license, consumables, training, substitute cost for training, equipment, personnel). **Include attachment if needed.*

- Anticipated/Expected Impact
  - X Explain the anticipated proposal outcomes. Describe how the proposal will impact students, staff, and the instructional program. Include expected gains in student success. Include how this proposal articulates with other courses/levels in this subject area & across the curriculum.

- Proposal Evaluation Plan and Student Achievement
  - X Explain how this proposal will be evaluated, the timeline used, what data is to be collected (survey results, national, state, district, or classroom assessments), and how the evaluation will be reported.

Dates of Anticipated Review and Action: DSISC March 20, 2020 BOE April 20, 2020

Principal's Signature(s): _____

(To be completed by Director of Curriculum and Instruction upon receipt of proposal.)

Date Received: 3/20/20

Comments on proposal:

_____

_____

_____

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RESPONSE:

☐ Need more information: _____

☐ Need to consult with:

- ☐ the building principal(s) affected by this proposal
- ☐ curriculum area chairperson
- ☐ Other: _____

☒ Proceed as outlined in the proposal – pending available funds

_____ 3/20/20

Director of Curriculum and Instruction Date

_____ 4/29/20

Director of Technology Date

Proposal Background & Overview:

Proposal History and Background.

In November of 2015, the MI State Board of Education adopted new science standards based on the Next Generation Science Standards. With the adoption of the new science standards, our current instructional resource (Biology, Miller Levine 2002) for Biology, a course that is taken by all freshmen and required for graduation, was no longer aligned to state standards. Our initial work as a district focused on understanding and unpacking the new standards, Tier I and NGSX training for the teachers. We attempted to meet the standards and new pedagogy independently by creating our own materials because commercially created materials were not available. This had a few drawbacks: (1) teachers had to focus efforts on content development instead of instruction, (2) students lacked resources to assist themselves when absent or struggling to understand material, (3) a lack of consistency of instruction and assessment as teachers used different instructional materials. Members of our high school biology team worked with the Director of Curriculum and Instruction and our Instructional Coach to implement the Course Design and Instructional Resource Review Process and used the EQuIP Lesson Screener to evaluate multiple resources for adoption consideration.

***Targeted School Improvement Goal**: All students at Vicksburg High School will achieve a student growth percentile (SGP) of average to above-average in Science. Measurable Objective 1: 100% of All Students will increase student growth with a mean SGP of 55 in science as defined by the Michigan K-12 standards in Science by 06/15/2025 as measured by 2020 Michigan state standards assessment.*

Complete Description of Proposed Change(s):

Major changes, components or strategies of proposal.

The high school science department is recommending the adoption of the Miller & Levine Biology textbook (Bumblebee edition) and resource materials. This recommendation is based on a comprehensive review of several texts, with the department selecting Miller & Levine as the best fit for Vicksburg High School students.

This new resource supports both the NGSS and the Michigan State Standards, while empowering students to use science and engineering practices to address real-world issues. This resource will replace our current Miller & Levine (Dragonfly edition) purchased in 2002, and a large volume of teacher-created materials that do not fully meet the new standards. This new resource guides students to learn, use, and integrate the practices of science and engineering, the concepts that cut across all the science and engineering disciplines, and the disciplinary content that is the foundation upon which new knowledge is constructed. The curriculum includes project-based learning, modeling, formative and summative assessment items that are designed to help teachers gauge their students' progress while also preparing students for high-stakes tests. This new instructional resource engages students in studies of problems related to the 21st-century phenomena identified by the National Academies of Engineering and other science/engineering societies.

Syllabus included as Addendum 1 at the conclusion of this document

Grade	***New Textbook Title/Instructional Resource***	***Previous Textbook/Instructional Resource To Be Replaced***
HS	*Miller & Levine Biology from Pearson, 2019*	*Miller & Levine Biology & Supplemental materials, (2002)*

- *Michigan K-12 Science Standards*

Implementation Plan:

a. Implementation strategies

Timeline	Action	Person(s) Responsible
Summer 2020	Biology teachers meet with Pearson Advisor to learn how to utilize online components, and create 1st quarter units of instruction and assessments.	Tina Porter
Fall 2020	Start utilizing new text and resources	Tina Porter
Fall 2020	Biology Teacher Professional Learning - review student data and progress, plan 2nd quarter units of instruction and assessments.	Tina Porter
Winter 2020-2021	Biology Teacher Professional Learning student data and progress , plan 3rd quarter units of instruction assessments.	Tina Porter
Spring 2021	Biology Teacher Professional Learning - review student data and progress, plan 4th quarter units of instruction and assessments.	Tina Porter

b. Proposal Costs

Description	Number Needed/ Cost per Unit	Total Cost	Funding Source
Materials *(add rows if needed)*			
Miller Levine Biology 2019 Student Edition + Digital Courseware 6-Year License	$ 107.47/160 packages	$17,196	General Fund
Miller Levine Biology 2019 Digital Courseware 6-Year License	$ 88.47/80 accounts	$7,078	General Fund
Miller Levine Biology 2019 Teacher Edition	$181.97/4 accounts	$0	N/A
Laboratory Supplies	$ 1610	$1610	General Fund
Professional Learning/Summer Curriculum Work			
Miller and Levine Biology 2019 Program Implementation Essentials - 2 days	Advisor - $2800 Stipend - 1 person x 2 days @ $105 SIPD - 4 people	$3010	Title IIA General Fund
3 Professional learning days during the school year for 5 people	Subs - 4 x $90 x 3	$1080	Title IIA

Other Costs			
Total Costs	**$29,974**		

Anticipated/Expected Impact:

Proposal outcomes

- Increased student engagement while solving real-world issues.
- Students engaged in critical thinking and problem solving with higher order learning activities
- Students will experience lessons that follow the 3 Dimensions of the Next Generation Science Standards which include cross-cutting concepts, science and engineering practices, and disciplinary core ideas.
- Students will improve their data collection and analysis techniques as well as improving their science reasoning, all of which are beneficial to improving scores on the science portion of the MSTEP, as well as increasing student success in subsequent science courses.
- Improve scientific discourse with teachers and fellow students.
- Program increases rigor of instruction and assessment.
- Students will experience an increase in the consistency of instruction and assessment across sections of biology.
- Teachers will be provided with consistent goals, benchmarks, and instructional resources to ensure students are progressing on a path for success in college and career.

Proposal Evaluation Plan and Student Achievement:

Evaluation and assessment

Action	**Timeline**	**Person/ Team Responsible**
Analysis of Unit Tests/ Midterm and Final exams	After each unit/semester	Biology teachers
Analysis of End of Unit Case Studies	After each unit	Biology teachers
Informal student self assessments - collect and discuss	After each unit	Biology teachers
Analysis of MSTEP data when available	Post MSTEP	HS Science Team and Instructional Coaches

Biology Syllabus 2019-20

Course Description:

Welcome to the wonderful world of biological science! Biology is the study of living things. We will be having a great year – discussing everything from plants and fungi to how organisms develop. Bring a positive attitude and lots of questions to class every day. These two things are an important component to successful learning. For this to occur, I will do my part to make our classroom a comfortable, safe place to learn. For classroom climate to be a positive one, I would like to adhere to the following:

Be on time and prepared for class. (Have your science notebook, writing utensil and agenda)

Expect respect and responsibility from others and for yourself.

Participate in daily activities.

One more thing… be safe and **HAVE FUN!!!!!**

Assessment:

Homework: 1-2 times per week. **I expect high quality workmanship at all times.**

Late Work: Assignments not turned in on time will result in lowered scores. **Assignments will NOT be accepted after the assessment has occurred**.

Retakes: **Periodically assessments may be retaken by a student. This will occur with discussions between the teacher and student and parents and if it is apparent that the student didn't comprehend the material**. Assessment retake CAN allow for a more complete understanding of material and thus mastery of the material. A retake should (hopefully) allow for increased understanding – but is not a guarantee.

But I was sick! Refer to the handbook and talk to your instructor for the homework and absences policy.

Binders/ Folders: **Students will be given a science notebook to keep track of EVERTHING we do in class**. Bring it with you to class daily. This in turn will help you stay organized in class. Using this will keep your papers in check and your past quizzes and tests available as the tests **WILL BE CUMULATIVE**.

Grading: Grades are calculated on a weighted points system. These points are allocated from homework, labs, quizzes, tests and activities and participation.

Each nine weeks will be broken down like this:

Tests and Quizzes: 70% of 9 weeks grade (CUMULATIVE) Laboratory work: 20% of 9 weeks grade
Homework: 5% of 9 weeks grade Participation: 5% of 9 weeks grade
The total grade is 40% for 1st 9 weeks, 40% for 2nd 9 weeks and 20% for the final exam
Each 9 weeks will be graded individually.

Classroom: This is a laboratory course. Equipment and materials will be used properly. Violations will result in removal from the lab and a zero for that unit of study. Absolutely **NO FOOD OR DRINK IN THE CLASSROOM!!!** Keep it in your bag/locker at all times. Any food or drink on a desk will be thrown away. It could easily become contaminated.

Procedures have been set to ensure that all students are adequately prepared for class. This ensures that students will have the necessary information to be successful. Please discuss any problems or concerns with the instructor. All things can be dealt with, if given sufficient time. **DO NOT** wait until the last minute; you will be unhappy with the results.

You will be working with others often – norms will be established to ensure that all students are getting the most out of biology and white boarding discussions. Communication is KEY!!

The Big Ideas in the Biology Units:

Unit 1: Introductions

WHAT IS LIFE? Nature of Science, microscopes and homeostasis: Living things are energy rich complex chemical structures that maintain internal balances.

Unit 2:

HOW DOES FOOD KEEP ME ALIVE? Chemistry and Macromolecules: Both simple and complex organisms rely on many materials to maintain life and homeostasis (enzymes too). Organisms are grouped and classified based on several characteristics of the human body rely upon multiple body systems whose functions are interdependent.

Unit 3

HOW DO LIVING THINGS INTERACT IN ENVRIONMENTS? Cell Energetics: Organisms store, transfer and transform the energy needed to live. (Photosynthesis and Respiration)

Unit 4

HOW DOES BIODIVERSITY STABILIZE AN ECOSYSTEM? Matter, Energy in Ecosystems, populations and Human Impact: Matter and energy are transformed as they are transferred through an ecosystem and ecosystems are characterized by both stability and change on which human populations can have an impact.

Unit 5

WHAT IS HAPPENING TO ARCTIC SEA ICE? Human Energy Systems: Analyze geoscience data to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth systems.

Unit 6

WHAT HAPPENS AS YOU GROW? Cells and their cycles: Cells are the unit of structure and function of all living things and do many complex activities, like growing and communicating.