BIOLOGY A

SAUGATUCK HIGH SCHOOL
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This we know.
The earth does not belong to man;
man belongs to the earth …
All things are connected,
like the blood that unites one family …
Man did not weave the web of life;
he is merely a strand in it.
Whatever he does to the web,
he does to himself.

Chief Seattle, 1854
Suquamish Tribe, Washington Territory

GOALS OF THE COURSE

Biology literally means the study of life. Therefore, we will focus our class on the scientific study of living things, their actions and processes, how they relate to one another, and how they interact with and function in their environment. There will be lab experiences you have not had in the past and you may get a little messy at times. In the end, my hope is that you will learn much about the living world and gain a new respect for how the living world works.

This course supports the following goals for students:

- understand major biological concepts;
- understand the role, place, and interactions of humans in the biosphere;
- appreciate the diversity of living systems;
- demonstrate mastery of the process of science inquiry;
- use such cognitive skills as critical thinking, problem solving, and ethical analysis;
- understand that science is a way of knowing and that technology is a way of adapting;
- understand the personal, social, and ethical implications of biology and biotechnology and
- use educational technologies as tools for learning.

Teaching Philosophy

My approach to education is constructivist in nature and relies on inquiry to support learning. I believe deep learning occurs when students are constructing their knowledge in the midst of solving a problem or working towards a larger goal or essential question related to the unit topic. This usually translates into project-based learning. I believe all students can learn, and learn best when they are appropriately challenged with interesting real world issues and problems. To accommodate this style of learning, I see my role as a teacher as more of a guide to discovery of knowledge rather than that of an all-knowing transferor of knowledge. I prefer to help students find the answers they seek, rather than simply give them answers.

COURSE OUTLINE

The curriculum for Biology is based on the National Science Education Standards and the science benchmarks established by the state of Michigan. Biology A focuses on the process of science, Ecology and the Transformation of Energy, Population Dynamics, and Changes in Ecosystems.

UNIT 1 – The Nature and Tools of Biology

This unit will introduce you to the fundamental principles of biology. Skills such as understanding the characteristics of living things, a review of scientific method, using microscopes, measurement, presenting data, and asking inquiring questions that can be solved scientifically will be covered.

UNIT 2 – Watershed Ecology

This project-based unit involves a more detailed application of the scientific process skills learned in unit 1. Local watersheds will become your laboratory and concepts of ecology and the transformation of matter and energy by means of photosynthesis and cellular respiration will be combined into a learning experience that may get you a bit messy at times, but will cause you to look at your local ecosystem differently.

UNIT 3 - Ecosystems

The flow of matter and energy through the living and non-living parts of an ecosystem will be the focus of this unit. The ecological questions that arise as a part of the Watershed Ecology project will be answered as we discuss food webs, food chains and nutrient cycles. A look at the effects of man's use of technology on these natural systems will be discussed as well.

UNIT 4 - Populations

Many factors control the size of natural populations of organisms. Predator and prey relationships are common, but what are the other reasons populations increase or decrease? The limiting factors that control populations will be the focus of this unit and we will take a look at how aquatic invasive species are effecting native populations of organisms in the Great Lakes.

UNIT 5 – Changes in Ecosystems

What kinds of changes happen in ecosystems? Are they natural or not? Why do the changes occur? Do the actions of humans cause changes to increase or decrease in their frequency or speed? Biodiversity, Ecological Succession and Climate Change will be explored in this unit.

"Treat the earth well: it was not given to you by your parents, it was loaned to you by your children. We do not inherit the Earth from our Ancestors, we borrow it from our Children."

Ancient Indian Proverb

Student Assessment

Not all homework or assignments are worth the same value. Some are graded, some are not. Some may be considered credit or no credit, and some will be worth varying amounts of points. Others may be returned to you with comments only. All of the assignments are designed to help you master the material we are covering and to help you LEARN the subject matter, not EARN a grade. When you start to view assignments this way, it will be much easier for you to do well on the very important end of course and unit assessments and state tests, and you will probably find you have achieved your desired grade.

Formative Feedback: Will be provided verbally and as comments on student work and is designed to inform students of how they can better master specific learning targets. M = mastery, PF = proficient, PG = Progressing, Beg = beginning. Your goal is to achieve proficiency for your target. Mastery will reflect knowledge beyond expectations.

10% Class Work and Participation [Formative Assessments]
- Worksheets and various homework tasks such as bell ringers, study guides and practice problems completed in your Google Journal.
- Type 1 writings (all or none), and Type 2 writings.

30% Application Tasks and Quizzes [Formative Assessments]
- Labs and Lab write-ups, article reviews and other various performance assessments
- Type 3 Writings for display of knowledge and critical thinking.

40% Tests and Projects [Summary Assessments]
- End of unit tests covering one or more chapters related to the unit topic or theme.
- Unit projects that act as the final assessment of knowledge for that unit's subject matter.

20% Trimester Exam:
- Comprehensive assessment of knowledge from the entire trimester. Multiple choice and vocabulary questions in a standardized test format that is approximately 75-100 questions.

MAKE UP TASKS

If a student has an excused absence, they have one day for each day absent to make up any assignment assigned on the day(s) they were absent. All tasks assigned prior to the absence are to be turned in on the day the student returns.

ATTENDANCE & TARDY POLICY

I will follow the guidelines stated in the school handbook for both tardiness and attendance. The office staff will always determine whether an absence is excused or unexcused. If a student's absence is declared "unexcused", **NO** credit will be given for any missed assignments – including major projects, papers, and tests!

BIOLOGY MATERIALS:

I would suggest for this class a **3-ring binder with a couple dividers or pockets and a composition book/journal**. The binder should be 1-1.5". Even though we are more paperless than ever, we still will have paper materials to keep organized. The binder and dividers should be used exclusively for Biology and the organization will be the same amongst all Biology students. These materials need to be in class as soon as possible.

*It is suggested that **PARENTS** should regularly ask to see their student's binder, and to review progress in PowerSchool. By looking at the student's assignments and graded tasks you should be able to clearly see what work is being done in class and this should help you to check to see if your student is keeping up.*

CLASSROOM EXPECTATIONS AND POLICIES

1. **Attitude:** Exhibit a positive attitude towards learning. It is your education; please make the most of it!
2. **Respect:** Show respect at all times to other people and their property. Disrespectful behavior will NOT be tolerated!
3. **Academic Honesty**: This is expected at all times! Students demonstrating academic dishonesty (cheating and plagiarism) will lose credit for the assignment. Multiple offenses of this policy may lead to loss of credit in the course.
4. **Timeliness:** Be in class on time prepared to participate, and turn your assignments in on time.
5. **Food:** No food should be eaten in a science classroom. You may have water in the classroom.
6. **Technology:** Your Chromebook should be with you and charged every day. Per school policy, cell phones, iPods, and other internet devices will only be allowed if they are A) for educational purpose and B) approved by

me to be used at that time. If they are used outside these 2 conditions, they will be confiscated and turned in to Dr. Travis or Mr. Diaz along with the appropriate AUP violation.

7. **Safety:** Follow all laboratory safety procedures. The laboratory area is an area that you must be on your best behavior for your safety and the safety of your fellow classmates.

BACKGROUND ON MR. SMIT

This is my 20th year at Saugatuck High School. I have lived in the area since 1989 and spent many summers here before that. My family and I have lived in the district for over 37 years and we are proud to send our children to Saugatuck Public Schools. There are very few better places to raise a family.

I received my Bachelors of Science degree and my Masters of Education in Biological Sciences from Grand Valley State University. In addition to teaching Biology courses at Saugatuck High School, I have been active as the JV and Varsity Golf coach and have been a class sponsor.

In my spare time, I seek opportunities to be in the outdoors to interact with our natural surroundings. I feel blessed to live in the Great Lakes region of the world and to live and work in the Saugatuck area. We live in a unique ecosystem found nowhere else on earth and I simply love playing in it.

I look forward to another rewarding year with the young people of our community.

To Contact Mr. Smit

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