



1. STUDENT INFORMATION

Name:

DOB:

Current Grade:

2. MMC CREDIT AUDIT- (Check which credits have already been earned & enter date of completion, ___ credits are required.)

Biology

Chemistry

Physics

___ Additional Science Credit

Completed:

Completed:

Completed:

Completed:

3. MMC SCIENCE CONTENT MODIFICATION OPTION

- Modify content expectations in Science--only available to students eligible for special education with an IEP

4. CONTENT MODIFICATION REQUESTED- (Check & date when modification was completed.)

Biology

Completed:

5. RATIONALE FOR MODIFICATION: _____

6. PERSONAL CURRICULUM – Complete only for students with an IEP who require modified content expectations. Below are suggested essential learning targets in this content area for students. They are considered appropriate for most students. The Personal Curriculum allows for the use of these for students with an IEP.

#	Essential Learning Targets – Biology
	Inquiry, reflection, and social implications – Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is gathered through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation. They will use their scientific knowledge to assess the costs, risks, and benefits of technological systems as they make personal choices and participate in public policy decisions. These insights will help them analyze the role science plays in society, technology, and potential career opportunities.
1.	Generate new questions that can be investigated in the laboratory or field.
2.	Evaluate the uncertainties or validity of scientific conclusions using an understanding of sources of measurement error, the challenges of controlling variables, accuracy of data analysis, logic of argument, logic of experimental design, and/or the dependence on underlying assumptions.
3.	Conduct scientific investigations using appropriate tools and techniques (e.g. selecting an instrument that measures the desired quantity – length, volume, weight, time interval, temperature – with the appropriate level of precision).
4.	Identify patterns in data and relate them to theoretical models.
5.	Describe a reason for a given conclusion using evidence from an investigation.
6.	Critique whether or not specific questions can be answered through scientific investigations.
7.	Identify and critique arguments about personal or societal issues based on scientific evidence.
8.	Develop an understanding of a scientific concept by accessing information from multiple sources. Evaluate the scientific accuracy and significance of the information.

Instructional methods and assessments should be matched to learner needs. These essential learning targets will be assessed using multiple methods with an aggregate proficiency level of 60% or higher.



Student: _____

Content Area: Biology (Cont.)

6. PERSONAL CURRICULUM – Complete only for students with an IEP who require modified content expectations. List or review the essential learning targets for the student in the specified content area above.	
#	Essential Learning Targets
9.	Evaluate scientific explanations in a peer review process or discussion format.
10.	Evaluate the future career and occupational prospects of science fields.
	Maintenance of a Dynamic Equilibrium – Describe how organisms maintain a relatively stable internal environment through their regulatory mechanisms and behavior, and through the balance of interactions of their body systems. Explain what might occur when this balance (homeostasis) among systems is lost.
11.	Describe how the maintenance of a relatively stable internal environment is required for the continuation of life and describe the functions of organ systems that help maintain human health.
12.	Identify the general function of the major systems of the human body (digestion, respiration, reproduction, circulation, excretion, protection from disease, and movement, control, and coordination) and describe ways that these systems interact with each other.
13.	Compare the structure and function of a human body system or subsystem to a nonliving system (e.g., human joints to hinges, enzyme and substrate to interlocking puzzle pieces).
	Growth, Development and Differentiation – Explain how living things grow and develop, including how cells specialize to form more complex structures that carry out particular life functions.
14.	Describe how mitosis produces new cells (identical to the parent cell) needed for growth of an organism.
15.	Describe how, through cell division, cells can become specialized for specific function.
16.	Explain how different organisms accomplish the same result using different structural specializations (gills/lungs/membranes).
17.	Explain how living organisms gain and use mass.
	Reproduction and Genetic Continuity – Explain how genetic information is passed from one generation to the next and how genetic mutations can influence inherited traits.
18.	Explain how hereditary information is passed from parents to offspring through meiosis, in terms of genes, chromosomes, and DNA; explain how hereditary information from two parents is combined and expressed in offspring, in terms of dominant and recessive traits.
19.	Explain that the sorting and recombination of genes in sexual reproduction result in a great variety of possible gene combinations from the offspring of two parents.
20.	Recognize that every species has its own characteristic DNA sequence and explain some of the benefits of genetic research.

Instructional methods and assessments should be matched to learner needs. These essential learning targets will be assessed using multiple methods with an aggregate proficiency level of 60% or higher.



Student: _____ Content Area: Biology (Cont.)

6. PERSONAL CURRICULUM – Complete only for students with an IEP who require modified content expectations.
List or review the essential learning targets for the student in the specified content area above.

#	Essential Learning Targets
21.	Explain how mutations (changes in the DNA composition of particular genes) occurring in sex cells can be passed on to offspring (inherited mutations), but if they occur in other cells, they can only be passed on to descendant cells (noninherited mutations); describe possible consequences of mutations for offspring and their descendants.
	Evolution – Explain how natural selection works over time to produce a succession of diverse new species that are adapted to their environments.
22.	Explain how moving an organism to a new environment may influence its ability to survive and predict the possible impact of this type of transfer.
23.	Explain the theory of evolution by natural selection as the scientific explanation for the diversity of life on Earth.
24.	Explain how natural selection acts on individuals, but it is populations that evolve. Relate genetic mutations and genetic variety produced by sexual reproduction to diversity within a given population. Describe the role of geographic isolation in speciation.
25.	Explain using examples, how the fossil record, comparative anatomy, and genetic similarities (DNA) supports the theory of evolution.
	Energy, Matter and Organization – Explain how organisms acquire the energy and matter they need to live and grow.
26.	Explain how light energy from the sun provides energy for all living things.
27.	Show how the transfer of matter in ecosystems between living and non-living organisms (producers, consumers, and decomposers in food webs) provides the energy and materials necessary for all life. Explain the roles of photosynthesis, cellular respiration and protein synthesis in these processes.
	Interaction and Interdependence – Describe interactions among populations of living things and their environments.
28.	Explain the factors that affect population growth.
29.	Describe ecosystem stability. Understand that if a disaster such as flood or fire occurs, the damaged ecosystem is likely to recover in stages of succession that eventually result in a system similar to the original one.
30.	Recognize that a great diversity of species increases the chance that at least some living organisms will survive in the face of cataclysmic changes in the environment.
31.	Examine the negative impact of human activities on the environment and living organisms.
32.	List the possible causes and consequences of global warming.

Instructional methods and assessments should be matched to learner needs. These essential learning targets will be assessed using multiple methods with an aggregate proficiency level of 60% or higher.