

Jasper County Middle School

7th Grade Biology Course Syllabus

I. General Information:

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Contact Number: (706) 468-2227

Course: 7th Grade Biology

Planning: 12:10 – 1:20 pm

II. Course Objectives:

- a. Students will develop vocabulary and background knowledge based on the Georgia Standards of Excellence for 7th Grade Life Science which are found at www.georgiastandards.org.
- b. Students will increase their Critical Thinking Skills through the exploration of how scientists think and develop cognitive models for scientific concepts.

III. Course Standards Outline Part A:

S7L1: Students will obtain, evaluate, and communicate information to investigate the diversity of living organisms and how they can be compared scientifically.

- a. Develop and defend a model that categorizes organisms based on common characteristics.

(Clarification statement: This includes common examples and characteristics such as, but not limited to, prokaryotic, eukaryotic, unicellular, multicellular, asexual reproduction, sexual reproduction, autotroph, heterotroph, and unique cell structures. Modern classification will be addressed in high school.)

S7L2: Students will obtain, evaluate, and communicate information to describe how cell structures, cells, tissues, organs, and organ systems interact to maintain the basic needs of organisms.

- a. Develop a model and construct an explanation of how cell structures (specifically the nucleus, cytoplasm, cell membrane, cell wall, chloroplasts, lysosome, and mitochondria) contribute to the function of the cell as a system in obtaining nutrients in order to grow, reproduce, make needed materials, and process waste.

(Clarification statement: The intent is for students to demonstrate how the component structures of the cell interact and work together to allow the cell as a whole to carry out various processes. Additional structures, beyond those listed, will be addressed in high school Biology.)

- b. Develop and use a conceptual model of how cells are organized into tissues, tissues into organs, organs into systems, and systems into organisms.
- c. Construct an argument that systems of the body (Cardiovascular, Excretory, Digestive, Respiratory, Muscular, Nervous, and Immune) interact with one another to carry out life processes.

(Clarification statement: The emphasis is not on learning individual structures and functions associated with each system, but on how systems interact to support life processes.)

S7L3: Students will obtain, evaluate, and communicate information to explain how organisms reproduce either sexually or asexually and transfer genetic information to determine the traits of their offspring.

- a. Construct an explanation supported with scientific evidence of the role of genes and chromosomes in the process of inheriting a specific trait.
- b. Develop and use a model to describe how asexual reproduction can result in offspring with identical genetic information while sexual reproduction results in genetic variation.

(Clarification statement: Models could include, but are not limited to, the use of monohybrid Punnett squares to demonstrate the heritability of genes and the resulting genetic variation, identification of heterozygous and homozygous, and comparison of genotype vs. phenotype.)

S7L4: Students will obtain, evaluate, and communicate information to examine the interdependence of organisms with one another and their environments.

- b. Develop a model to describe the cycling of matter and the flow of energy among biotic and abiotic components of an ecosystem.

(Clarification statement: Emphasis is on tracing movement of matter and flow of energy, not the biochemical mechanisms of photosynthesis and cellular respiration.)

Course Standards Outline Part B:

S7L1: Students will obtain, evaluate, and communicate information to investigate the diversity of living organisms and how they can be compared scientifically.

- b. Evaluate historical models of how organisms were classified based on physical characteristics and how that led to the six kingdom system (currently archaea, bacteria, protists, fungi, plants, and animals).

(Clarification statement: This includes common examples and characteristics such as, but not limited to, prokaryotic, eukaryotic, unicellular, multicellular, asexual reproduction, sexual reproduction, autotroph, heterotroph, and unique cell structures. Modern classification will be addressed in high school.)

S7L3. Students will obtain, evaluate, and communicate information to explain how organisms reproduce either sexually or asexually and transfer genetic information to determine the traits of their offspring.

- c. Ask questions to gather and synthesize information about the ways humans influence the inheritance of desired traits in organisms through selective breeding.

(Clarification statement: The element specifically addresses artificial selection and the ways in which it is fundamentally different from natural selection.)

S7L4: Students will obtain, evaluate, and communicate information to examine the interdependence of organisms with one another and their environments.

- a. Construct an explanation for the patterns of interactions observed in different ecosystems in terms of the relationships among and between organisms and abiotic components of the ecosystem.

(Clarification statement: The interactions include, but are not limited to, predator-prey relationships, competition, mutualism, parasitism, and commensalism.)

- b. Develop a model to describe the cycling of matter and the flow of energy among biotic and abiotic components of an ecosystem.

(Clarification statement: Emphasis is on tracing movement of matter and flow of energy, not the biochemical mechanisms of photosynthesis and cellular respiration.)

- c. Analyze and interpret data to provide evidence for how resource availability, disease, climate, and human activity affect individual organisms, populations, communities, and ecosystems.

- d. Ask questions to gather and synthesize information from multiple sources to differentiate between Earth's major terrestrial biomes (i.e., tropical rain forest, savanna, temperate forest, desert, grassland, taiga, and tundra) and aquatic ecosystems (i.e., freshwater, estuaries, and marine).

(Clarification statement: Emphasis is on the factors that influence patterns across biomes such as the climate, availability of food and water, and location.)

S7L5: Students will obtain, evaluate, and communicate information from multiple sources to explain the theory of evolution of living organisms through inherited characteristics.

- a. Use mathematical representations to evaluate explanations of how natural selection leads to changes in specific traits of populations over successive generations.

(Clarification statement: Referencing data should be obtained from multiple sources including, but not limited to, existing research and simulations. Students should be able to calculate means, represent this data in a table or graph, and reference it when explaining the principles of natural selection.)

- b. Construct an explanation based on evidence that describes how genetic variation and environmental factors influence the probability of survival and reproduction of a species.

- c. Analyze and interpret data for patterns in the fossil record that document the existence, diversity, and extinction of organisms and their relationships to modern organisms.

(Clarification statement: Evidence of evolution found in comparisons of current/modern organisms such as homologous structures, DNA, and fetal development will be addressed in high school.)

IV. Supply List:

2018-19 Jasper County Middle School Supply List

Composition Notebooks – Students use about 8 each year.

Pencils (Pencils will need to be restocked during the school year)

Pens – Blue or Black

College Ruled Paper – 2-3 packs of paper per student

2 - 1 ½ inch 3 ring binder

Glue Sticks (may need to be restocked during school year)

Colored Pencils

Inexpensive headphones or earbuds

Scissors

NOTE: 8th grade only – GRAPH PAPER

Donations of the following are greatly appreciated:

Tissue paper

Hand Sanitizer
Ream of Copy Paper
Expo Markers (donated to HR teacher)
Dry board Eraser (donated to HR teacher)
Construction Paper

V. Classroom Expectations/Consequences:

Students at Jasper County Middle School are expected to follow all procedures and policies both of the classroom and school as they are outlined in the Student/Parent Handbook.

The handbook can be found here:

<https://www.jasper.k12.ga.us/cms/lib/GA02201109/Centricity/Domain/9/18%20Sept%2029%20JCMS%20Student%20Handbook.pdf>

Consequences will be applied according to the school policies and handbook. Students are expected to put forth their best effort and remember that their education is the purpose for being at school.

VI. Grades:

Grades will be entered weekly into the gradebook by Tuesdays at 4 p.m. Grades may be seen online through Parent Portal by Infinite Campus. A link may be found on the county website at <http://jcsd.schoolwires.net/JCMS>

VII. Homework Policy:

Homework is assigned in order to provide students with an opportunity to practice a specific skill and become proficient with that skill. Homework is never busy work. *Students are expected to attempt all assignments.* Due dates are given when homework is assigned. Students are expected to spend at least one hour per week engaged in science outside of school.

VIII. Group Task/Lab Policy: For 7th Grade Science Specifically:

Students are expected to follow all safety rules and expectations in the classroom and lab environment. Not doing so may negate their opportunity to participate in labs/experiments to promote the safety and welfare of all students and staff in the room. Students found violating lab safety procedures or engaging in horseplay will receive a 0 for that lab grade.

IX. Quiz Policy:

Quizzes provide teachers with an immediate gauge of student learning. Quizzes will be given on a regular basis. Please refer to the student handbook regarding absences.

X. Test Policy:

Students will be administered unit exams, a midterm exam, and a final exam for this course. Tests are integral to assessing student learning and cheating will not be tolerated. Please refer to the student handbook for school and district policies.

XI. Project Policy:

Students will be assigned projects for both graded and extra credit work. Students are expected to complete their own projects and/or contribute their part of the project themselves. Cheating, plagiarism, and lack of participation will not be tolerated.

XII. Textbook Policy: Teachers will maintain a class set of textbooks.

XII. Communications:

Academic progress will be given every 4 ½ weeks as progress reports and every 9 weeks as report cards. Communication will be established through the use of the notes sent home, phone, & email. A newsletter will be printed for school events that will go out in the mail.

Parental/Student Acknowledgement of Syllabus for 7th Grade Science:

The syllabus will be posted online on the teacher page. Please return this portion to your teacher.

Student Name (Printed): _____

Student Signature: _____ Date _____

Parent Name (Printed): _____

Parent Signature: _____ Date _____

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