Lowndes County Botany Pacing Guide 2009-2010

MS Frameworks Pacing Guide Worksheet

Grade Level: Botany
Grading Period: 1st—9 weeks

**** Competency 1 will be used in lab and classroom activities throughout the year to build on students understanding and development of subject matter being taught.**

Chapter/ Unit	Lesson Topic	Objective Number	Approximate Days Needed	Suggested Teaching Strategies
1	Lab Equipment, Microscopes and Lab Safety Introduction to Botany/ Characteristics of Life	1a—Conduct a scientific investigation demonstrating safe procedures and proper care of lab equipment. (DOK 2)	1 week	Review laboratory equipment, including microscope, and uses with students. (DOK 1) Review safety symbols and safety rules. (DOK 1) Safety contract. Measurement Lab (mass, thermometer, length, volume) (DOK 2)
2	Scientific Method and Experiments	1b-Formulate questions that can be answered through research and experimental design 1c-Apply the components of scientific processes and methods in classroom and laboratory investigations 1e-Analyze procedures, data, and conclusions to determine scientific validity of research. 1f-Recognize and analyze alternative explanations for experimental results and to make predictions based on observations and prior knowledge	1 week	Conduct an original experiment. (DOK 3) Provide student with experimental scenarios to select independent and dependent variables. (DOK 2) Collect, analyze, graph, and summarize data. (DOK 3) Use SI units in data collection.
N/A	Measurement, Conversions and Graphing	1d-Construct and analyze graphs 1g-Communicate and defend a scientific argument in oral, written, and graphic form.	1 week	Use experimental data to graph growth rates based on sunlight, water, and other environmental factors. (DOK 2,3)

3	Plant Cell & Cell Cycle	2a-Relate plant cell structures to their functions. 3c-Differentiate between the structures and processes of sexual and asexual reproduction in plants	2 weeks	Create a 3-D plant cell using every day materials (DOK 3); Simulate mitosis using gummy worms (DOK 2); Create flash cards for stages of mitosis (DOK 2)
9	Cellular Transport	2e- Use inquiry to investigate and discuss the physical and chemical processes of plants.	2 weeks	Osmosis lab using carrots (DOK 2); develop an osmometer using carrots and straws (DOK 3)

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Grade Level: Botany
Grading Period: 2nd—9 weeks

Chapter/Unit	Lesson Topic	Objective Number	Approximate Days Needed	Suggested Teaching Strategies
4	Plant Tissues	2a-Relate plant cell structures to their functions.	2 week	Observe tissue slides with microscope (DOK 2); drawings of layers of tissues (DOK 2)
7	Leaves	2a-Relate plant cell structures to their functions. 2c-Compare and contrast leaf modifications of gymnosperms and angiosperms. 5d-Describe the chemical compounds extracted from plants, their economical importance, and the impact on humans.	2 weeks	Leaf Identification lab (DOK 2); Chromatography lab (DOK 2); bring in examples; leaf collection (DOK 2), leaf booklets (DOK 3)
6	Stems	2a-Relate plant cell structures to their functions.	2 week	Bring in examples, tree ring identifications (DOK 2); carnation lab (DOK 2)
5	Roots & Soil	2a-Relate plant cell structures to their functions.	2 week	Soil Testing Lab (DOK 2)
	Semester Exam		1 week	

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MS Frameworks Pacing Guide Worksheet **Grade Level: Botany**

Grading Period: 3rd—9 weeks

Chapter/Unit	Lesson Topic	Objective Number	Approximate Days Needed	Suggested Teaching Strategies
10	Photosynthesis	2a-Relate plant cell structures to their functions. 2e- Use inquiry to investigate and discuss the physical and chemical processes of plants. 4b- design and conduct an experiment to determine the effects of environmental factors on photosynthesis.	2 week	Transpiration lab (DOK 2); Light exposure lab (DOK 2)
10	Cellular Respiration	2e- Use inquiry to investigate and discuss the physical and chemical processes of plants.	1 week	Yeast lab (DOK 2); fungus lab (DOK 2)
11	Plant Movement, Plant Growth, and Hormones	2e- Use inquiry to investigate and discuss the physical and chemical processes of plants. 3b- Differentiate among the vegetative organs of monocots, herbaceous dicots, and woody dicots 5d-Describe the chemical compounds extracted from plants, their economical importance, and the impact on humans.	1.5 week	Gravitropism lab (DOK 2); set up variety of experiments demonstrating tropic movements (DOK 3)
12	Meiosis & Alternation of Generations	3a-Compare and contrast reproductive structures 3b- Differentiate among the vegetative organs of monocots, herbaceous dicots, and woody dicots 3c-Differentiate between the structures and processes of sexual and asexual reproduction in plants 3d- explain and provide examples of the concept of alternation of generations and its examples.	1.5 week	Simulation of meiosis (DOK 2); Create model of life cycle (vascular or. nonvascular plants) (DOK 3);
13	Plant Genetics	5b-Apply an understanding of the principles of plant genetics to analyze monohybrid and dihybrid crosses and predict the potential effects the crosses might have on agronomy and agriculture.	1 week	Punnett Squares (DOK 2); Mendelian Genetics lab (DOK 2)

14	Biotechnology and Genetic Engineering	3f- Research and compare various methods of plant propagation. 5a- research, prepare, and present a position relating to issues surrounding the current botanical trends involving biotechnology. 5c-discuss the effects of genetic engineering of plants on society.	1 week	Guest Speaker on genetically engineered crops and careers in the field; Court Case Analysis (DOK 2); Pesticide GE Seed lab (DOK 2)
	9 weeks Exam		1 week	

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Grade Level: Botany
Grading Period: 4th—9 weeks

Chapter/Unit	Lesson Topic	Objective Number	Approximate Days Needed	Suggested Teaching Strategies
16	Plant Names and Classification	2d-Apply the modern classification scheme utilized in naming plants to identify plant specimens.	1 week	Dichotomous Key activities (DOK 2); Leaf collection using field guide to identify them (DOK 2)
8/23/24	Angiosperms: Flowers, Fruits, and Seeds	2a-Relate plant cell structures to their functions. 2b- Differentiate the characteristics found in various plant divisions. 2c-Compare and contrast leaf modifications of gymnosperms and angiosperms. 3a-Compare and contrast reproductive structures 3c-Differentiate between the structures and processes of sexual and asexual reproduction in plants 3e-Categorize types of fruits and methods of seed distribution in plants.	1.5 weeks	Flower Dissection (DOK2); Seed identification Lab (DOK 2); Flower Family booklet (DOK 2); Seed Display (DOK 2); Fruit Lab (DOK 2)
22	Gymnosperms	2b- Differentiate the characteristics found in various plant divisions. 2c-Compare and contrast leaf modifications of gymnosperms and angiosperms. 3a-Compare and contrast reproductive structures 3c-Differentiate between the structures and processes of sexual and asexual reproduction in plants	1 weeks	Bring in pollen and seed cones; identification and collection (DOK 2)

20/21	Bryophytes and Seedless Vascular Plants	2b- Differentiate the characteristics found in various plant divisions. 3a-Compare and contrast reproductive structures 3c-Differentiate between the structures and processes of sexual and asexual reproduction in plants	2 weeks	Bring in examples; Fern lab (DOK 2); Moss lab: collections (DOK 2);
25/26	Plant Ecology & Biomes	2e- Use inquiry to investigate and discuss the physical and chemical processes of plants. 4a- List and assess several adaptations of plants to survive in a given biome. 4b- design and conduct an experiment to determine the effects of environmental factors on photosynthesis. 4d-research factors that might influence or later plant stability and propose actions that may reduce the negative impacts of human activity.	1.5 weeks	Biome Booklet (DOK 2); Biome report and Project (DOK 3); research on current use of land (crops vs. raising animals) or predictions of population growth (plants vs. animals) (DOK 2); greenhouse effect simulation (DOK 2)
15	Natural Selection	4c- Explain how natural selection and the evolutionary consequences support scientific explanations for similarities of ancient life-forms in the fossil record and molecular similarities present in living organisms.	1 week	Survival of the fittest: bean lab (DOK 2)
Review for Final Exam			1 week	