

The Texas Master Naturalist™ Statewide Curriculum

This is a general guide. Individual chapters may place more emphasis on some topics than on others..

Chapter 1: Intro to the Texas Master Naturalist™ program

- Describe what a Master Naturalist™ is
- Identify and communicate the mission and goals of the Master Naturalist program
- Identify and communicate the requirements and responsibilities of a Texas Master Naturalist

Chapter 2: Texas Naturalists prior to World War II

- Discuss the history of naturalists in Texas and their accomplishments
- Identify the first naturalists of Texas
- Understand the importance of expeditions and surveys in the natural history of Texas
- Identify four main “old time” naturalists and their accomplishments
- Identify the historically prominent Texas naturalists and their accomplishments in the fields of geology, botany, malacology, entomology, ichthyology, herpetology, ornithology, and mammalogy
- Identify the first individuals to write literature to a wider audience in the subject of nature

Chapter 3: Ecological Concepts

- Explain the ecological principles that apply to individual organisms, populations, communities, and ecosystems
- Explain the balances that exist between ecosystems and what factors are necessary to keeping ecosystems in balance
- Explain how different ecosystems are determined largely by different environmental factors
- Describe the hydrologic cycle, the nitrogen cycle, and the carbon cycle
- Explain what is meant by succession and climax and list the factors responsible for each
- Illustrate a food web and explain the importance of trophic relationships
- Define biodiversity and understand the importance of managing for biodiversity
- Identify ecological factors that are relevant to a threatened species
- Understand the laws and procedures necessary for protecting species

Chapter 4: Geology and Soils of Texas

- Trace the geologic history of Texas
- Describe the various landform regions of Texas
- Discuss the hydrologic cycle and describe all possible sources of water
- Describe the physical and chemical properties of soil
- Discuss ways to prevent soil erosion

Chapter 5: Weather and Climate

- Discuss what processes affect the temperature

- Become familiar with the main processes driving weather and climate
- Become familiar with cloud formations and the weather and climate they can predict or represent
- Describe Texas climate and factors affecting rainfall
- Describe a typical year of weather in Texas

Chapter 6: Ecological Regions of Texas

- Identify and differentiate the features of Texas' ecological regions and subregions
- Understand and communicate the need for different maps denoting various ecological regions of Texas
- Explain the factors creating the great ecological diversity occurring in Texas

Chapter 7: Ecosystem Management

- Understand and discuss the seven principles of ecology
- Describe management, ecosystems, and ecosystem management
- Identify the five ecological principles that can help assure the Earth's ecosystems

Chapter 8: Nature of Naming

- Demonstrate their ability to classify
- Discuss the uses and importance of the classification system
- Identify main parts of a scientific name
- Understand why the binomial classification system is important
- Discuss the pitfalls of using common names

Chapter 9: Plants

- Explain why it is important to be familiar with plant names and some cases where knowing plant names can help
- Describe the classes of plants
- Become familiar with and describe the parts of a plant
- Compare and contrast the four classes of plants
- Become familiar with leaf and flower, types, placement, and arrangements to identify plants
- Explain what an invasive plant is and give some examples

Chapter 10: Ornithology

- Understand the causes for bird diversity
- Understand and discuss the habit of bird migration
- Explain bird behavioral characteristics and their adaptations to environments and environmental changes
- Develop an awareness of how birds populations are monitored and managed
- Identify and communicate how birds function within ecosystems
- Become aware of and communicate conservation concerns for birds

Chapter 11: Entomology

- Demonstrate an appreciation for insects and an interest in entomology
- Discuss why insects are so biologically diverse, why this diversity is threatened, and why the conservation of insect biodiversity is important
- Demonstrate familiarity with the insect fauna of Texas

- Discuss basic principles of insect behavior and ecology and relate these to environmental adaptations
- Understand the systematic relationships among various insect groups
- Demonstrate knowledge about the general characteristics of the major groups of insects
- Understand the role that insects play in local ecosystems and various other ecosystems in Texas
- Discuss the habitat needs of various groups of insects
- Demonstrate knowledge of methods for collecting insects
- Recognize rare or special species that indicate habitat qualities

Chapter 12: Ichthyology (Fishes)

- Demonstrate an appreciation for fishes and an interest in ichthyology
- Discuss the diversity of fishes in Texas and demonstrate familiarity with the different groups of fishes
- Understand the relationship among various groups of fishes
- Demonstrate knowledge about the general characteristics of the major groups of fishes
- Discuss basic principles of fish behavior, physiology, and ecology and relates these principles to environmental adaptations
- Discuss the habitat needs of various groups of fishes

Chapter 13: Herpetology

- Become familiar with and be able to explain the herpetological conservation topics relevant to Texas
- Become familiar with and recognize and explain the principle causes of biodiversity loss
- Become familiar with and recognize the common characteristics of amphibians and reptiles and how they differ from other vertebrates
- Become familiar with the natural history and diversity of amphibians and reptiles in Texas
- Outline and communicate the issues affecting the conservation of Texas herpetofauna

Chapter 14: Mammalogy

- Demonstrate an appreciation for mammals and an interest in mammalogy
- Discuss the diversity and distribution of mammals in Texas and demonstrate familiarity with the different groups of mammals
- Understand the systematic relationships among various groups of mammals
- Demonstrate knowledge about the general characteristics of the major groups of mammals
- Discuss basic principles of mammal behavior, physiology, and ecology and relate these principles to environmental adaptations
- Discuss the habitat needs of various groups of mammals
- Understand the role that mammals play in local ecosystems and various other ecosystems in Texas
- Demonstrate knowledge of estimating/measuring mammal populations
- Demonstrate knowledge of methods for trapping, marking, monitoring, and

- observing mammal populations
- Understand and communicate the 11 major characteristics of mammals
- Become familiar with the three major taxonomic groups of mammals and what characteristics make

Chapter 15: Archeology

- Describe and define what archeology is and what it is the study of
- Define culture
- Become familiar with the archeological regions of Texas
- Become familiar with the antiquities law

Chapter 16: Forest Ecology and Management

- Explain major forested regions of Texas
- Compare/contrast the major factors affecting forest ecology
- Understand and describe five stages of succession in forested ecosystems
- Understand and describe the differences and meanings of preservation and conservation in forest ecology and management
- Describe methods or tools of forest management
- List and discuss the benefits of urban forests and their management

Chapter 17: Aquatic Ecology and Management

- Describe the characteristics of water
- Communicate the characteristics and properties of aquatic systems
- Understand and communicate how aquatic systems function
- Become familiar with management techniques for aquatic systems
- Understand and communicate threats to aquatic systems

Chapter 18: Wetlands Ecology and Management

- Explain what a wetland is
- Become knowledgeable of types of wetlands
- Become familiar with wetlands of Texas
- Describe the wetland types of Texas
- Become aware of an familiar with the state and federal regulations affecting and governing wetland conservation in Texas

Chapter 19: Rangeland Ecology and Management

- Define and describe rangeland
- Define rangeland management
- Describe why range management is different from agricultural vocations
- List the basic component categories of range management
- List and describe the four founding principles of grazing management
- Understand and be able to communicate the importance of land management goals
- Describe how native grasses grow
- Describe, compare and contrast rangeland management tools.
- Develop and awareness of grazing, brush and weed issues and management of Texas rangelands

Chapter 20: Urban Systems

- Understand urban system characteristics

- Understand and explain the practices and effects of urbanization in natural systems
- Describe the three broad plant categories in urban systems and the threats to them as a result of urbanization
- Describe the fauna of urban systems and the effects of urbanization on these species
- Become familiar with the Best Management practices (BMP's) for urban areas

Chapter 21: Volunteers as Teachers

- Discuss what interpretation is
- Discuss types of interpretation
- Identify and understand components of an interpretative experience
- Demonstrate audience management techniques
- Develop/outline an interpretive program or experience
- Understand the differences between a topic and a theme and the importance/functions each serves