# Natural Resource Management Course No. 18504 Credit: 1.0

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| --- | --- | --- | --- |
| **Student name:** |  | **Graduation Date:** |  |

Pathways and CIP Codes: Diversified Agricultural Science (01.0000); Natural Resources and Environmental Sustainability

Course Description: **Technical Level:** Natural Resources Management courses combine the fields of ecology and conservation with planning for the efficient use and preservation of land, water, wildlife, and forests. Within the general area of natural resources management, these courses usually cover specific topics and uses, such as hunting or fishing preserves, forest production and management, wildlife preservation, and human outdoor recreation.

Special Note: The AFNR College and Career Ready Skills are to be taught throughout the course utilizing FFA and SAE programming found at the Kansas Ag Ed website. Specific activities may be found in the SAE for All Teachers Guide and at National FFA.org. The AFNR College and Career Ready Skills competencies can be found at Kansas Ag Ed.

Opportunities in Agriculture Education & FFA:Classroom and laboratory instruction integrates and/or is supplemented by experiential, project, and leadership and personal development through FFA .Students should be introduced to FFA through leadership activities and College and Career Ready Skills. Specific FFA information and activities may be found in the “National FFA Student Handbook, 16thedition”. Student activities, scoring rubrics, grading examples, and teacher lessons are all found in the “FFA Student Handbook Teachers Guide”. Additional information can be found at [www.ffa.org](http://www.ffa.org/).

Workplace Skills, Supervised Agricultural Experience and Record Keeping: Classroom and laboratory instruction integratesand/or is supplemented by experiential, project, and work based learning through SAE. Specific SAE activities that support the College and Career Ready Skills may be found in the “SAE for All Guide”. Students should be introduced to Foundational SAE’s and the AET student portfolio system. Student activities, scoring rubrics, grading examples, and teacher lessons are all found in the “SAE for All Teachers Guide”. Additional information is found in the SAE Individual Learning Guides and Teacher Editions and in the AFNR College and Career Ready Competency Profile found at *Kansas Ag* *Ed.*

Directions:The following competencies are required for full approval of this course. Check the appropriate number to indicate the level of competency reached for learner evaluation.

**RATING SCALE:**

4. Exemplary Achievement: Student possesses outstanding knowledge, skills or professional attitude.

3. Proficient Achievement:Student demonstrates good knowledge, skills or professional attitude. Requires limited supervision.

2. Limited Achievement:Student demonstrates fragmented knowledge, skills or professional attitude. Requires close supervision.

1. Inadequate Achievement:Student lacks knowledge, skills or professional attitude.

0. No Instruction/Training:Student has not received instruction or training in this area.

## Benchmark 1: EXPLORE OUR NATURAL RESOURCES

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 1.1 | Differentiate between renewable and nonrenewable natural resources. |  |
| 1.2 | Describe the interdependence of organisms within ecosystem. |  |
| 1.3 | List career opportunities within Natural Resources and Environmental Sustainability. |  |
| 1.4 | Research a potential career in Natural Resources and Environmental Sustainability and a strategy to advance in that career. |  |

## Benchmark 2: Classify Natural Resources

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 2.1 | Identify trees and other woody plants. |  |
| 2.2 | Identify herbaceous plants. |  |
| 2.3 | Identify wildlife species. |  |
| 2.4 | Identify aquatic species. |  |
| 2.5 | Identify rock, parent material, and soil types. |  |

## Benchmark 3: Safety Plan

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 3.1 | Demonstrate safety practices when working in an outdoor environment. |  |
| 3.2 | Use appropriate techniques and equipment when working with biohazards. |  |

## Benchmark 4: Cartographic Skills

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 4.1 | Locate natural resources using a land survey and geographic coordinate system. |  |

## Benchmark 5: Measure and Survey

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 5.1 | Discuss the procedures for conducting resource inventories and population studies. |  |

## Benchmark 6: Enhancement Techniques

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 6.1 | Identify indicators of the biological health of a stream. |  |
| 6.2 | Identify ways in which forest stands may be improved. |  |
| 6.3 | Identify methods of wildlife habitat improvement. |  |
| 6.4 | Identify methods of rangeland improvement. |  |
| 6.5 | Identify natural resources management techniques for improving recreation opportunities. |  |
| 6.6 | Identify methods to improve freshwaterand aquatic natural resources. |  |
| 6.7 | Identify methods of soil health improvement. |  |

## Benchmark 7: Interpret Laws

### Competencies

| **#** | **Description** | **RATING** |
| --- | --- | --- |
| 7.1 | Identify the purposes of laws associated with natural resource systems. |  |
| 7.2 | Identify issues involving mitigation of natural resources. |  |
| 7.3 | Identify purposes of Food Securities Act on private agricultural lands. |  |

## Benchmark 8: Ecological Concepts and Principles

### Competencies

| **#** | **Description** | **RATING** |
| --- | --- | --- |
| 8.1 | Diagram biogeochemical cycles and explain the processes. |  |
| 8.2 | Relate the function of watersheds to natural resources. |  |
| 8.3 | Explain stream hydrology and structure, and determine the different classes of streams. |  |
| 8.4 | Identify techniques used in the creation, enhancement and management of riparian zones and riparian buffers. |  |
| 8.5 | Give examples of primary-succession and secondary-succession species in community of organisms. |  |
| 8.6 | Discuss factors that influence population density and population dispersion. |  |
| 8.7 | Discuss factors that influence the establishment and spread of invasive species. |  |
| 8.8 | Describe the impact of pollution on natural resources. |  |
| 8.9 | Describe the impact climate has on natural resources. |  |
| 8.10 | List and describe the major soil forming factors. |  |
| 8.11 | Describe the major types of soil eriosion and their impact on natural resources. |  |

## Benchmark 9: Natural Resource Products

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 9.1 | Determine when to harvest forest products. |  |
| 9.2 | Describe processing of forest products. |  |
| 9.3 | Describe techniques used in the harvesting of wildlife. |  |
| 9.4 | Describe techniques used in the processing of wildlife. |  |
| 9.5 | Describe economically important minerals and ores that are extracted and processed. |  |
| 9.6 | Describe sources of fossil fuels and products made from fossil fuels. |  |
| 9.7 | Describe characteristics of sites that lend themselves to hydroelectric generation. |  |
| 9.8 | Debate an issue related to the recreational use of natural resources. |  |
| 9.9 | Describe techniques used to harvest aquatic species. |  |
| 9.10 | Explain techniques used to process aquatic species. |  |
| 9.11 | Determine when to harvest rangeland products. |  |
| 9.12 | Describe techniques used to conserve soil on agricultural lands. |  |

## Benchmark 10: Manage Fires

### Competencies

| **#** | **Description** | **rating** |
| --- | --- | --- |
| 10.1 | Describe techniques used to suppress wildfires and manage prescribed fires. |  |

## Benchmark 11: Plant and Wildlife Diseases

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 11.1 | Report the observance of diseases affecting plants to the appropriate authorizes. |  |
| 11.2 | Report the observances of diseases affecting wildlife to the appropriate authorities. |  |

## Benchmark 12: Insect Infestations

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 12.1 | Report observance of insect pests to the appropriate authorities. |  |

## Benchmark 13: Communicate to the Public

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 13.1 | Design and construct a display that communicates a natural resource topic and discuss the topic in a public forum. |  |

I certify that the student has received training in the areas indicated.

Instructor Signature:

For more information, contact:

CTE Pathways Help Desk

(785) 296-4908

[pathwayshelpdesk@ksde.org](mailto:pathwayshelpdesk@ksde.org)



900 S.W. Jackson Street, Suite 102

Topeka, Kansas 66612-1212

[https://www.ksde.org](https://www.ksde.org/)

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