

NM Public Education Department

INTRODUCTION TO THE PHYSICAL SCIENCE OF AGRICULTURE

END-OF-COURSE EXAM | GRADE 9-12 | YEAR 17-18

ASSESSMENT BLUEPRINT

Purpose Statement

Introduction to the Physical Science of Agriculture

The Introduction to the Physical Science of Agriculture End-of-Course Exam is designed to measure student proficiency of the standards and performance elements aligned to the Common Career Technical Core Standards (https://cte.careertech.org/sites/default/files/CCTC_Standards_Formatted_2014.pdf). This course-level exam is provided to all students who have completed Introduction to the Physical Science of Agriculture.

This exam can be given for the following STARS course code:

0134 - Introduction to the Physical Science of Agriculture

Intended as a final exam for the course, this is a summative exam covering a wide range of content, skills, and applications. Scores are reported to the teacher, school, district, and state levels for the purposes of student grades, curriculum review, and NMTeach summative reports.

New Mexico State University College of Agriculture, Consumer and Environmental Sciences

This blueprint was developed and piloted in 2016 by the New Mexico State University's (NMSU) Secondary Agriculture Education Office (<http://aces.nmsu.edu/>) in partnership with New Mexico agriculture educators. NMSU uses test items with consent from MYCaert, Inc. (<http://www.mycaert.com>). MyCaert has given copyright permissions to the New Mexico Public Education Department (NMPED).

Sample Questions

The NMPED has released sample items (prior test exam questions in the test bank) for each performance element. Due to a limited item bank, only five, EOC specific, sample questions have been provided on the blueprint. The depth of knowledge (DOK) level has also been identified for each sample question.

Blueprint Table—Introduction to the Physical Science of Agriculture

REPORTING CATEGORY	STANDARD	PERFORMANCE ELEMENT
HISTORY	AG-1, 5	<p>1. Analyze how issues, trends, technologies, and public policies impact systems in the Agriculture, Food, & Natural Resources (ANFR) Career Cluster.</p> <p>5. Describe career opportunities and means to achieve those opportunities in each of the Agriculture, Food, & Natural Resources Career Pathways.</p>
NATURAL RESOURCES	AG-NR-2, 4	<p>2. Analyze the interrelationships between natural resources and humans.</p> <p>4. Demonstrate responsible management procedures and techniques to protect or maintain natural resources.</p> <p>Sample Question: Which of the values associated with wildlife conservation include the money generated from wildlife and fish?</p> <p>A. aesthetic value B. commercial value* C. scientific value D. ecological value</p> <p>DOK 1</p> <p>AG-NR-2</p>
COMMUNICATIONS	AG-1, 5, 6	<p>1. Analyze how issues, trends, technologies, and public policies impact systems in the Agriculture, Food, & Natural Resources Career Cluster.</p> <p>5. Describe career opportunities and means to achieve those opportunities in each of the Agriculture, Food, & Natural Resources Career Pathways.</p> <p>6. Analyze the interaction among AFNR systems in the production, processing, and management of food, fiber, and fuel and the sustainable use of natural resources.</p>

REPORTING CATEGORY	STANDARD	PERFORMANCE ELEMENT
	AG-BIZ-5	5. Use sales and marketing principles to accomplish AFNR business objectives.
ANIMAL SCIENCE	AG-1, 3, 5	<p>1. Analyze how issues, trends, technologies, and public policies impact systems in the Agriculture, Food, & Natural Resources Career Cluster.</p> <p>3. Examine and summarize the importance of health, safety, and environmental management systems in AFNR businesses.</p> <p>5. Describe career opportunities and means to achieve those opportunities in each of the Agriculture, Food, & Natural Resources Career Pathways.</p>
	AG-FD-2	2. Apply principles of nutrition, biology, microbiology, chemistry, and human behavior to the development of food products.
	AG-ANI-1, 2, 3, 4, 6, 7	<p>1. Analyze historic and current trends impacting the animal systems industry.</p> <p>2. Utilize best-practice protocols based upon animal behaviors for animal husbandry and welfare.</p> <p>3. Design and provide proper animal nutrition to achieve desired outcomes for performance, development, reproduction, and/or economic production.</p> <p>4. Apply principles of animal reproduction to achieve desired outcomes for performance, development, and/or economic production.</p> <p>6. Classify, evaluate, and select animals based on anatomical and physiological characteristics.</p> <p>7. Apply principles of effective animal health care.</p> <p>Sample Question: Why are donkeys commonly used to guard sheep and goats?</p> <p>A. their ability to recognize predators B. instinctive dislike of dogs* C. aggressive temperament D. flocking, herding instinct</p> <p>DOK 1</p>

REPORTING CATEGORY	STANDARD	PERFORMANCE ELEMENT
ANIMAL SCIENCE (CONT.)		AG-ANI-1
AGRISCIENCE	AG-1	1. Analyze how issues, trends, technologies, and public policies impact systems in the Agriculture, Food, & Natural Resources Career Cluster.
	AG-ENV-5	5. Use tools, equipment, machinery, and technology common to tasks in environmental service systems.
	AG-FD-2	2. Apply principles of nutrition, biology, microbiology, chemistry, and human behavior to the development of food products.
	AG-PL-2	2. Apply the principles of classification, plant anatomy, and plant physiology to plant production and management.
PLANT SCIENCE	AG-4, 5	4. Demonstrate stewardship of natural resources in AFNR activities. 5. Describe career opportunities and means to achieve those opportunities in each of the Agriculture, Food, & Natural Resources Career Pathways.
	AG-FD-2	2. Apply principles of nutrition, biology, microbiology, chemistry, and human behavior to the development of food products. Sample Question Which food process involves the growth of beneficial microorganisms as a part of the product development? A. dehydration B. fermentation* C. freeze drying D. rehydration DOK 1
PLANT SCIENCE (CONT.)	AG-PL-1, 2, 3, 4	1. Develop and implement a crop management plan for a given production goal that accounts for environmental factors. 2. Apply the principles of classification, plant anatomy, and plant physiology to plant production and management.

REPORTING CATEGORY	STANDARD	PERFORMANCE ELEMENT
		<p>3. Propagate, culture, and harvest plants and plant products based on current industry standards.</p> <p>4. Apply principles of design in plant systems to enhance an environment (e.g., floral, forest, landscape, and farm).</p>
FFA	AG-5	5. Describe career opportunities and means to achieve those opportunities in each of the Agriculture, Food, & Natural Resources Career Pathways.
	AG-BIZ-2, 3, 4, 5	<p>2. Use record keeping to accomplish AFNR business objectives, manage budgets, and comply with laws and regulations.</p> <p>3. Manage cash budgets, credit budgets, and credit for an AFNR business using generally accepted accounting principles.</p> <p>4. Develop a business plan for an AFNR business.</p> <p>5. Use sales and marketing principles to accomplish AFNR business objectives.</p> <p>Sample Question: For a taxation program to be successful, which of the following components are needed?</p> <p>A. economic needs outshine how many taxes are needed</p> <p>B. convenient to pay, convenient to be collected and above all, fair to everyone *</p> <p>C. people's desire to pay taxes</p> <p>D. a decline in economic growth but an increase in taxes</p> <p>DOK 2 AG-BIZ-2</p>
SOIL SCIENCE	AG-4, 6	<p>4. Demonstrate stewardship of natural resources in AFNR activities.</p> <p>6. Analyze the interaction among AFNR systems in the production, processing, and management of food, fiber, fuel, and the sustainable use of natural resources.</p>
	AG-NR-4	<p>4. Demonstrate responsible management procedures and techniques to protect or maintain natural resources.</p> <p>Sample Question</p>

REPORTING CATEGORY	STANDARD	PERFORMANCE ELEMENT
		<p>Which of the following is a large area with a distinct combination of plant and animal life?</p> <ul style="list-style-type: none">A. savannahB. home rangeC. habitatD. biome* <p>DOK 1</p>

**Introduction to the Physical Science of Agriculture EoC Reporting
Category Alignment Framework**

Reporting Category	Standard	(Count by DOK)			Grand Total
		1	2	3	
Animal Science	AG-ANI-2		1		1
	AG-ANI-4	2	2	1	5
	AG-ANI-6	1			1
	AG-ANI-7		3		3
	AG-FD-2		1		1
	AG-3			1	1
	AG-5		1		1
History	AG-5	1			1
FFA	AG-5		1		1
Ag Science	AG-FD-2		1		1
	AG-NR-4	1			1
	AG-PL-2		1		1
	AG-1			1	1
Communication	AG-5	1	1		3
Plant Science	AG-PL.1		1	2	3
	AG-PL.2	1	4		5
	AG-PL.3	1	1		2
	AG-PL.4			1	1
	AG-FD.2		1		1
Soils	AG-4		3		3
	AG-NR-4	2	1		3
Natural Resources	AG-NR-2		3		3
	AG-NR-4	1	1		2
	Grand Total	12	27	6	45