

**CAREER
PATHS**

Agriculture

Neil O'Sullivan
James D. Libbin



Express Publishing

**CAREER
PATHS**

Agriculture

Book

1

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Scope and Sequence

Unit	Topic	Reading context	Vocabulary	Function
1	The History of Agriculture	Textbook passage	agriculture, crop, cultivate, domesticate, farm, harvest, irrigation, plant, produce, water supply	Asking questions politely
2	Plant Products	Advertisement	cereal, farmer's market, fruit, grain, harvest, industrial crop, legume, melon, tuber, vegetable	Asking about prices
3	Animal Products	Magazine article	bone, by-product, fats, hooves, leather, meat, milk, protein, render, tallow, wool	Asking for clarification
4	Soil	Advice column	aeration, clay, dense, humus, loam, parent material, sand, silt, soil, soil structure, soil texture	Giving advice
5	Water	Newspaper article	arid, ditch, drought, drought-resistant, groundwater, irrigate, rain-fed, rainfall, water cycle	Making suggestions
6	Seeds	Seed catalog	bulk, days to maturity, dormancy, germinate, hard coat, hybrid, seed, seed vigor, seedling, sow, sowing method	Asking for repetition
7	Plant Growth	Magazine article	branch, bud, flower, growth chart, leaf, photosynthesis, Quinoa, roots, seedhead, stalk	Talking about expectations
8	Harvest	Harvest report	bale, bushel, chaff, harvest, mature, package type, reap, threshing, ton, yield	Giving compliments
9	Storage	Email	aeration, bunker silo, cool, dry, leveling, moisture, mold, silage bag, storage, tower silo	Asking about conditions
10	Feed and Nutrients	Job posting	animal nutritionist, carbohydrate, fat, feed, mineral, nutrient, protein, ration, vitamin	Introductions
11	Housing Animals	Blog post	barn, cold stress, comfort zone, coop, critical temperature, heat stress, pen, slotted floor, space requirements, waste management	Agreeing with an opinion
12	Breeding	Notice	breeding, breeding value, expected progeny difference, feed efficiency, heritability, pedigree, rate of gain, sire summary, trait selection	Requesting information
13	Slaughter and Processing	Webpage	butcher, cut, head, hide, humane, inspect, kill fee, offal, process, slaughter	Clarifying information
14	Cultivation and Planting Equipment	Classified ads	broadcast seeder, chisel plow, cultipacker, cultivator, harrow, planter, rototiller, seed drill, stone picker, tractor, transplanter	Telephoning
15	Harvest Equipment	Webpage	bale wrapper, baler, chaser bin, combine harvester, conveyor belt, forage harvester, gleaner, grain auger, gravity wagon, hay conditioner	Talking about readiness

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Scope and Sequence

Unit	Topic	Reading context	Vocabulary	Function
1	Beef Industry	Magazine article	antibiotics, beef, cattle, feed conversion efficiency, feed ration, feedlot, grade, grass-fed, growth hormone, herd, market weight, processing facility, rancher	Disagreeing
2	Swine Industry	Industry journal	dynamic space, farrow-to-finish farm, farrow-to-nursery farm, hog, litter, social space, sow, sow farm, static space, swine	Agreeing
3	Poultry Industry	Webpage	broiler, chick, free-range, hatchery, hen, intensive farming, layer, litter, poultry, primary breeder, pullet, roaster, rooster	Clarifying information
4	Dairy Industry	Webpage	calf, dairy, heifer, Holstein, homogenize, milk pipeline, milking herd, milking parlor, pasteurize, rBST, udder	Giving an opinion
5	Sheep Industry	Business announcement	accelerated lambing, confinement lamb production, distribute, ewe, feeder lamb, finishing, flock, lambing period, market slaughter lamb, predation, range production, seasonal market	Making a suggestion
6	Equine Industry	Brochure	bridling, broodmare, foal, halter breaking, mare, preventative disease control, sacking out, saddling, stall, stallion, vaccination schedule	Asking for an explanation
7	Apiculture	Webpage	apiary, beehive frame, beesuit, cold smoke aerosol, colony, honey, honeycomb, liquid smoke, skep, smoker, top-bar hive, veil	Recommending
8	Soil Classification and Composition	Soil analysis report	classification, clay, coarse-grain, composition, fine-grain, grain, highly-organic, peat, sand, silt, texture, unified soil classification system	Confirming information
9	Salts and Acidity	Newspaper article	acidity, alkaline, dryland salinity, lime, pH value, salinity, salinity, secondary salinity, sodicity, sodium, sulphur, toxic	Asking about results
10	The Nitrogen Cycle	Textbook passage	ammonia, denitrification, eutrophication, fixation, mineralization, nitrates, nitrification, nitrites, nitrogen cycle, nitrous oxide, nutrient-poor	Expressing confusion
11	Soil Conservation	Magazine article	contour farming, cover crops, crop rotation, erosion, grassway, green manure, keyline design, land degradation, nutrition depletion, perimeter runoff control, soil conservation, windbreaks	Expressing concern
12	Preparing, Seeding, and Planting	Farmer's guide	amendment, broadcast seeding, emergence, fertilizer, grain, herbicide, no-till method, seeds per pound, soil temperature, tilling method, top soil	Asking for suggestions
13	Climate and Weather	Seed catalog	climate, hardiness zone, humidity, last frost, long-range forecast, mulch, precipitation, soil moisture, temperature	Asking for help
14	Pricing	Business letter	cost of production, direct marketing, indirect marketing, market, pricing, pricing for competition, pricing for profit, pricing for value, pricing strategy, produce, supply and demand	Expressing surprise
15	Government Intervention	Newspaper article	adjusting production, decline, fallow, food and fiber industry, foreign trade enhancement, market demand, price floor, price support, quota, surplus, tariff	Checking understanding

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Scope and Sequence

Unit	Topic	Reading context	Vocabulary	Function
1	Animal Behavior	Job posting	animal welfare, body length, chute score, conditioning, crowd pen, flight zone, flighty, handling, point of balance, restraint, squeeze chute, temperament	Asking about experience
2	Animal Health	Magazine article	antibiotics, deworm, diagnose, infectious, insecticide, lethargy, lice, monitor, parasite, respiration, tick, vaccination, veterinarian	Discussing symptoms
3	Animals and Grain	Newspaper article	consumption, feed grains, feedstuff-to-foodstuff, food grains, inedible, inefficient, land use, livestock, manure, roughage	Correcting a misconception
4	Bioengineering	Conference schedule	biotechnology, cloning, expression, gene, gene enhancement, genetic engineering, prohibition, regulation, societal concerns, transgenic	Disagreeing
5	Cropping Systems	Conference publication	burn-down herbicide, conservation tillage, conventional tillage, crop residue, crop rotation, cropping system, diversify, fallow, polyculture, spring wheat, winter wheat, zero tillage	Guessing
6	Growing Seasons	Magazine article	base temperature, elevation, freeze protection, greenhouse, growing degree day, growing season, heaters, hoop house, last frost date, mean temperature, photoperiod, site selection	Making suggestions
7	Weeds, Pests, and Disease	Farmer's guide	bacterial, biological control, blight, fungal, fungicide, herbicide, mulching, pathogen, pest management, pesticide, sanitize, suppression, weed, weed map	Expressing preference
8	Diagnosing Crop Problems	Webpage	abiotic, agricultural advisor, biotic, brown, field pattern, stippled, stunted, symptom, symptom pattern, symptomology key, wilt	Discussing problems
9	Agribusiness Management	Business letter	debt, farm cash receipts, feed costs, fixed cash expense, gross farm revenue, income, interest payments, loan, net farm income, noncash expense, total production expenses	Pointing out an error
10	International Trade	Trade profiles	balance of trade, export, export dependent, import, import dependent, international trade, quota, tariff, trade deficit, trade surplus, World Trade Organization	Asking for a recommendation
11	The Futures Market	Article	beginning stock, carryover, change, commodity, ending stock, futures market, high, index, low, open, stocks-to-use ratio, value	Expressing opinion
12	Sustainable Farming	Flyer	biodiversity, compost, economic sustainability, intercropping, monoculture, non-renewable resource, off-farm impact, soil amendment, sustainable, systems perspective	Asking for advice
13	Technological Advances	Product listing	air seeding, auto-steer, automated bin management, drip irrigation system, GPS, mechanized, overplanting, overwatering, self-propelled, smart irrigation control, technology	Expressing doubt
14	Organic Farming	Industry publication	audit trail documents, certifier, commingle, compliance, contamination, field activity log, inspector, material inputs, organic, organic integrity, organic systems plan	Asking for an opinion
15	GMOs	Webpage	analysis, animal performance assessment, biotech seed, characterizing, conventional seed, drought-tolerant, genetically modified organism, herbicide-tolerant, insect-resistant, nitrogen efficiency, trait, yield enhancement	Asking for more information

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farmer's market



melon

legume



fruit

Support your local farmers!

Come to the **farmer's market** this Saturday, 8 A.M. – 3 P.M. on Main Street. This year's harvest is the best yet!

JUNE 10

FRESH FOOD

Buy fresh **fruits** and **vegetables** for a good price!

Fruit: Delicious **melons**, strawberries, and blueberries.

Vegetables:

Fresh broccoli, peas, and lettuce.

We sell **tubers** and **legumes** too!

*This week we have Thompson's Granola. Thompson **cereal** crops are grown on a nearby farm.

CLOTHING

We offer some **industrial** crop products, such as **hemp** shoes, shirts, and hats.

WE HOPE TO SEE YOU ON SATURDAY!

Get ready!

1 Before you read the passage, talk about these questions.

- 1 What are your favorite fruits and vegetables?
- 2 What non-food products come from plants?

Reading

2 Read the advertisement. Then, fill in the blanks with the correct items.

1 Available fruits:

2 Available vegetables:

3 Cereal products:

4 Industrial crop products:

Vocabulary

3 Match the words (1-6) with the definitions (A-F).

- | | |
|---------------|-----------------------|
| 1 ___ harvest | 4 ___ tuber |
| 2 ___ legume | 5 ___ cereal |
| 3 ___ melon | 6 ___ farmer's market |

- A a crop that grows underground
 B a crop that produces grain
 C a crop that has pods
 D crops that have been gathered
 E a type of large, sweet fruit
 F a group of farmers selling crops

4 Check (✓) the sentence that uses the underlined part correctly.

- 1 ___ A Legumes are a very popular fruit.
 ___ B Kevin likes to wear hemp clothing.
- 2 ___ A Many people prefer cereals because they have no seeds.
 ___ B Vegetables are used in many meals.
- 3 ___ A Most harvests grow completely underground.
 ___ B Fruit is popular because it is sweet.
- 4 ___ A Industrial crops are not eaten.
 ___ B Some tubers are used to make clothes.

5 Listen and read the advertisement again. What can someone find at the market?

Listening

6 Listen to a conversation between a customer and a farmer at a farmer's market. Place a check (✓) next to items the customer buys.

- 1 potatoes 4 apples
 2 granola 5 cereal crops
 3 strawberries

7 Listen again and complete the conversation.

Farmer: Welcome to the farmer's market. Can I 1 _____ with something?

Customer: Yes, please. I want some fresh fruit.

Farmer: These 2 _____ are perfect. We picked them yesterday.

Customer: Oh, good. And I'd like some 3 _____, too. 4 _____ are they?

Farmer: A three pound bag costs one dollar.

Customer: I'll take a bag, thanks.

Farmer: Okay. Anything else today?

Customer: Yeah. I saw your ad for 5 _____. Do you have that?

Farmer: Yes, we do. 6 _____ are grown on a nearby farm.

Speaking

8 With a partner, act out the roles below based on Task 7. Then, switch roles.

USE LANGUAGE SUCH AS:

Can I help you?

I want some ...

How much are they?

Student A: You are at a farmer's market. Talk to Student B about:

- three products
- prices

Student B: You are a farmer at a farmer's market. Answer Student A's questions.

Writing

9 Use the conversation from Task 8 to fill out the customer's receipt.



Date of Sale: _____

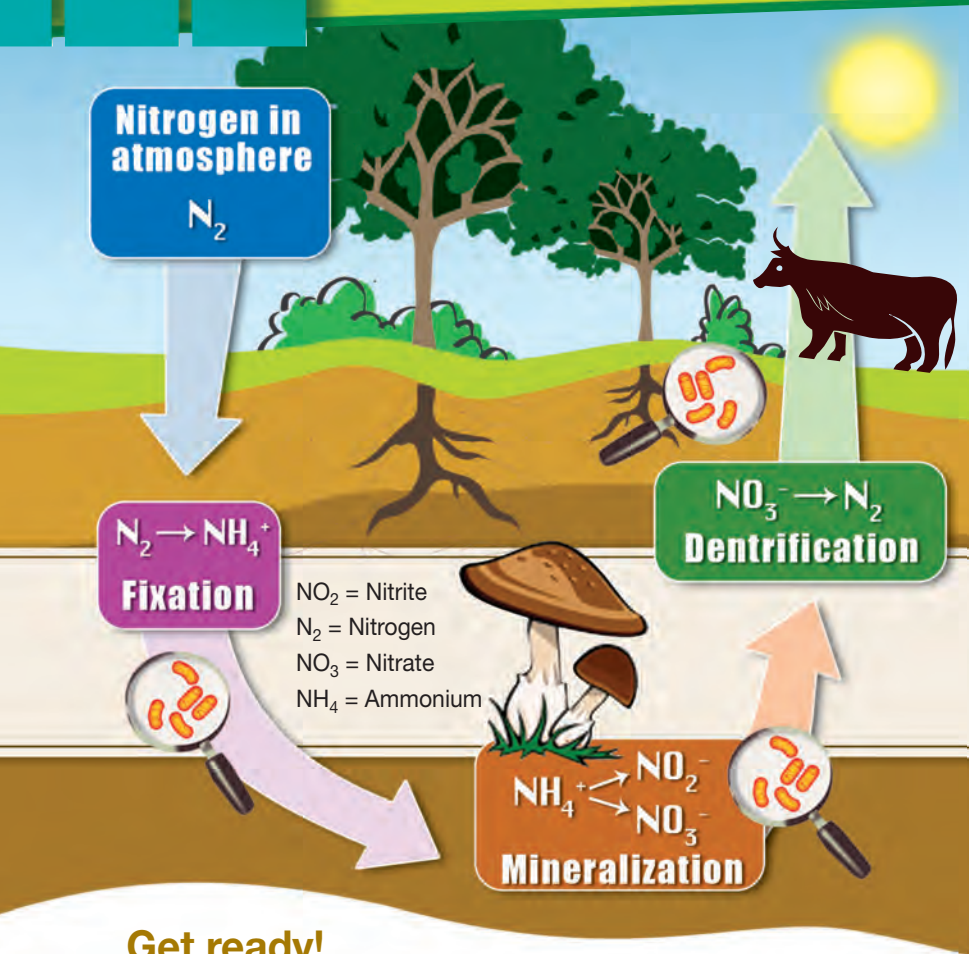
Items Purchased:

Price:

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Total Amount Due: _____

10 The Nitrogen Cycle



Nitrogen is a crucial nutrient for growing plants. Without the **nitrogen cycle**, which restores **nutrient-poor** soil, plants could not survive. During this cycle, nitrogen takes on many forms. It starts in the atmosphere as nitrogen gas. In this form, plants cannot absorb it. That changes after **fixation**, the next phase of the nitrogen cycle. During fixation, bacteria turn nitrogen into **ammonia**. In the next phase, mineralization, **decomposers** in the soil turn ammonia into **nitrites** and **nitrates**—forms of nitrogen that plants can use. Finally, during **dentrification**, bacteria reduce nitrates back into nitrogen gas.

Of course, the nitrogen cycle can also have negative effects. For example, it produces chemicals like **nitrous oxide**. When this substance leaks into bodies of water, **eutrophication** occurs. This build-up of algae can ruin a water supply. Unfortunately, commercial farming produces a great deal of such chemicals. A challenge facing modern farmers is to reduce their contribution to this harmful aspect of the nitrogen cycle.

Get ready!

1 Before you read the passage, talk about these questions.

- 1 How is nitrogen added to soil?
- 2 Why must farmers monitor nitrogen levels in soil?

Reading

2 Read the textbook passage. Then, mark the following statements as true (T) or false (F).

- 1 ___ Plants cannot survive without nitrogen.
- 2 ___ During fixation, decomposers turn ammonia into nitrogen.
- 3 ___ Nitrous oxide can cause algae build up in water supplies.

Vocabulary

3 Read the sentence pairs. Choose which words best fit the blanks.

1 ammonia / nitrous oxide

- A _____ is a component in many fertilizers.
 B _____ is a toxic product of the nitrogen cycle.

2 eutrophication / denitrification

- A _____ restores nitrogen in the air.
 B _____ occurred in the pond due to fertilizer runoff.

4 Match the words (1-6) with the definitions (A-F).

- 1 ___ fixation
- 2 ___ decomposer
- 3 ___ nitrite
- 4 ___ nutrient-poor
- 5 ___ nitrate
- 6 ___ nitrogen cycle

A not having the right amount of minerals to be healthy

B substance that bacteria create from ammonia

C the processes by which nitrogen is changed into chemical forms

D the process of converting nitrogen into ammonia

E substance that bacteria create from nitrites

F organism that turns dead animals or plants into chemical nutrients

- 5 🎧 Listen and read the textbook passage again. At what stage can plants start to absorb nitrogen gas?

Listening

- 6 🎧 Listen to a conversation between two farmers. Choose the correct answers.

- Why are the farmers concerned about using fertilizer?
 - It might set back the current harvest.
 - It could affect the water supply.
 - It can reduce the nitrogen in the soil.
 - It may cause damage to the cover crop.
- What will the farmers do with the south field?
 - irrigate it more often
 - leave the field fallow next year
 - finish harvesting its legumes
 - plant nitrogen restoring crops in it

- 7 🎧 Listen again and complete the conversation.

Farmer 1: So, what should we do with the south field?

Farmer 2: I'm not sure what you mean.

Farmer 1: Well, this year's yield is pretty low. The soil might be nutrient-poor.

Farmer 2: What do you suggest?

Farmer 1: We could plant legumes.

Farmer 2: I'm not 1 _____.

Farmer 1: Well, 2 _____ the soil is low on nitrogen. We could use legumes as this year's cover crop.

Farmer 2: 3 _____. Just have the legumes restore the nitrogen.

Farmer 1: Exactly. It's better than using too much fertilizer. I don't want our 4 _____ getting damaged.

Farmer 2: Well, I think that's a good idea. Let's 5 _____ this year's harvest. We still have a few days left.

Farmer 1: Sounds good. Then we can sit down and 6 _____ what legumes to plant.

Speaking

- 8 With a partner, act out the roles below based on Task 7. Then, switch roles.

USE LANGUAGE SUCH AS:

What should we do with the south field?

I'm not sure what you mean.

It's better than using too much fertilizer.

Student A: You are a farmer. Talk to Student B about:

- nitrogen in the fields
- fertilizer
- legumes

Student B: You are a farmer. Talk to Student A about nitrogen in the fields.

Writing

- 9 Use the conversation from Task 8 to fill out the farmer's schedule.

Harvest and Planting Schedule

South Field

1 _____

2 _____

3 _____



Glossary

- non-renewable resource** [N-COUNT-U12] A **non-renewable resource** is something that exists in fixed quantities and cannot be reproduced.
- off-farm impact** [N-UNCOUNT-U12] **Off-farm impact** is the effect of farming materials and actions on areas other than the farm.
- open** [V-T-U11] To **open** a stocks trading market is to begin it for the day.
- organic** [ADJ-U14] If food is **organic**, it is produced without unnatural fertilizers or pesticides.
- organic integrity** [N-UNCOUNT-U14] **Organic integrity** is a verification that a product is organic and not contaminated.
- organic system plan** [N-COUNT-U14] An **organic system plan** is a written statement which describes the organic methods a producer will use.
- overplanting** [N-UNCOUNT-U13] **Overplanting** is the act of planting too many seeds in an area.
- overwatering** [N-UNCOUNT-U13] **Overwatering** is the act of giving plants more water than they need.
- parasite** [N-COUNT-U2] A **parasite** is an organism that lives on or in another organism.
- pathogen** [N-COUNT-U7] A **pathogen** is any organism that causes illness or disease.
- pest management** [N-UNCOUNT-U7] **Pest management** is the practice of preventing, suppressing, or destroying organisms that harm crops.
- pesticide** [N-COUNT-U7] A **pesticide** is a chemical that kills insects and other pests harmful to crops.
- photoperiod** [N-COUNT-U6] A **photoperiod** is the amount of time each day that a plant is exposed to light.
- point of balance** [N-COUNT-U1] A **point of balance** is the spot on an animal's body that determines which way it will move in relation to the position of a herder.
- polyculture** [N-UNCOUNT-U5] **Polyculture** is a method of farming in which farmers grow several different crops together on the same piece of land.
- prohibition** [N-COUNT-U4] **Prohibition** is the act of forbidding something.
- quota** [N-COUNT-U10] A **quota** is trade restriction by which a government limits the amount or number of goods imported into a country.
- regulation** [N-COUNT-U4] A **regulation** is something that limits or controls something else.
- respiration** [N-UNCOUNT-U2] **Respiration** is the act of breathing.
- restraint** [N-COUNT-U1] A **restraint** is a device that is used to restrict movement.
- roughage** [N-UNCOUNT-U3] **Roughage** is tough plant material that animals, but not humans, can eat.
- sanitize** [V-T-U7] To **sanitize** is to clean something so that no bacteria remains.
- self-propelled** [ADJ-U13] If something is **self-propelled**, it moves by its own power.
- site selection** [N-UNCOUNT-U6] **Site selection** is the act of choosing an area to plant crops in.
- smart irrigation control** [N-UNCOUNT-U13] **Smart irrigation control** is a system for watering plants that adjusts watering based on environmental conditions.
- societal concerns** [N-UNCOUNT-U4] **Societal concerns** are worries about the potentially negative effects of new technologies.
- soil amendment** [N-COUNT-U12] A **soil amendment** is a material added to soil to improve plant growth.
- spring wheat** [N-UNCOUNT-U5] **Spring wheat** is a type of wheat that farmers plant in spring and harvest in late summer or early fall.
- squeeze chute** [N-COUNT-U1] A **squeeze chute** is a narrow fenced passage designed for passing animals through single file.



Agriculture

Career Paths: Agriculture is a new educational resource for agriculture professionals who want to improve their English communication in a work environment. Incorporating career-specific vocabulary and contexts, each unit offers step-by-step instruction that immerses students in the four key language components: reading, listening, speaking, and writing. **Career Paths: Agriculture** addresses topics including soil preparation, seeding methods, farm equipment, livestock, and organic farming.

The series is organized into three levels of difficulty and offers over 400 vocabulary terms and phrases. Every unit includes a test of reading comprehension, vocabulary, and listening skills, and leads students through written and oral production.

Included Features:

- A variety of realistic reading passages
- Career-specific dialogues
- 45 reading and listening comprehension checks
- Over 400 vocabulary terms and phrases
- Guided speaking and writing exercises
- Complete glossary of terms and phrases

The **Teacher's Guide** contains detailed lesson plans, a full answer key and audio scripts.

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ISBN 978-1-78098-378-3

