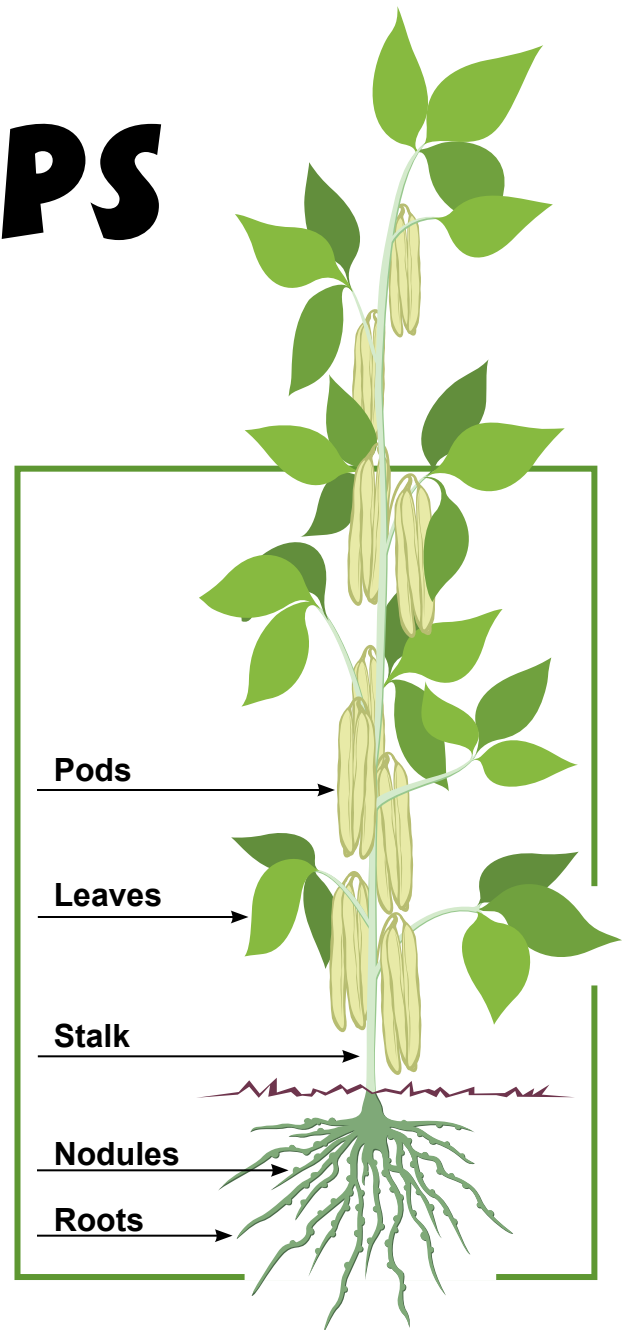


PULSE CROPS

This issue of the Ag Mag focuses on the production, processing, distribution and consumption of pulse crops. North Dakota ranks high in production of most pulse crops and #1 in several.

The Ag Mag's information and activities are geared primarily toward the state's third, fourth and fifth graders. The Ag Mag is distributed three times per year. Subscriptions are free, but if you're not on the mailing list or if you know someone who wants to be added, contact the North Dakota Department of Agriculture at 800-242-7535 or ndda@nd.gov.

The magazine also is on the web at www.ag.ndsu.edu/agmag or through the North Dakota Agriculture in the Classroom website at www.ndaginclassroom.org. This magazine is one of the N.D. Agriculture in the Classroom Council activities that helps you and other K-12 teachers integrate information and activities about North Dakota agriculture across your curriculum in science, math, language arts, social studies and other classes. It's a supplemental resource rather than a separate program.



N.D. Agriculture in the Classroom Mission

To cultivate an understanding of the interrelationship of agriculture, the environment and people by integrating agriculture into K-12 education

PRODUCTION

Legumes

Legumes are plants that have nodules on their roots with bacteria that fix nitrogen. They also have seed pods that, when ripe, split along both sides. Pulse crops are legumes.

The nitrogen-fixing capability of legumes is important because all plants need nitrogen to grow. Even after the crop is harvested, some of the nitrogen in the legume's roots stays in the soil to provide this nutrient to a crop in that soil the next year. The second crop probably will not be a legume, but instead something like wheat or corn that would use the nitrogen rather than produce more. This is an example of crop rotation, which reduces farmers' fertilizer costs.

Idea: Have students research other kinds of legumes. Their lists might include soybeans, peanuts and alfalfa.

Idea: Use the text structure web on page 11 to help students learn about pulse crops and other legumes. Have students fill in the web as they read through the Ag Mag.

Idea: Define for students the difference between an annual plant, a biennial and a perennial. Sort various plants into the three categories.

Idea: Gather the different kinds of pulse crops so students can see what they look like.

Idea: Grow a garden in a glove using pulse crops. See the instructions at www.msichicago.org/experiment/hands-on-science/garden-in-a-glove/.

Bean Graphs or Growth Charts

Materials:

Small plastic pots (left from plants purchased in the spring or margarine containers)

10 beans per week

Water sprayer

Growing medium

Procedure:

Plant two seeds each day in separate small pots. Label with date and keep moist. Remove extra seed from each pot when it becomes clear one is hardier than the other.

Keep a Record of Plant Growth:

Encourage students to devise their own methods for record keeping. "What can we do to help us remember what our seeds looked like as they grew?" Most children will think of drawing pictures and writing descriptions. Some may want to make a graph of growth. Younger students may measure the growing bean plant with a strip of paper. Cut the strip to the length of the plant, record the date and paste it on a sheet of paper.

Record keeping may include:

What I want to find out.

What I did.

What I observed.

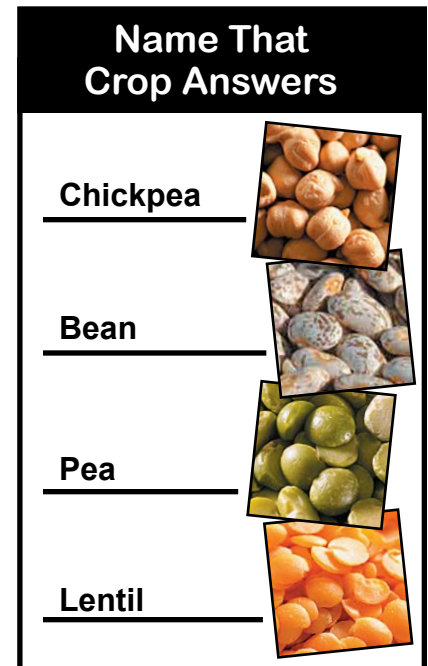
Why I think that happened.

Suggestion:

As a variation to this experiment, leave some bean plants in a dark area and some in the light. Give some plants too much water and others not enough. Give some plants fertilizer and don't fertilize others. Have students record their observations daily. Develop a weekly summary to analyze the experiments.

Beans Bingo Game

Copy the BEANS bingo card from the student worksheet (see page 10) and have students personalize their cards by randomly writing names of different bean classes from page 2 of the Ag Mag in squares on the cards. Give each student several beans from different classes to use as game markers. The teacher or a student leader calls out a letter – B, E, A, N or S – and a class of bean (for example, turtle, pinto, light red kidney, Great Northern, etc.). Students place a bean (preferably of the class called) on that square. The first student to get five beans in a row wins. The teacher or a student leader should write down which bean was called for which letter to check students' accuracy. Other pulse crops could be used in addition to beans.



From the Field to the Fork Answers

- 1 The farmer plants the bean seed using special equipment called a drill or row planter.
- 7 Trucks take the beans to a processing plant where the beans are tested to determine the quality and the price the farmer receives.
- 3 When the plant has grown to its full height, small flowers begin to develop on the plant.
- 2 With soil, sunlight and rain, the bean plant grows for 12-14 weeks.
- 9 The beans are bagged and transferred into rail cars or trucks and sent to canners and packagers all around the world.
- 5 The bean plant, including the pods, turns from a green color to yellow, indicating that harvest time is near.
- 4 The flowers turn into pods and bean seeds begin to grow in the pods.
- 8 The beans are sorted by color, size and quality at the processing plant.
- 6 The farmer harvests the beans and augers them into trucks.

Also, discuss with students what an auger is and how augers are used not just on farms but in other ways – for example, to dig holes for fence posts or holes for ice fishing.

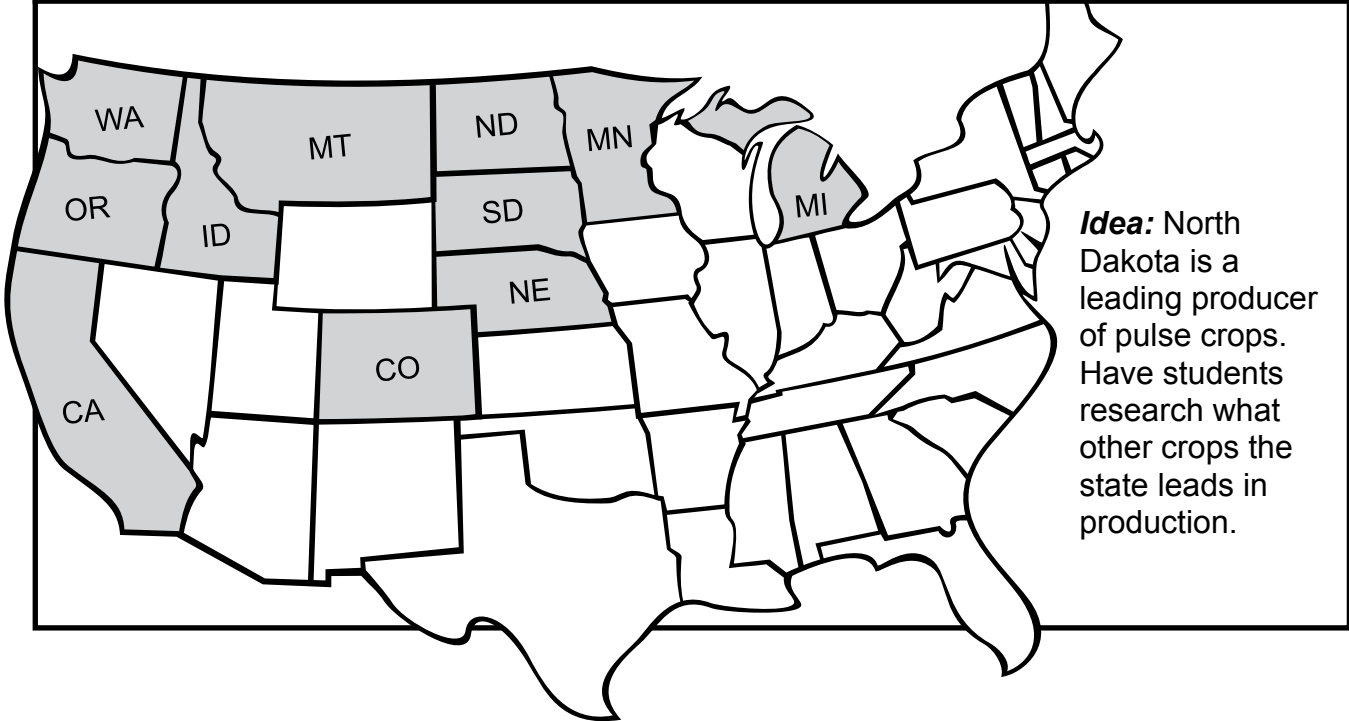
Source: Northarvest Bean Growers Association

Idea: Have students watch the Dan D. Pea Celebrates National Split Pea Soup Week at www.youtube.com/watch?v=T9N2v1qToms. This 1-minute video includes a cute character and illustrates split pea soup from farm to table.

Idea: Have students watch the 1:43 Lentil Harvest on the Palouse at www.youtube.com/watch?v=cTKW3EK5q24.

Idea: Have students watch the 4-minute video on beans being grown hydroponically at http://teachertube.com/viewVideo.php?video_id=237296.

U.S. Pulse Production and U.S. Bean Production Answers



Food from Way Back

Dry beans were important staple foods thousands of years ago in the Americas and Asia, especially China. In the Americas, the Mayans, Aztecs and Incas grew dry beans. They left behind pottery decorated with pictures of people holding dry beans. Various American Indian tribes grew different kinds of dry beans and then traded them. For example, the lima bean was first grown in Guatemala and then traded to Mexican Indians. These Indians traded lima beans to North American tribes in the Southwest, Virginia and the Mississippi Valley. Meanwhile, lima beans also were traded to Peru, where the natives developed the best, biggest variety. When Spaniards came, they named the bean "lima," after the capital of Peru.

Dry beans were called the "poor man's meat." People in Europe were much better fed after dry beans, potatoes and corn were brought from the New World. This better nutrition is one reason Europe's population grew between 1500 and 1900. In America, things were different. Settlers had much rich land to farm, so they could easily raise wheat, corn and livestock. They did not need to grow dry beans for protein because they had plenty of meat. Today people realize the benefits of eating beans as well as meat and dairy for protein.

Source: Northarvest Bean Growers Association

Where in the World Answers



Idea: Use National Geographic's MapMaker Interactive at <https://mapmaker.nationalgeographic.org/> to have students create maps of Where in the World countries and complete other activities.

Idea: Have students identify trade routes that beans and other commodities might have taken from the New World.

Idea: Have students discuss importing and exporting, and then list food products that the U.S. exports and those that are imported.

PROCESSING

Canned vs. Dry Answers

1. $1 \frac{1}{2}$ cups X 2 =
3 cups water
2. 6 cups \div 2 cups =
3 cups dry peas
3. 40 ounces \div 16 ounces =
 $2 \frac{1}{2}$ cans
4. $3 \div 1 \frac{1}{2} = 2$ cans

Idea: Bring 1 pound each of dry peas, lentils and beans to class. Have students measure $\frac{1}{2}$ cup of each into three containers, nine containers in all. Add $\frac{1}{2}$ cup, 1 cup and $1 \frac{1}{2}$ cups of cold water to one of the three containers of peas, lentils and beans. Let them soak overnight, then drain each one, keeping the water left. Have students develop math problems to illustrate how much the peas, lentils and beans expanded and how much water was absorbed.

The Many Uses of Peas Answers

All 11 of these products may contain dry peas. They may be in foods, beverages or livestock feed to add protein, fiber or starch. Pea starch also may be used to make ethanol.

Source: Northern Pulse Growers Association

DISTRIBUTION

Idea: Have students research other career areas related to pulse production, processing, distribution or consumption. Invite a farmer who grows pulse crops to visit your classroom. Ask your county Extension agent for contacts.

Idea: Use the Trading Favorites lesson from Project Food, Land & People to help middle- and high-school students learn about imports and exports. Information about Project Food, Land & People teacher classes in on page 9.

Career Corner Answers

energized
importers
marketing
social
artificial
traced
contract
harvest
tortilla
demand
innovative
motivates

CONSUMPTION

Protein Food or Vegetable? Answers

Cheese	Bread	V	Tomatoes
Rice	V	Potatoes	Grapes
Spaghetti	V,P	Lentils	Watermelon
P Chicken	V,P	Pinto Beans	Honey
Yogurt	P	Eggs	Oats
Wheat	V	Broccoli	V,P Dry Peas
V,P Turtle Beans	V	Carrots	P Fish
Milk	Cereal		

Source: Northern Pulse Growers Association

Idea: Brainstorm other foods that might fall into more than one category of MyPlate.

Idea: Have students go to www.chooseMyPlate.gov to estimate what and how much they need to eat and more.

Idea: Since pulses and dry edible beans are major food aid contributions to developing countries, have students carry out a service learning project to research donation programs and gather pulses and dry beans to donate.

Math Challenge Answers

1. $\$1.75 + \$1.75 = \$3.50$
 $\$3.50 - \$2.50 = \$1$
2. $\$2 + \$2 + \$2 = \6
3. $3 \times \$0.99 = \2.97
4. $\$2.50 + \$6 + \$2.97 = \11.47
5. 2 cans pinto beans
1 can dark red kidney beans
4 cans black beans
3 cans navy beans
1 can Great Northern beans
1 can light red kidney beans

Estimation

Make copies of the student worksheet on the bottom of page 10, and give one worksheet to each group of students. Fill 4 containers with a class of dry beans or of another pulse crop, and label them for students to analyze.

After they complete the worksheet, ask the students how they arrived at their guesses. Determine how they could make a more accurate guess without counting all the beans. Lead to the idea of taking samples and estimating the total numbers from those samples.

Have five different students take a baby food jar sample of pulses and count the number of pulses in each jar. Have one student record the number in each jar. When all samples are counted, ask the recorder to average them.

Next, the students need to know how many sample jars will fill the large jar. Have one student fill baby food jars with pulses and count how many jars it takes to fill the large jar. Talk about how an average of the samples taken times the number of jars it would take to fill the large container equals a fair estimate of the total number of beans.

Source: Northarvest Bean Growers Association

Pulse Crop Art

Rather than simply creating a picture using different pulse crops like your students did when they were younger, have them try to replicate famous artwork, historical places, animals, instruments or other designs by gluing different colors and textures of the seeds on tag board.

Pulse Crop Border Frames

Cut out the center of the plate or shape. Design the outer edge of the plate or shape with pulses and glue in place. Cut the tag board so it fits where the center of the plate or shape was, leaving enough of an edge to glue in place. On the tag board, write or draw something you learned about pulse crops. Glue tag board or construction paper to the back side of the frame. When finished, hang them in the classroom to remind the students what they've learned.

Source: Northarvest Bean Growers Association

Teaching with Technology

Idea: Localize Oklahoma Ag in the Classroom
SmartBoard lessons on Beans Around the World; A Field of Beans; Counting Beans; and Farmer, Farmer, Where Am I Grown? (mapping activities). Go to <http://exchange.smarttech.com> and search for those topics.

Idea: Incorporate other SmartBoard lessons into this and other curricula. Go to the <http://exchange.smarttech.com> site and search for nitrogen cycle, bean sprouting and other topics.

Idea: Create a Jeopardy game for students or have them create it using words related to pulse crops and beans. Go to <http://exchange.smarttech.com> and search for Jeopardy.

Idea: Though not specific to pulses, go to <http://exchange.smarttech.com> and search for lessons on the plant life cycle.

Books

[From Seed to Plant](#) by Gail Gibbons

[Jack's Garden](#) by Henry Cole

[Beyond the Bean Seed: Gardening Activities for Grades K-6](#) by Rosanne Blass and Nancy A. Jurenka

[A Seed in Need](#) by Sam Godwin

[All in Just One Cookie](#) by Susan E. Goodman

[Harvest Year](#) by Chris Peterson

[How Plants Grow](#) by Angela Royston

[I Drive a Tractor](#) by Sarah Bridges

[One Generous Garden](#) by Anne Nagro

Find other books plus lesson plans, facts and links that are reviewed for accuracy and recommended at www.agfoundation.org under the Ag Literacy tab.

TEACHER AND STUDENT RESOURCES

Quizlet.com

Go to <http://quizlet.com/> and create an account:

This resource can be used to develop an online activity to coordinate with this Ag Mag – or to make your own quizlets.

Northarvest Bean Growers Association

50072 East Lake Seven Road
Frazee, MN 56544
218-334-6351

Email: adamv@communiqueinc.com
www.beaninstitute.com

Northern Pulse Growers Association

1710 Burnt Boat Drive
Bismarck, ND 58503
701-222-0128

Email: info@northernpulse.com
www.northernpulse.com

USA Dry Pea and Lentil Council

www.usapulses.org

U.S. Dry Bean Council

www.usdrybeans.com

North Dakota State University

All About Beans: Nutrition, Health Benefits, Preparation and Use in Menus

– www.ag.ndsu.edu/publications/food-nutrition/all-about-beans-nutrition-health-benefits-preparation-and-use-in-menus

Bean Coordinated Agricultural Project

– www.beancap.org/Extension.cfm

ChooseMyPlateResources

– www.ag.ndsu.edu/food/health-and-nutrition/myplate-resources

Pulses: The Perfect Food

– www.ag.ndsu.edu/publications/food-nutrition/pulses-the-perfect-food-healthy-to-eat-healthy-to-grow-peas-lentils-chickpeas

University of Connecticut

www.cag.uconn.edu/nutsci/nutsci/outrch/pdf/beanmagic.pdf

Bean Magic 4-page kid-friendly handout with recipes

National Agriculture in the Classroom

www.agclassroom.org

Resources from educational programs from around the country

My American Farm

www.myamericanfarm.org

This website from the American Farm Bureau Foundation for Agriculture includes online games, e-comics, videos, activity pages and much more. The games Ag across America, Finders Keepers, Let's Make Something Tasty and Farmer's Market Challenge especially apply to the concepts in this pulse crops Ag Mag.

North Dakota Agriculture in the Classroom Activities

This **Ag Mag** is just one of the North Dakota Agriculture in the Classroom Council projects. Each issue of the Ag Mag focuses on an agricultural commodity or topic and includes fun activities, bold graphics, interesting information and challenging problems. See past issues at www.ag.ndsu.edu/agmag/agmag.htm.

Send feedback and suggestions for future Ag Mag issues to:

Becky Koch
NDSU Agriculture Communication
(701) 231-7875
becky.koch@ndsu.edu

Another AITC teacher resource is **Project Food, Land & People (FLP)**. Using the national FLP curriculum, N.D. Ag in the Classroom provides credit workshops in person and online for teachers to instruct them in integrating hands-on lessons that promote the development of critical thinking skills so students can better understand the interrelationships among the environment, agriculture and people of the world. Teachers are encouraged to adapt their lessons to include North Dakota products and resources.

Project Food, Land People (FLP) is a curriculum with many lessons developed for K-12 educators to integrate easily into the classroom. The instructional units address core content and North Dakota state standards and benchmarks with inquiry based learning activities.

Participants receive the entire curriculum, plus North Dakota specific materials and information about available resources.

See details at www.ndfb.org/edusafe/flp.

For information, contact:

Jill Vigesaa
FLP Coordinator
701-799-5488
jill.vigesaa@gmail.com

Educators may apply for **mini-grants** for up to \$500 for use in programs that promote agricultural literacy. The Agriculture in the Classroom Council, working with the N.D. FFA Foundation, offers these funds for agriculture-related projects, units and lessons used for school-age children. The mini-grants fund hands-on activities that develop and enrich understanding of agriculture as the source of food and/or fiber in our society. Individuals or groups such as teachers, 4-H leaders, commodity groups and others interested in teaching young people about the importance of North Dakota agriculture are welcome to apply.

Examples of programs that may be funded: farm safety programs, agricultural festivals, an elementary classroom visiting a nearby farm and ag career awareness day. Grant funds can be used for printing, curriculum, guest speakers, materials, food, supplies, etc. More ideas and application information are at www.ndaginclassroom.org. Applications are due Sept. 21 each year.

For information, contact:

Tam Maddock
N.D. FFA Foundation
tmaddock@ndffa.org
www.teamabovo.com/ndffa

The N.D. Geographic Alliance conducts a **two-day Agricultural Tour for Teachers**. The tour includes farm and field visits, tours of agricultural processing plants to see what happens to products following the farm production cycle, and discussions with people involved in the global marketing of North Dakota farm products.

For information, contact:

Jeff Beck
North Dakota Geographic Alliance
701-858-3063
jeff.beck@minot.k12.nd.us

The North Dakota Ag Mag is a project of the North Dakota Agriculture in the Classroom Council, which is organized through the North Dakota Department of Agriculture.

N.D. Department of Agriculture
600 E. Boulevard Ave., Dept. 602
Bismarck, ND 58505-0020
Voice: 701-328-2231, Toll-free: 800-242-7535
ndda@nd.gov, www.nd.gov/ndda
www.facebook.com/ndaginclassroom

North Dakota Agriculture in the Classroom Council

Kim Alberty – Agassiz Seed and Supply, West Fargo
Aaron Anderson – N.D. Dept. of Career and Technical Education
Nancy Jo Bateman – N.D. Beef Commission
Sheri Coleman – Northern Canola Growers Association
Kirk Olson – McKenzie County Farm Bureau
Nicole Wardner – NDSU Extension Service Sheridan County
Statutory Member: Superintendent of Public Instruction
Kirsten Baesler (Bob Marthaller, representative)

B	E	A	N	S
		FREE BEAN		

ESTIMATION

Guess which container has the most beans. Container _____

Now, count the beans in each container.

Container A has _____ beans.

Container B has _____ beans.

Container C has _____ beans.

Container D has _____ beans.

Which container actually had the most beans? Container _____ had the most beans.

Observe the container that had the most beans. Why do you think that container had more beans in it than the other containers?

Identify the class of beans in each container:

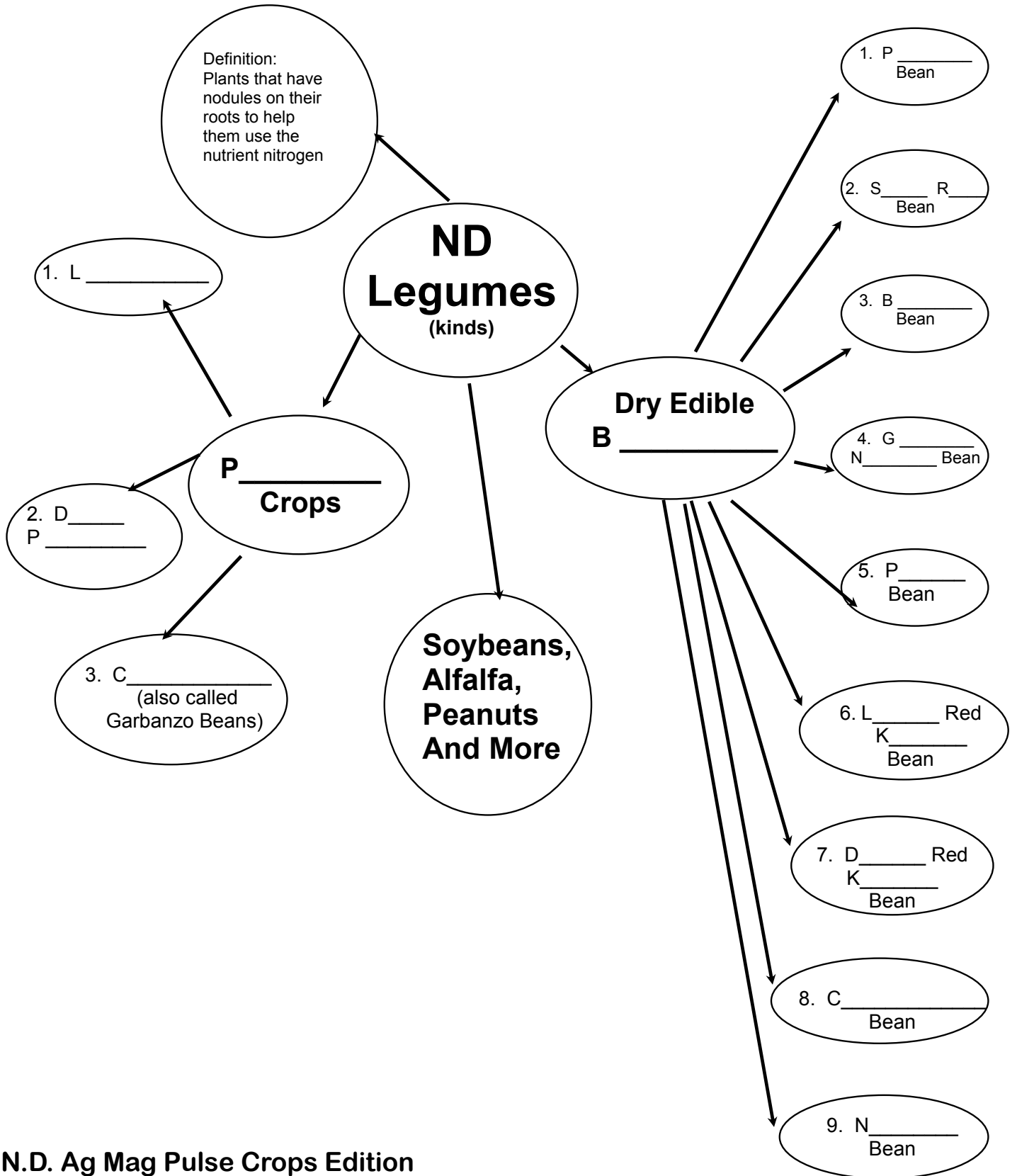
A. _____

B. _____

C. _____

D. _____

TEXT STRUCTURE WEB



English Language Arts and Literacy Content Standards for Reading Informational/Nonfiction Text

Gr. 3, RI.1 Ask and answer questions to demonstrate understanding of a text (textual evidence), referring explicitly to the text as the basis for the answers.

Gr.3, RI.2 Determine the main idea of a text and recount the key details to explain how they support the main idea. Gr.3, Standard 3: Describe the historical events, scientific ideas, or steps in procedures using words to show the sequence.

Gr.3, RI.3 Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.

Gr.4, RI.1 Refer to details and examples in a text (textual evidence) when explaining what the text says explicitly and when drawing inferences from the text. Summarize the text.

Gr.4, RI.2 Determine the main idea of a text and explain how it is supported by key details.

Gr.4, RI.3 Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.

Gr.5, RI.1 Quote accurately using textual evidence when explaining what the text says explicitly and when drawing inferences from the text. Summarize the text.

Gr.5, RI.2 Determine two or more main ideas of a text and explain how they are supported by key details.

Gr.5, RI.3 Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.

Craft and Structure

Gr.3, RI.4 Determine the meaning of general academic and domain specific words and phrases in a text relevant to a grade 3 topic or subject area.

Gr.4, RI.4 Determine the meaning of general academic and domain specific words or phrases in a text relevant to a grade 4 topic or subject area.

Gr.5, RI.4 Determine the meaning of general academic and domain specific words and phrases in a text relevant to a grade 5 topic or subject area.

English Language Arts Literacy Standards for Writing if using research ideas to supplement the Ag Mag in the Teacher's Guide

Gr.3, W.2 Write informative/explanatory texts to examine a topic and convey ideas and information clearly. a. Introduce a topic and group related information together; include illustrations when useful to aiding comprehension. b. Develop the topic with facts, definitions, and details. c. Use transitional words and phrases (e.g., also, another, and, more, but) to connect ideas within categories of information. d. Provide a concluding statement or section. Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience.

Gr.4, W.2 Write informative/explanatory texts to examine a topic and convey ideas and information clearly. a. Introduce a topic clearly and group related information in paragraphs and sections; include formatting (e.g., headings), illustrations, and multimedia when useful to aiding comprehension. b. Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic. c. Link ideas within categories of information using transitional words and phrases (e.g., another, for example, also, because). d. Use precise language and domain-specific vocabulary to inform about or explain the topic. e. Provide a concluding statement or section related to the information or explanation presented.

Gr.5, W.2 Write informative/explanatory texts to examine a topic and convey ideas and information clearly. a. Introduce a topic clearly, provide a general observation and focus, and group related information logically; include formatting (e.g., headings), illustrations, and multimedia when useful to aiding comprehension. b. Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic. c. Link ideas within and across categories of information using transitional words, phrases, and clauses (e.g., in contrast, especially). d. Use precise language and domain-specific vocabulary to inform about or explain the topic. e. Provide a concluding statement or section related to the information or explanation presented.

Health Content Standards

Standard 1: GROWTH AND DEVELOPMENT

Body Systems

3.1.4 Describe the effects of healthy and unhealthy foods on the body (e.g., healthy foods provide nutrients for growth and development; unhealthy foods contribute to a lack of energy and obesity)

5.1.2 Explain the maintenance of human body systems (e.g., skeletal: choose foods high in calcium and vitamin D, be physically active)

Standard 2: PERSONAL HEALTH

3.2.1 Describe how personal health behaviors (e.g., grooming habits, wellness exams, proper nutrition, health fitness) affect individual wellbeing

4.2.2 Explain the relationship between food choices and personal health (e.g., unhealthy food choices contribute to high cholesterol, diabetes, heart disease, high risk of cancer, high blood pressure)

5.2.2 Explain the benefits of nutrition and physical activity as they relate to total wellness

Standard 3: EXTERNAL HEALTH FACTORS

Health and the Environment

3.3.4 Explain how people use natural resources (e.g., air, water, land)

4.3.1 Explain how health careers (e.g., dietician, doctor, nurse) benefit an individual's community

Standard 5: DECISION MAKING AND GOAL SETTING

3.5.1 Describe how to use goal setting to enhance personal health (e.g., increasing activity, making healthy food choices, improving endurance, flexibility, and strength)

4.5.1 Develop a long term plan to achieve a personal health goal (e.g., eating the proper servings from each food group)

Standard 6: CONSUMER HEALTH

4.6.1 Describe the characteristics of valid health information, products, and services (e.g. choosemyplate.gov, USDA, FDA, nutrition labels, CDC)

North Dakota Mathematics Content Standards

Number and Operation in Base Ten

3.NBT.2 Using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction, fluently add and subtract within 1000.

Number and Operations-Fractions

3.NF.1 Understand a fraction $\frac{1}{b}$ as the quantity formed by 1 part when a whole is partitioned into b equal parts.

4.NF.4 Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.

b. Understand a multiple of $\frac{a}{b}$ as a multiple of $\frac{1}{b}$, and use this understanding to multiply a fraction by a whole number.

Measurement and Data

3.MD.2 Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units.

4.MD.2 Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit.

Science Standards and Benchmarks

Standard 2: Students use the process of science inquiry.

3.2.2. Abilities Necessary to Do Scientific Inquiry: Ask questions directly related to a scientific investigation.

4.2.1. Abilities Necessary to Do Scientific Inquiry: Review and ask questions about the scientific investigations of others.

Standard 4: Students understand the basic concepts and principals of life science.

3.4.1. Structure and Function: Identify parts of an organism that have specific functions (e.g., roots absorb water, heart pumps blood).

3.4.2. Life Cycles: Describe the life cycles of plants and animals (e.g., birds, mammals, grasses, trees, insects, flowers).

3.4.3. Organisms and Their Environments: Identify the needs of living things (e.g., food, shelter, soil, space, water).

4.4.4. Organisms and Their Environments: Identify ways that an organism's pattern of behavior is related to the nature of the organism's environment (e.g., the availability of food, space, and resources).

Standard 6: Students understand relations between science and technology.

4.6.1. Technological Design: Evaluate the effects of technology on people and the environment (e.g., new construction, oil drilling, electric cars)

Standard 7: Students understand relations between science and personal, social, and environmental issues.

4.7.2. Science and Social Issues: Identify ways in which science and technology have greatly improved human lives (e.g., food quality and quantity, transportation, health, sanitation, communication)

5.7.2. Science and Social Issues: Explain ways humans benefit from Earth's resources (e.g., air, water, soil, food, fuel, building materials).

Standard 8: History and Nature of Science.

3.8.1. People In Science: Identify ways people of all ages, genders, and backgrounds use science in their careers and in daily life (e.g., children check temperature conditions to decide what to wear, farmer uses genetic grains, hikers use GPS, depth-finder in boat, hearing-aides for disabilities).

4.8.1. People In Science: Identify a variety of careers in the field of science.

ND Social Studies Standards and Benchmarks

Standard 1: Skills and Resources:

Resources

Benchmark 3.1.3 Use a variety of resources (e.g., maps, charts, bar graphs, Internet, books) to gather information about people, places, and events

Benchmark 3.1.4 Describe current events using print and electronic media (e.g., newspaper, children's news magazines, television, Internet).

Benchmark 4.1.4 Interpret current events using print and electronic media (e.g., newspaper, children's news magazines, television, Internet).

Benchmark 5.1.3 Evaluate current events using print and electronic media (e.g., newspaper, children's news magazines, television, Internet.)

Standard 3: Economic Concepts:

Personal Finances

Benchmark 3.3.3 Explain the differences among natural and human resources, and how they are used locally.

State Economics

Benchmark 4.3.2 Identify ways that natural resources (e.g. soil, people, trees) contribute to the economy of the local community and of North Dakota.

4.3.4 Identify principal exports of North Dakota (e.g., crops, energy, livestock).

Standard 5: Students understand and apply concepts of geography.

Human Geography

4.5.6 Describe ways geography has affected the development (e.g., the development of transportation, communication, industry, and land use) of the state over time.