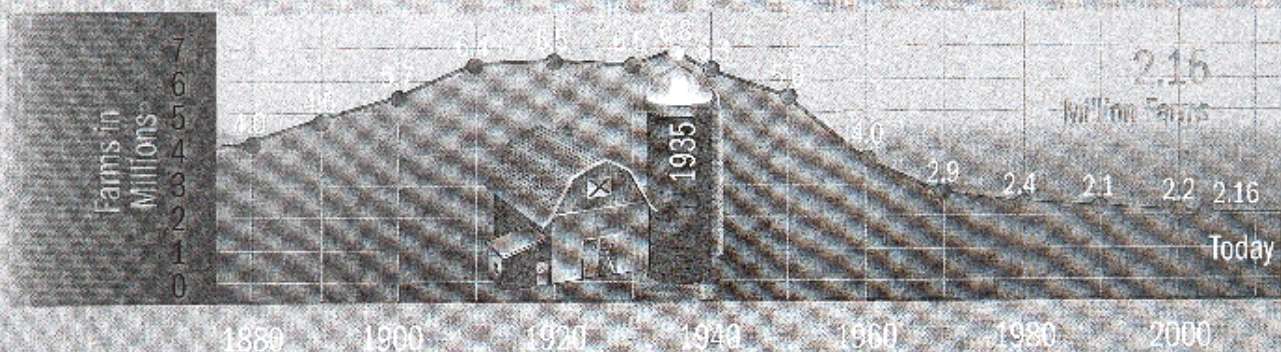


GENERAL AGRICULTURE

- Livestock
- Farm crops
- Machinery
- Inventions
- Careers

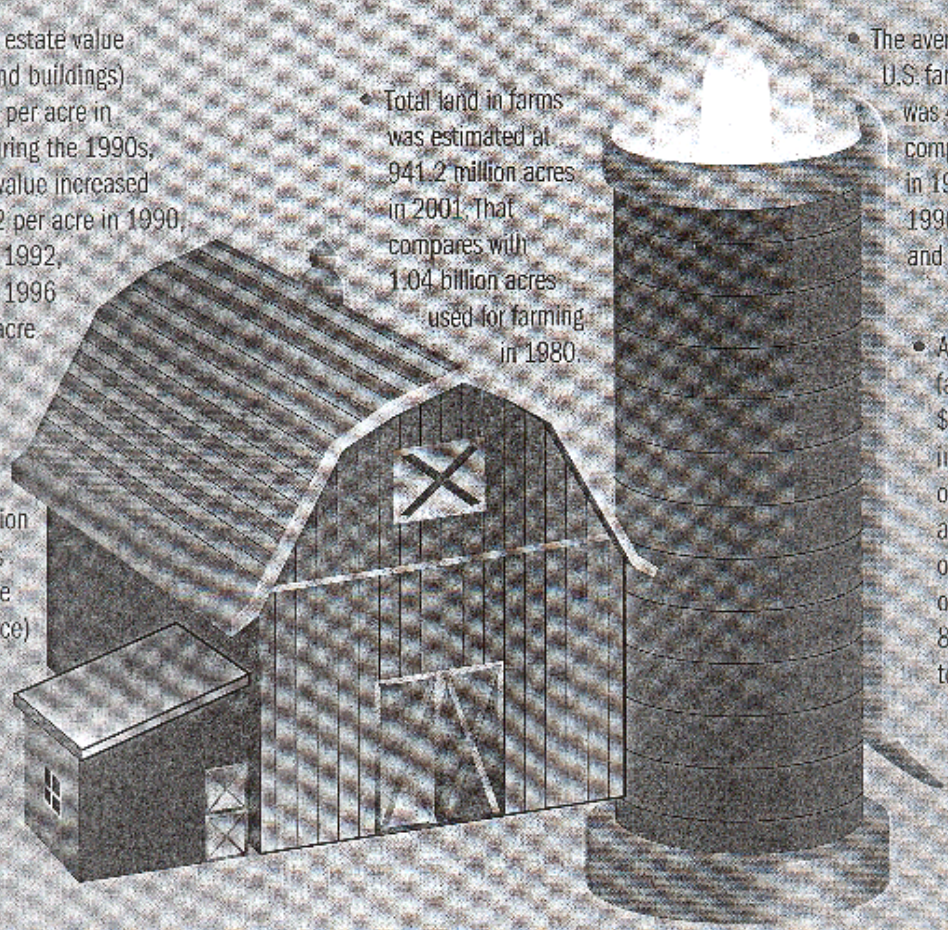


The U.S. FARM Landscape



In 1935, the number of farms in the United States peaked at 6.8 million. Today, there are 2.16 million farms dotting America's rural landscape. In 2001, Texas had the most farms (227,000), followed by Missouri (108,000), Iowa (93,000), Tennessee (91,000), California (88,000) and Kentucky (88,000).

- Average farm real estate value (including land and buildings) averaged \$1,130 per acre in January 2001. During the 1990s, the U.S. average value increased 65 percent (\$682 per acre in 1990, \$727 per acre in 1992, \$887 per acre in 1996 and \$1,020 per acre in 1999).
- Total land in farms was estimated at 941.2 million acres in 2001. That compares with 1.04 billion acres used for farming in 1980.
- The average size of U.S. farms in 2001 was 436 acres, compared to 432 in 1999, 438 in 1996, 464 in 1992 and 451 in 1987.
- A total of 349,180 farms had sales of \$100,000 or more in 2001. Those operations accounted for only 16 percent of all farms, but 87 percent of total sales.
- More than 24 million American workers (17 percent of the total U.S. workforce) produce, process and sell the nation's food and fiber.



New Mexico Agriculture**Ag Facts For Teachers And Students**

Teachers and students take this quiz together. Many of these facts are not well known, but everyone should make their best guess. Afterwards discuss the answers.

1. One farmer grows enough food and fiber for _____ people.
A. 200 B. 128 C. 57
2. What percent of our population are farmers and ranchers?
A. 20% B. 2% C. 37%
3. Agriculture involves the growing and harvesting of food, fiber, and _____.
A. oil B. metals C. forests
4. Out of every 100 Americans about how many work in production farming?
A. 2 B. 5 C. 10
5. An acre of land is about the size of a _____.
A. house B. gym C. football field
6. On the average, how many acres does it take to provide food and clothing for one American for one year?
A. 22 B. 1 C. 4 1/2
7. What foreign country purchases the most agricultural products from the United States?
A. Japan B. Mexico C. Russia
8. A large red delicious apple costs about \$.59 in the United States. What would a large Japanese apple cost in Japan?
A. \$.50 B. \$2.00 C. \$1.00
9. How many quarts of milk does an average dairy cow produce in her lifetime?
A. 5,000 quarts B. 32,000 quarts C. 50,000 quarts
10. Farmers and ranchers provide food, water and habitat for _____ of the nation's wildlife.
A. 10% B. 40% C. 75%
11. What is New Mexico's number one agricultural cash product?
A. pecans B. onions C. beef
12. There are over _____ people employed directly and indirectly in New Mexico Agriculture industry.
A. 11,000 B. 93,800 C. 24,950
13. The only industry people must have in order to survive is
A. computers B. agriculture C. automobile manufacturing

NAME _____

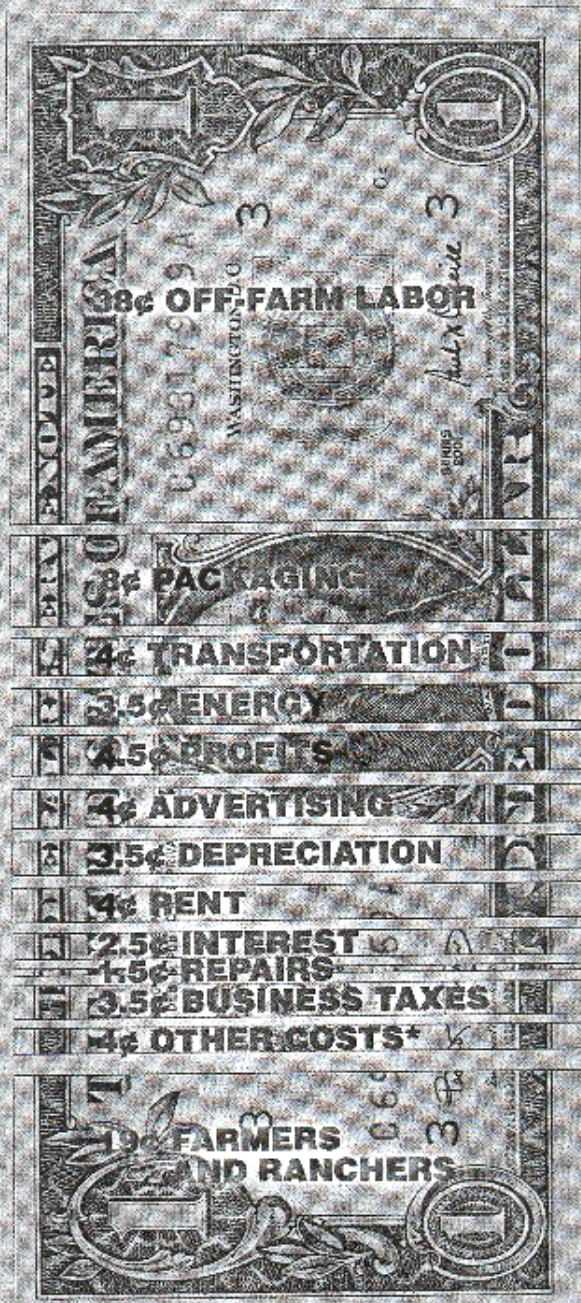
1. One American farmer grows enough food each year to feed and clothe how many people?
A. one
B. 22
C. 128
D. 250
2. A large tractor used by the American farmer may cost as much as how many new small cars?
A. two
B. five
C. eight
D. four cars and a dirt bike
3. One acre of land is about the same size as a
A. large swimming pool
B. football field
C. giant pizza
D. tennis court
4. How long does it take a newborn calf to become full grown?
A. 18 months
B. 5 years
C. 2 years
D. 18 years
5. An average fully grown apple tree will produce apples for about how many pies every year?
A. 25
B. 2250
C. 225
D. I'm too busy eating pie to care
6. A single chicken lays how many eggs per year?
A. 365 1/2
B. 100
C. 420
D. 240
7. Which crop in the United States takes up more land than any other?
A. wheat
B. corn
C. spaghetti
D. cotton
8. One dairy cow produces how many glasses of milk daily?
A. 150
B. chocolate or white
C. 72
D. 12
9. To reach a market weight of 220 pounds, a pig must eat how many pounds of feed?
A. 220
B. 680
C. 1000
D. 100
10. A one year old sheep will produce how many pounds of wool?
A. 8 1/2
B. 4 1/2
C. 15 1/2
D. 72.25

Where Your Food Dollar Goes

OFF-FARM costs (marketing expenses associated with processing, wholesaling, distributing and retailing of food products) account for 81¢ of every food dollar you spend.



FARMERS and RANCHERS receive only 19¢ out of every dollar that you spend on food at home and away from home. In 1980 farmers received 31¢.



OFF-FARM
81¢
FARM
19¢

*OTHER COSTS include property taxes and insurance, accounting and professional services, promotion, bad debts, before tax profits and many miscellaneous items.

Hanging Around The Farm

Grade Level:	Primary
Economic Concept:	Specialization
Skills:	Math, Fine Motor
Time Frame:	One class session

The students will demonstrate their understanding that farms have become larger and more specialized over the past 30 years in the United States by constructing a mobile that shows the growth and specialization of American farms.

Vocabulary:

Food and fiber, specialization, farm workers, greater than and less than.

Materials:

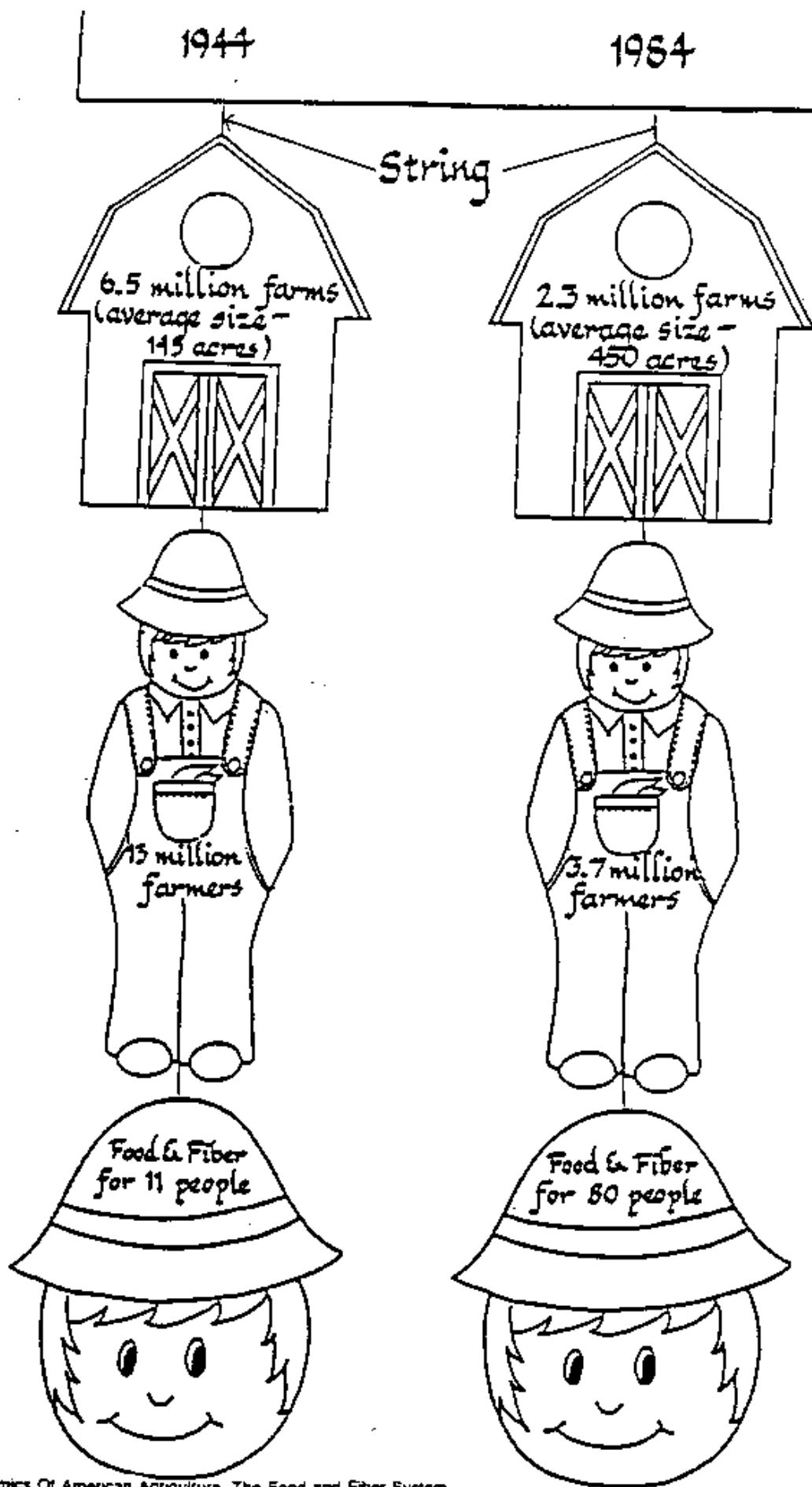
Ditto patterns (one set per student), scissors, glue, two colors of construction paper per student, string, hole punch.

Introduction:

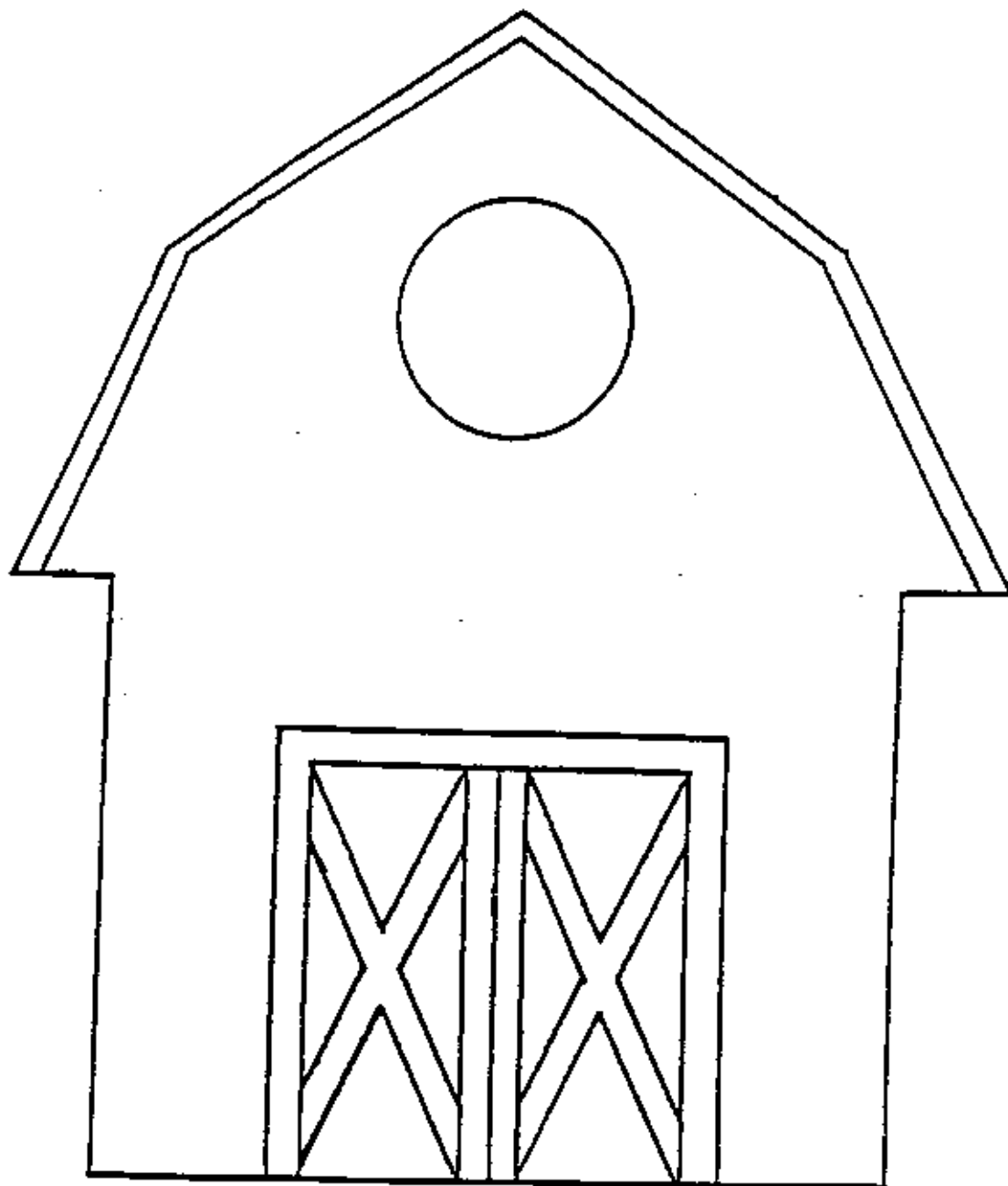
Discuss the term specialization with the class. This can be easily taught by assigning specific students to classroom chores for a period of time. Then have the students remember that people are not the only ones who can be specialized. Machinery and even farms can become specialized too. This makes the farms more efficient and provides for more work to be done quicker and with less labor. An example of this might be the big corporate farms that produce specific agricultural products such as the pineapple farms of Hawaii. Explain that because of this specialization, fewer farmers are producing more food and fiber on less acreage than farmers of years ago.

Procedures:

After the discussion, pass out the patterns, construction paper, glue, scissors, etc. As you guide the children in assembling each part of the mobile, discuss what each piece is representing, and label as shown in the teacher example. After completion, hang the mobiles around the room.

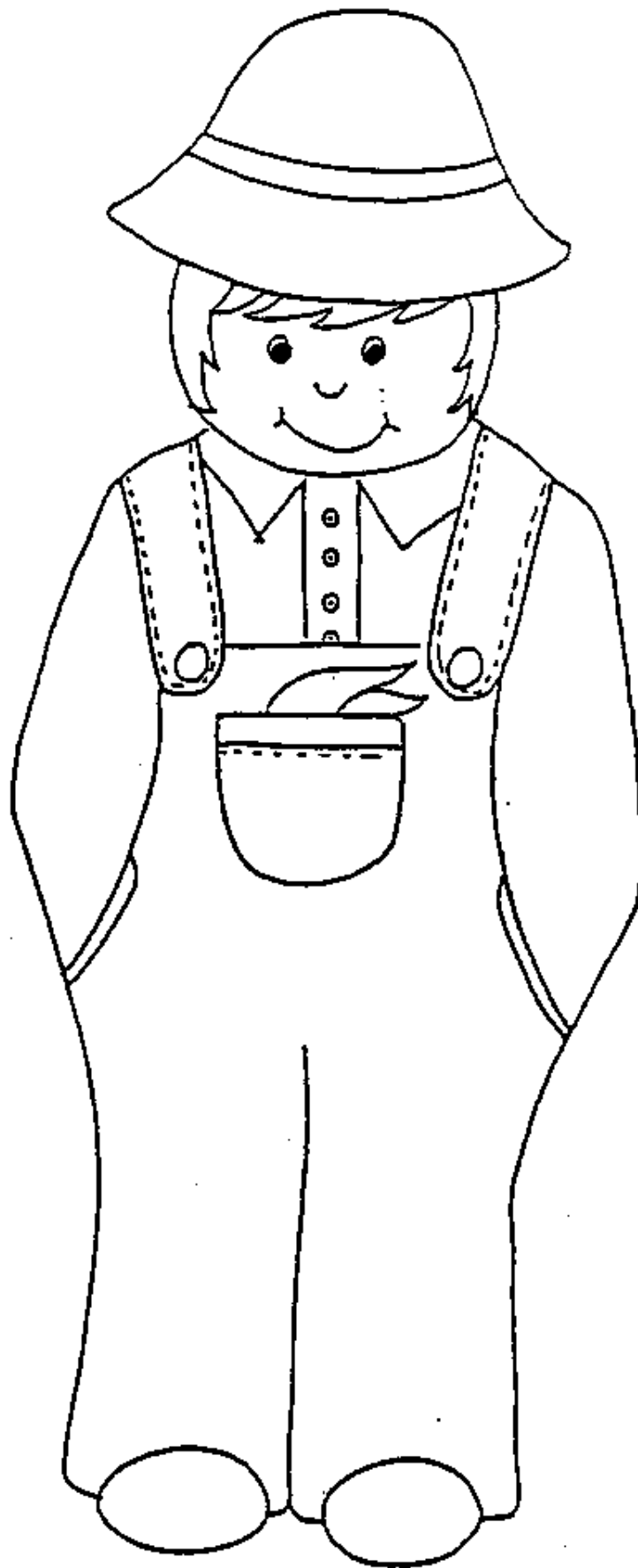


Teaching The Economics Of American Agriculture, The Food and Fiber System



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HENRY THE HARVESTER

Grade Level:	Primary
Economic Concepts:	Technology, Capital Resources
Skills:	Language Arts, Arts, Math
Time Frame:	Two class sessions

The students will demonstrate their understanding that machines have replaced people and animals in the production of agricultural products by:

- A. Discussing and completing handouts.
- B. Hearing a story and using the information learned in the story to compile a booklet illustrating it.

Vocabulary:

Machines, technology, millions, bar graph, harvest (cutting, threshing, gleaning of crops), tillage, planting machine, cultivator, plow, oxen, reaper, tractor.

Materials:

- A. Handouts, pencils, crayons.
- B. Story of "Henry the Harvester", construction paper book covers with "Henry the Harvester" on the front (picture included), flannel board figures if appropriate, crayons, pencils.

Procedures:

- A. 1. Review the lesson "Farm Tool Technology". Talk with the class about millions and be sure that they understand the concept of million as compared to the number five or ten. (If you feel the children are still not grasping this, try the extended activity # 1 in this lesson).
- 2. Distribute copies of the handout with the tractor and football goal on it. Read the material related to the size of an acre and a football field. Let the students time a

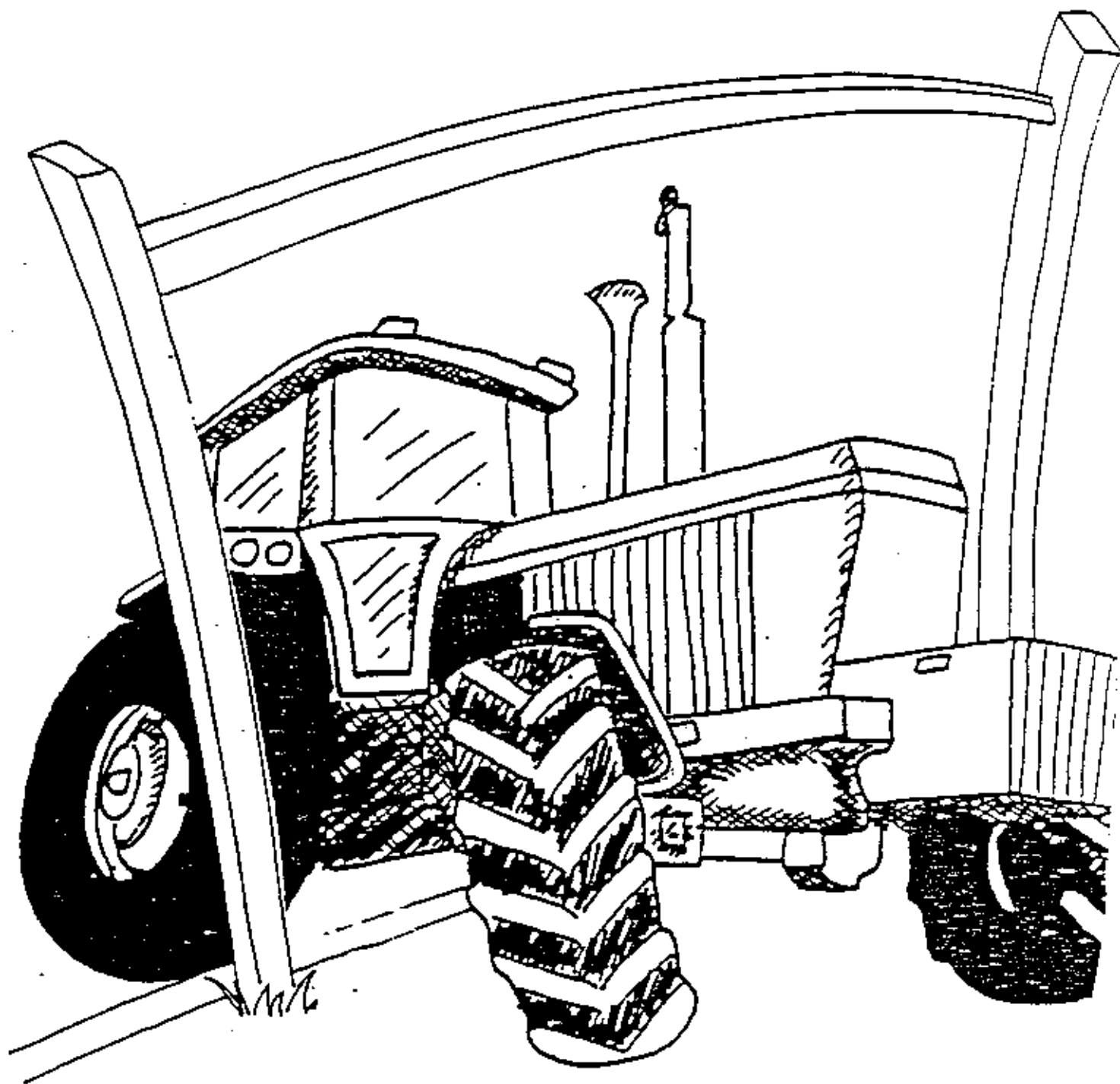
16 minute period by setting a timer. Compare this time segment to two school days' time to give the students a better understanding of the time difference between 14 hours and 16 minutes. Allow ample time for the children to discuss the worksheet and then direct them to color the tractor.

- B.
1. You might wish to use the illustrations provided to construct a flannel board if you are working with very young children.
 2. Begin the lesson by telling children that a long time ago, animals were used in the production of agricultural goods instead of the machines we use today. Ask them to think about how animals were used. List them on the chalkboard.
 3. After the class discussion, tell the children that you are going to read them a story about a big, modern-day machine named Henry. Then read the story out loud to the class. After you have done so, let the children retell the story in their own words.
 4. Distribute paper and ask students to take their crayons and illustrate the story they have just heard. Show a picture of a harvesting machine, if available. After they finish, illustrate a cover with the picture of Henry the Harvester that is included in this lesson on construction paper and let the children paste their story inside.

Extended Activities:

1. To strengthen the children's understanding of a million, count 10,000 dried beans and glue them to poster boards in sets of 1,000. Measure the poster boards and multiply by 100 to see how many feet of poster board it would take to display a million beans. Measure this footage somewhere in your building. This will give the children a feel for a million.
2. Have a resource person from a farm implement company attend your sessions. The resource person might bring a tractor or something the children can climb on.

An acre of the farmer's land is nearly the size of a football field. With a larger tractor and plow, a farmer can plow an acre the size of a football in about 16 minutes.



HENRY THE HARVESTER

Hi! My name is Henry the Harvester. I am a big machine that gathers most of the farm crops that you and your family use. I have the important job of cutting, threshing, and cleaning the crops. I really stay busy during the harvesting season.

I live on this big farm with my friends – Tommy Tillage Machine, Paul Planting Machine, and Carl Cultivator. They help the farmer by planting the seeds and cultivating the soil.

My friends and I feel very lucky to be a part of the great world of farming. But according to my great-grandfather, machines like us haven't always been around.

My great-grandfather told me what farming was like before we were invented. Things were very, very different then.

For instance, long before we were born, the first farm tool was a wooden stick that was used to stir the soil before planting the seeds.

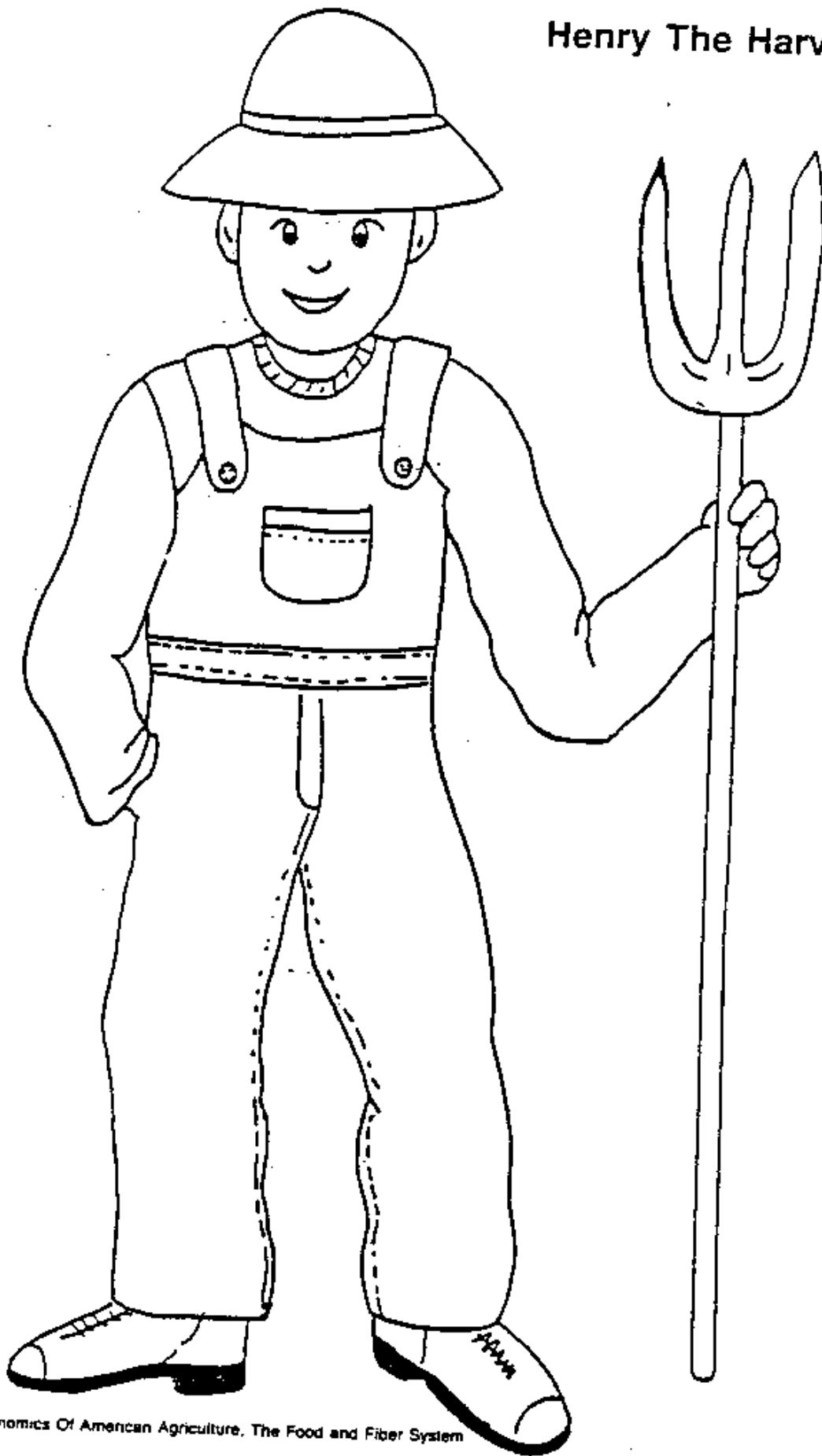
Later, when there were more people that needed to be fed, the wooden stick was replaced by a crude wooden plow that was pulled by a team of oxen. It sure must have taken a long time to harvest the crops and plant them in those days.

Along came a very bright, ambitious man named Cyrus McCormick. He invented a machine that he called a reaper. With this invention, farmers could harvest larger crops.

Until the early part of the 1900's, horses were still used in farm production. But after the invention of the tractor, these animals were replaced by this machinery. When the farmers began using tractors, production increased immensely.

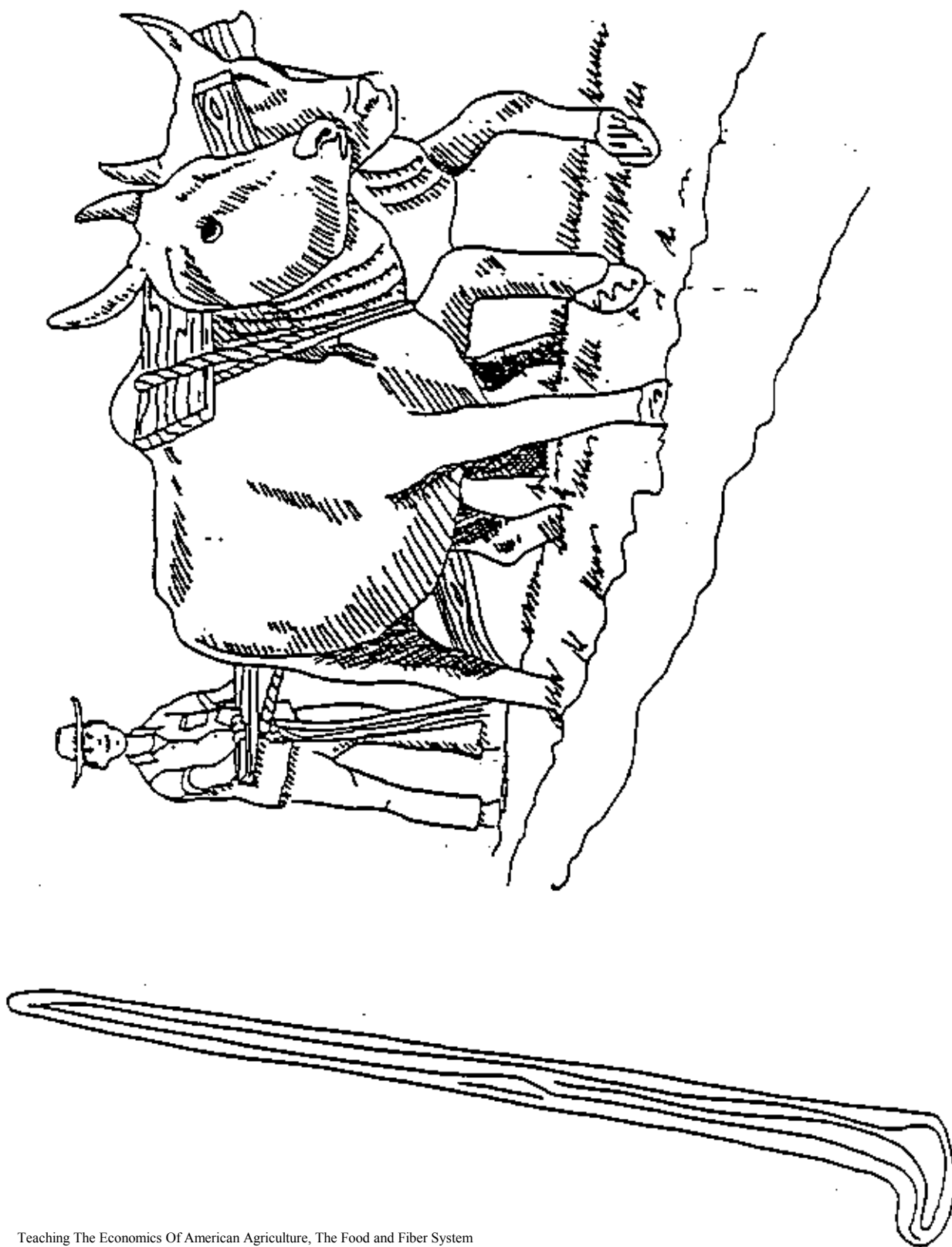
Today's farmers use me and my friends. We make it possible to feed and clothe more people than farmers did in my great-grandfather's day. I'm happy that I'm so important to the farmer!

Henry The Harvester

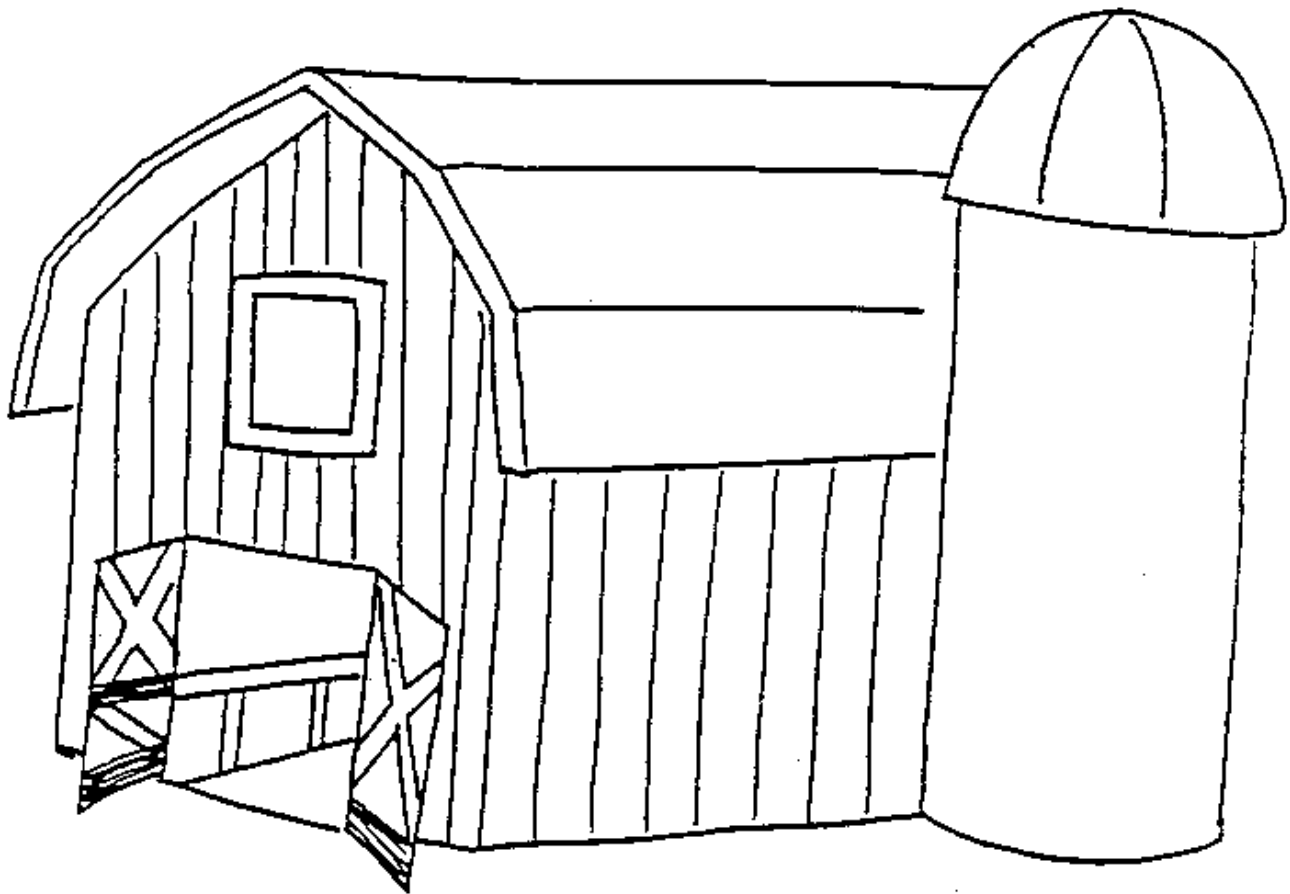
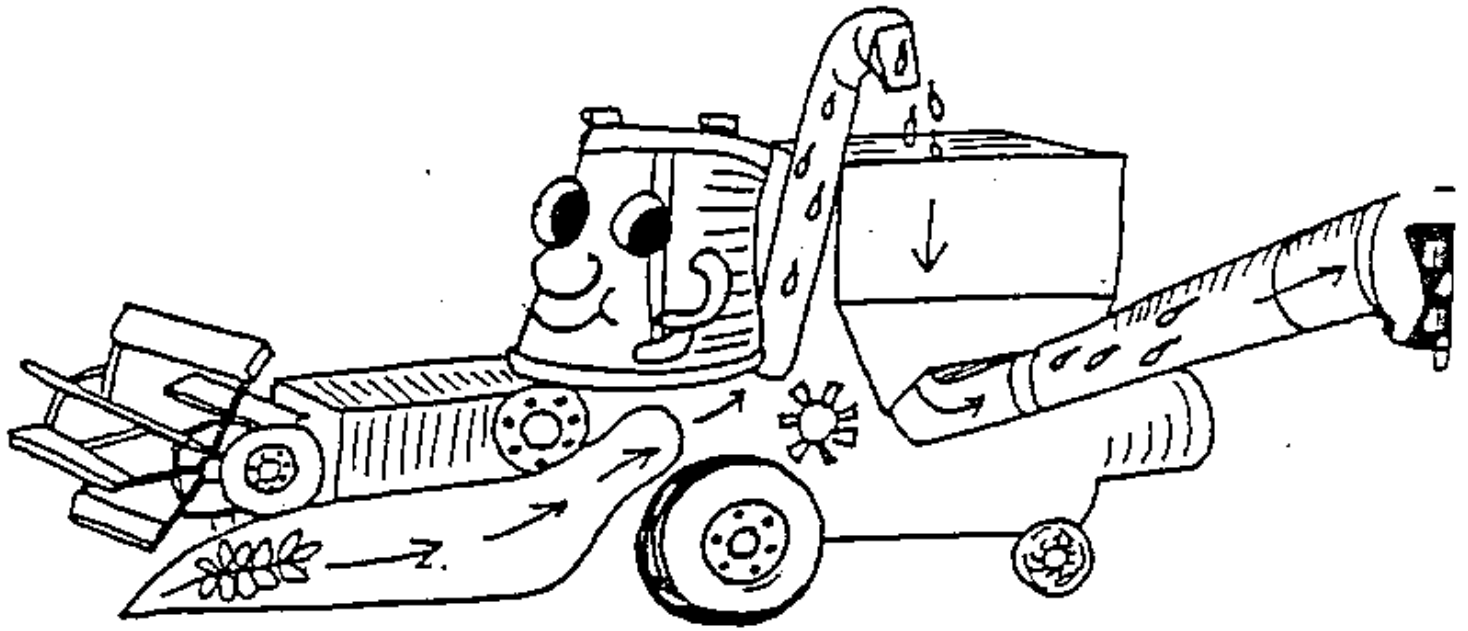


Teaching The Economics Of American Agriculture, The Food and Fiber System

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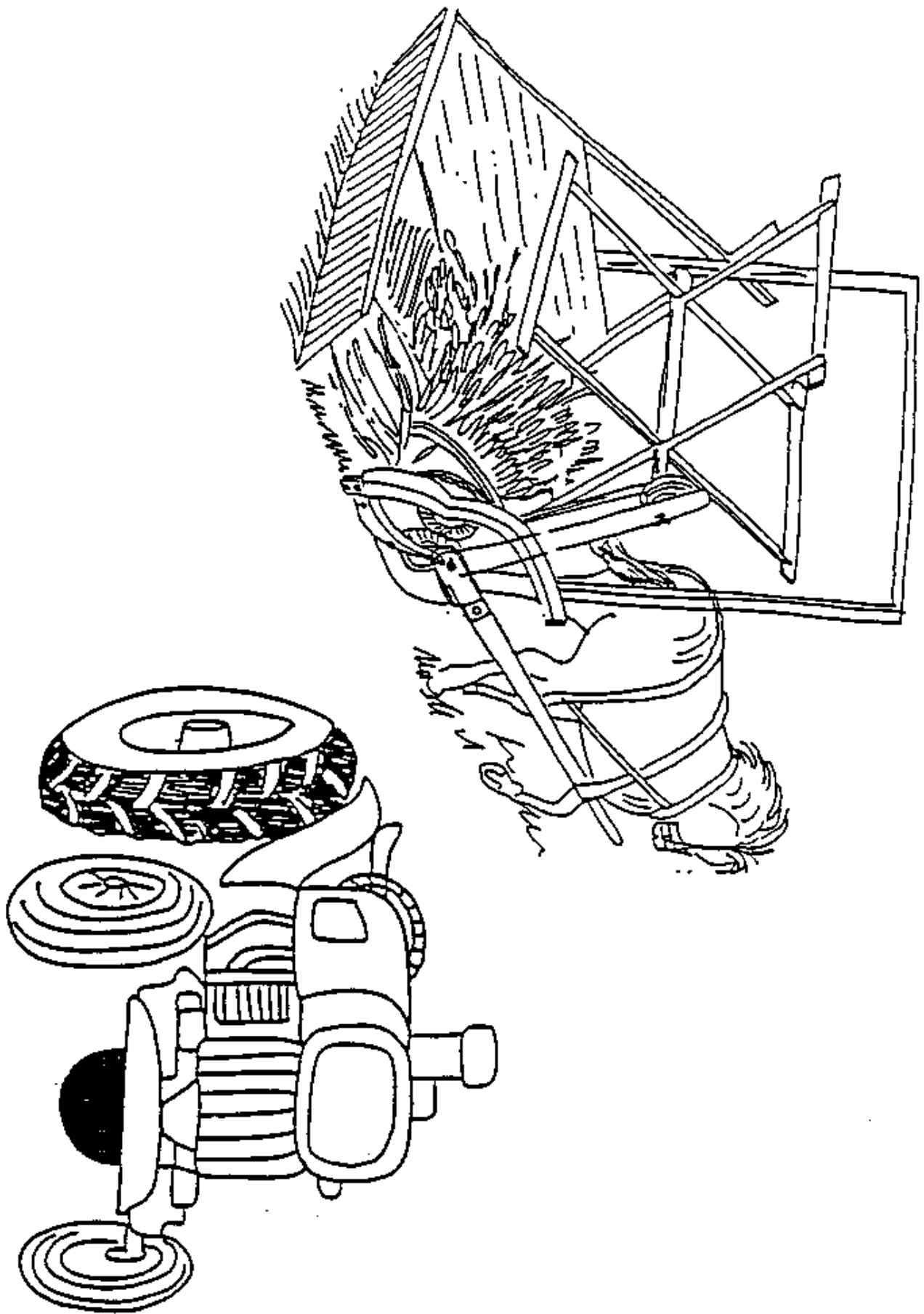


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THE VOCABULARY GAME "MACHINERY"

This game is designed as a means of independent study by students alone or in small groups. If a child is unfamiliar with the topic of the game, he/she may have to do some research in agricultural books, encyclopedias, or farm journals and magazines.

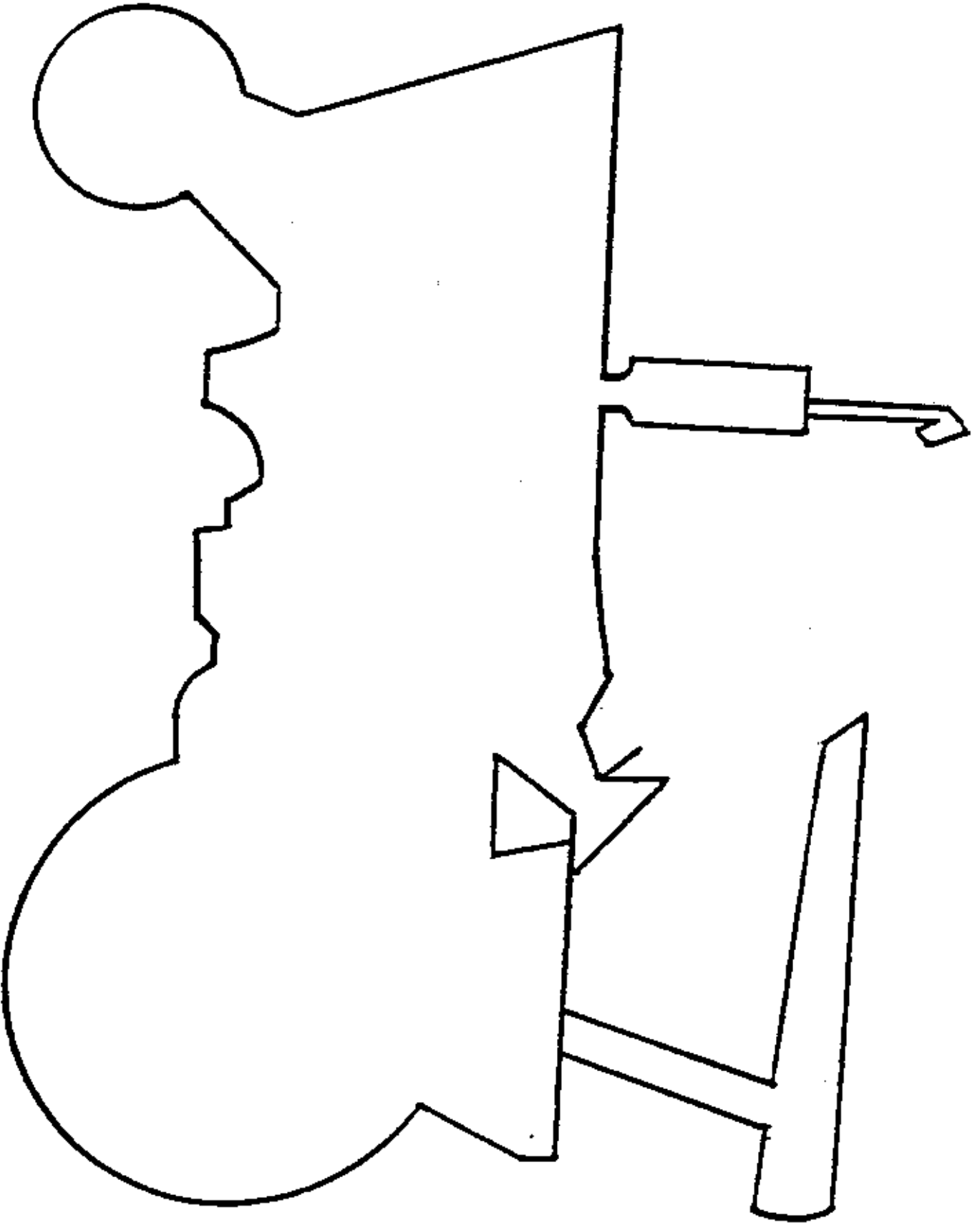
Game Construction:

1. Reproduce the two pages (handouts).
2. Use the illustrated vocabulary page as the gameboard. Mount it on colored construction paper and instruct the students to color the illustration of the tractor.
3. Cut apart the reproduced definition cards (20 squares) on handout. Mount each square on colored construction paper. Save the original copy as an answer key.
4. Put an envelope on the back of each gameboard for storage of the definition cards.
5. Gameboards and definition cards may be laminated or covered with clear contact paper for longer lasting wear.

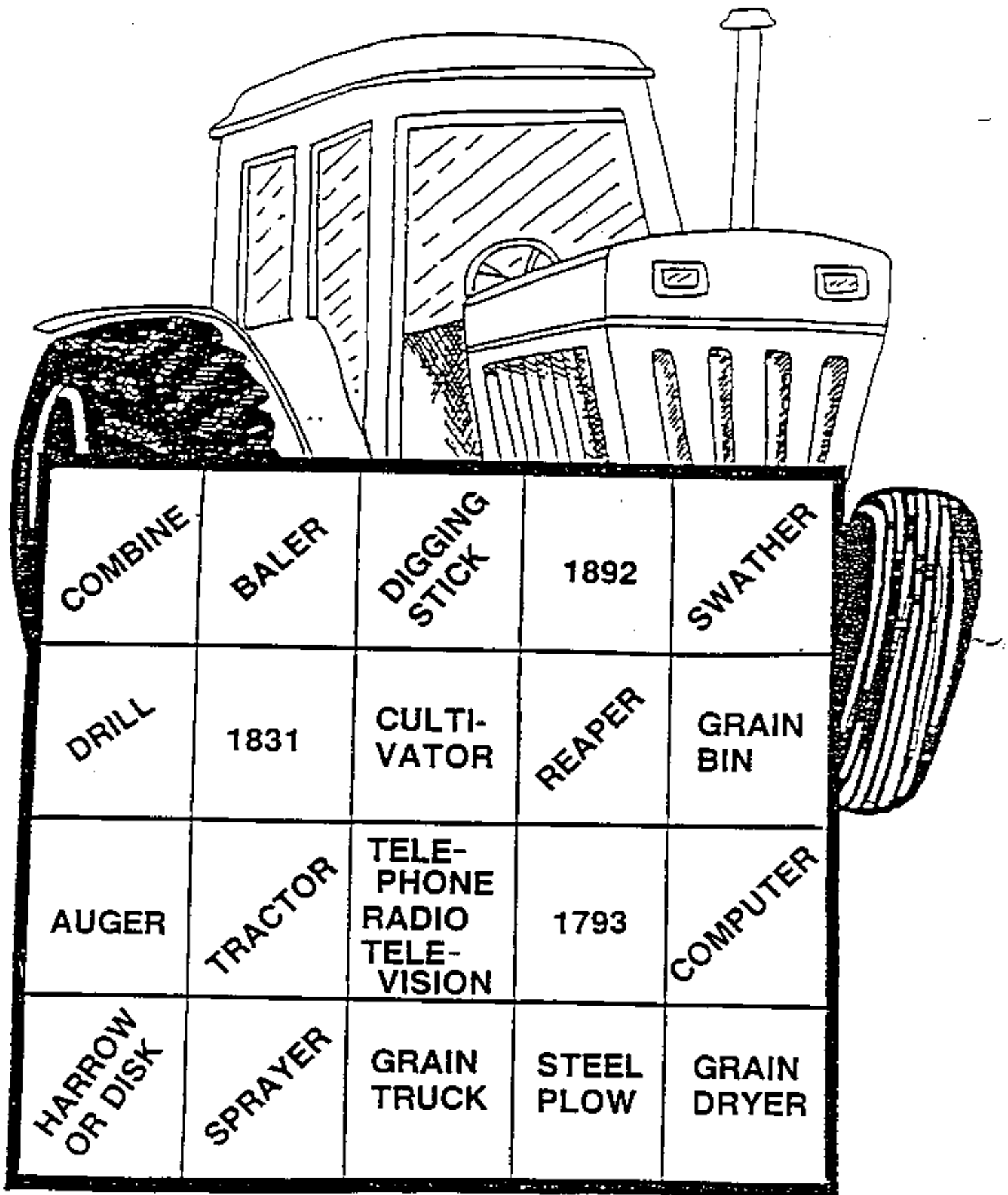
Game directions:

1. Each child needs one game board and the corresponding definition cards, stacked face down in front of him/her.
2. Decide who will begin by rolling a die.
3. Draw a definition card from the stack. Read the definition and match it correctly with the vocabulary word by placing the definition card on the proper square of the game board.
4. Players take their turns in the order established at the beginning of the game.
5. If a student does not know the correct answer, the definition card is placed at the bottom of the stack and his/her turn is over.
6. The winner is the first player to completely cover his/her game board, or the one with the most squares covered at the end of the designated time.

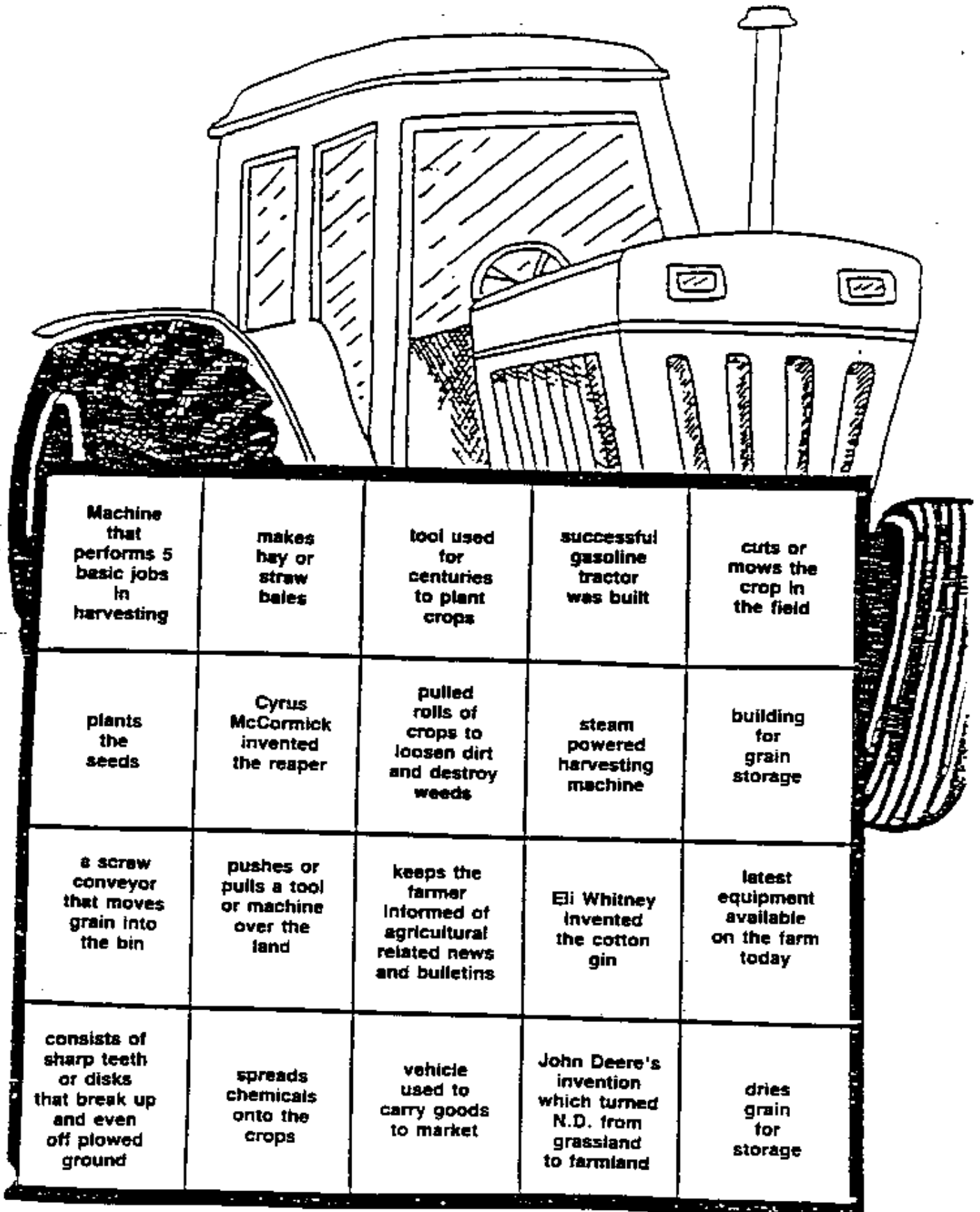
MACHINERY TASK CARD



Machinery



Machinery (Definition Card)

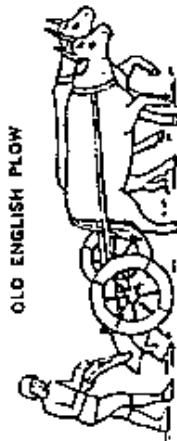


FARM EQUIPMENT CHANGES

Technology has improved so much that one American Farmer/Rancher can provide food for 128 people (94 in U. S. and 34 abroad). With more efficient equipment a farmer can do more work in one hour than a pioneer farmer could do in one week!



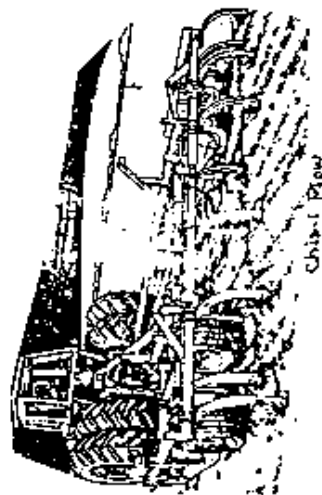
EARLY PLOW — ANCIENT ASIA



OLD ENGLISH PLOW



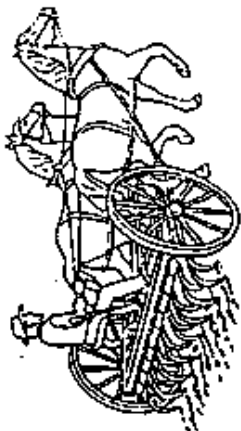
SULKY PLOW — ABOUT 1881



Chisel Plow



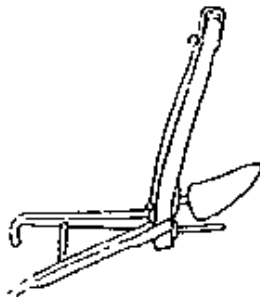
WOOD-BAR HARROW



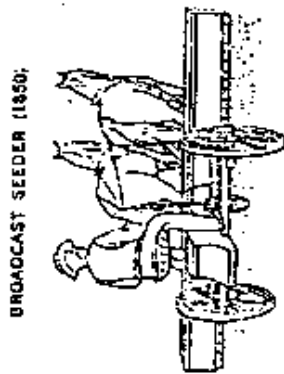
SPRING-TOOTH HARROW



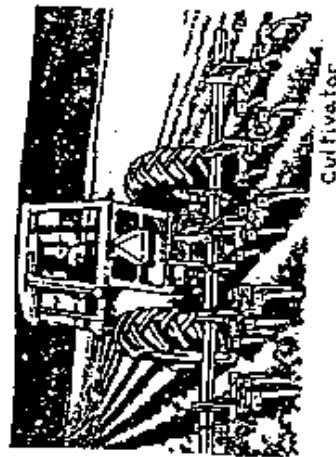
Harrow



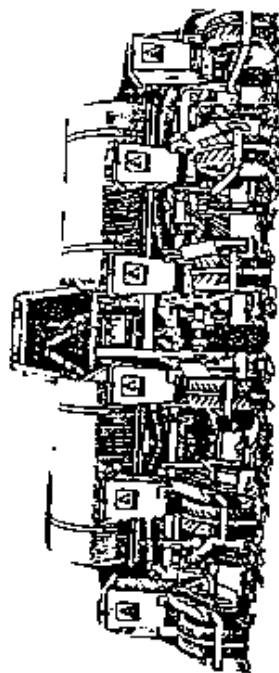
HORSE-HOE (1820)



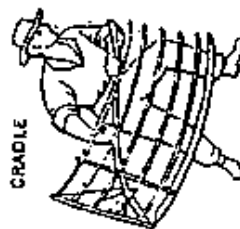
BROADCAST SEEDER (1850)



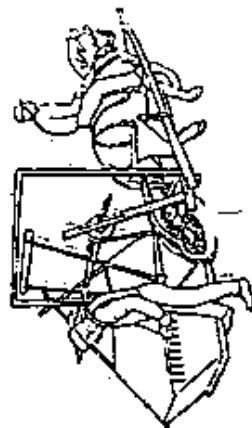
Cultivator



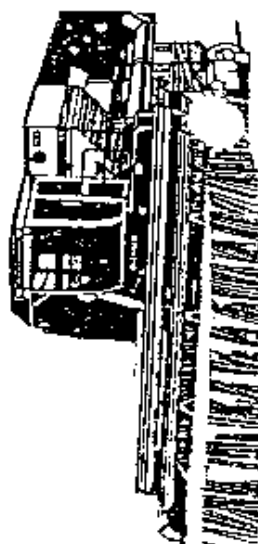
Seeder



CRADLE



MCCORMICK'S REAPER (1831)



PREHISTORIC SCYTH

THEN AND NOW

Farm practices and equipment have changed over the years. Agriculture has become more efficient and more complex. One farmer today can do more work in an hour, because of machines, than one pioneer farmer could do in a week.

Cut out pictures from magazines of what is currently used. Paste the pictures in the blanks provided.

PIONEER FARMER

MODERN FARMER



Scythe



Hoe

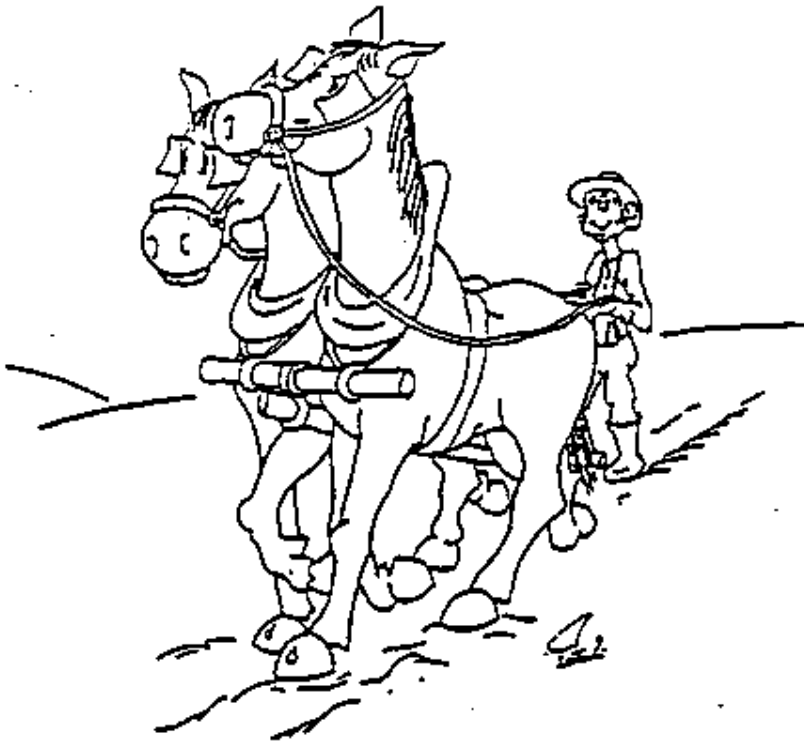
Combine

Cultivator

Objective

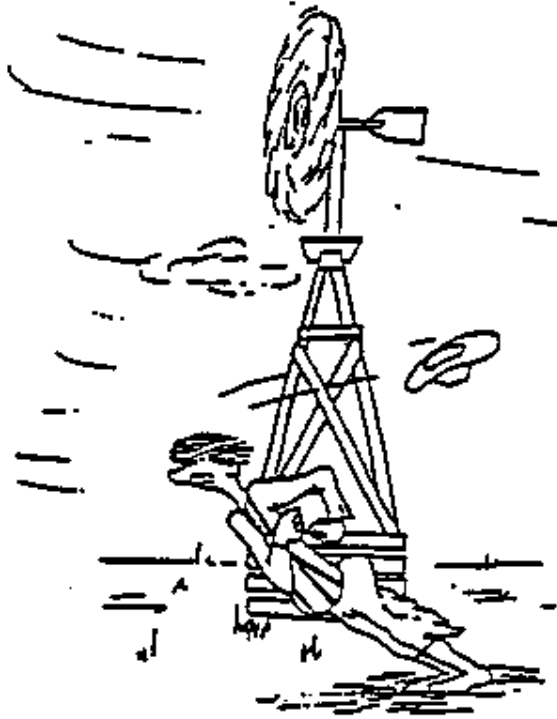
To understand the relationship of farming practices and equipment of pioneer agriculture and modern machinery.

PIONEER FARMER



Team of Horses

MODERN FARMER



Windmill

Tractor

Electricity

FARMS – PAST AND PRESENT

Grade Level: Primary

Economic Concepts: Capital Resources, Technology, Interdependence

Skills: Language Art, Critical Thinking

Time Frame: Four class sessions

The students will demonstrate increased understanding that jobs in the agricultural industry have changed because of research and development by:

- A. Comparing pictures of farms now and long ago.
- B. Recognizing the fact that a farmer's work has changed due to the equipment farmers now use.
- C. Reading, discussing, and illustrating a booklet on how farming has changed.

Vocabulary:

Capital resources, interdependence, technology, equipment, cultivate, tractor, fertilize, herbicide, insecticide, research.

Materials:

Pictures of farms and farm equipment, a dittoed booklet for each child.

Note to Teacher: Two types of farm booklets are included in the handouts. One is pre-illustrated, the other is blank. Older, more capable children might do their own research and illustrate their books themselves.

Procedures:

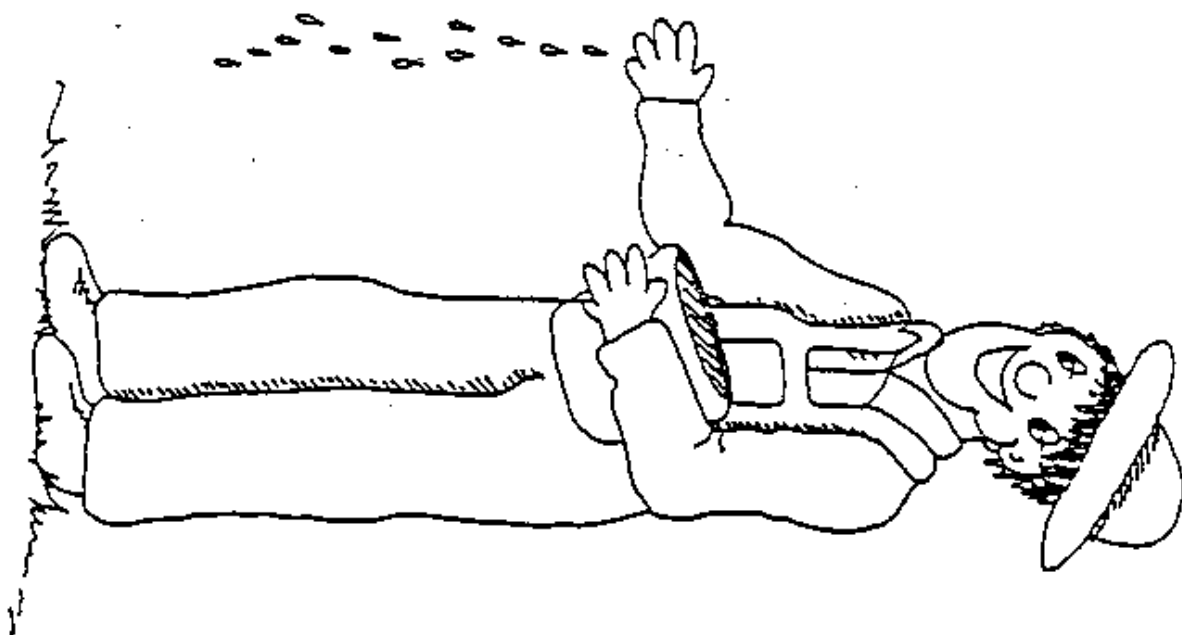
- A.
 1. Display the farm pictures of long ago. Allow the students to observe the size of the farm and the type of equipment used. Guide the discussion so that the students will realize that farmers of long ago worked very hard. They did not accomplish as much as farmers do today because they had to do the work by hand. A man with a team of horses would cultivate little more than 8 acres of corn a day (use booklet, pages 1,2, and 3).
 2. Display the farm pictures of today. Allow the students to compare the two sets of pictures (use booklet, page 4).

- B. 1. Display pictures of farm equipment (capital resources). Discuss how this equipment enables farmers to do their work faster and better. They can farm larger pieces of land in a shorter amount of time. Today farmers use tractors and cultivators, which allow them to cultivate 45 acres in one day. A farmer could pick 2 acres of corn in a day. With the help of a mechanical picker, a farmer can harvest 18 acres of corn in a day (use booklet, pages 5 and 6).
2. Fertilizer has increased crop production by replacing nutrients in the soil. The students can collect fertilizer advertisements if they want to learn more ways that it helps crops (use booklet, page 7).
3. Introduce the terms herbicides and insecticides. Herbicides are chemicals which kill weeds; insecticides are chemicals which kill insects. Contact your county extension agent if the students want to learn more about the pests which destroy crops in your area (use booklet, page 8).
- C. 1. Research is continually being done to improve products (use booklet, pages 9 and 10).
2. Guide a discussion so that the students will realize that research and development are being done in all phases of agriculture. As farmers increase their production, they depend on other people to transport their products to market. They also depend on the processing of plants to find new ways to use the products they produce (use booklet).

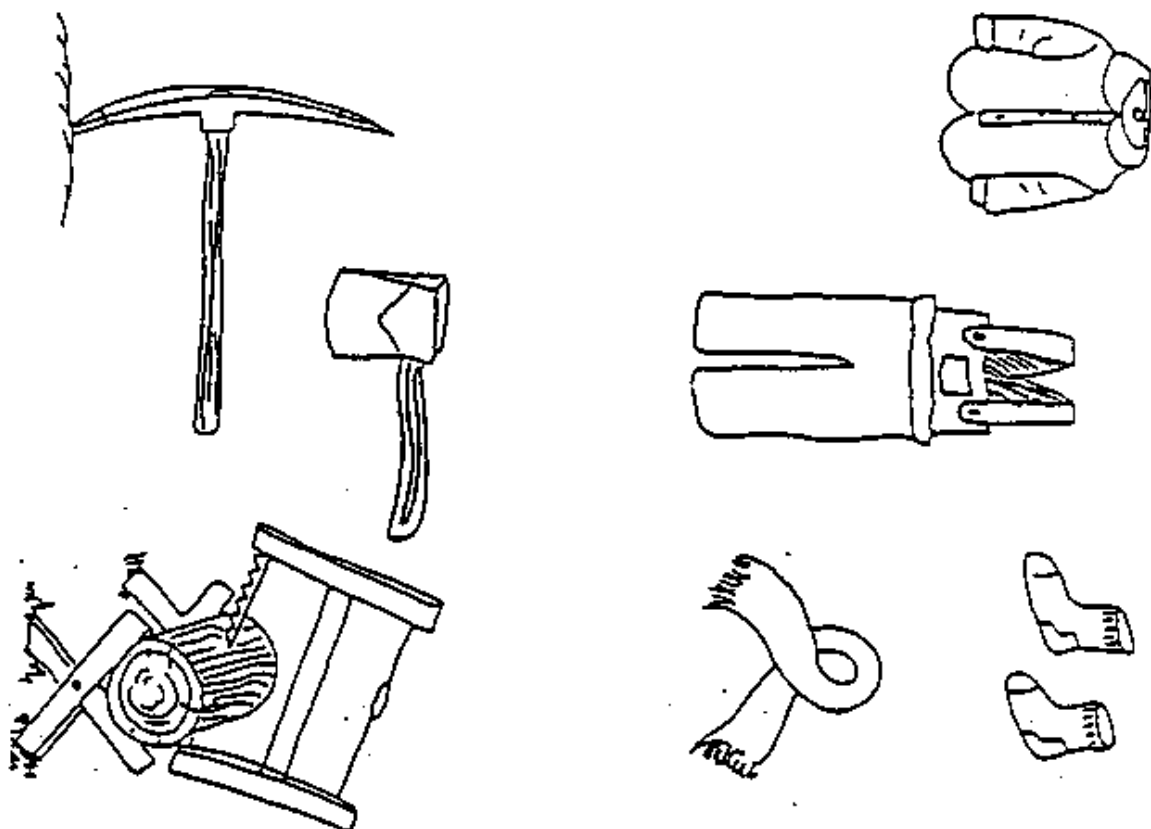
FARMING IS CHANGING

BY _____

I am a farmer. I want to tell you how farming has changed. A long time ago most of the people in our country lived on small farms. They worked hard and did almost everything for themselves.

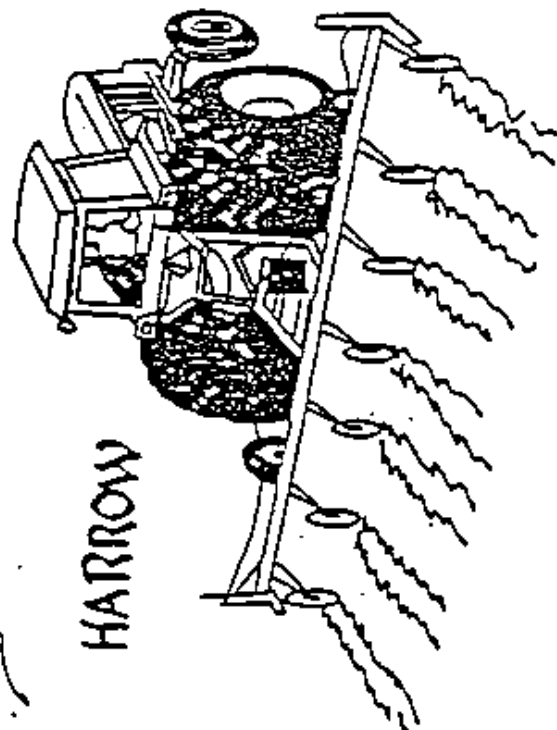
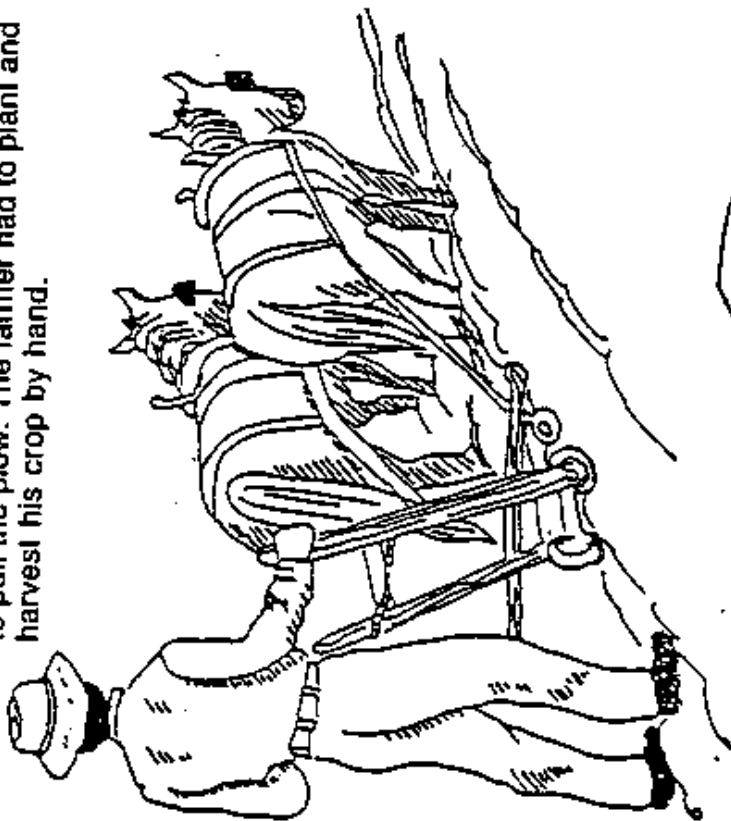


They made their own clothes, tools, and houses.



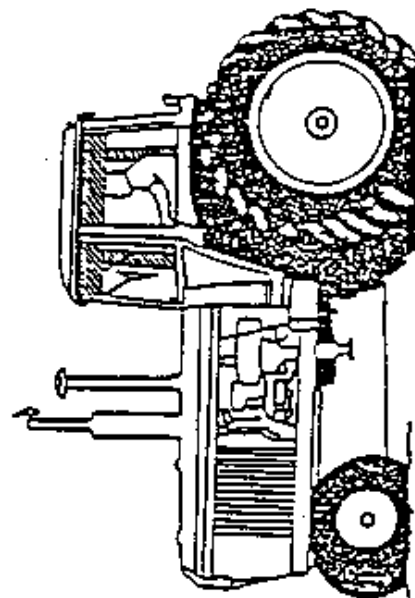
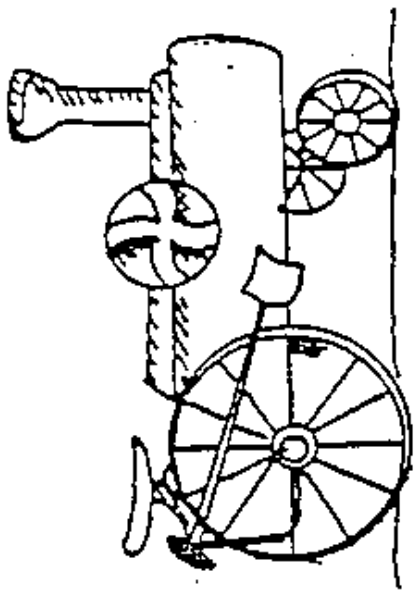
Teaching The Economics Of American Agriculture. The Food and Fiber System

There are four ways that farmers can produce more crops. Let's look at how they do it. One way to increase crop production is to use machines. Many years ago it took farmers days to plow their land as they used horses to pull the plow. The farmer had to plant and harvest his crop by hand.



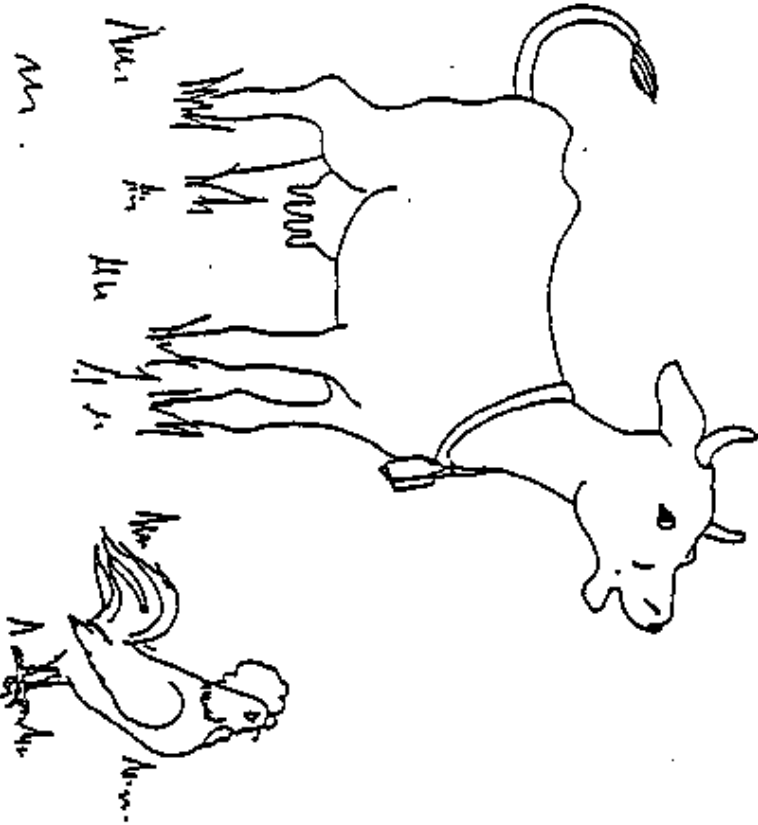
HARROW

Today's farmers use large pieces of equipment (capital resources) to help them do their work faster and better.



TRACTOR

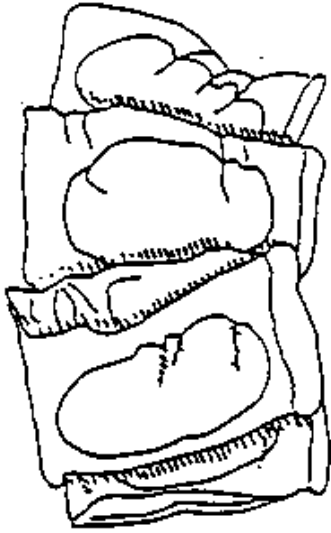
Farmers grew their own food. They planted vegetables and fruits and raised cows, pigs, and chickens. They were often able to grow only enough food to feed their own family. If they had more food than they needed, they would sell the extra food. They used the money to buy things that they could not make.



Farming has changed over the years because we have people who study ways to make farming better. Farmers want to produce more food and fiber for the people in our country and around the world.

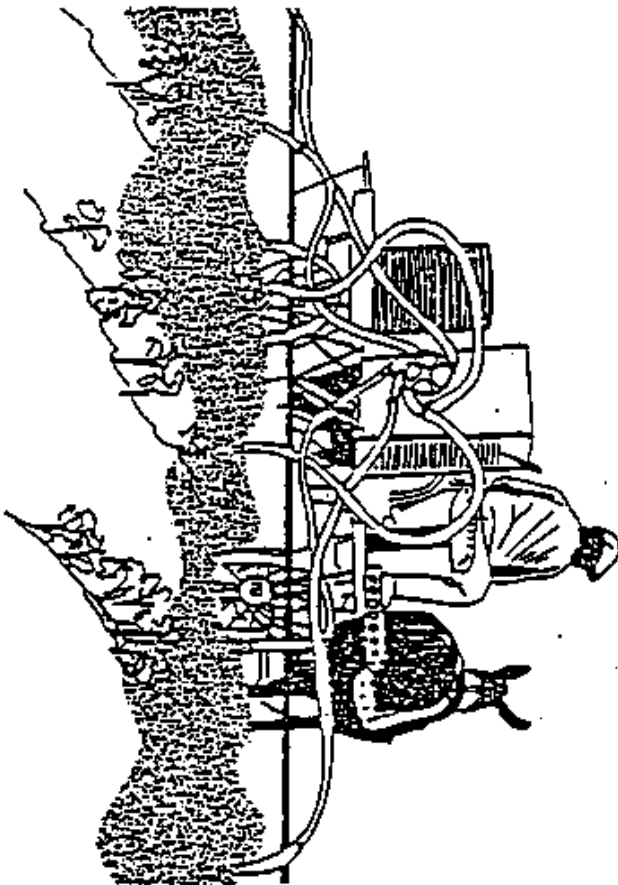


Farmers put fertilizers in the soil to make their crops grow bigger and stronger. People have done research so that the farmers know just how much fertilizer to use on their crops.



Farmers use insecticides to kill the insects that damage their crops. Someone had to do a lot of research to know what to use to kill the different types of insects.

Farmers use herbicides to kill the weeds that grow in their fields with the crops.



Teaching The Economics Of American Agriculture, The Food and Fiber System

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People have done research so that they could develop plants which are healthier.

Seeds have been developed which will make a crop easier to harvest. Soybeans used to shatter when they were harvested. Now seeds have been developed so that they won't shatter as soon as the machine touches them.

You can buy pecans with thin or thick shells.



Tomatoes have been studied. Some tomatoes are grown with thick skins; some tomatoes are large while others are small; and some tomatoes are grown which do not have as much acid as other tomatoes.



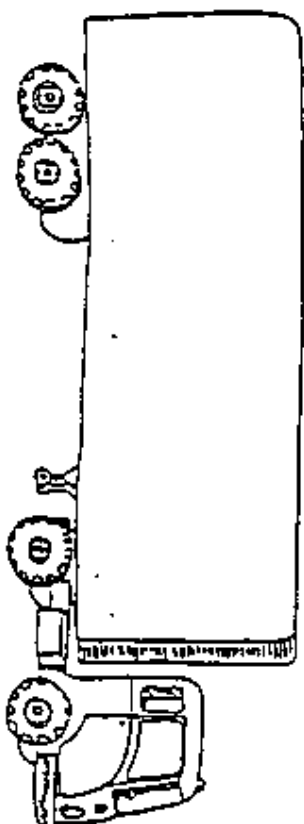
Peaches were bred so that they have different maturity dates. This gives you a longer peach season.



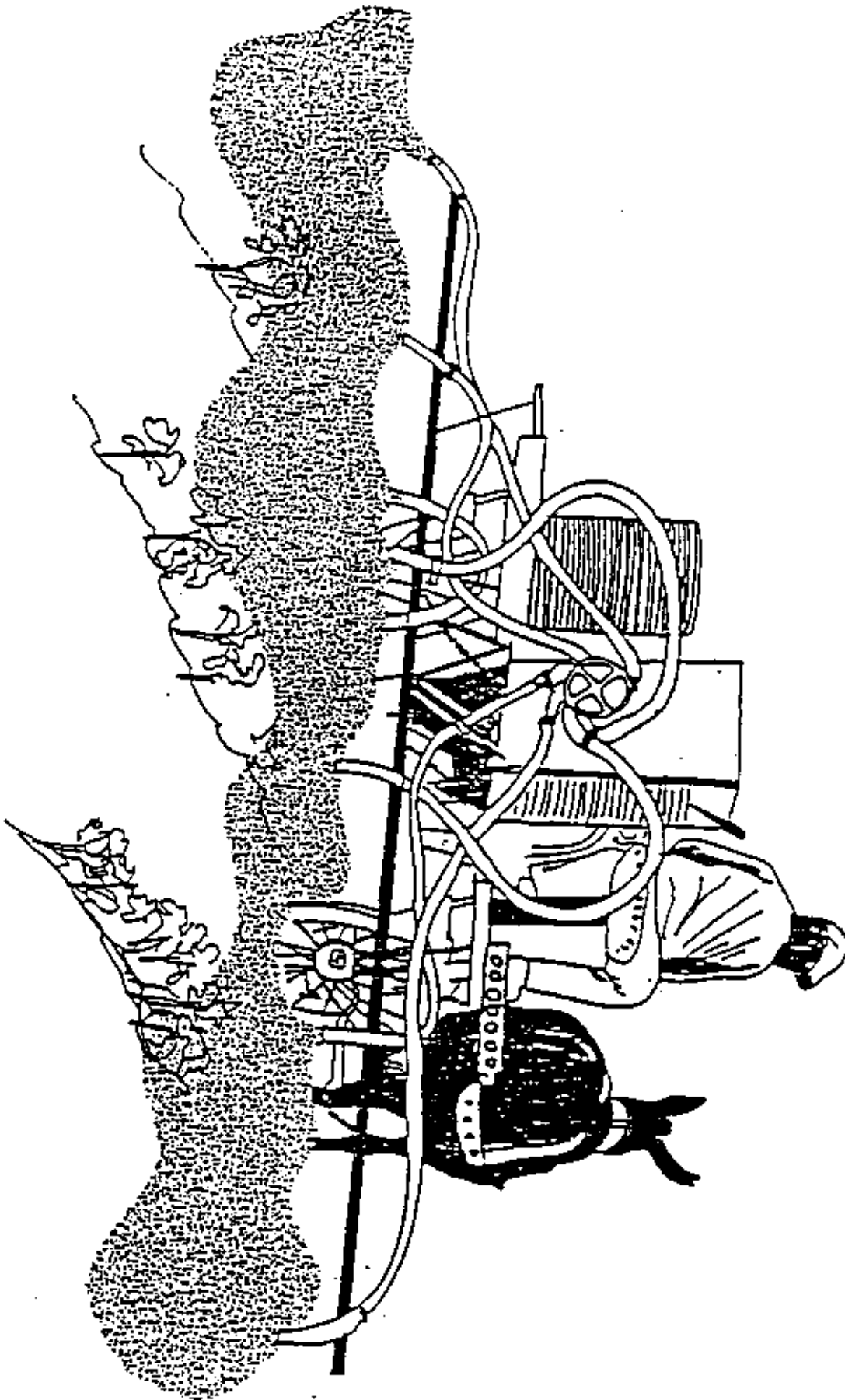
Corn is grown for different purposes for feed, corn, seed corn, and popcorn.

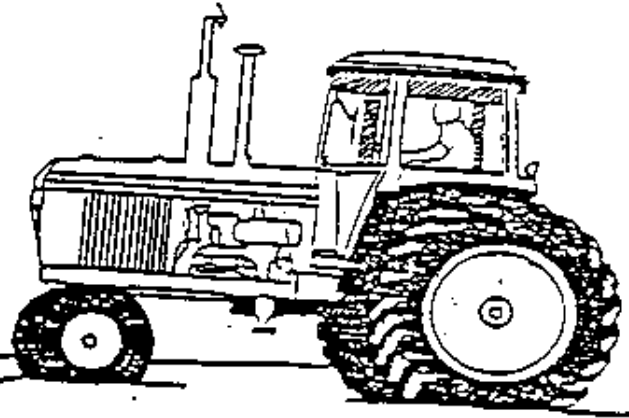
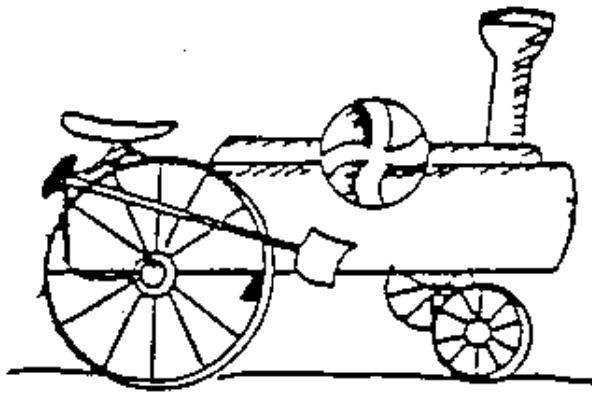


People also study how our food is transported to the market. Refrigerated trucks help keep our food fresh while it is being delivered. A long time ago people delivered food in wagons pulled by horses.

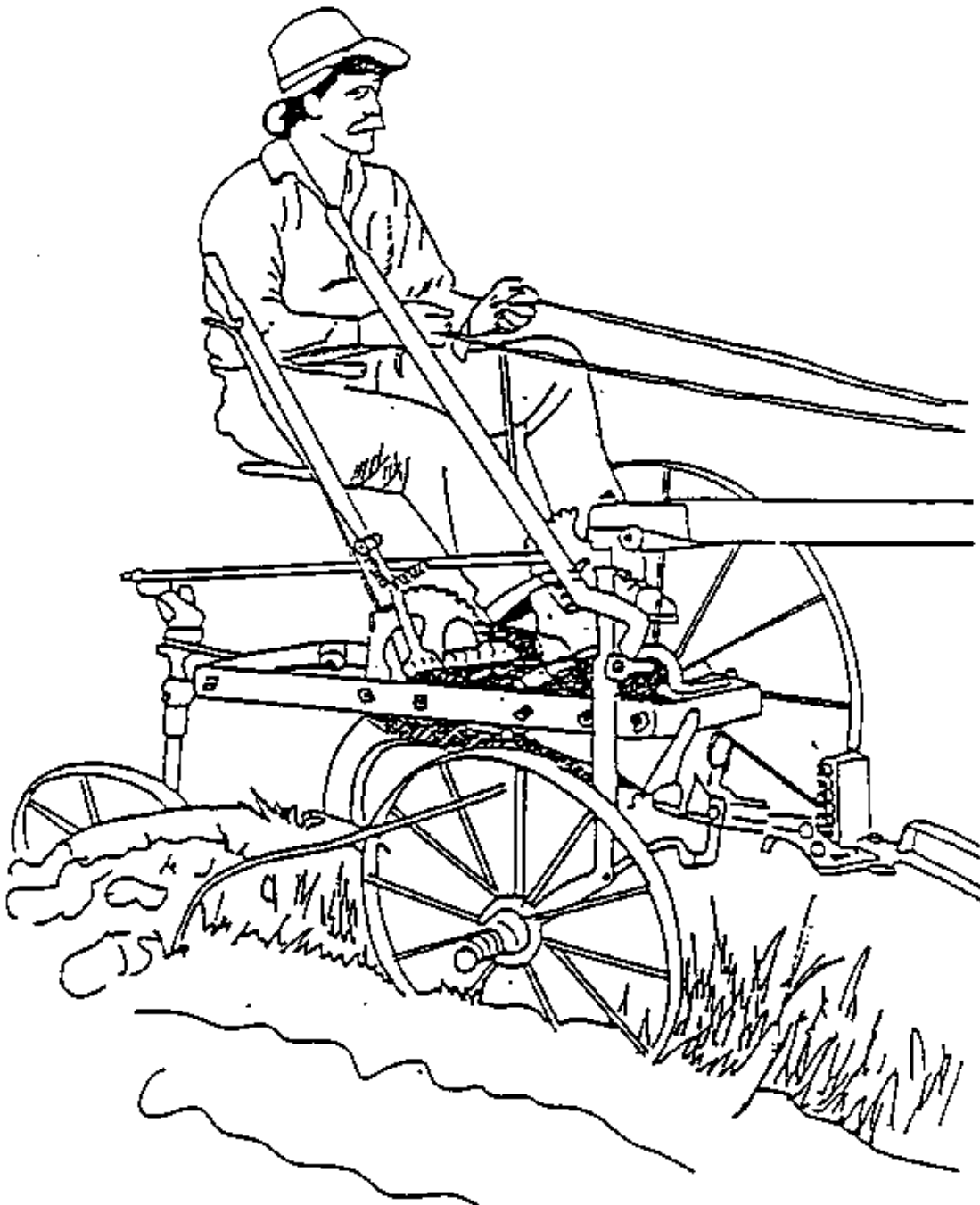


Some people study how to process our food. They want to give you a variety of ways to buy food.

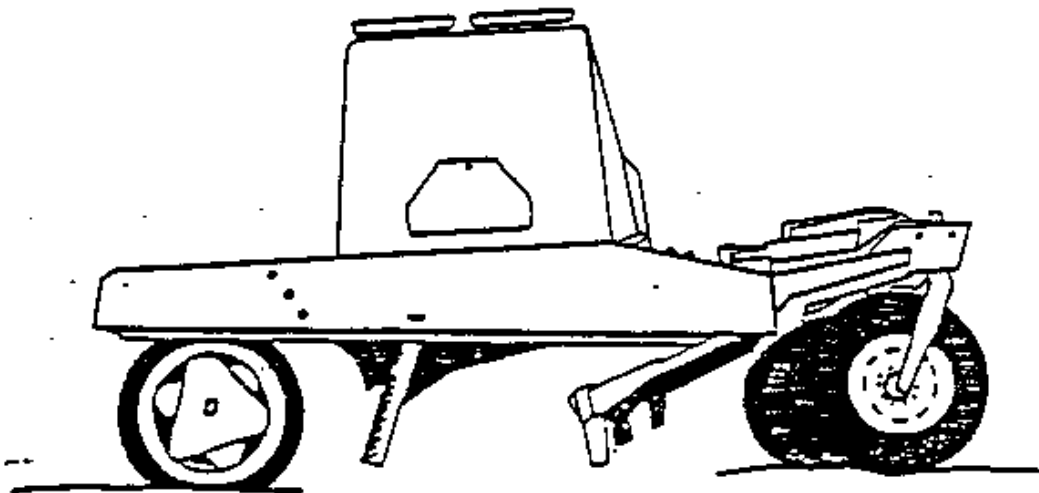
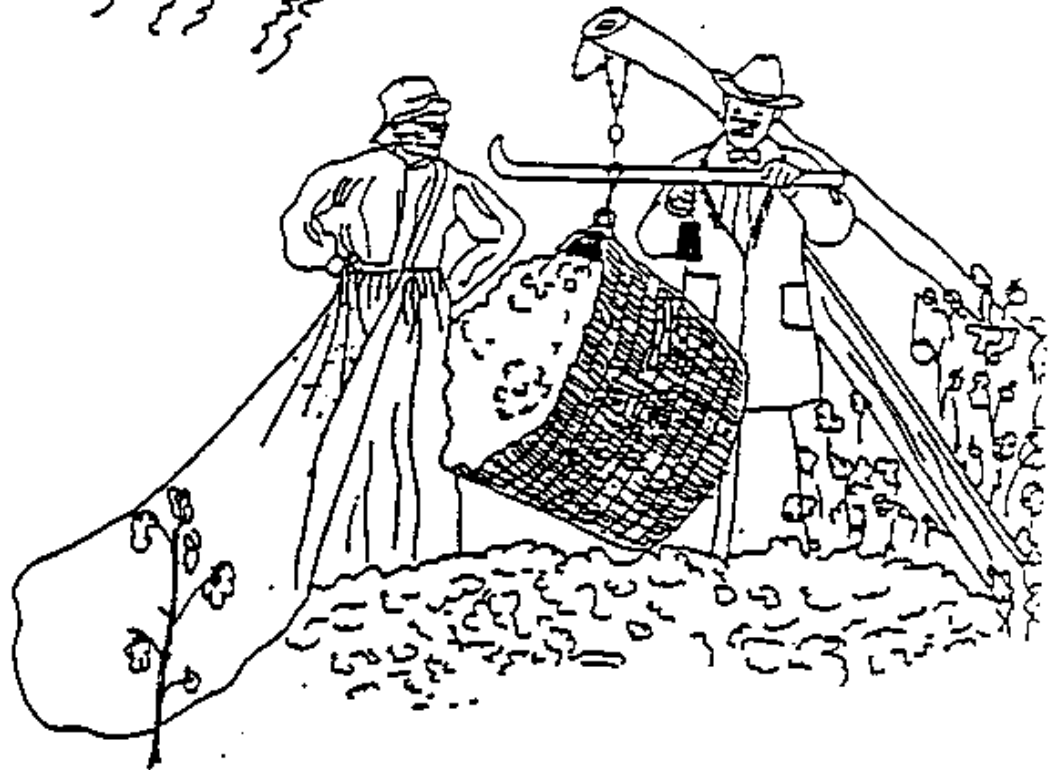
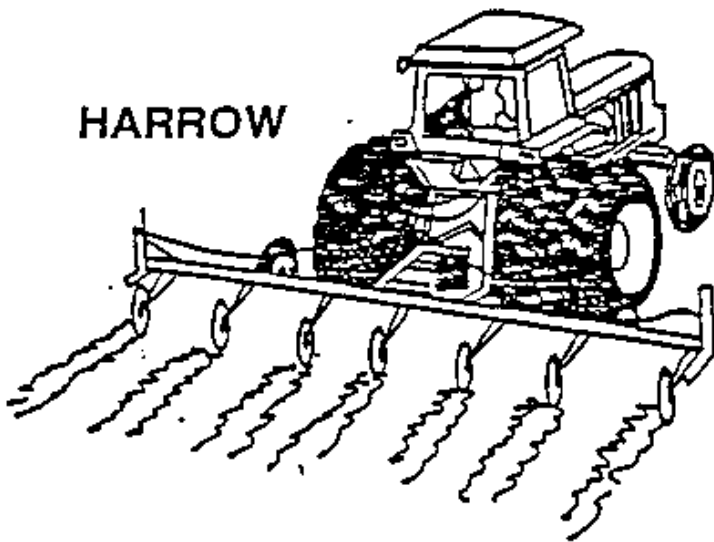


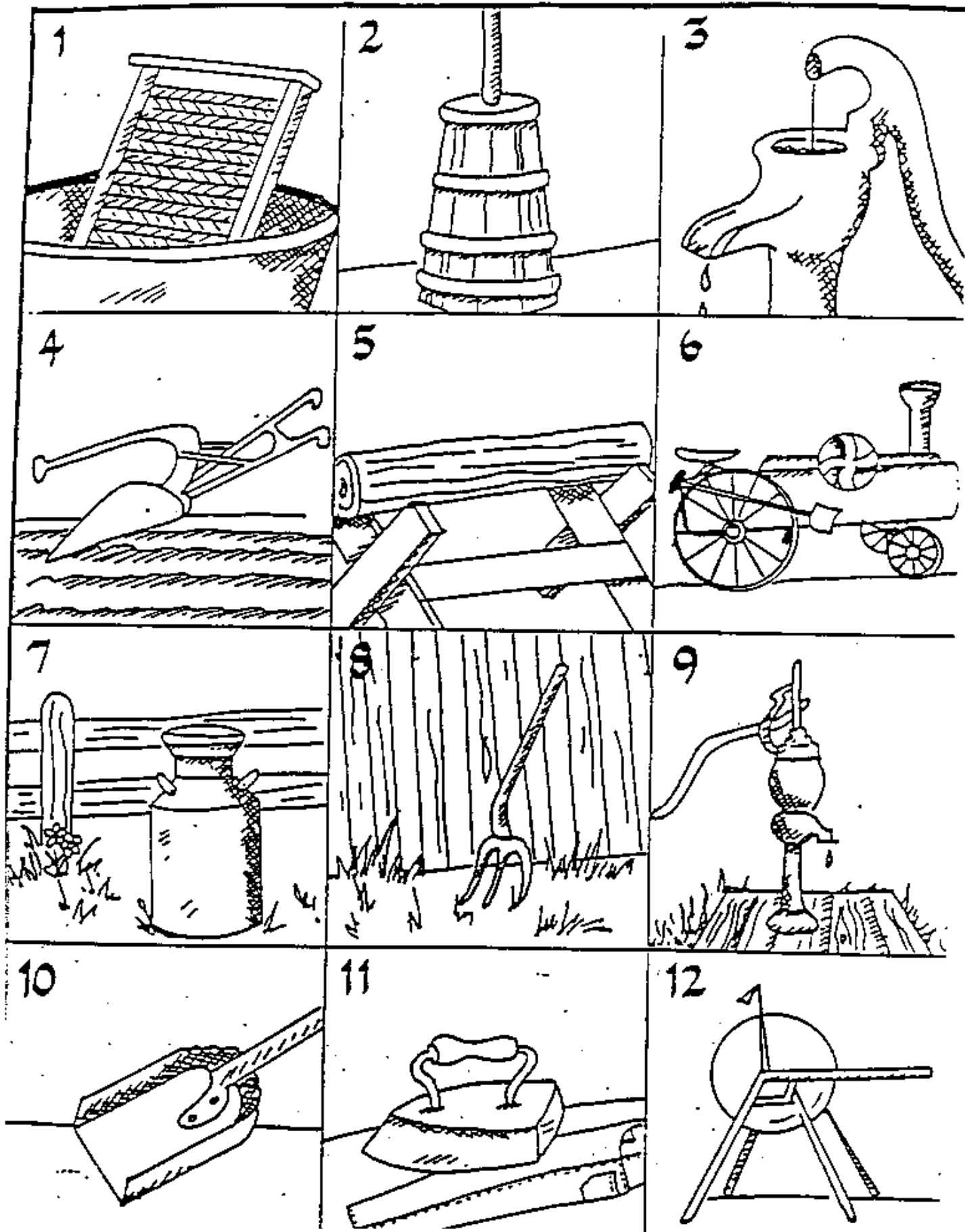


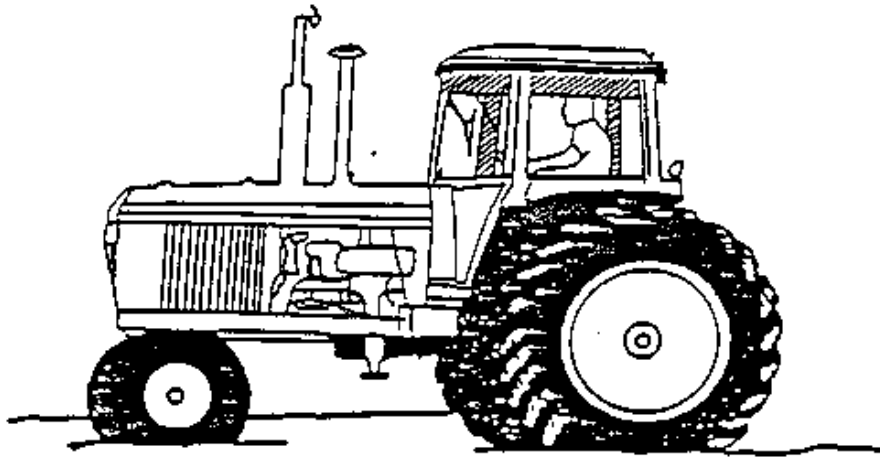
TRACTOR



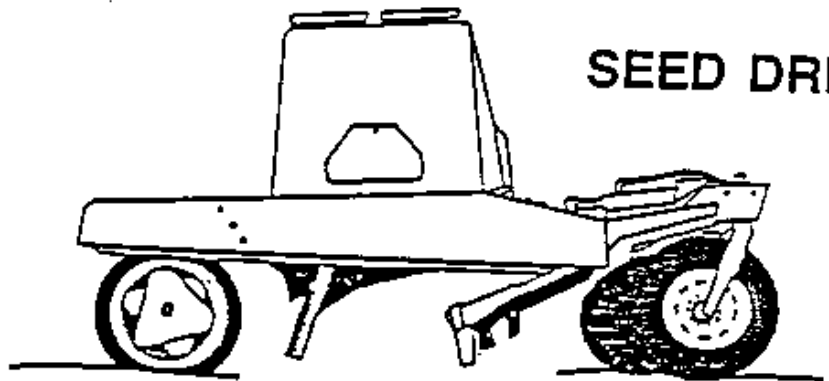
HARROW



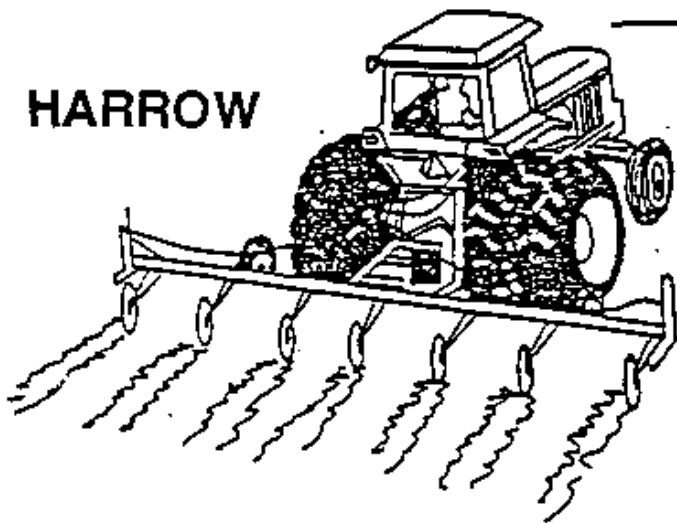




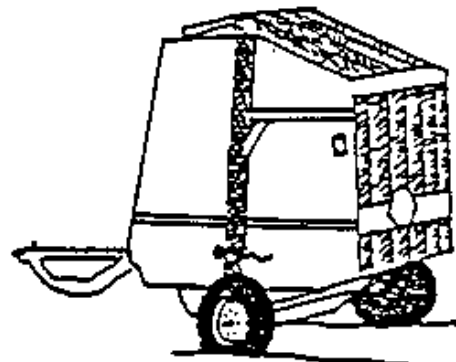
TRACTOR



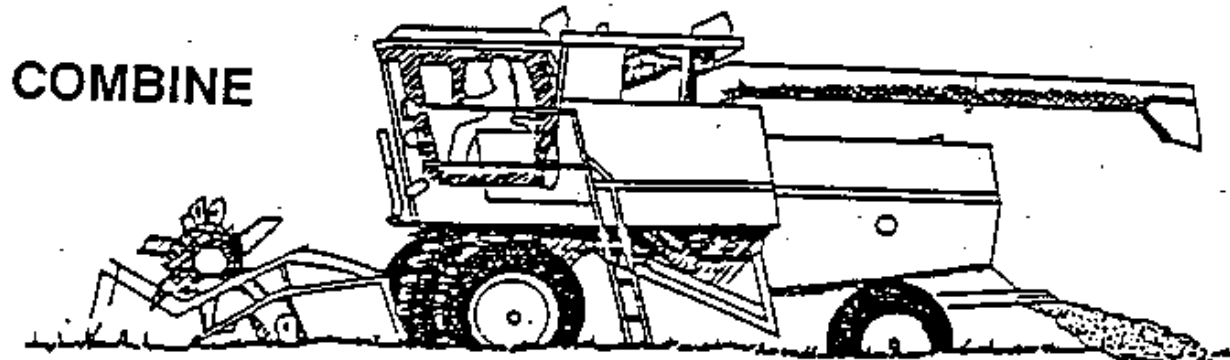
SEED DRILL



HARROW



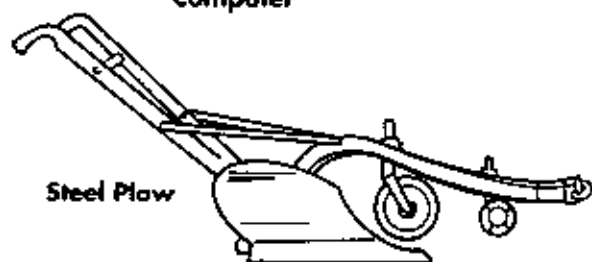
ROUND HAY BALER



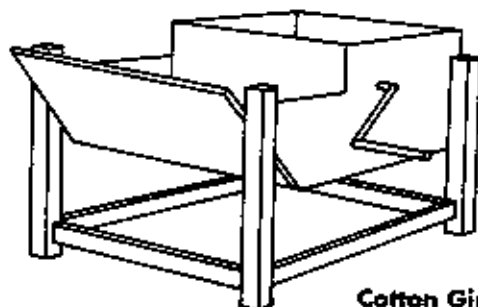
COMBINE



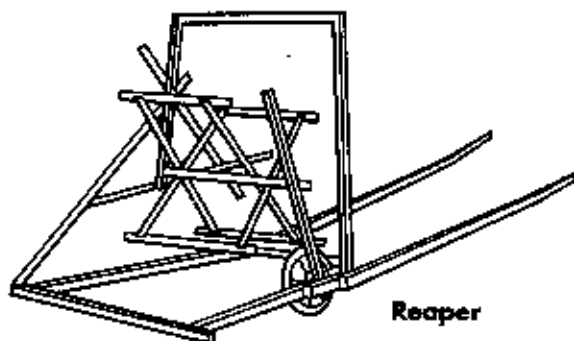
Computer



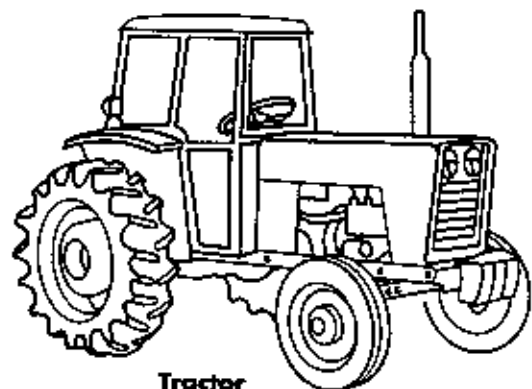
Steel Plow



Cotton Gin



Reaper



Tractor

Name _____

1. The **cotton gin** was invented in 1793 by Eli Whitney to separate the seeds from cotton fibers.

2. In 1834, the **reaper** was invented by Cyrus McCormick to cut wheat and other grains. Another machine called a thresher then separated the grain from the stems and husks.

3. The **steel plow** was first used in 1836 by John Deere to break up the soil to prepare for planting.

4. The **tractor** was invented by Benjamin Holt in 1904 and is used instead of horses or oxen to pull equipment.

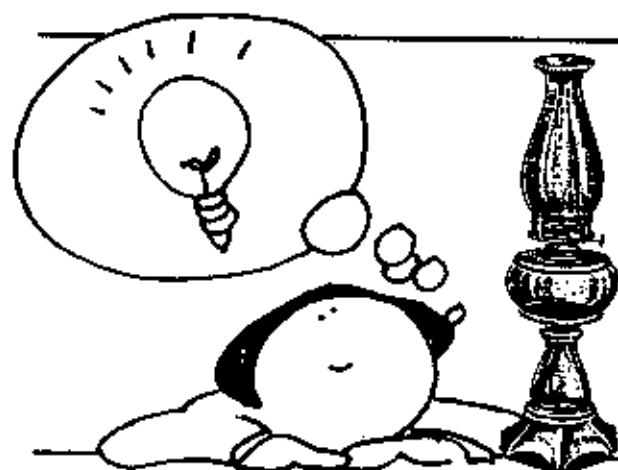
5. Today, the **computer** helps farmers keep records and control feed for livestock and poultry.

Agricultural Inventions

Inventions have helped American farmers become more productive. Draw a line from the picture to the sentence that describes it.

INVENTORS AND INVENTIONS

Invention	Inventor	Year
Canned Foods	Nicolas Appert	1787
Cotton Gin	Eli Whitney	1793
Steam Locomotive	Richard Trevithick	1804
Electric Light	Thomas Edison	1810
Reaper	Cyrus McCormick	1834
Refrigerator	Jacob Perkins	1834
Steel Plow.....	John Deere	1836
Vulcanized Rubber	Charles Goodyear	1839
Telegraph	Samuel Morse	1840
Pneumatic Tire	Robert Thomson	1845
Gas Engine	Jean Lenoir	1860
Pasteurization	Louis Pasteur	1864
Margarine	Hippolyte Mouries	1869
Barbed Wire	Joseph Glidden	1873
Telephone	Alexander Bell	1876
Vacuum Milker	Anna Baldwin	1878
Internal Combustion Engine...	Rudolph Diesel	1892
Tractor	Benjamin Holt	1904
Frozen Food Process	Clarence Birdseye	1925



Adapted from 'Agriculture in Montana Schools' and other sources.

Finding Out More: Inventors and Inventions

1. Inventors like these contributed much to the development of agriculture in America. Research and write a report about one of these people. Can you find out why he/she invented this particular thing? How did the invention change lives?

2. What would you invent to help people in agriculture today? Is it something to help the farmer? The farm wife? Does it create a new product out of a farm-produced food? Does it help the store owner sell the products better?

3. Which inventors started companies or later had companies named after them? What is each company name? What kinds of companies are they today?

4. Which people had processes or systems named after them? What does each system do?

- Answers:**
3. John Deere, farm implements; Thomas Edison, power and light utility; Clarence Birdseye, frozen foods; Alexander Bell, Bell telephone; Charles Goodyear, tires and rubber products.
 4. Louis Pasteur, pasteurizing; Samuel Morse, Morse code; Rudolph Diesel, diesel engines.

Agriculture is Everywhere!

It's not just hard to start your day without agriculture...it's impossible!

When you woke up this morning in a bed with sheets, that was today's first meet-up with agriculture. Sheets are made of fibers from cotton plants. The sizing in the sheets is cornstarch from corn.

Did you wash or shower with soap? Oil from corn and soybeans and fat from cattle were used in making that soap.

Did you eat cereal, eggs, bacon, pancakes, buttered toast or juice for breakfast? Thank our farmers again!

Did you pack a lunch in a paper bag, or finish today's math by writing on paper? That paper comes from another agricultural crop — trees. Corn and soybean by-products helped hold the ink on the paper.

And how did you get to school? Did you pedal a bike, ride a bus or drive in a car? In addition to rubber from trees, cattle were used in making those tires. Stearic acid, a by-product of beef, makes tires run cooler and last longer. Your vehicle's fuel may have been gasohol, which is 10% corn alcohol.

How many other things can you trace to food, fiber or forest?

Can you have an ag-less day? There's just no way!



Q. What is the only industry people must have in order to survive?



Agriculture starts with the growing and harvesting of food, fiber and forests.

Fiber is the raw material from which cloth is made. We get fiber from animals (wool, silk) and from plants (cotton, flax).

Forests yield tree fiber (timber) that becomes the wood in houses, furniture and pencils. It becomes the paper you write with and hundreds of other things. What other things can you name that are made from wood?

Sod fields, landscaped parks and lawns, flowers and even golf courses count as agriculture, too. Agriculture...you can't live without it!

A. If you said agriculture, you're right. And if you eat, or wear clothes, you're involved in agriculture! But how much do you know about agriculture, or the part it plays in your life?

Agriculture is more than farming. It's more than planting and harvesting crops and forests. It's more than growing livestock and poultry, more than milking cows and selling fruits and vegetables.

Agriculture is more than farming

Agriculture is our nation's largest industry, employing more than 20 million Americans. What do all those people do? They work in ag production, processing and distribution.

Production

is the growing and harvesting part of agriculture. Cattle and sheep ranches, orchards and forests, dairy and wheat farms are examples. And have you ever thought about all the workers that are partners in production? Circle the seven from the list below that help in growing and harvesting.

Feed and seed suppliers	veterinarians
stockbrokers	fertilizer suppliers
zoologists	processors
greenhouse owners	advertising writers
plant breeders	soil conservationists
	tractor salespersons

Processing

is changing the food or fiber into forms we can use. Cereal does not grow in a colorful box complete with prizes, and milk doesn't start in a carton! From the list below, circle the nine that are processing industries:

sawmills	train depots
schools	paper mills
cheese factories	gas stations
vegetable canning companies	sugar refineries
leather tanneries	woolen mills
flour mills	meat-packing plants

Distribution

is getting the goods from processors to the people who use them. Circle eight places below that are part of getting ag products from processors to you:

Milk trucks	airports
grocery stores	fast food
grain barges	restaurants
cooperatives	state forests
farmers' markets	movie theaters
trains	

WOW!

About 2 out of every 100 American workers grow the basics that provide food, clothing and shelter for the entire U.S. — and enough extra to export to other parts of the world!

Name _____

From the land to you

What would people in cities do if there were no farmers? Where would they get their food? Their wool? Their wood? What would it be like if each of us had to grow everything we need for ourselves?

People in the cities and people in the country need each other. We are interdependent. We buy and sell between ourselves so everyone can get the food, shelter and clothing they need. And it all starts with agriculture - the growing and harvesting of feed, fiber and forest. Agriculture is the only industry people must have to survive. It's the world's largest industry, and New Mexico's 4th largest employer in the state providing an estimated 93,800 jobs directly and indirectly.

The growing and harvesting are only the beginning.

When you took a bite of cereal this morning, did you have any idea how it got from the field to your table? How did your milk get from the country cow to your refrigerator? How did your ham and eggs get from the farm to you?

It takes millions of workers and billions of dollars to get ag products to our supermarkets, lumber yards, drug stores, clothing shops and Christmas tree lots. It's not only farm workers. It's all the others, too, who process, market, advertise and distribute ag products. How do these products get to us in forms we can use?

Steps along the way

Food goes through many steps as it moves from the farm to you. The number of steps it takes to get the food to you varies according to the kind of food. A lot more happens to grain between the field and the cereal box than to lettuce between the field and your salad bowl, right! And how about your favorite quarter-pound burger? It started out as a thousand-pound steer.

If it's bred, fed and processed...if it's planted, cultivated and harvested...if it's baked, frozen, canned,

bottled, dehydrated, packaged or preserved...it uses energy, labor, equipment and time. It all adds to the prices we pay to fill our plates.



Adapted from Minnesota Agriculture Magazine Issue II 1990-91

THE FOOD CHAIN

An interesting item is bread. The farmer harvests the wheat and hauls it in a truck to the grain storage and buying facility called a grain elevator. The grain is stored until it is shipped (by truck or rail car) to mill. At the mill the grain is ground and made into flour. The flour is then packaged and shipped to the bakery (again by truck or rail car). The bakery adds milk (received from the dairies) and other ingredients and bakes the bread. Again the bread is packaged and shipped (normally by a truck) to a wholesaler who then delivers the loaves of bread to the grocery store and restaurants. This is called the food chain.

The food chain consists of four parts: production, processing, distribution and retailing. Can you take another food item that is bought in the grocery store and identify where the four parts of the food chain occur? Who is involved in each step?

Food item: _____

Production _____

Processing _____

Distribution _____

Retailing _____

CAREERS

Ninety percent of agriculture careers are “off-farm.” These include work in agribusiness, communications, science, government, education, processing and distribution, marketing and sales, as well as other occupations which serve the ag industry.

Agriculturists can work in livestock production or soil conservation, equipment repair or radio broadcasting, nursery management, genetic engineering, landscaping or even law.

Agricultural careers are divided into eight categories. Here are some examples of each:

- Agricultural Production—agronomist, animal breeder, aquaculturist, beekeeper, mushroom grower, peanut producer, rice farmer, tree farmer.
- Ag Processing/Distribution—Christmas tree grader, food and drug inspector, fruit distributor, grain broker, meat cutter, quality control supervisor, winery.
- Ag Mechanics/Engineering—ag construction engineer, diesel mechanic, equipment operator, land surveyor, machinist, parts manager, soil engineer, welder.
- Agribusiness—aerial crop duster, ag equipment dealer, animal groomer, computer analyst, farm auctioneer, feed ration developer, fertilizer plant supervisor, field sales representative, kennel operator, poultry hatchery manager, salesperson.
- Resource Management—animal ecologist, environmental conservation officer, forest fire fighter, forest ranger, game warden, ground water geologist, soil conservationist, water resources manager.
- Ag Research/ Health Sciences—animal nutritionist, avian veterinarian, biochemist, botanist, entomologist, food chemist, plant geneticist, pomologist, veterinarian.
- Horticulture/Forestry—floral designer, forester, golf course superintendent, greenhouse manager, landscape architect, log grader, turf farmer.
- Ag Specialist—ag accountant, ag corporation executive, ag educator, ag journalist, ag lawyer, ag loan officer, ag market analyst, computer specialist, farm investment manager, rural sociologist.

Have you ever thought about choosing a career in agriculture? Many people choose their jobs by the subjects in school that they like most and do best in. Find your favorite school subject or interest area below and circle it. Read the jobs related to agriculture that you might be best at.



- Graphic artist
- Photographer
- Billboard designer
- Food photo designer



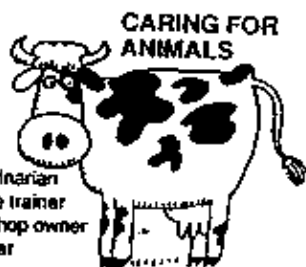
- Accountant for farmers and agribusiness
- Banker
- Computer programmer
- Grain broker
- Marketing specialist
- Commodity broker
- Ag economist



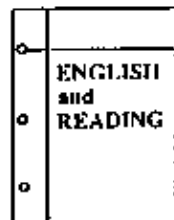
- Landscape Architect
- Farmer
- Soil conservationist
- Christmas tree grower
- Golf course groundskeeper
- Florist
- Orchard Management
- Horticulturalist
- Range Scientist



- Scientist
- Nutritionist
- Chemist
- Plant Breeder
- Environmentalist
- Recycling manager
- Biotechnologist
- Plant genetics



- Veterinarian
- Horse trainer
- Pet shop owner
- Farmer



- Ag Journalist--
- Writer for television, radio, newspaper or magazines
 - Advertising executive
 - Radio broadcaster



- Chef
- Grocer
- Butcher
- Food processor

Helping People



- Salesperson
- Restaurant waiter
- Ag lawyer
- 4-H youth leader
- Home Economics teacher
- Extension Agent
- Voc Ag teacher

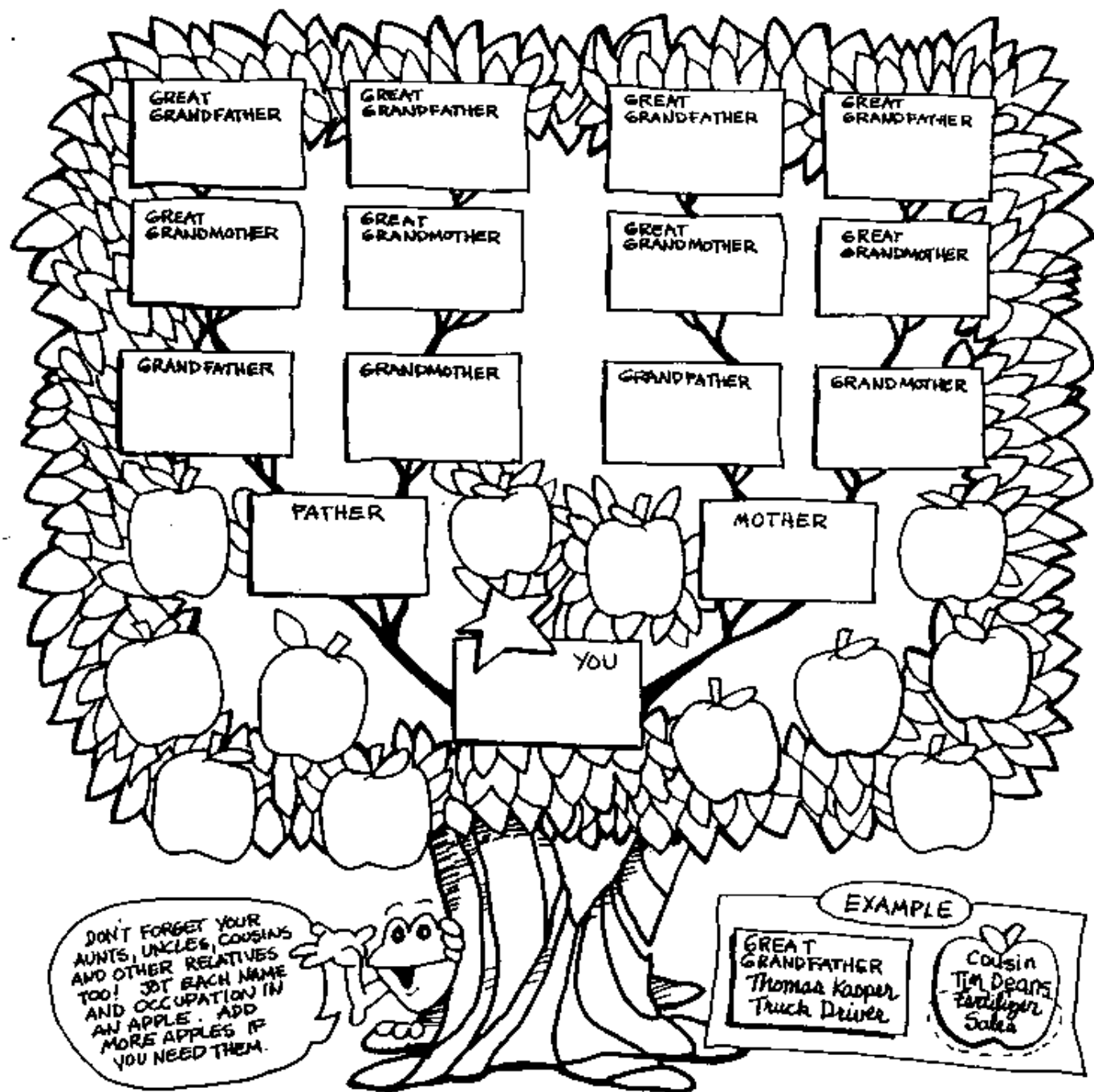
Working with your Hands



- Trucker
- Welder
- Construction engineer
- Ag mechanic
- Carpenter

MY AG ROOTS

Do you have agricultural roots? It's a good bet you do. Use this thinking page and work with your parents to trace family roots. Write the occupation together with each name. When you're finished, circle each ag-related job. Share your findings with your class. Even YOUR roots are in agriculture!



Minnesota Agriculture Magazine is a publication of Minnesota Agriculture in the Classroom. Minnesota Agriculture in the Classroom is a cooperative effort of the Minnesota Departments of Agriculture and Education and many other supporters. M-AITC Program Director and AgMag Project Coordinator is Al Withers. The publication is developed and written by Jan Hoppe, B.S., Jane Duden, B.S. and Barb Neils, B.A. All are experienced educators and educational materials developers. Design, layout and illustrations are by Liz Stangl Kasper.

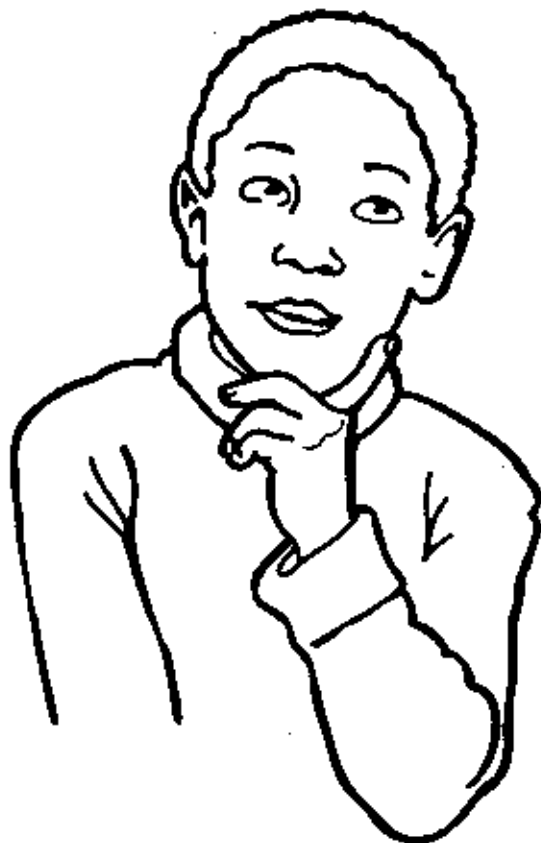
Careers in Agriculture

Check the responses that describe you.

I want to:

- ☐ 1. work with other people
- ☐ 2. work with ideas or information
- ☐ 3. work with machines
- ☐ 4. do math and work with numbers
- ☐ 5. do science experiments
- ☐ 6. work with animals
- ☐ 7. work with plants
- ☐ 8. go to college for four years after high school
- ☐ 9. work outdoors

Listed here are just a few of the 200 careers in agriculture. Write the number of the description above you think is most needed in each career. You may need to look up some of these careers in the dictionary.

**Agricultural Production**

____ aquaculturist
____ fruit grower

Ag Processing/Distribution

____ food and drug inspector
____ milk plant supervisor

Ag Mechanics/Engineering

____ ag construction engineer
____ diesel mechanic

Agribusiness

____ meteorological analyst
____ sales representative

Resource Management

____ groundwater geologist
____ soil conservationist

Ag Research/Health Sciences

____ agronomist
____ entomologist

Horticulture/Forestry

____ forest ranger
____ landscape architect

Ag Specialist

____ ag economist
____ ag journalist

One Person's Agricultural Career



Use this guide to interview a person in your community who practices an agricultural career.

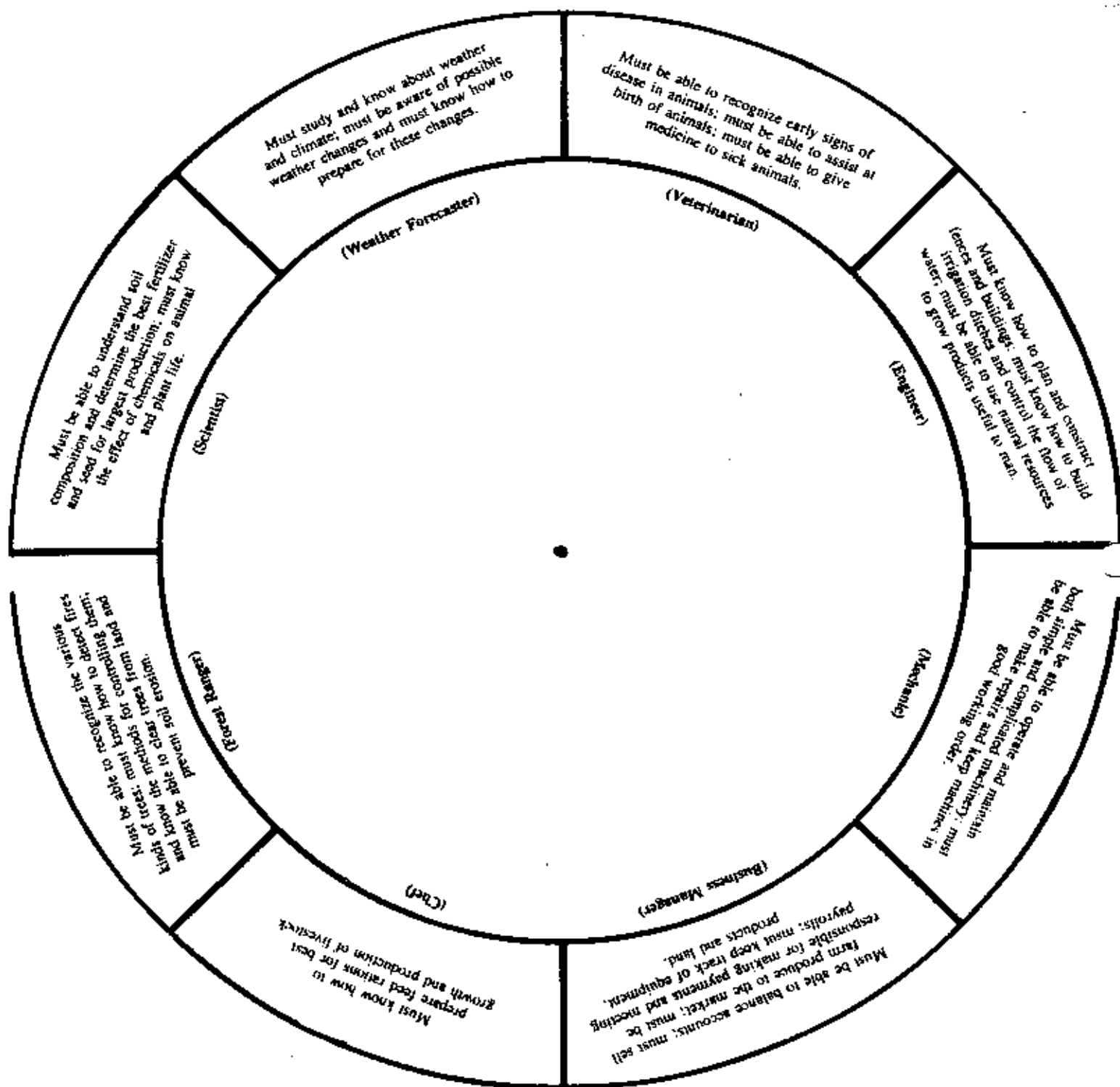
Name _____

An Agricultural Career

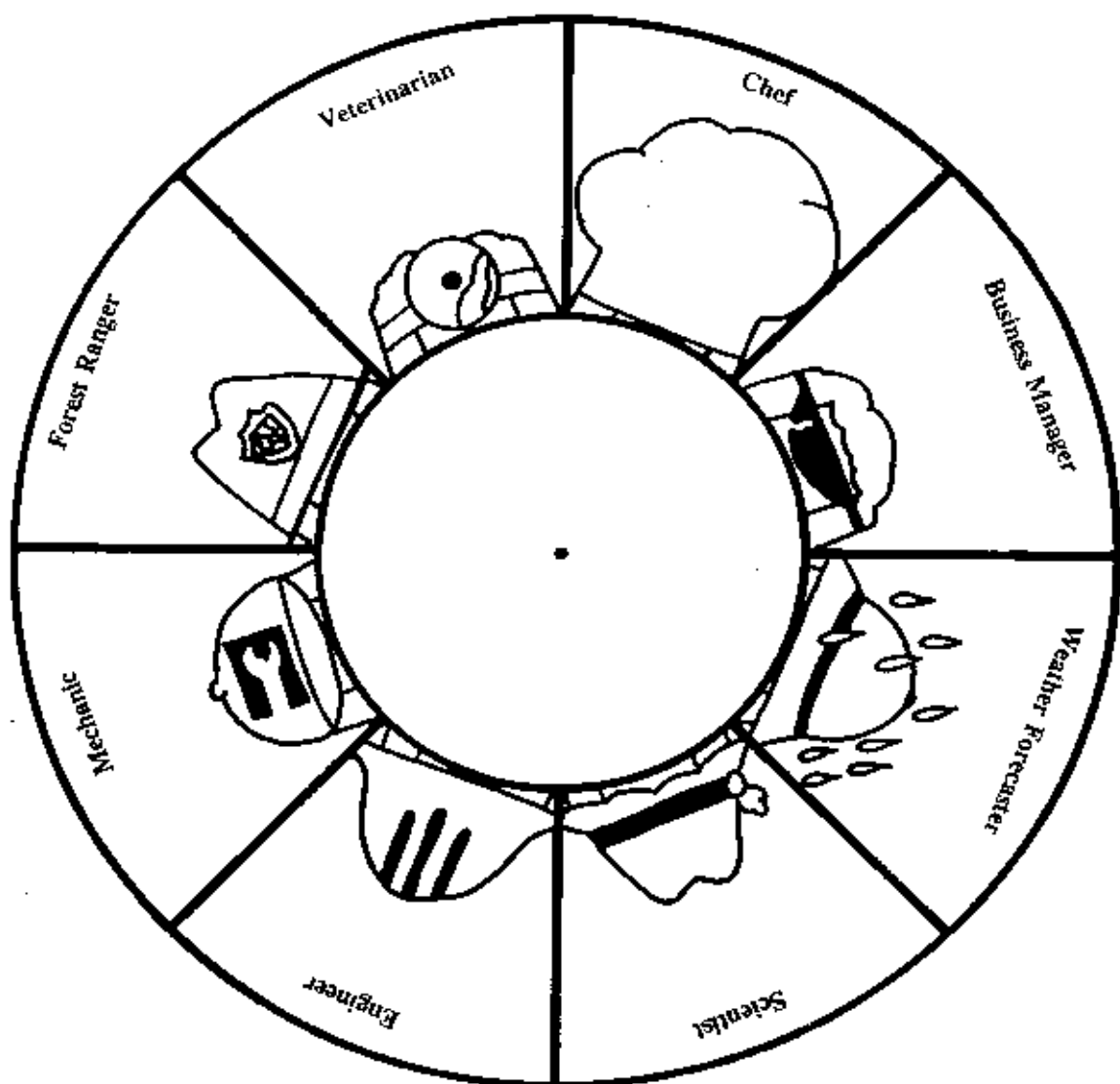
1. What is the title of your career? _____
2. Why did you choose this career? _____
3. Why do you enjoy it? _____
4. What are the not-so-good things about this career? _____
5. What training does this career require? _____
6. What are the job opportunities in this field? _____
7. What is the average annual salary for someone starting in this field? _____
8. What does your average day include? _____

Other questions you might ask: _____

How Many Hats Does a Farmer Wear?



How Many Hats Does a Farmer Wear?

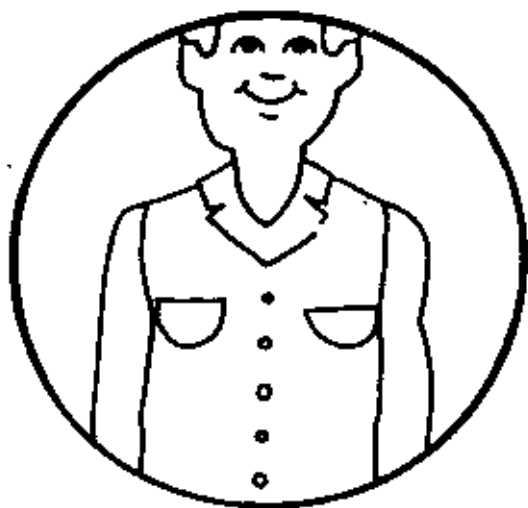


You are beginning to see that there are many different kinds of farms. There are also many different kinds of jobs that all need to be done by one farmer. Every farmer has to know how to do a great many things.

Cut out the two circles on this page and the next one and fasten all three circles in the center. Make sure the largest circle is on the bottom and the smallest one is on the top. You will be able to spin all three circles separately.

Find a hat on the second circle and put it on the farmer's head. Then try to find the words that best describe what the farmer does when he/she is wearing that hat.

Not every farmer has to wear all the hats, but he/she usually has to know something about each job. Sometimes the farmer will have to call a specialist for assistance.



Adapted with permission from National FFA organization's "Food for America," materials sponsored by Mobay Corporation, Agricultural Chemicals Division, as a special project of the National FFA Foundation, Inc.



Careers in Agriculture



Wow... it's
more than
just farming!

PRODUCTS & SUPPLIES	RESOURCES	PROFESSIONAL	MECHANICS	PRODUCTION	ORNAMENTAL HORTICULTURE
Grain Feed & Seed Sales Person	Extension Service Specialist	Vocational/ Agriculture Instructor	Machinery Design Engineer	Farm Hand Worker	Nursery & Greenhouse Manager
Dairy Products Plant Manager	Wildlife Conservation Officer	Agri- Consultant Bank	Machinery Parts Person	Fruit & Vegetable Grower	Landscape Aid
Agri. Chemicals Inspector	Soil Conservation Aid	Home Demon- strator	Machinery Sales Person	Christmas Tree Grower	Landscape Architect
Grain Elevator Manager	Forest Ranger	Agri-Extension Agent	Machinery Field Person	General Farmer	Tree Surgeon
Dietary Consultant	Home Economist	Advertising Analyst	Machinery Set-Up Person	Farm Manager	Sod Layer
Livestock Buyer	Park Worker	Vocational Teacher	Machinery Mechanic	Sod & Turf Producer	Grounds- keeper
Clothing Maker	Soil Conservationist	Agri- Journalist	Appliance Designer	Tree Farmer	Ornamental Gardner
Meat Cutter	Home Maker	Architect	Safety Engineer	Game Rancher	Horti- culturist
Food Sales	Forester	Nutritionist	Carpenter	Rancher	Lawn Care Worker
Milliner	Chef	Veterinarian	Tool Maker		Florist
Grain Buyer	Hydrologist	Agri-Engineer			

Twenty percent of all jobs and occupations in the U.S. are related to agriculture. In Minnesota that percentage is about 23 percent. What kinds of jobs do these people have? The chart shows a few. Many overlap from one career area to another.

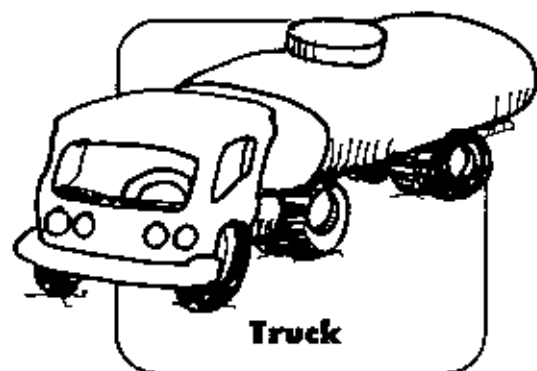
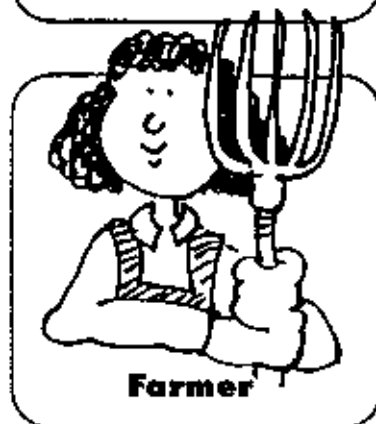
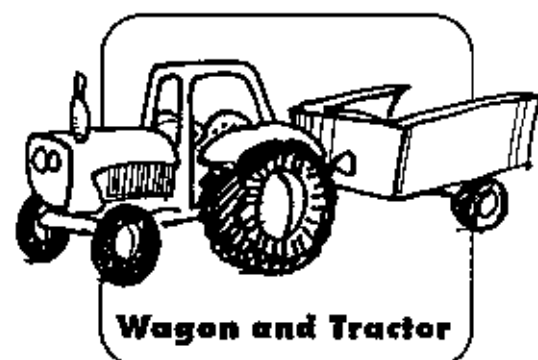
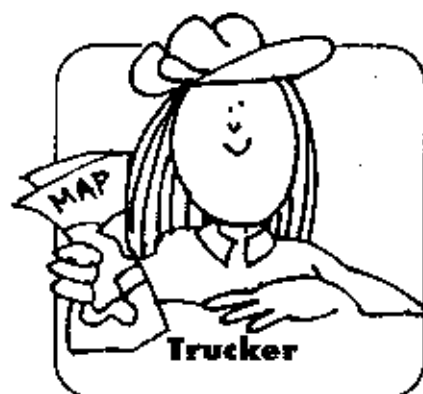
1. Select an agriculture-related job from the above chart (or choose your own) that looks interesting to you.
2. Research what is required of a person who does this job.
3. On another sheet of paper write a short report about this job. Be sure to include answers to the following questions:
 - A. What will I do on the job?
 - B. Where will I work?
 - C. What kind of training or education will I need?
4. Be sure to use complete sentences.
5. Draw a picture of yourself doing this job. Don't forget appropriate clothing and setting.

Adapted from 'Agriculture in Montana Schools.'

Name _____

Who Uses What?

Draw a line from the agriculture person to the thing he or she uses.



"ist"

Many jobs and occupations end with the suffix "ist". It means a person who makes, produces, operates, or studies a specific thing.

Many jobs and occupations **in agriculture** end in "ist."

Use a dictionary to help you find out what each career ist studies.

Agronomist _____

Anthropologist _____

Agriculturist _____

Bacteriologist _____

Biochemist _____

Biologist _____

Biophysicist _____

Botanist _____

Conservationist _____

Economist _____

Entomologist _____

Geophysicist _____

Horticulturist _____

Hydrologist _____

Meteorologist _____

Microbiologist _____

Pedrologist _____

Zoologist _____



Name _____

Agriculture Occupations

Many occupations are related to or depend on agriculture. Can you find the names of 25 jobs or fields of work that go hand in hand with farming? (The words go up and down and across only)

S	C	I	E	N	T	I	S	T	R	U	C	K	E	R	L	B
T	H	N	L	A	Q	Y	E	R	E	P	I	L	O	T	N	O
A	E	S	R	E	F	L	O	G	C	D	B	A	K	E	R	O
R	M	U	C	H	E	F	D	S	O	M	C	R	D	E	K	K
C	I	R	E	P	O	R	T	E	R	C	L	M	N	O	S	K
U	S	A	J	R	K	T	H	L	G	M	B	E	H	K	L	E
A	T	N	A	M	L	E	U	F	O	Q	S	U	V	Y	Z	E
E	C	C	M	A	N	U	F	A	C	T	U	R	E	R	L	P
R	S	E	N	R	E	K	L	I	M	E	D	I	C	I	N	E
U	N	R	A	I	M	S	O	L	T	T	E	A	C	H	E	R
B	U	T	C	H	E	R	O	T	R	M	D	A	L	V	K	B
A	T	X	E	L	S	T	M	E	C	H	A	N	I	C	L	D
N	L	B	G	J	R	L	V	R	T	N	A	H	C	R	E	M
K	N	U	R	S	E	R	Y	M	A	N	A	G	E	R	U	L
E	Q	U	I	P	M	E	N	T	D	E	A	L	E	R	Q	P
R	O	S	S	E	C	O	R	P	T	A	X	A	G	E	N	T

Answers: Baker, Banker, Bookkeeper, Bureaucrats, Butcher, Chef, Chemist, Equipment Dealer, Golfer, Grocer, Insurance, Lawyer, Manufacturer, Medicine, Merchant, Mechanic, Milker, Nursery, Manager, Pilot, Processor, Reporter, Scientist, Tax Agent, Teacher, Truckee

Adapted from Agriculture in Montana Schools.

WE'RE ALL IN IT TOGETHER

Grade Level: Primary

Economic Concepts: Interdependence, Goods, Services, Circular Flow

Skills: Language Arts, Art, Fine Motor

Time Frame: Five Class Sessions

The students will demonstrate their understanding that farms and cities are interdependent by:

- A.
 - 1. Understanding the term interdependent and being able to relate this concept to their own families.
 - 2. Listening to a story and then being able to tell how the farmer depends on the people in the city.
- B. Using paper bag puppets to role play a situation illustrating interdependence.

Vocabulary:

Interdependence, income, business, stores, restaurants, markets, machines, goods, services, dependence.

Materials:

- A. Copies of the worksheets, "Ways I Depend on My Family" for the children, your copy of the story "Farmer Mike," the puppet of Farmer Mike, and student copies of the word puzzle.
- B. Small paper sacks, puppet patterns of farmer girl and farmer boy and city girl and city boy, slips of paper with farm types written on them, fish pattern and paper plates, scissors, crayons or markers, glue.

Procedures:

- A.
 - 1. Develop the concept of interdependence by allowing the students to see how family members are interdependent. Provide each child with a copy of the worksheet, "Ways I Depend On My Family." Help the children list various ways they depend on different family members. This could be done as a group activity on the bulletin board with very young children. As you discuss interdependence, be certain to discuss ways the parents depend on their children.
 - 2. Read the story "Farmer Mike" to the children. After reading the story, discuss ways that the farmer depended on people in the city. You may need to read the story to them again. List the children's answers on a chart or a bulletin board. Divide the jobs according to goods and services. Goods are tangible items, which you can go to the store and buy. Producers of services do work for you.

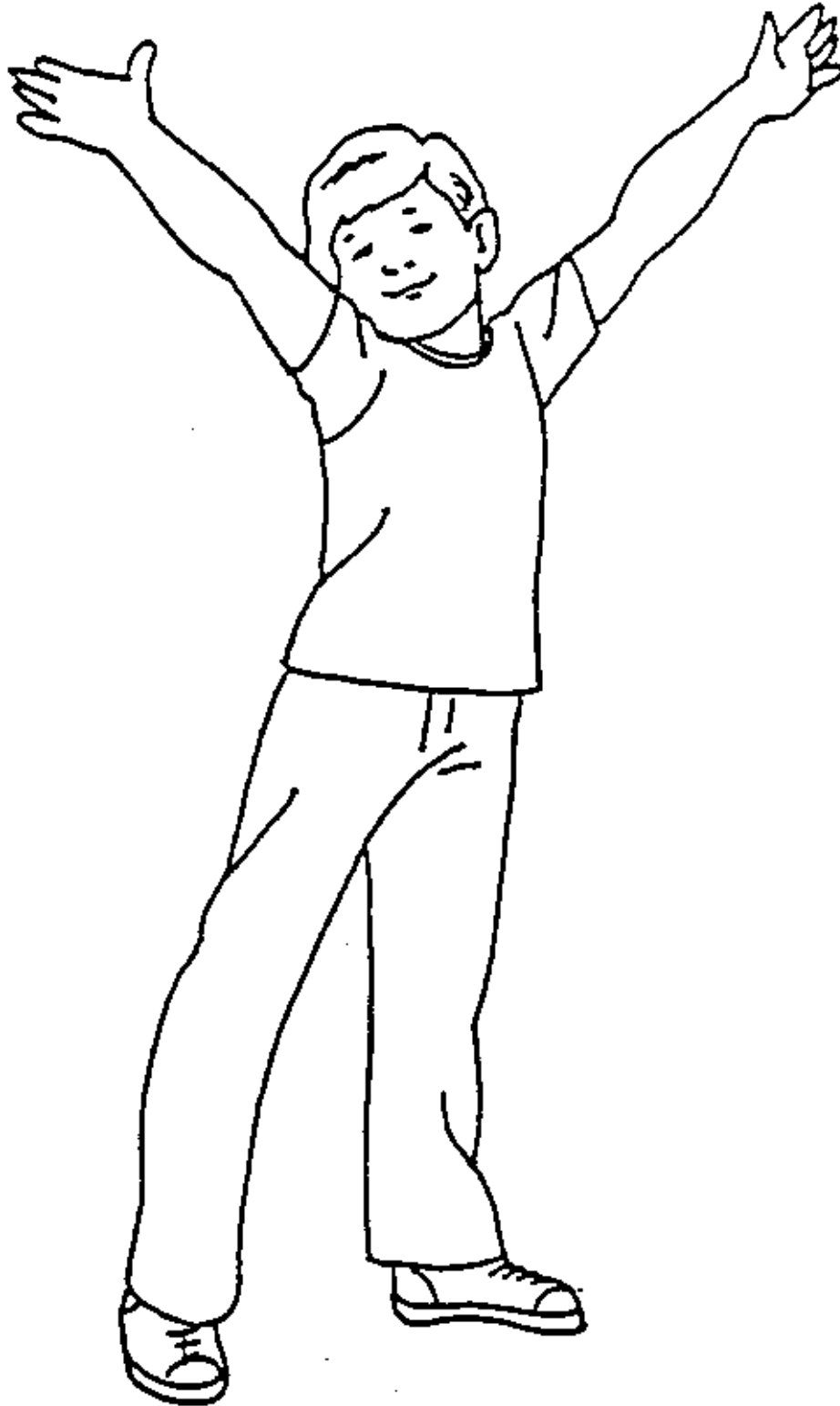
3. Reinforce the concept of interdependence by allowing the children to draw pictures of the goods and services used by the farmer during the day.
 4. Guide a discussion so that the children will see that producers of goods and services depend on the farmer to consume the good or service they produce.
 5. Complete the worksheet, "Who Depended on the Farmer?"
- B.
1. Write the definition of interdependence on the chalkboard (the state of being dependent upon others for goods and services). Tell the students that you are going to illustrate for them how farms and cities depend on each other. You should have a farmer girl paper bag puppet. Ask another teacher to assist you. That teacher should have a city girl or boy puppet. Explain to the students that you are a fish farmer. List ways you depend on the city (fish food, buy your product, build you ponds, equipment, transport your product, advertise your product, etc.). The other teacher pretends to be a city person. He/she should list ways that people depend on the fish farmer (buy fish they produce, supply restaurants with fish, use trucking, storage and marketing facilities, hire workers to work on the farm, provide fishing enjoyment, etc.).
 2. Students complete the paper plate fish. On the back they copy the definition of interdependence. They take the fish home and explain to their parents how farms and cities are interdependent.
 3. You will need to have the following types of farms written on slips of paper before beginning this activity.

tree farm
apple orchard
blueberry farm
wheat farm
dairy farm
peach orchard
sheep farm
cotton farm

chicken farm
rice farm
hog farm
beef cattle farm
grape vineyard
orange grove
oyster farm
trout farm

4. Ask students to choose between farm person and city person puppet patterns. Provide half the students with farm puppet patterns and half with city puppet patterns. Have students make their puppets. Place students in groups of two: one farmer and one city person in each group. The farmer draws a slip of paper out of a straw hat. The paper tells what type of farm the farmer owns.
5. The students work in groups to brainstorm ways in which people are interdependent. Younger students may need help from the teacher or older students. Hopefully, each will at least say the farmer produces the product, he buys equipment and supplies from the city, the city buys and processes the farm product. Some students will list many ways people are interdependent. The students should use their puppets to present their list to the class.

Ways I Depend On My Family



Ways I Depend On My Family

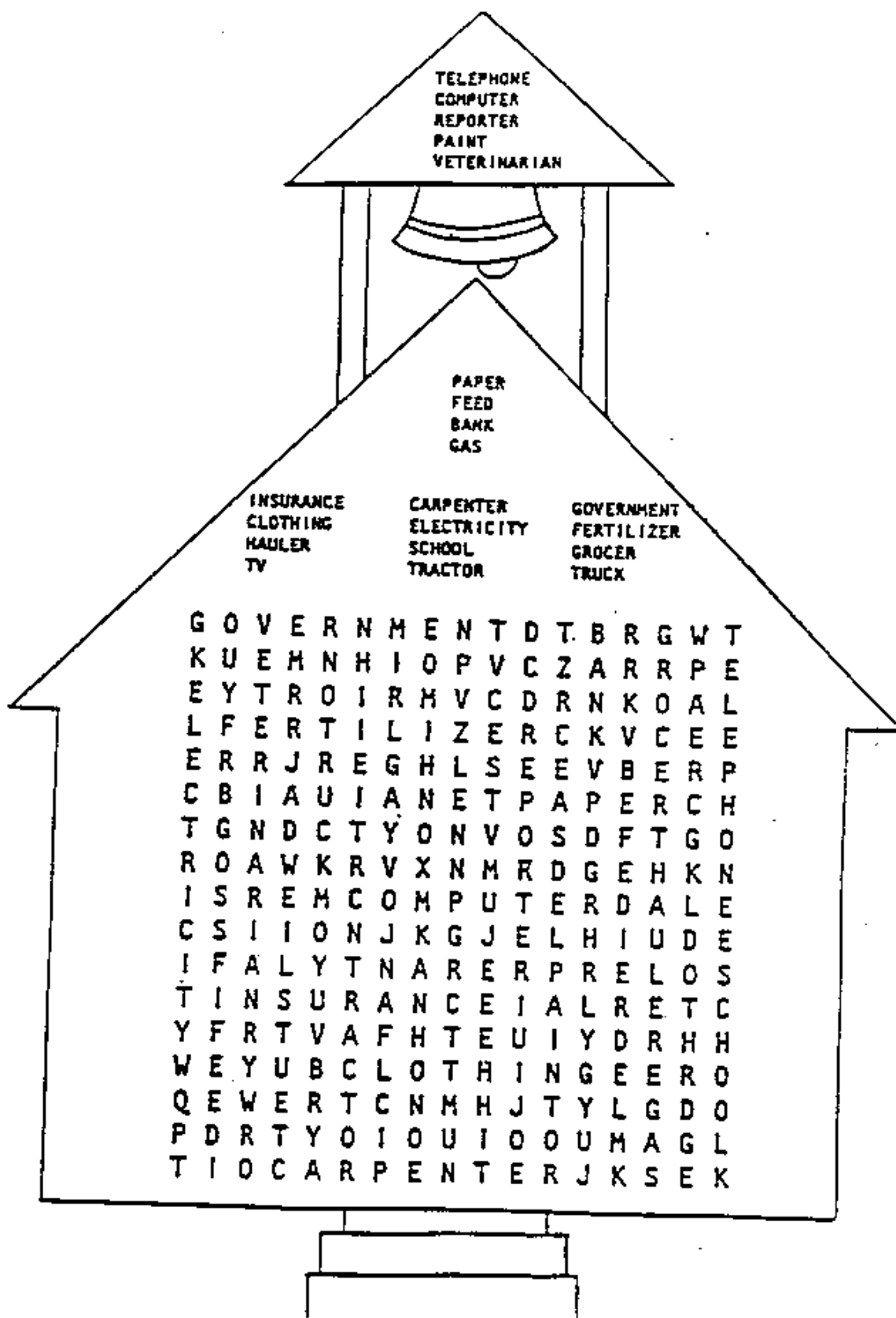


Ways I Depend On My Family



WHO DEPENDED ON THE FARMER?

Producers of These Goods & Services



Teaching The Economics Of American Agriculture. The Food and Fiber System

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FARMER MIKE

Hello boys and girls. My name is Mike. I am a dairy farmer. Dairy farmers raise cows so that we can provide you with the milk that you need to be healthy. I have 80 cows on my farm. They certainly do keep me busy. I would never make it if I had to do all of the work myself. I am a lucky person since I have a lot of people helping me get the milk to you.

In fact, this story is all about the people I depend on during a day. I wish I had more time so that I could tell you about all of the people who help me. After you listen to my story, your teacher is going to ask you to name some of the people who help me, so listen carefully.

My day starts when my alarm clock goes off about 4:00 o'clock in the morning. You boys and girls are still asleep when I get up. You see, I have to get up early since my day is very busy.

I am down at the barn and ready to milk my cows by 4:30. We do not have to milk our cows by hand as they did a long time ago. We have milking machines which will milk 100 cows an hour. Before the cows are milked, we have to wash each cow's udder so that the milk will be clean. It is very important for our cows to be calm while they are being milked, so we allow them to eat during this time. Did you know that a frightened cow will not let down her milk?

The cow's milk is pumped into a refrigerated tank so that it will not spoil. Sometime this morning a hauler will come to the farm to get our milk. He will taste our milk to make sure it does not have a funny taste. He will then take a sample of the milk for laboratory testing to make certain it is safe for you to drink. The milk will then be pumped into a truck to take it to the processing plant. The tank truck is insulated like a thermos bottle so that the milk will stay cold while it is being taken to the plant. I certainly am glad that I don't have to worry about getting the milk to the plant. Come to think of it, I am also glad that I don't have to worry about processing the milk so that you can drink it.

After the cows are milked, Ed, my farm helper, and I have to clean all of the milking equipment. The equipment is easy to clean. We put some chemicals into the equipment and turn it on by flipping a switch. Before long the equipment is cleaned and sanitized. While the equipment is cleaning itself, we have to wash the walls and floors in the milking room. The area has to be spotless because we are producing milk for you.

Breakfast time! Let's head for the house. I have been up a long time and have worked hard so I am very hungry. I have to have a lot of good food to keep my body going, just as you do. I usually try to have breakfast with my children before they leave for school. We don't get to talk very long because their bus comes early.

Now that breakfast is finished I want to go back to the barn. I need to check on one of my cows before going out to work in the field. This cow usually has a hard time giving birth to her calf. When this happens I have to call the veterinarian who lives in the city. I am always glad that there are phones in the barn so that I don't have to go back to the house. This saves me a lot of time.

It looks like we have company. Mr. Beck is here to inspect our farm. He works for the Health Department and we never know when he is coming. They have to inspect our farm for cleanliness and to make sure that our equipment is in good working order.

As soon as he leaves I plan to join Ed out in the field. He is busy getting the land ready to plant our crops. We grow our own clover, alfalfa, and corn for our cows. We find that it is less expensive this way. Growing the feed keeps us busy. It seems as if it is always time to either plant or harvest the crop.

Did you know that cows eat about 90 pounds of food each day? Our cows eat a mixture of feed. We grow some of it and we buy some of it. Have you ever wondered how a farmer feeds his cows? The cows have a feeding trough which is computerized. Each cow is automatically fed the amount of food it needs to produce the most milk. The cow feeds from this trough several times a day and is allowed to graze in the fields. Cows also need a lot of water as they drink 25 to 50 gallons of water a day.

We are having some trouble with soil erosion so we have asked a person from the Soil Conservation Service to help us solve the problem. Ed is going to talk with them this afternoon while my wife and I go into town.

Can you believe that it is time for lunch? I had better get to the house so that I can listen to the farm report while I have lunch. This report is very helpful to farmers. We learn about crop prices and the latest weather report.

My wife has to go the doctor this afternoon and then do some shopping. She has to buy some clothes for our children. They grow so fast that we always need to buy them something. My wife also has to get the groceries for next week.

I have several things to take care of in town. My first stop will be at the bank to borrow money. We are borrowing the money to buy seed and fertilizer for the crop we are ready to plant. I also have to buy a new tractor this year since the old one won't make it through the spring.

My next stop will be to see my insurance agent. We had a bad spring storm last week and it did quite a bit of damage. I will have to hire a carpenter to do the repairs. Spring is a busy time on the farm and Ed and I don't have time to do the repairs now.

I had better go to the hardware store while we are in town. I know how much lumber and paint we need to make the repairs. As they were totaling my bill, I thought how friendly and helpful all of the sales people had been.

My last stop for the day will be at the equipment dealers to buy a new tractor. My wife and I have decided which one to buy. Tractors are so expensive that we had to decide what we would give up in order to get the tractor.

I'm glad I got home in time to help with the final milking. Our cows are well fed and taken care of so they produce a lot of milk—about 100 glasses (25 quarts or 6 1/4 gallons) of milk a day per cow. This makes our farm more profitable.

After cleaning the barn, Ed and I want to sit down to figure out all of the items that we need to order from our farmers co-operative. A farmers co-op is owned by farmers and sells the items we need to buy for our dairy farm. It is more convenient and less expensive for me to buy goods at the farmers co-op. They sell a lot of things I need for my dairy farm, such as chemicals for cleaning and sanitizing my equipment, paper filters, and small parts for my milking equipment, all in one place. I can also buy things I need such as feed, seed, fertilizer, tires, nails, and wire. All we have to do is fill out a form listing the items we need and the co-op will deliver them to us.

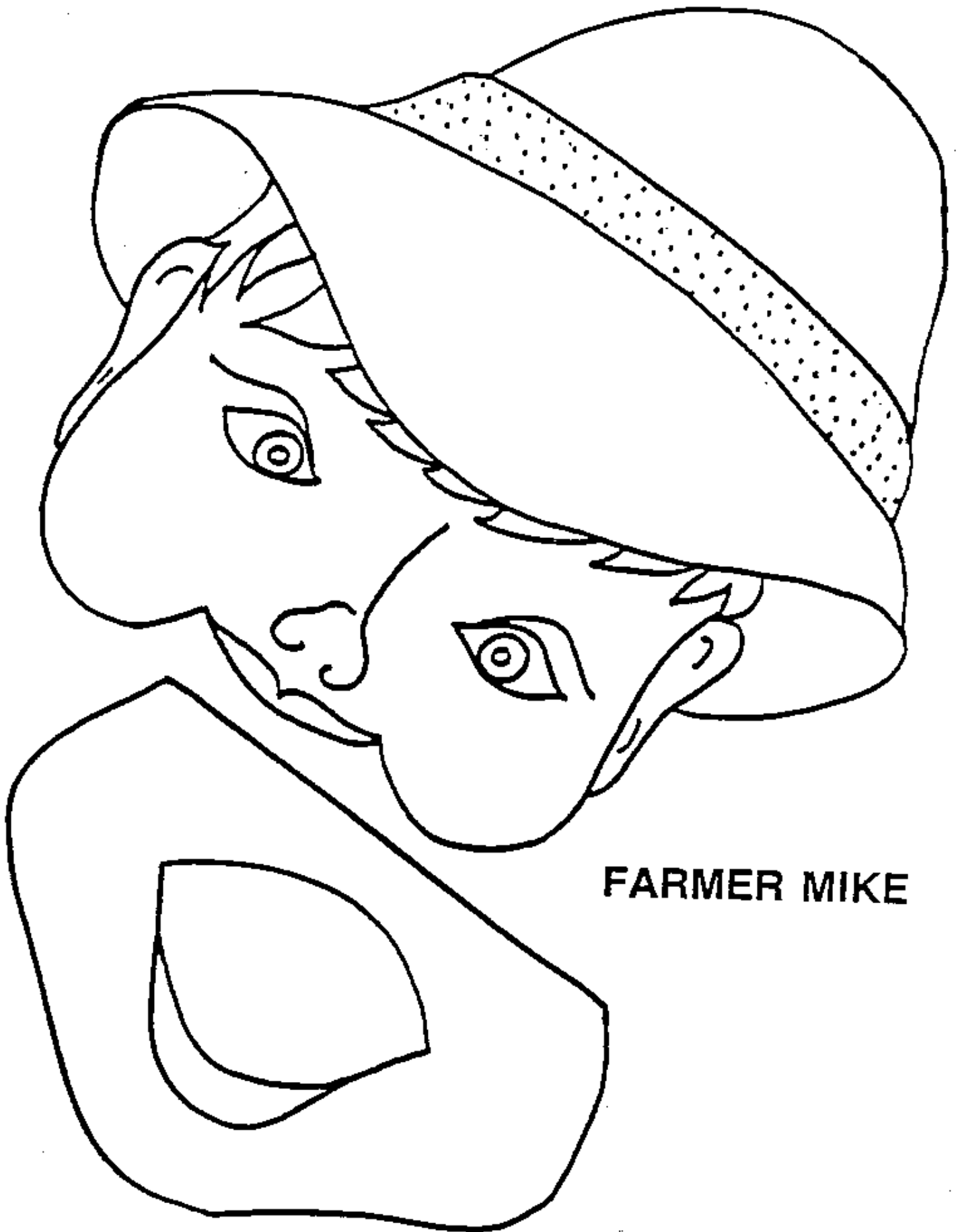
The day is almost over. It is great to have my children and my wife greet me with a hug and the daily mail. Here is a pamphlet produced by the United States Government which will help me be a better farmer. I can tell that it is about government standards which will be enforced next year.

After dinner, I have to put information into our computer. We keep accurate records of what we spend for feed, seed and fertilizer. We also need to know the amount of milk each cow produces.

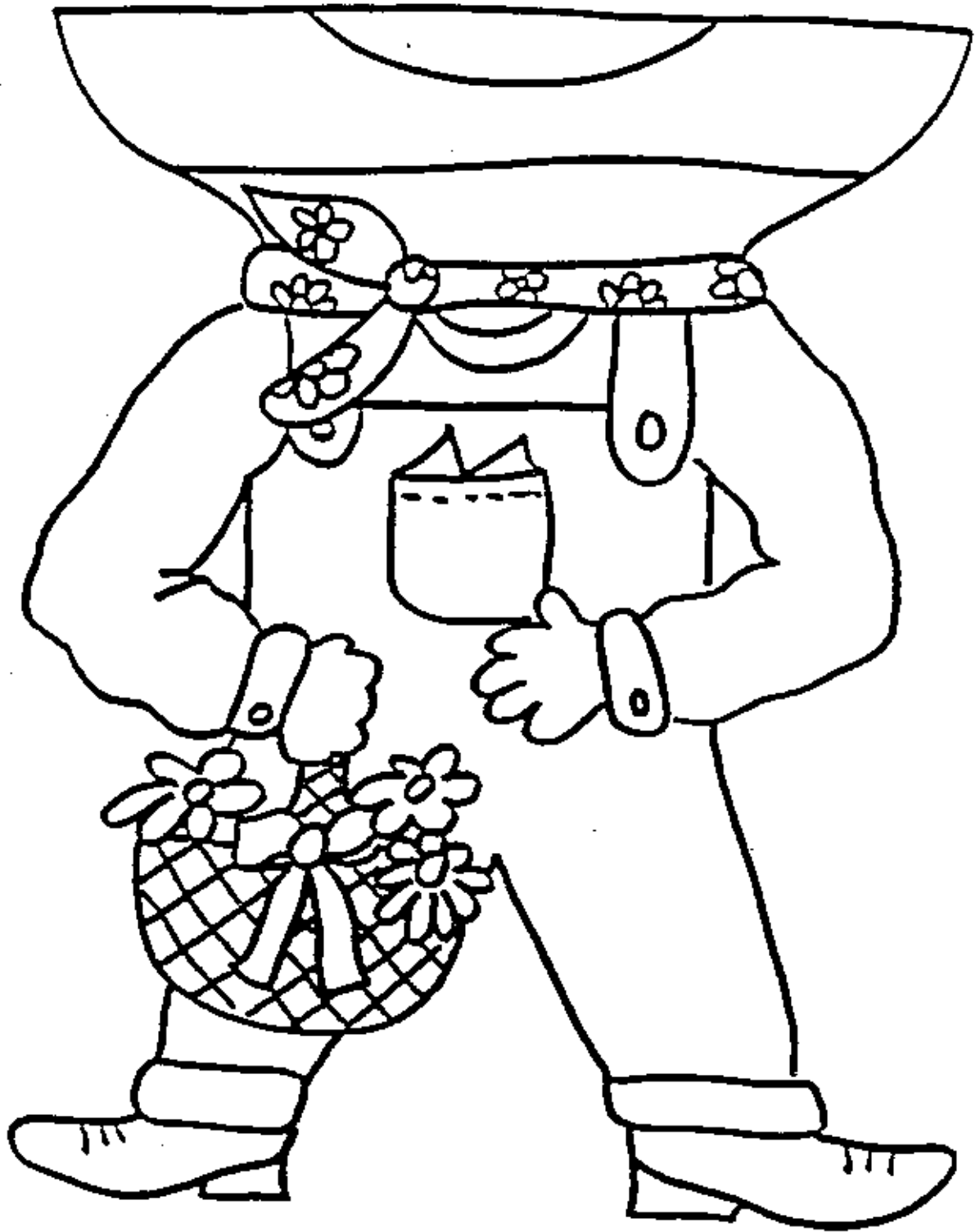
We are going to listen to the local news and weather on television. The weather report helps me plan my farm activities for the next day. It looks as if it might

rain tomorrow. If it is too wet to work in the fields we can repair fences or work on repairing our equipment. We have found that we can save a lot of money by doing most of the repair work ourselves. Tomorrow will be another busy day. In addition to milking the cows, we also have to take some of our cows to the sale barn. We can get a good price for them now.

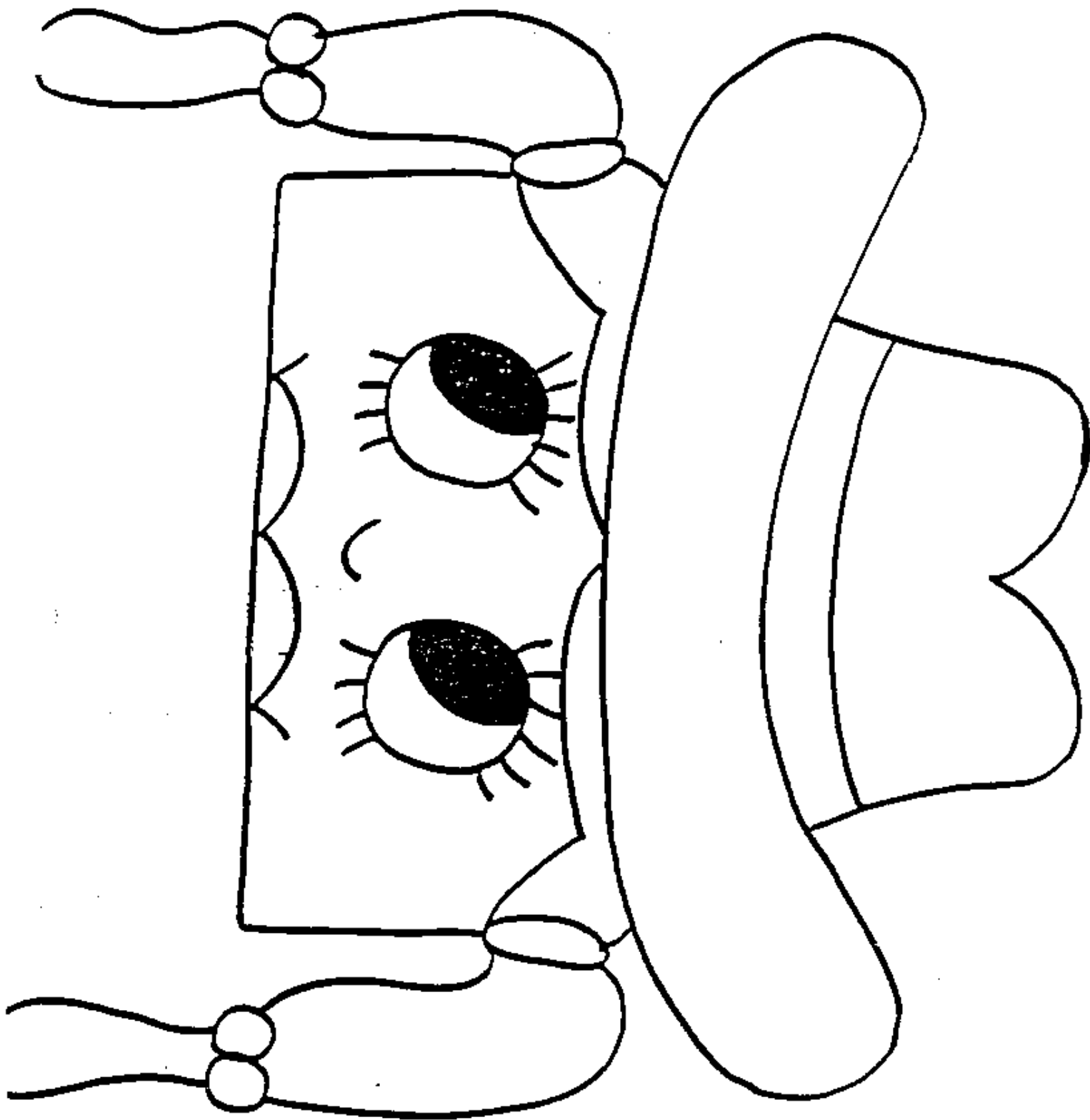
It is at last time to climb into bed and say goodnight to another busy day on the farm. As I go to sleep, I can't help but think how glad I am to be a farmer.



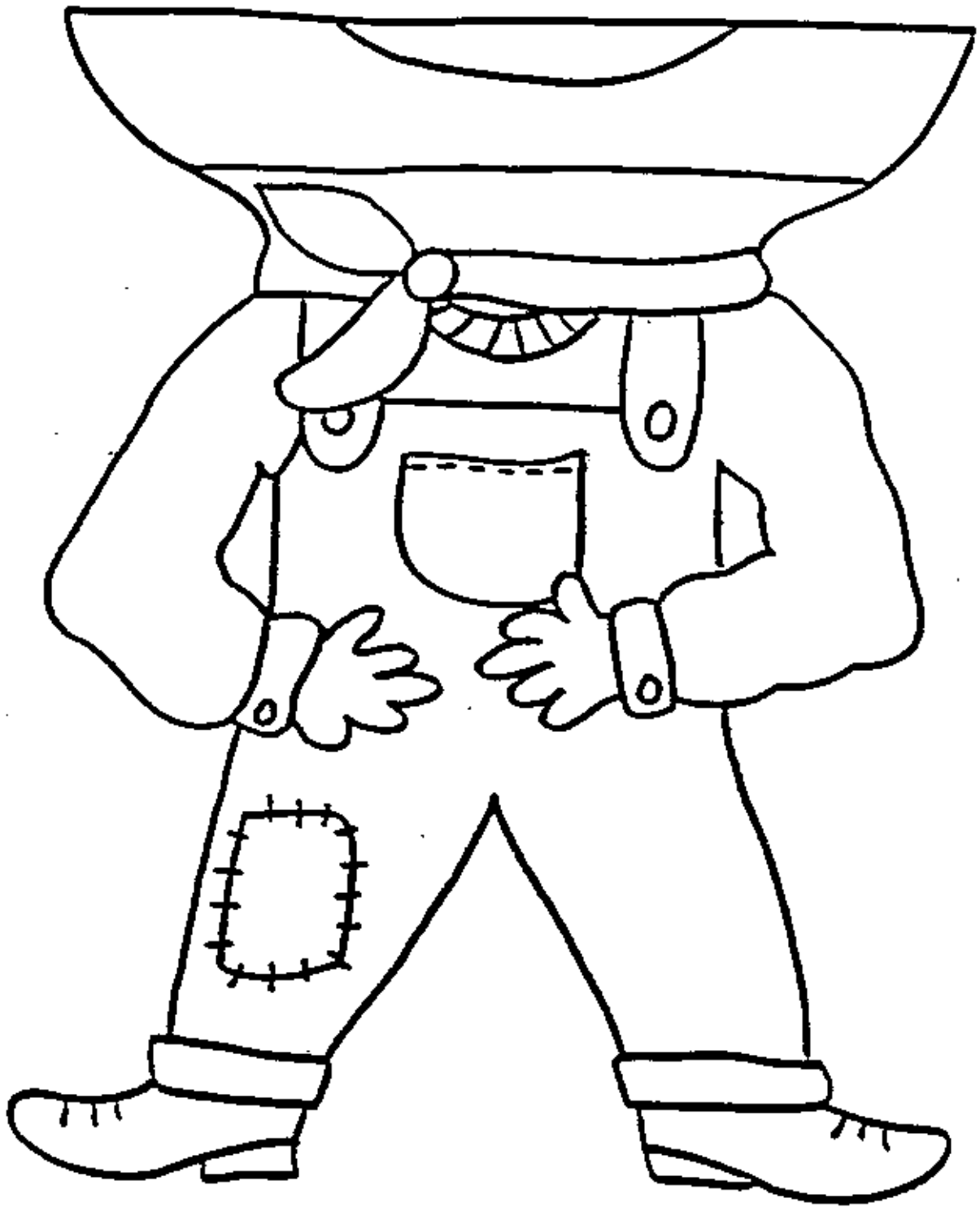
FARMER MIKE

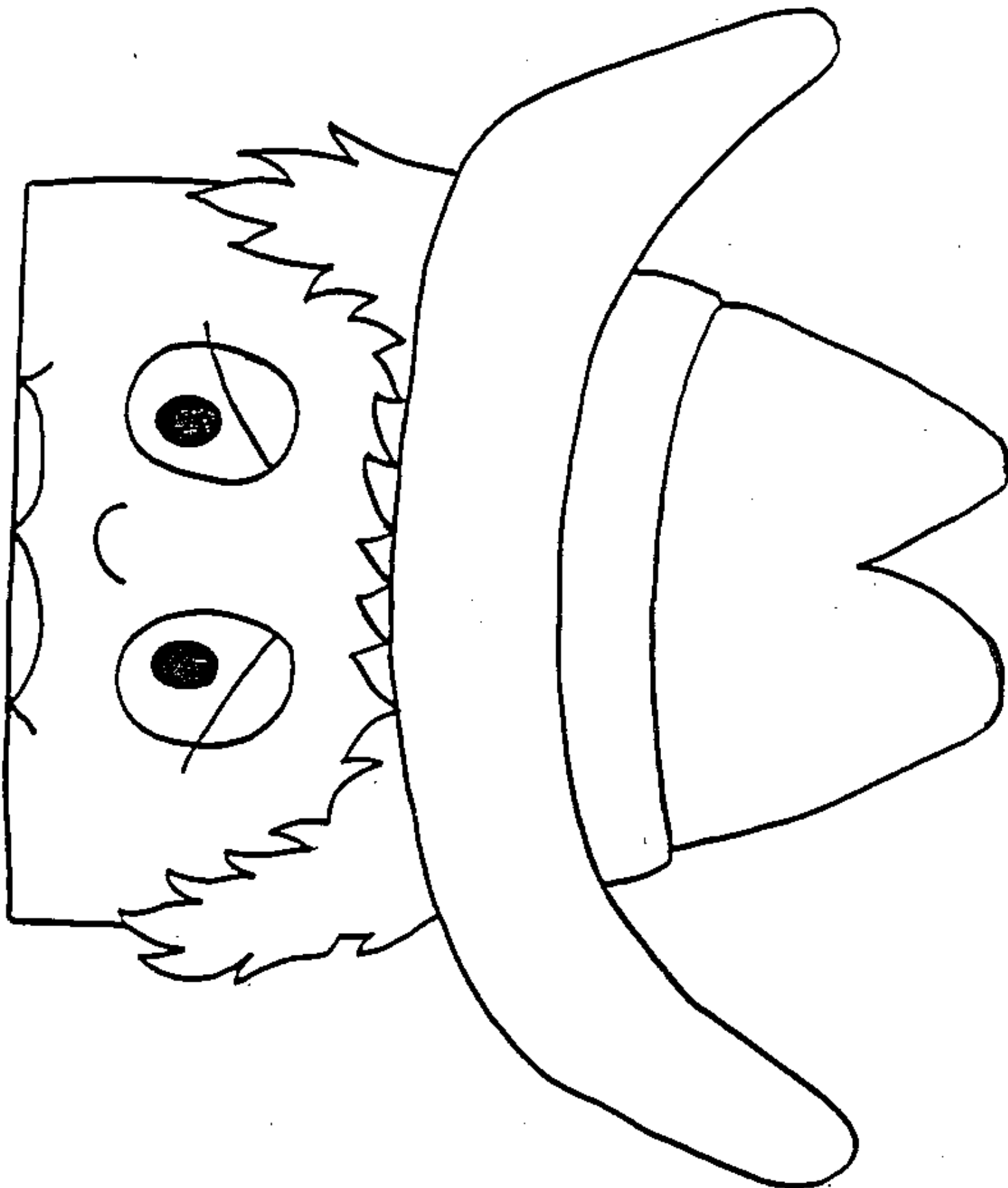


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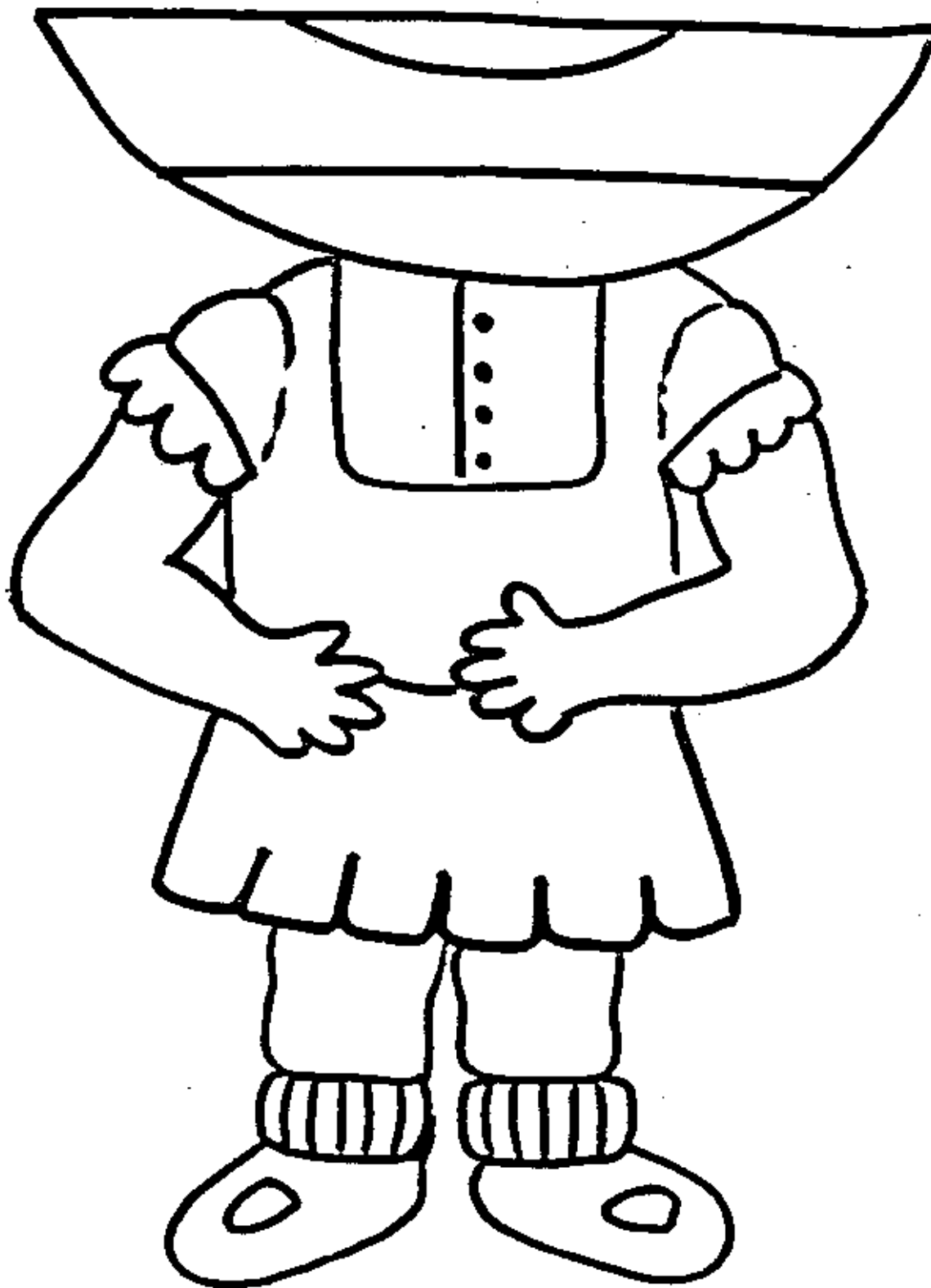
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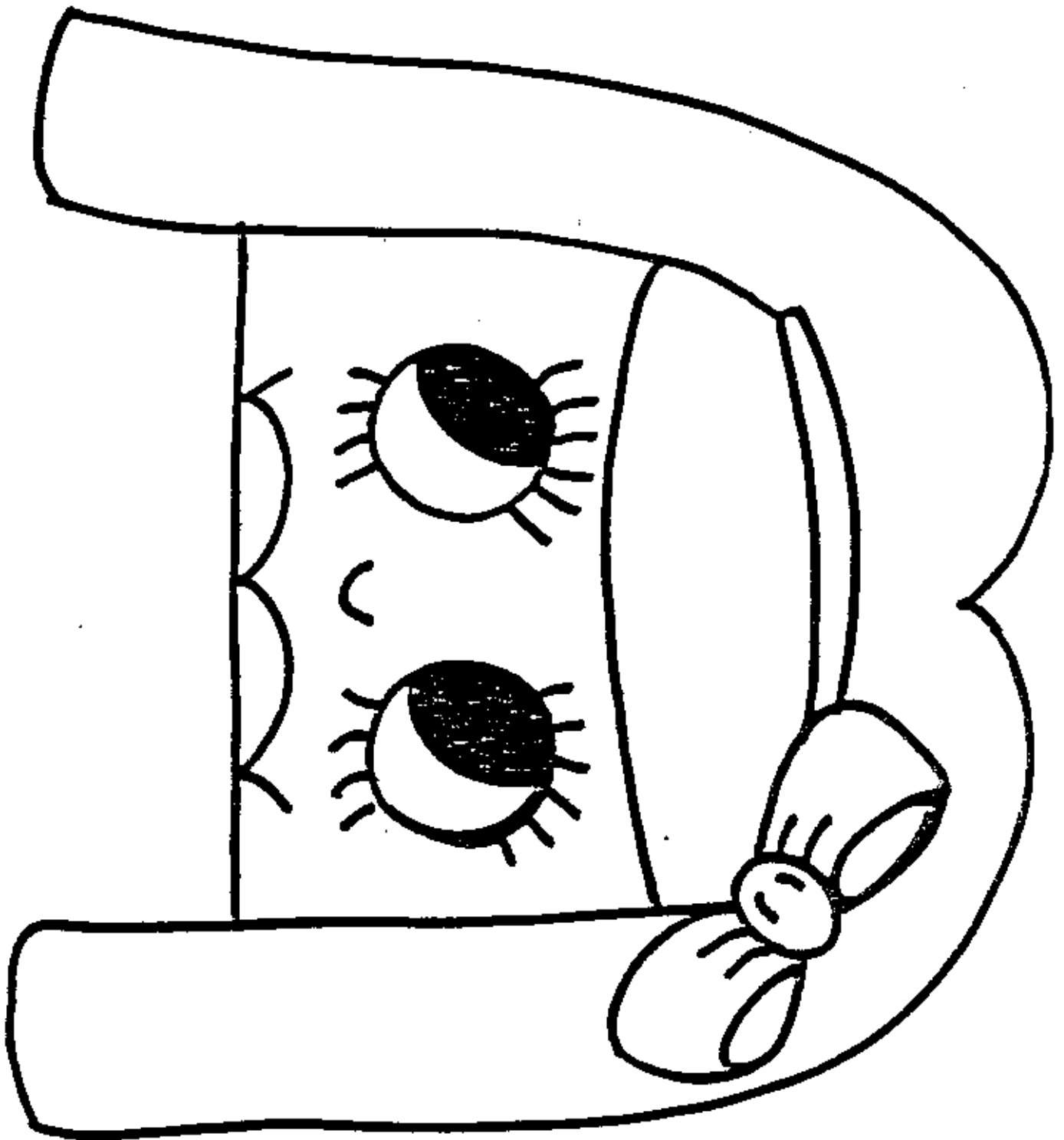


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KNOW YOUR NEEDS

Grade Level:	Primary
Economic Concepts:	Basic Needs
Skills:	Language Arts, Science
Time Frame:	Five Class Sessions

The students will demonstrate their understanding of how the American agricultural system allows for a variety of choices in meeting basic needs by:

- A. Completing a word search in each of the three basic needs (food, shelter, clothing).
- B. Playing the game "Know Your Basic Needs."

Vocabulary:

Food, clothing, shelter, products, productions, agriculture, basic needs, harvesting, fiber.

Materials:

Roll of paper, markers, word find handouts, tagboard (2 large pieces), felt tip pens.

Procedures:

- A.
 1. Write, "Agriculture is the production and harvesting of food and fiber from animals, animal products, and from plants and forest products" on the chalkboard. Discuss what this sentence means.
 2. Define "economic needs" as being food, clothing, and shelter. Discuss what would happen if a person did not have all of these things.
 3. Tape three long strips of paper on the wall where all students can see them. Title each with food, clothing, and shelter.
 4. On the first day, have students brainstorm to start a list of foods that satisfy our needs. Discuss the role agriculture plays in the production of each item before it is placed on the list.
 5. After each student has suggested at least one item for the list, pass out the foods word search. Have students find all of the various foods hidden in the puzzle.
 6. On the second day, follow the same procedure as #4 and #5 above except list clothing and compete the clothing word search.

7. On day three, follow the same procedure except list types of shelter and complete the shelter word search.
 8. Leave the lists on display for several weeks. Allow students to add words to the lists as they discover different types of food, clothing, and shelter.
 9. Students may be encouraged to produce their own word searches. The computer can be used for this purpose.
 10. The word searches might also be made into file folder games for children to play with again and again.
 11. The word search would be more of a challenge if the teacher assigned a certain number of words found to be “genius,” a smaller number found to be “smartie,” and a lesser number to be “brainy.”
- B.
1. Discuss with students the concept that everyone has three basic needs – food, clothing, and shelter. Students are then to brainstorm how these three basic needs are met and by what products.
 2. Discuss that the three basic needs are met by products supplied by our agricultural system. Have children discuss what agricultural products meet these needs. Examples would be: from animals come beef, poultry, pork, veal, fish, eggs, dairy products, etc. From plants come grains, vegetables, fruits, sugar, nuts, etc. Fiber such as wool and leather comes from animals. From nonedible plants come cotton, flax, and hemp. From forest products come lumber and pulp.
 3. The “Know Your Needs Game” may now be played. This game may be played as a rummy card game, as a folder game, or as “concentration.” The following rules may be adjusted as necessary for the type of game you decide to construct. (Patterns are included for construction of this game).

On a set of tagboard cards have pictures depicting items that are basic needs (articles of clothing, paper, pencils, prepared foods, bedding, housing, etc.). On a large sheet of tagboard, divided into squares the size of the cards, have pictures of agricultural items from which the basic need pictures originated. For example, if one of the cards has a picture of a cotton shirt on it, you would need to have a picture of a cotton plant on the large piece of tagboard.

After the child matches all of the cards with the correct corresponding item on the tagboard, he then states whether that product meets the basic need of food, shelter, or clothing. The answer would need to be on the back of the card for self-checking purposes.

FOOD SEARCH

People enjoy many types of food. Find and circle the food names found in the puzzle. Circle your favorite foods in red.

apple	cabbage	donut	lettuce	pudding	turkey
asparagus	cake	dressing	limes	raspberry	turnip
bacon	cereal	eggs	liver	salmon	veal
banana	cheese	fruit	lobster	salt	watermelon
beans	cherries	grape	muffin	sandwich	
biscuits	chicken	gravy	nuts	sausage	
blueberry	coffee	hamburger	orange	shrimp	
bread	coke	jello	pea	steak	
brownies	cookies	jelly	pizza	taco	
burrito	crab	kiwi	potato	tea	
butter	crackers	lamb	potato chips	tomato	

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F E S C B A E E F F O C S C O R A N G E B S
G G E D S Y N R A S P B E R R Y A R E T T T
L I N G T R I A A S P A R A G U S E G L U U
H I R N I R F E A E T P S B S P I T A A N N
C S I R U E F P F R U I T Z S E C S S S O P
I S E D C B U R R Y R Z E G G S B B U E D O
W E H D S E M E E E K Z A Q L B A O A I S T
D R C U I U P G V K E A K E A M N L S K R A
N D F P B L M R I A Y W U S E A A O N O E T
A P P L E B I U L C K X V E V L N T O O K O
S E I N W O R B C H I C K E N O A I M C C C
T L C L J L H M A O W K M H T T S R L N A H
U A O I E L S A B C I L N C H A M R A O R I
R E K M L E I H B A B R E A D M R U S C C P
N R E E L J J W A T E R M E L O N B E A N S
I E H S Y V A R G Q P O O T A T O P C B D E
P C E P A R G L E T T U C E B U T T E R F G
  
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CLOTHES SEARCH

People wear many types of clothes. Find and circle the names for different types of clothing found in the puzzle.

JEANS
SWEATER
SHIRT
GOWN
HOSE
BOOTS
SOCKS
OVERALLS

COAT
PONCHO
CAP
KIMONO
SKIRT
SANDAL
SHOES

HAT
UNIFORM
MUMU
DRESSES
SERAPE
SCARF
SHORTS

CAPE
BLOUSE
JACKET
PANTS
COSTUME
GLOVES

W	P	S	T	R	O	H	S	R	E	S	E	O	A	F
V	R	E	E	P	A	N	T	S	S	E	P	V	B	R
U	S	S	K	G	O	W	N	K	O	O	A	E	C	A
T	Q	S	C	S	C	X	Y	C	H	H	R	R	C	C
O	T	E	A	W	O	B	L	O	U	S	E	A	O	S
N	R	R	J	E	A	N	S	S	D	E	S	L	S	E
O	I	D	M	A	T	M	U	U	M	U	U	L	T	L
M	K	N	L	T	U	N	I	F	O	R	M	S	U	D
I	S	O	K	E	P	O	N	C	H	O	F	G	M	N
K	S	H	I	R	T	Z	T	A	H	J	I	H	E	A
S	E	V	O	L	G	C	A	P	E	B	O	O	T	S



SHELTER SEARCH

Families around the world live in many different types of homes.
Find and circle the names for homes found in the puzzle.

Words to find:

apartment
bungalow
bunkhouse
cabin
castle
condominium
cottage
dome

dormitory
duplex
estate
farmhouse
home
hotel
house
houseboat

hut
igloo
mansion
mobile home
motel
penthouse
ranch

shed
tent
tipi
townhouse
treehouse
villa
yacht

D O R M A T O R Y C O T T A G E
A A V I L L A H Y A C H T F E S
M C T F U V H O U S E W X G D H
Q A P A R T M E N T M O T E L E
S B T R E A L O O L G I A B C D
E I R M T O A E B E S T A T E W
S N E H L B K H U T Q H H Y X V
U M E O E E B U N G A L O W Z U
O A H U H S O E K U I E M T I P
H N O S S U T D H S P T E S E T
N S U E C O N D O M I N I U M L
W I S R E H E H U M T I J K L M
O O E L A K S O S P E R O P O N
T N M O H E E U E A L R A N C H
F R E O E S U O H T N E P C D G
G M O B I L E H O M E B X E F H

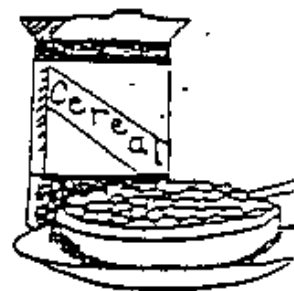
sweater



rubber boots



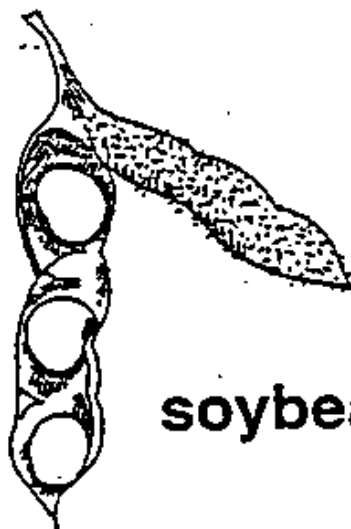
watermelon



cereal



dress



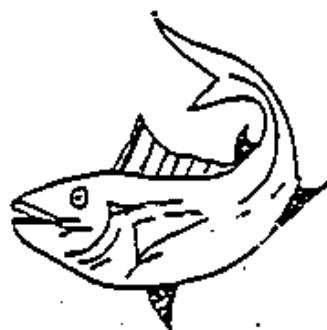
soybeans



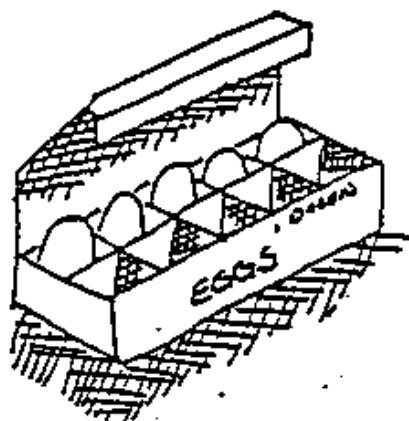
house



dairy products



fish



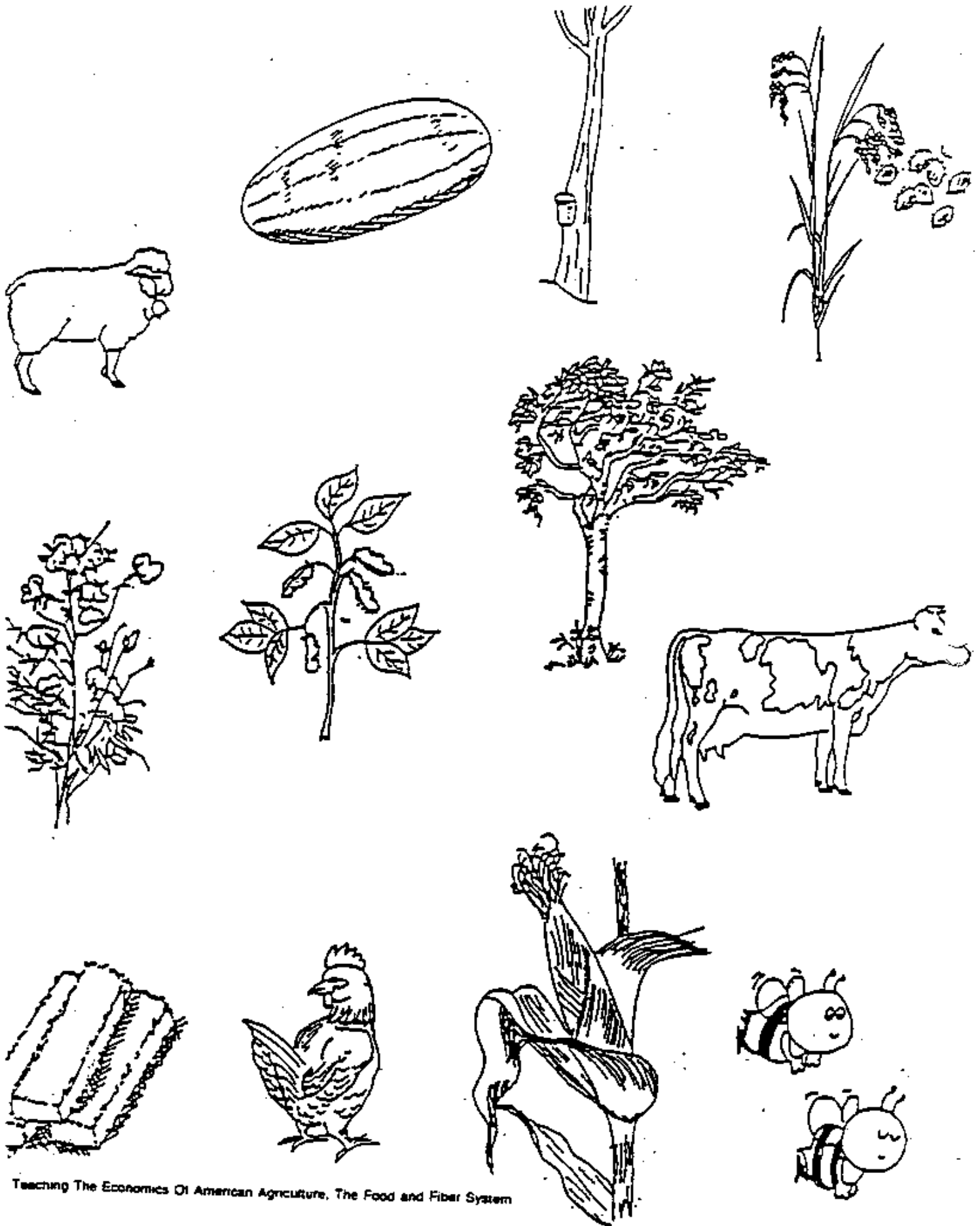
eggs



corn



honey



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FOOD

CLOTHING

FOOD

CLOTHING

FOOD

TEXTILES

FOOD

CLOTHING

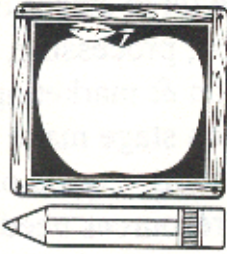
FOOD

FOOD

FOOD

FOOD

TEACHER'S GUIDE - GROCERY ISSUE



AG IN THE CLASSROOM A COLORADO READER

Colorado Foundation for Agriculture

When asked, "Where does food come from?" Students often answer "the grocery store." Grocery stores are where they see and buy the food they eat. But it has gone through a sophisticated system of production, processing, distribution and marketing to reach the store shelves. In the United States our system combines free enterprise with a

market economy that results in a consumer driven supply system. It provides us with an abundant diversity of food products from which to choose. It has also resulted in the world's safest and most reliable food supply.

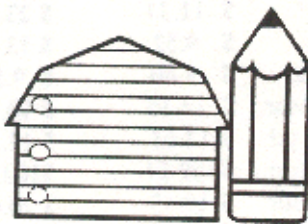
The focus of this reader is to examine where our food comes from. We can appreciate our system more when it is

compared to other systems around the world. You may want your class to compare our system and the Russian system. Part of the problem Russia is facing today is a breakdown of production, processing, distribution and marketing of food as they convert from a state run economy to a free market economy.

RESOURCES

For a free catalog of publications & videos write:
Food Marketing Institute
900 Connecticut Ave., NW
Washington, D.C. 20006-2701
800 433-8200

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STORE DEFINITIONS

Grocery Store

Any retail store selling a line of dry grocery, canned goods or nonfood grocery items plus some perishable items.

Supermarket

Any full-line, self-service grocery store with sales volume of \$2 million or more annually.

Supermarket-Style Store

Any self-service grocery store, including meat, dairy and produce departments, with sales volume between \$1 million and \$2 million annually.

Convenience Store

Compact drive-to store offering limited line of high-convenience items. Over half sell gasoline and some sort of fast food; are open long hours with easy access.

Other Store

Any grocery store with sales volume of under \$1 million annually.

Limited Assortment Store

A store with under 1,500 items, primarily dry grocery with very few, if any, perishables.

Warehouse Store

Store with more than 1,500 items. Low margin and labor ratio.

Superstore

A supermarket with more than 30,000 sq. feet, doing \$8 million or more annually.

Hypermarket

Full line department and grocery store utilizing from 150,000 to 220,000 sq. feet retail space.

ABOUT THIS ISSUE

PAGE ONE

The three stages food goes through before it reaches our table are explained. To understand why certain foods are available at certain prices we must understand the inputs and outputs at each stage.

Activity: Ask your students to list farm products grown in Colorado. Then list food products not grown in Colorado. Discuss why some products are and others are not grown here.

Trivia question: Why do we still call these blackboards when most are now green?

Activity: Make three columns on the blackboard listing the three stages of production, processing, distribution & marketing. Under each stage make two more columns: types of jobs and resources needed. Have your students list jobs and resources.

For Example:

Production	
Types of Jobs	Resources Needed
farmers	land
mechanics	equipment
sales people	seed
botanist	water
chemist	chemicals

Processing	
Types of Jobs	Resources Needed
cooks	energy
packagers	building
sales people	packaging
managers	insurance
designers	crops

Distribution & Marketing	
Types of Jobs	Resources Needed
truck drivers	trucks
sales people	building
managers	literature
	processed products

PAGE TWO

Discussion: What alternatives do farmers have for the use of their land? How do these alternatives differ from region to region? How does a farmer decide what to grow or raise? Farmers can decide to change the types of crops raised or use the land for raising animals rather than crops or land can be left fallow - not used at all. The decision is limited by the amount of land, its condition, the climate of the region, and the farmer's other resources

such as money, machinery and labor. These factors, and the price farmers think they will receive for various products, help them to decide what to produce. Farmers might even stop farming for a time and work in other jobs.

Answer First Math Question:
 $80 \text{ acres of soybeans} \times 35 \text{ bushels} = 2800 \text{ bushels of soybeans}$
 $2800 \text{ bushels} \times \$6.46 = \$18368.00$
 $80 \text{ acres} \times \$224.00 \text{ costs} = \$17920.00$
 $\$18368.00 - \$15353 \text{ costs} = \$448.00 \text{ profit}$

Costs to Produce:

	Soybeans	Corn
labor	\$ 7.72	\$ 16.93
seed	\$ 11.54	\$ 19.64
water	--	\$ 1.14
chemicals	\$ 19.07	\$ 42.42
energy	\$ 11.31	\$ 23.98
repairs	\$ 9.52	\$ 13.36
overhead	\$ 9.40	\$ 9.50
taxes/insur.	\$ 14.15	\$ 10.14
interest pd	\$ 12.65	\$ 12.53
land/equip	\$109.21	\$102.01
unpd labor	\$ 19.43	\$ 20.65
TOTAL	\$224.00	\$272.30

Answer to Second Math Question:

$100 \text{ acres of corn} \times 155 \text{ bushels per acre} = 15500 \text{ bushels of corn}$
 $15500 \text{ bushels} \times \$2.45 \text{ per bushel} = \37975.00
 $100 \text{ acres} \times \$272.32 = \$27232.00$
 $\$37975.00 - \$27232.00 = \$10683.00 \text{ profit}$

PAGE THREE

Corn:

livestock feed
ethanol
cereal
corn starch
(see Corn Reader)

Cattle:

beef
leather
glue
(see Livestock Reader)

Soybeans

oil
meat substitutes
margarine

Wheat

cake
bread
cookies
flour
(see Wheat Reader)

Pig

pork
leather
insulin
(see Livestock Reader)

Beans

chile
salads
bean bags
bean art - your students
may want to try
this. . .

Sheep

wool
lamb
lanolin
(see Livestock Reader)

Barley

livestock feed
cereal
beer

Oats

animal feed
hot & cold cereal
bread

Costs producers have to consider:

labor land
seed water
taxes profit
equipment
transportation
fuel & energy
overhead
repairs
buildings

PAGE FOUR

Question: What does it mean to "process" a farm product into a food product?

Processing means changing the form of something into another form.

Question: Using corn as an example, what are some products created through "processing" corn? (This would be a good time to review the material from the Corn Reader!)

Gasohol, frozen dinners, syrup, animal feed, cereal, canned corn, flour, chips, etc. are all examples of processed corn.

Question: To whom do these processed foods appeal?

Consumers with special diet needs, tastes, preferences and lifestyles demand processed food.

Question: How does processing affect the price of food?

Processing adds to the price of the food product because it increases the resources needed to bring the product to the consumer.

Question: How does food processing influence our lifestyle?

Many modern lifestyles demand food be available in forms other than "just harvested" so preparation time can be kept to a minimum. Consumers also demand a variety of products year round in all geographic regions. Preservation through processing has become necessary.

Question: Does food processing add any "value"? **Processing foods adds consumer value in the form of safety and convenience.**

PAGE FIVE

Question: How does distribution and marketing food products affect their cost?

These steps add to the cost of products but make more products available to us.

Question: In what ways are food products marketed in the U.S?

Corner grocery stores, supermarkets, convenience stores,

discount stores, mail order catalogues, co-ops, warehouses, roadside stands, restaurants, etc.

Question: Why is it more expensive to buy food in restaurants than prepare it at home?

Restaurants add the cost of preparing and serving meals to the bill paid by consumers. They add the cost of making a variety of foods regardless of the season and region they serve. Overhead costs such as rent, utilities, etc. are passed on to the consumer.

Question: What "hidden cost" are involved in preparing a meal at home? Some of the "hidden costs" of preparing food at home are labor (in the form of opportunities lost), wear on utensils and appliances, cost of utilities and waste.

Question: Do you think the "opportunity cost" of home cooked meals is important?

Answers will vary depending on the importance of opportunity costs to those people involved in the preparation of meals. It can be very important to those who would rather use their time in other activities.

Question: How do consumers tell producers in what form they want their food marketed?

Ultimately, consumers vote for the form in which they want their food processed and marketed by casting their dollar votes for specific products when they shop.

PAGE SIX

Discussion: How was value added with each person who processed the strawberries?

Note: You may want to mention to your students that if this were a real life situation, each entrepreneur would have to be licensed by the state, county and/or city to sell their products. They would have to collect sales tax, and pass health inspections, etc.

Extended Activity: What would happen to the cost of berries if a value added tax was collected at each stage?

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Answers:

1. 22 cents
2. labor
3. 6.5 cents
4. 78 cents
5. labor = 35 cents
packaging = 8.5 cents
transportation = 4.5 cents
depreciation = 4.5 cents
advertising = 4 cents
fuel & electricity = 3.5 cents

profits = 3.5 cents
rent = 3.5 cents
interest = 3 cents
repairs = 1.5 cents
other costs = 6.5 cents

PAGE EIGHT

Answers

h
c
a
e
i
j
f
d
g
b

Extended Activities

Arrange a field trip to different retail food outlets. Have students find out where the food products come from, what services each kind of outlet provides, and how prices, services and products compare.

Credit:

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