



**EDUCATIONAL ENHANCEMENT ACTIVITIES
FOR THE
ADVENTURES OF THE CONSERVATION PACK
VIDEO SERIES
GRADES K-5**



www.conservationpack.org

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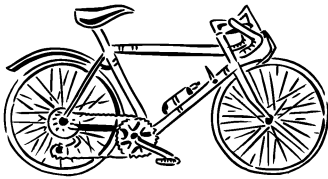
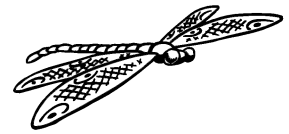
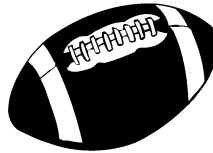
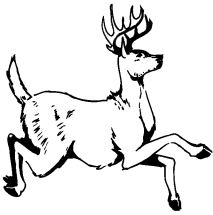
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 email: waterrocksisu@gmail.com

Episode 1

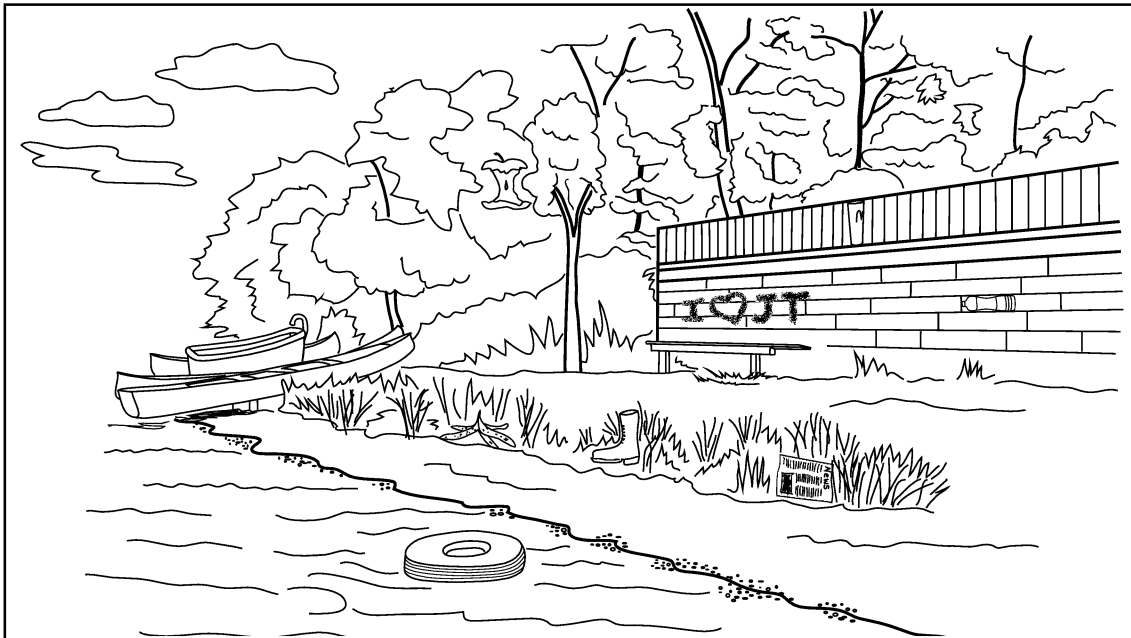
Allen Bonini, Department of Natural Resources

Charlie talked to Allen about his job at the Department of Natural Resources. Natural resources are things made by the Earth that humans use.

Circle the pictures that show some things that Allen might see or do at his job.



Pollution is too much of something or things that don't belong in the environment. Circle any pollution you see in the picture, then color the rest of the picture.



How can you help reduce pollution? Put an X by the things you can do.

- | | |
|---|--|
| <input type="checkbox"/> Pick up pet's poop | <input type="checkbox"/> Throw candy wrappers in a garbage can |
| <input type="checkbox"/> Take long showers | <input type="checkbox"/> Use disposable water bottles |
| <input type="checkbox"/> Leave paper on the ground | <input type="checkbox"/> Take short showers |
| <input type="checkbox"/> Turn off water while brushing my teeth | |

Episode I

Allen Bonini, DNR

Unscramble the letters to find out what DNR stands for.

D _ _ _ _ _ T T R A P M N E E
 of
 N _ _ _ _ _ U A A T R L
 R _ _ _ _ _ S S E E O U C R

Charlie asked Allen what he does in his job.

Make an X by the things Allen told Charlie he does.

- Teaches classes about animals
- Looks at animals
- Builds ponds
- Takes water samples
- Grows gardens
- Manages deer populations

Choose the correct word or words to fill in the blanks. Words can be used more than once.

- a. Nutrients
- b. Pollution
- c. Phosphorus
- d. Nitrogen
- e. Bacteria
- f. Soil

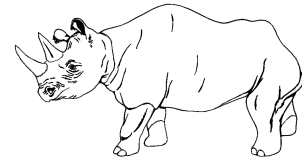
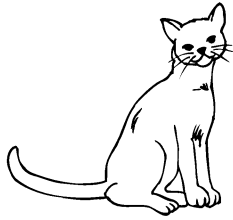
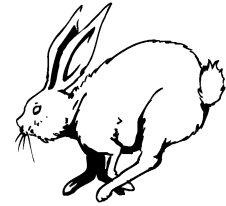
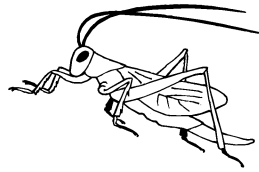
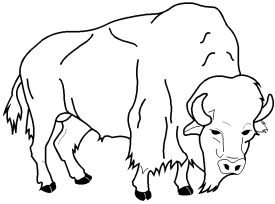
1. Too much of something in the environment: _____
2. Three kinds of pollution: _____
3. Too much can make fish sick or die: _____
4. Something that shouldn't be in the environment: _____
5. These are nutrients: _____
6. Another name for germs: _____

If you have a pet, what did Allen say you should do to make sure that bacteria does not get into the water?

Episode 2

Lisa Schulte-Moore, Iowa State University

Circle the animals that live in the tallgrass prairie.



Draw a line to the correct answer.

air, water, soil

How deep can the roots of prairie grasses grow? _____

The tallgrass prairie is important habitat for _____

The tallgrass prairie can help clean _____

20 feet



What was Jackie thinking about in the video?

Fill in the correct word to finish the name of the prairie grasses.

Side _____ grama

ROD

Switch _____

BLUE

Big _____ stem

GRASS

Golden _____

OATS

Episode 2

Lisa Schulte-Moore, Iowa State University

Why is it called tallgrass prairie? _____

How deep will some of the grass roots grow? _____

What is the purpose of the grass roots? _____

Fill in the blanks to finish the names of the prairie grasses.

Big _____ stem

Side _____ grama

_____ grass

_____ rod

Find the names of animals whose habitat is the prairie in the word find.

T B S A E B U M B L E B E E J

K G H P K G O L D F I N C H A

Z F B T P L S P X P B J D S W

F N O S I B P H E A S A N T O

G R A S S H O P P E R V Q K R

C Y K N K N U K S A J Z D R A

J E K A N S N W O R B Z E T B

R E H P O G T E K C O P E E B

W S D I N Z E W E X E F R J I

S U D N S U D E E Y G O E X T

BISON
BROWN SNAKE
BUMBLE BEE
DEER
GOLDFINCH
GRASSHOPPER
PHEASANT
POCKET GOPHER
RABBIT
SKUNK

Unscramble the letters to name three things tallgrass prairie can help clean in our environment.

ria _____ tware _____ lois _____

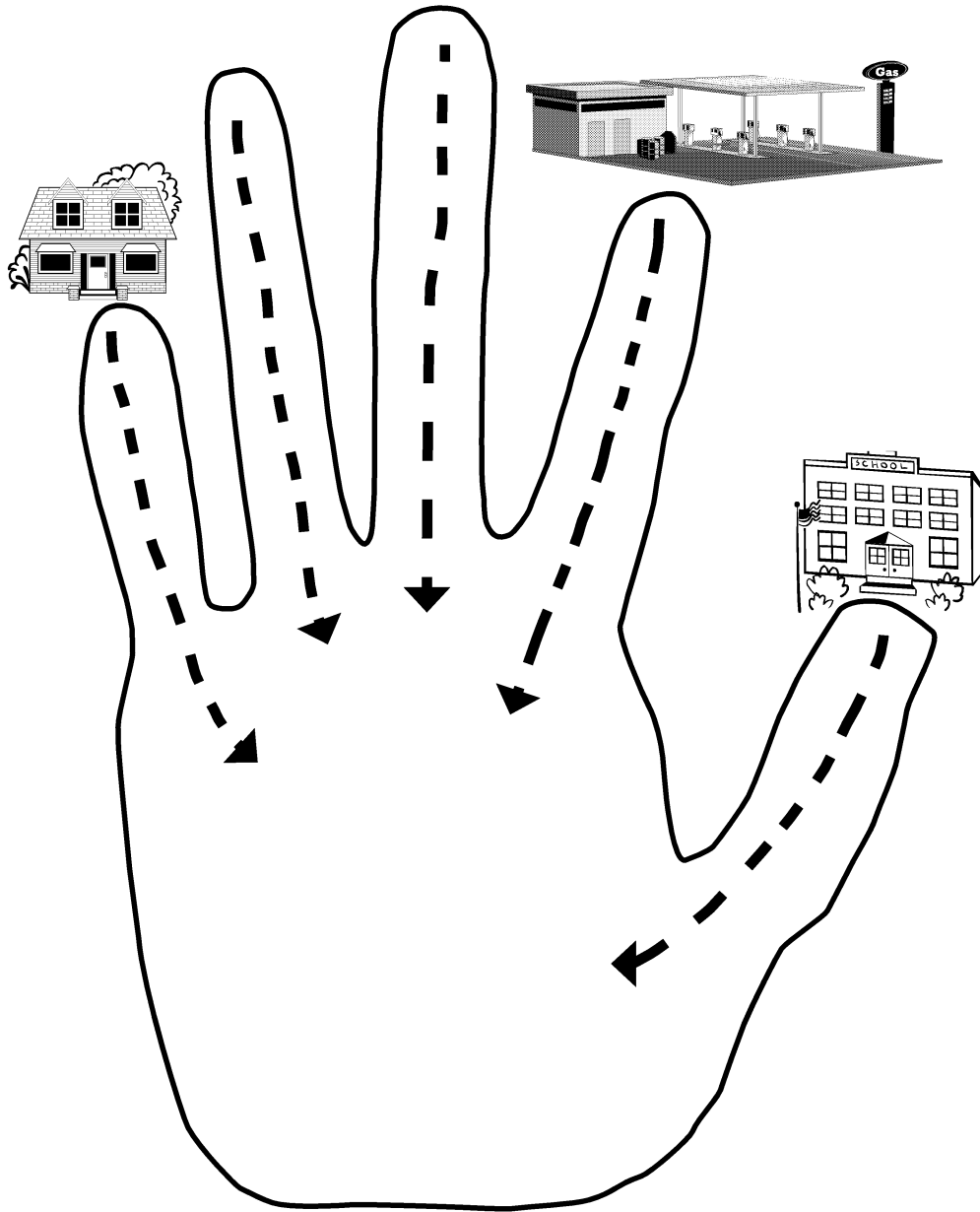
Episode 3

Rachel Glaza, Department of Natural Resources

Stewy talked with Rachel about watersheds. A **watershed** is an area of land that drains to a common point. Your hand can help you understand how a watershed works.

Trace this hand with a green crayon. Draw raindrops at the top of the hand.

Trace arrows with a blue crayon to show the direction water flows from streams to the same place.



On the back of this paper, draw a picture of how you can help keep the water clean.

Episode 3

Rachel Glaza, Department of Natural Resources

A **watershed** is an area of land that drains to a common point. Your hand can help you understand how a watershed works.

In the space below, trace your hand. Label your fingers and thumb "stream."

Draw raindrops above the hand. Draw arrows down your fingers to show the direction water flows from streams to the same place.

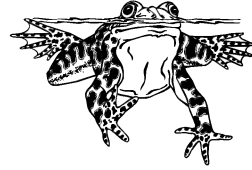
*On the back of this paper, use each letter in the word "WATERSHED" to write a word or words about protecting and conserving our water and the environment.
An example for letter "W" may be "Work together."*

Episode 4

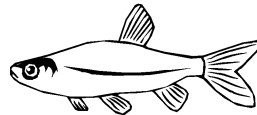
Matt Helmers, Iowa State University

Draw a line to the names of animals that live in wetlands.

Minnow



Duck

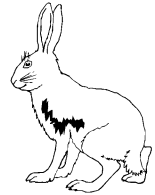
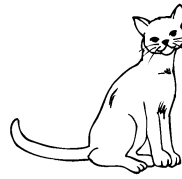


Insect



Frog

Circle what Charlie was thinking about:

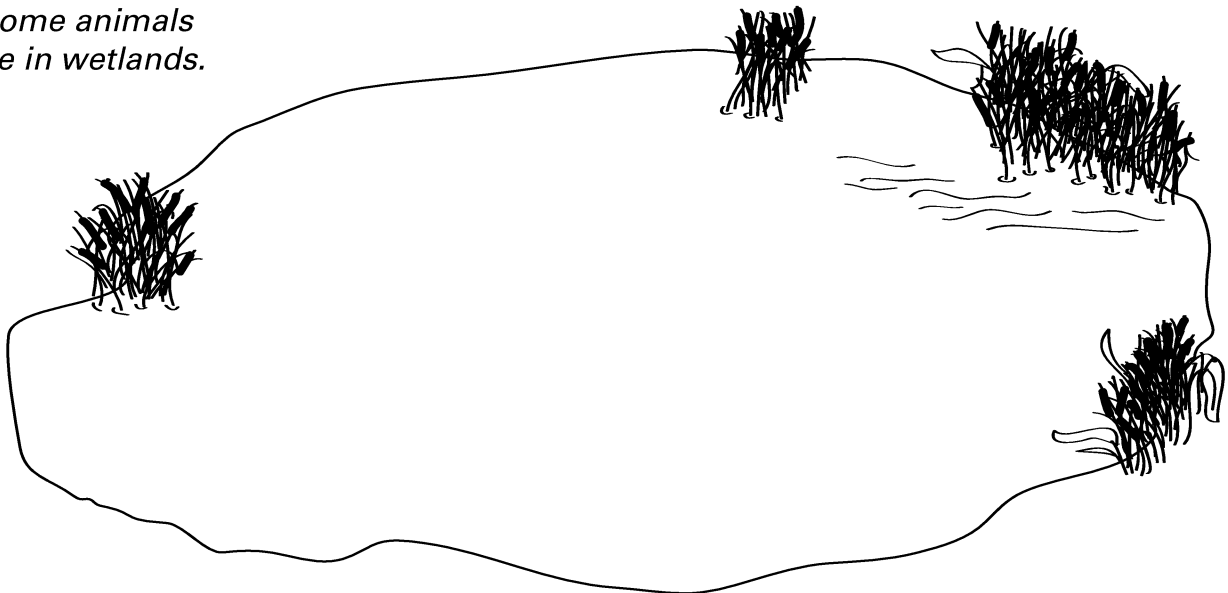


Do they live in wetlands? _____

Circle the words that describe a wetland.

- deep
- shallow
- dry
- minnows
- frogs
- insects
- big fish
- cleans the water
- swimming

Draw some animals that live in wetlands.



Episode 4

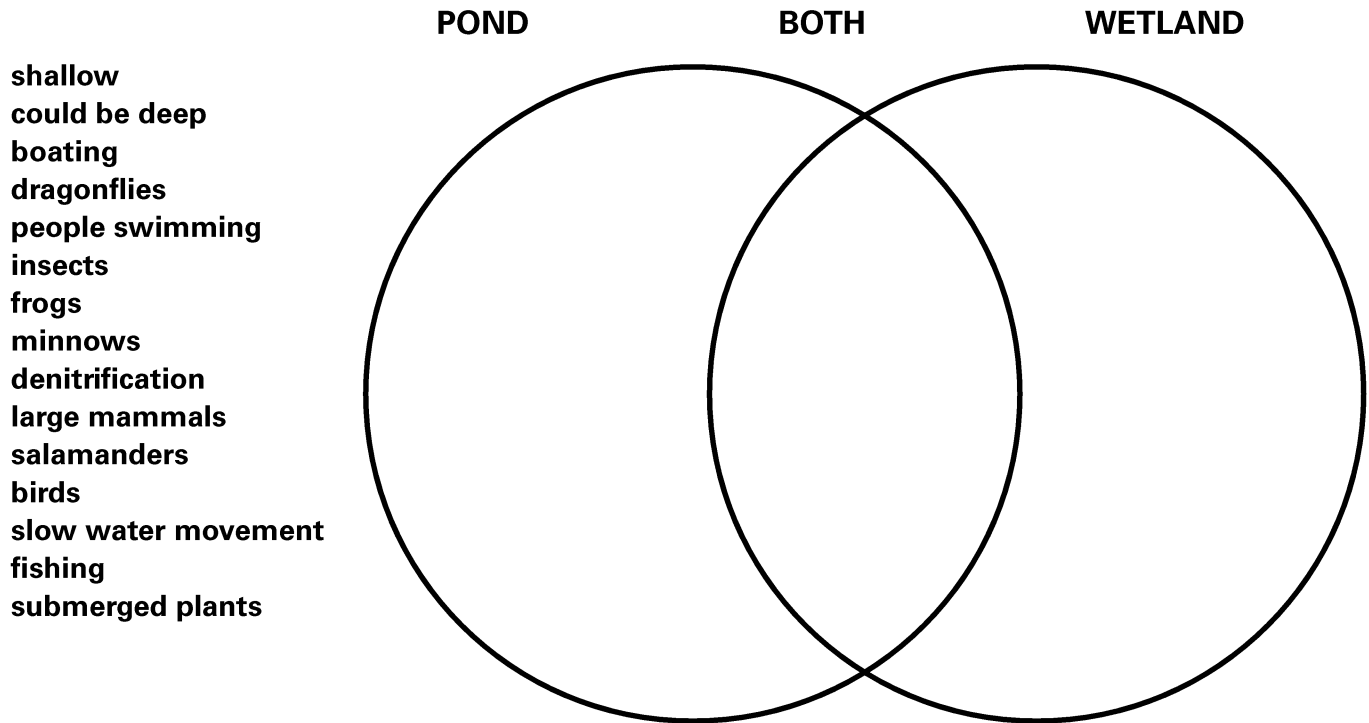
Matt Helmers, Iowa State University

A Venn diagram helps you compare two things. Compare wetlands and ponds.

In the outer parts of the circles write things about ponds and wetlands that are different.

In the part where the circles overlap, write things that are alike in wetlands and ponds.

Add any other words you can think of to the diagram.



Summarize the differences and similarities below.

Fill in the blanks with the following words:

nitrogen, water, environment, slow, soil, water

Wetlands are important in our _____. They _____
 down _____ and remove harmful things like _____
 from both _____ and _____.

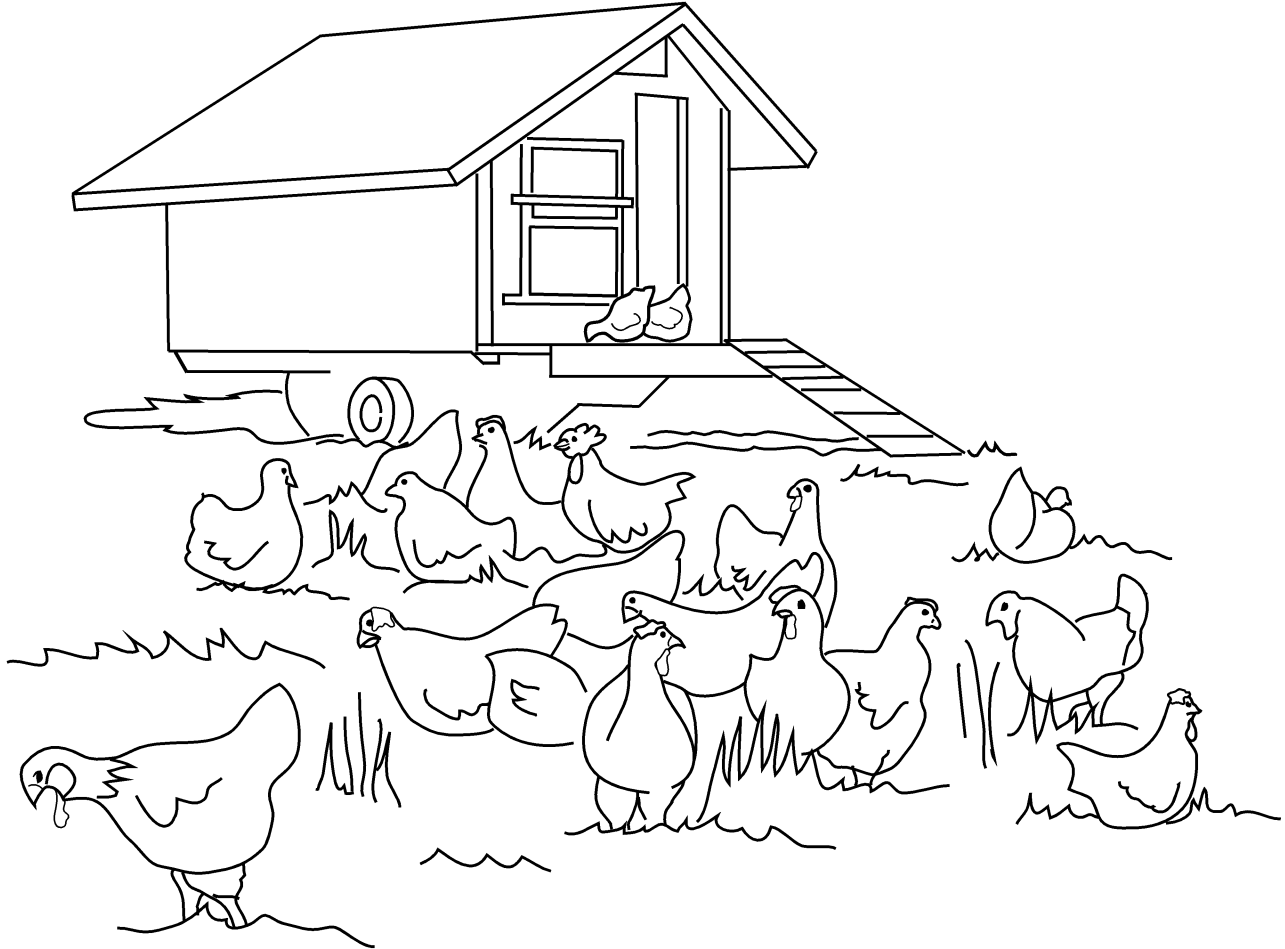
What animal was Charlie thinking about? Does it live in wetlands? Why or why not?

Episode 5

Laura Krouse, farmer

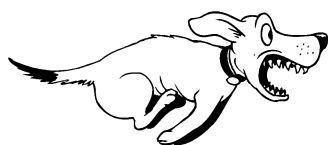
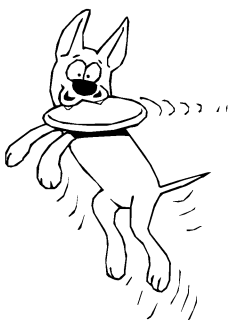
Charlie visited Laura's farm, where she has chickens.

Draw things chickens eat, like bugs and seeds, and color the picture.



How does having chickens on the land help Laura grow a good garden?

What do you think Charlie wants to do with the chicken? *Circle the correct picture.*



Episode 5

Laura Krouse, farmer

Fill in the blanks.

When Charlie visited Laura on her farm, he was very interested in her _____.
1 2 3 4 5 6 7 8

The chickens are in a special movable _____ The house is a place where the chickens
9 10 11 12 13

can _____ on _____ They also have _____ in the house.
14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

_____ provide plenty of air for the chickens as they nest or sleep.
31 32 33 34 35 36 37

The pasture is planted with things chickens like to eat, like _____ and _____
38 39 40 41 42 43 44 45 46 47 48

_____. They also eat _____ and weed _____. As the chicken house is moved
49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

around, the chickens spread their _____. The next year Laura plants a _____
64 65 66 67 68 69 70 71 72 73 74 75

in the pasture. The chicken manure provides _____ for the vegetables in
76 77 78 79 80 81 82 83 84 85

the garden.

Laura has found an economical, ecologically safe and chemical-free way to fertilize her gardens. A great way to fertilize a backyard garden that is economical, safe, and chemical-free is by creating compost. Use the letters from your answers above to see what you might use from your house and yard to make compost.

GREEN MATERIALS

57 39 72 62 46 7 58 51 3 50

70 72 65 63 63 1 15 8 14 14 82 7 57 12

76 33 67 3 29 78 3 66 73 44 52 6 70 6 29 39 55 50 6 14 39 79 13 21

45 39 79 13 21

BROWN MATERIALS

51 39 72 62 6 7 8 51 3 42

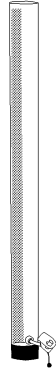
76 65 15 15 15 77 71 52 13 8 8 79 85 65 45

62 7 38 62 76 50 51 45 6 72 8 49 10 33 75 8 48 65 15 5 31

Episode 6

Jackie Gautsch, Department of Natural Resources

Jackie Gautsch showed Jackie some of the equipment she and other water quality monitors use to test water. *Draw a line from the pictures of the equipment to their uses.*



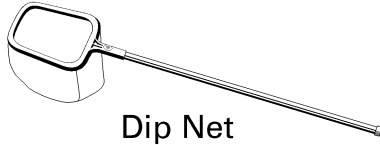
Transparency Tube



Sieve



Thermometer



Dip Net



Test Strips

Measures temperature

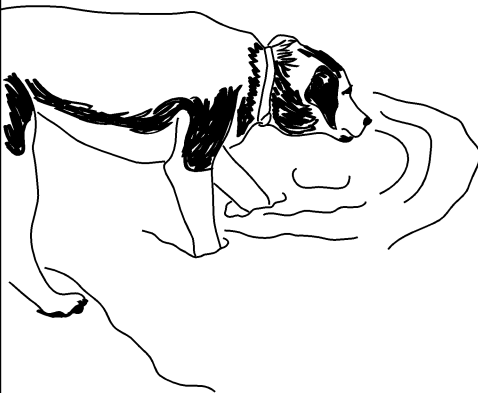
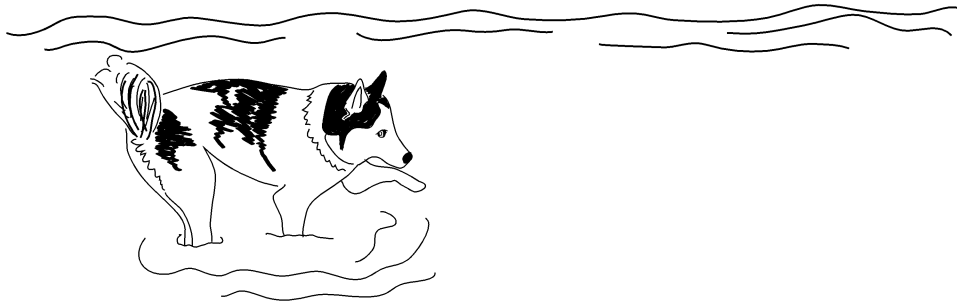
Shows if water is clear or cloudy

Catches living things in water

Measures chemicals in water

Gathers living things from creek bottom

Draw some things you might see underwater.



Episode 6

Jackie Gautsch, Department of Natural Resources

Jackie-Dog wants to help monitor water quality.

Name four things Jackie Gautsch does to measure water quality.

1. _____
2. _____
3. _____
4. _____

Match the equipment to what it does.

Transparency tube

Measures oxygen

Thermometer

Gathers insects from the water

Oxygen meter

Measures pH

Test strips

Shows chemicals in water

pH meter

Shows water clarity

Sieve

Gathers small living things from creek bottom

Dip net

Measures water temperature

How can you and an adult in your family help measure water quality in your community?

Episode 7

Laura Krouse, farmer

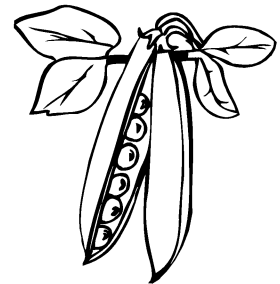
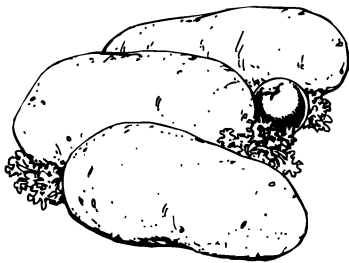
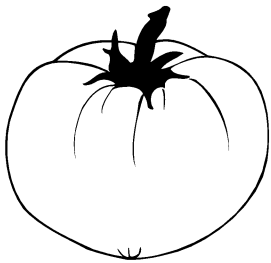
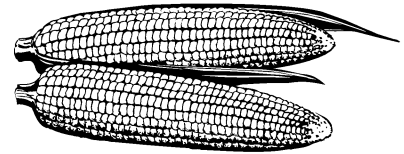
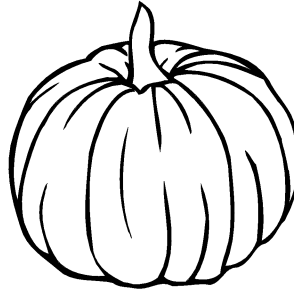
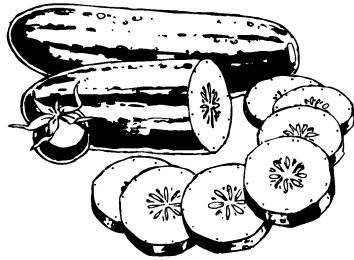
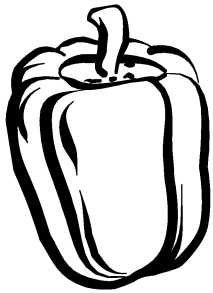
Charlie visited Laura on her farm, where she grows vegetables for 200 families.

Color the pictures of the vegetables.

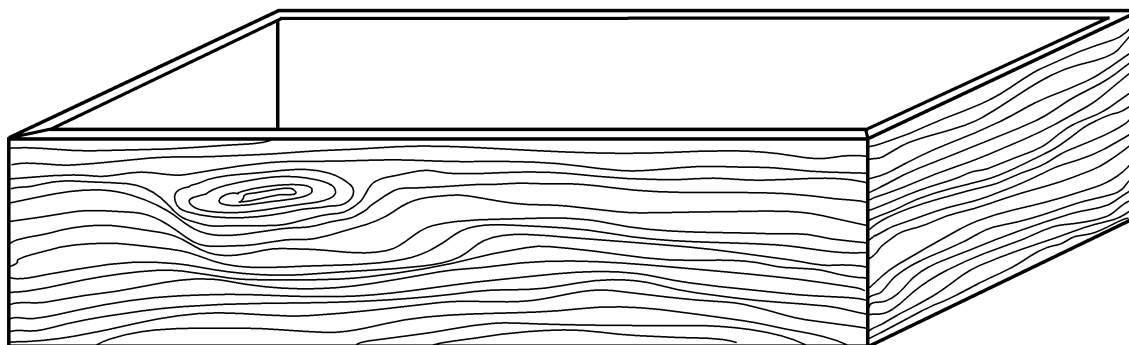
Circle the vegetables you like most with a red crayon.

Circle other vegetables you have tried with a green crayon.

Circle a vegetable that you haven't tried yet with a blue crayon.



What vegetables do you and your family like to eat? *Draw vegetables in the box below that you would like to get from the farm for your family.*



Episode 7

Laura Krouse, farmer

Charlie visited Laura's CSA farm near Mt. Vernon, Iowa. CSA stands for Community Supported Agriculture. People in the community agree to buy vegetables from Laura's farm during the growing season.

Unscramble the letters below to name some vegetables Laura grows.

dollarsc _____ rrotacs _____

ergen nabes _____ brucecmus _____

mastoteo _____ bagcabe _____

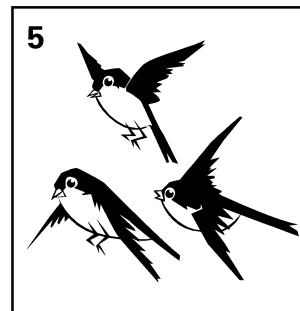
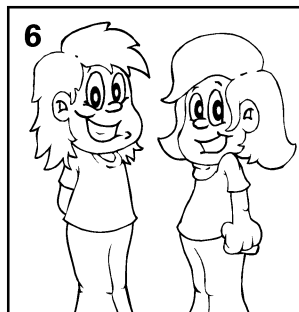
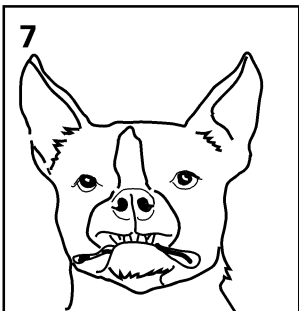
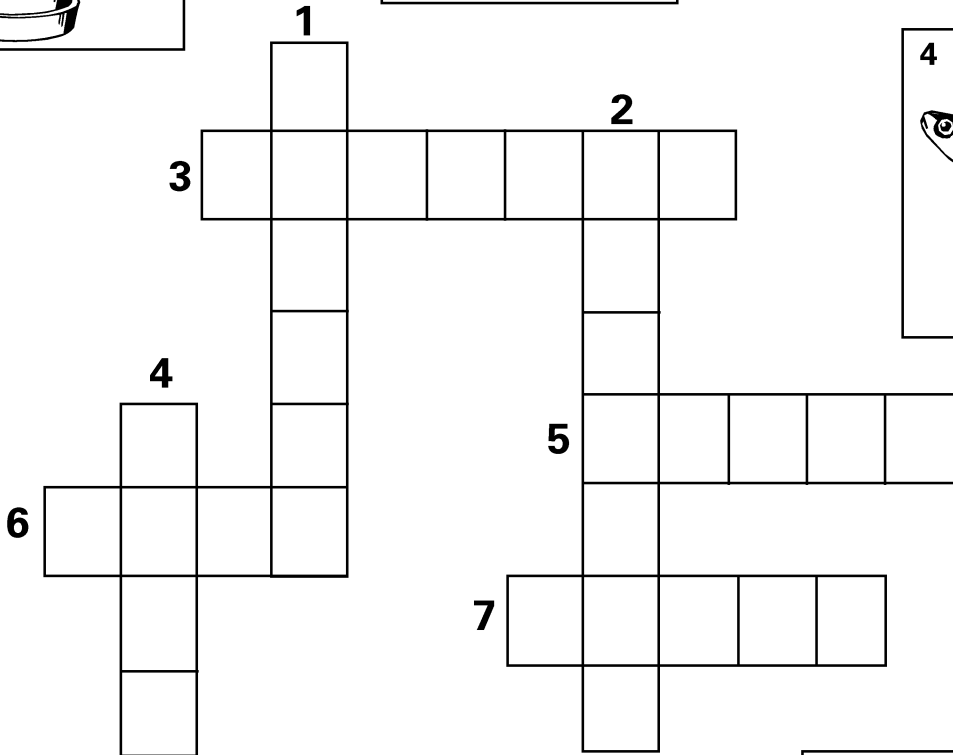
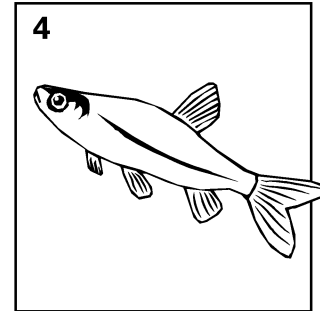
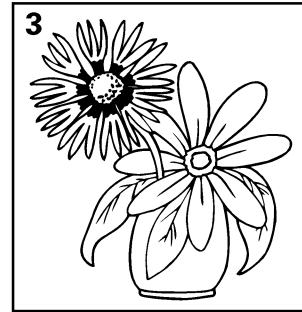
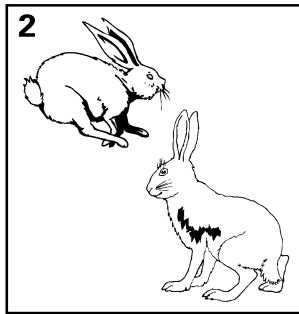
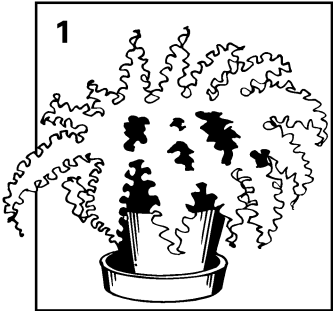
cuttlee _____ lake _____

Laura does two things on her farm to slow down water runoff so that the water flowing off of her farm is clean. *Describe or draw pictures to explain what she does.*

Episode 8

Leigh Ann Long, Iowa State University

Stewy visited Leigh Ann at the Water Quality Research Laboratory at Iowa State University. Leigh Ann showed Stewy the things she uses in the lab to test water to see how clean it is. Fill in the crossword puzzle below to show who needs clean water.



Episode 8

Leigh Ann Long, Iowa State University

Find the words that relate to Stewy's visit with Leigh Ann in the Water Quality Research Laboratory at Iowa State University.

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

analyze
discrete autoanalyzer
detector
goggles
ground water

laboratory
nitrogen
nutrients
phosphorus
research plots

robotic arm
safety
sample
water quality

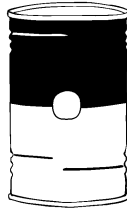
Episode 9

Laura Krouse, farmer

Laura told Charlie that cover crops are planted after harvest to feed the soil. The cover crops act like a Snuggie or blanket to keep the soil safe from wind, rain, and erosion. Use the pictures to help you name the cover crops.



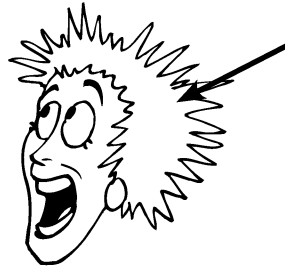
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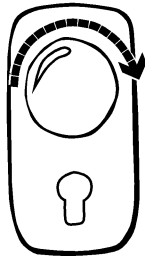
_ _ _ _ _ ola



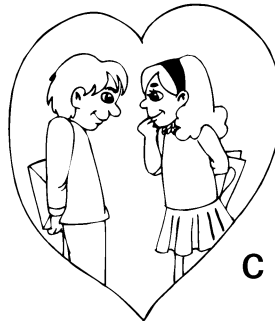
wh _ _ _ _ _



_ _ _ _ _ y
Vetch



_ _ _ _ _ ip



c _ _ _ _ _ r

Draw a cover crop on a field.

Episode 9

Laura Krouse, farmer

Charlie visited Laura on her farm where she told him about cover crops. *Read the following sentences about cover crops. Color the circles next to the sentences that are false. The remaining letters will help you fill in the blank at the bottom of the page.*

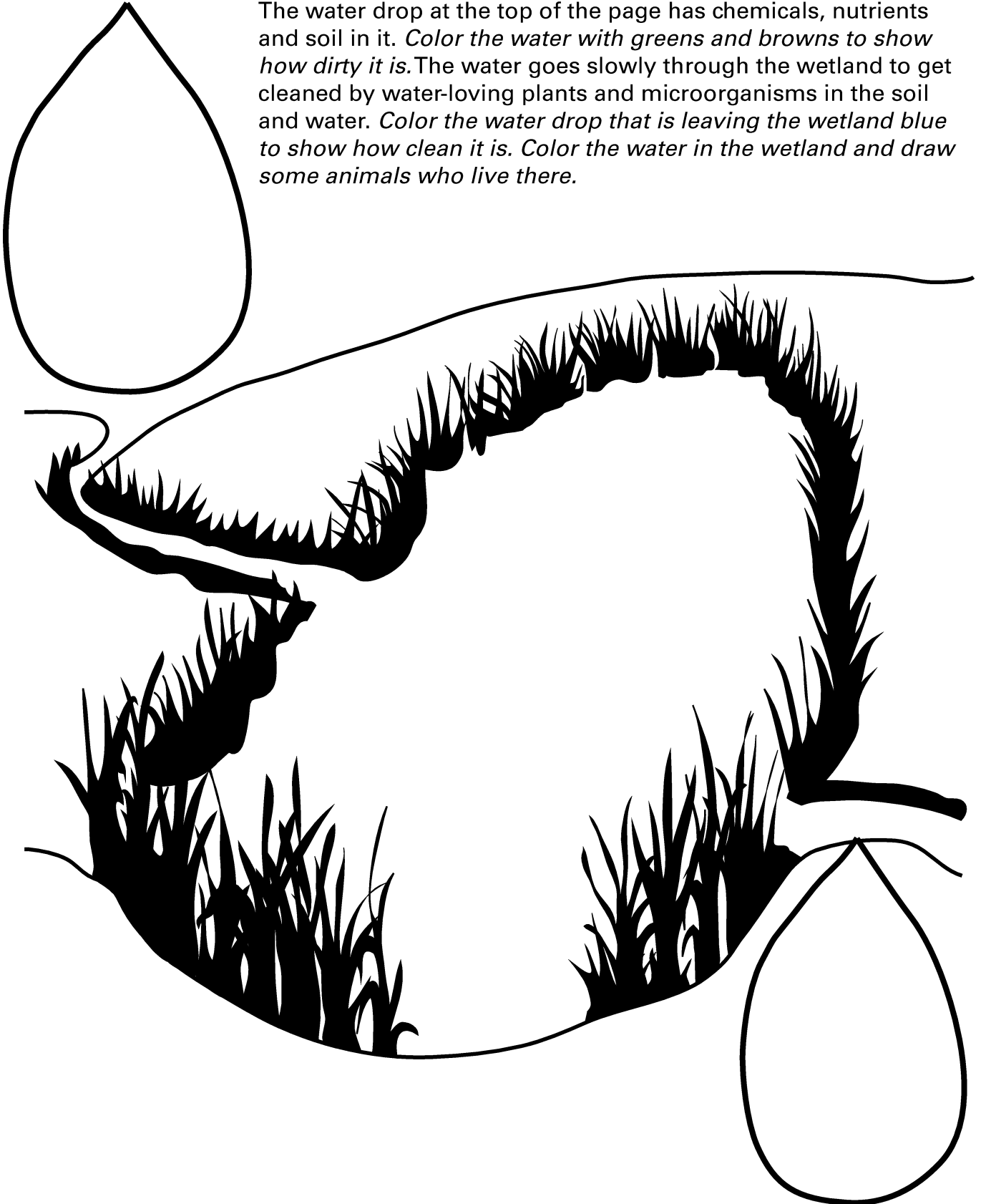
- P Cover crops are planted when the ground is frozen.
- E Rye and clover take nitrogen out of the air.
- L Cover crops are bad for the soil.
- R Cover crops are grown to be eaten
- R Cover crops are planted after harvest.
- N Cover crops are grown to feed cattle.
- O Cover crops are grown to feed the soil food web.
- S Cover crops slow down water so the Earth can clean it.
- N Cover crops take nutrients out of the soil.
- I Cover crops act like a blanket on the land.
- O Two things living and working together to help each other is called symbiosis.
- N Some plants we usually find in the garden, like turnip and beets, can be grown for cover crops.

Something that cover crops can prevent is _____ .

Episode 10

Laura Krouse, farmer

The water drop at the top of the page has chemicals, nutrients and soil in it. *Color the water with greens and browns to show how dirty it is.* The water goes slowly through the wetland to get cleaned by water-loving plants and microorganisms in the soil and water. *Color the water drop that is leaving the wetland blue to show how clean it is.* Color the water in the wetland and draw some animals who live there.



Episode 10

Laura Krouse, farmer

Charlie visited Laura on her farm, where she is building a wetland. Below are some statements about wetlands. *Change the underlined word or phrase in each sentence to make the statements true.*

Wetlands are deeper than ponds.

Wetlands clean water by slowing it down so soil can wash out of it.

Large fish live in wetlands.

Water-loving plants build up nutrients and chemicals in the water.

Wetlands are good habitat for large mammals.

Birds do not use wetlands for food and waters.

Wetlands speed up erosion.

Unscramble the letters to name animals that live in wetlands.

redlanamas _____ horsen _____

wonnmi _____ arcnes _____

datos _____ grofs _____

ainsmabphi _____ seaflogirdn _____

Unscramble these letters to tell what animal Charlie was interested in.

love _____

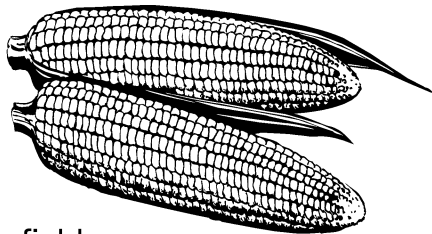
Episode II

Dennis and Patty Staudt farm

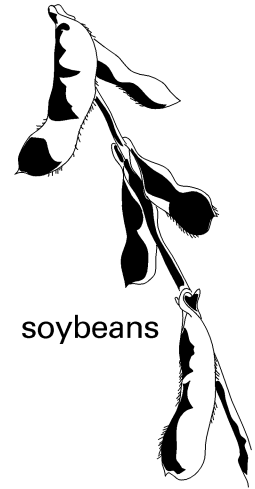
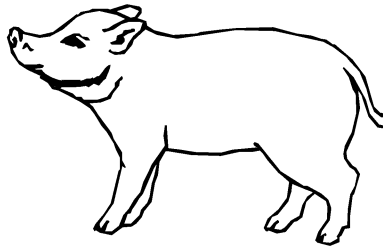
Jackie visited Dennis and Patty Staudt on their Century Farm near Marble Rock, Iowa. A Century Farm is a farm that has been in the same family for at least 100 years.

The plants and animals the Staudts raise on their farm feed many people and animals.

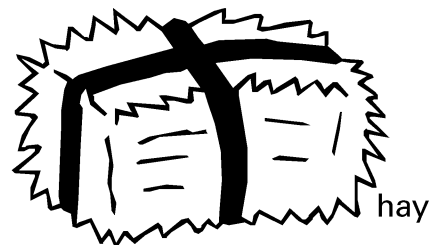
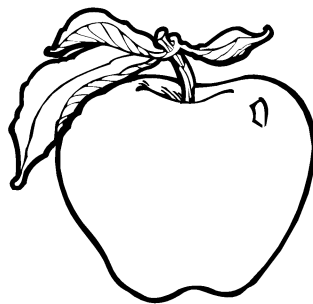
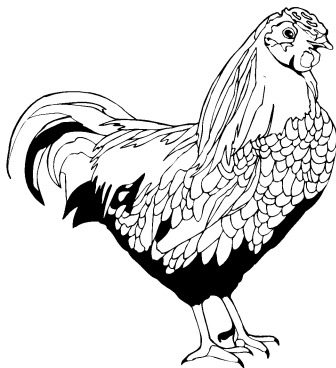
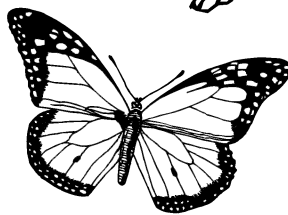
Color the things they grow on their farm.



field corn



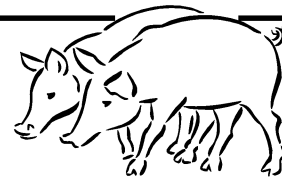
soybeans



hay

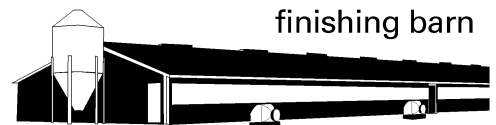
Draw a line to the correct answer.

The hogs live in a _____.

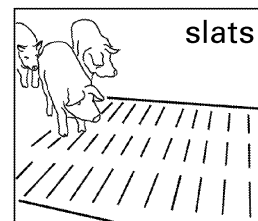


finishing barn

Their manure goes through _____ in the floor to an area under the building.



The manure is recycled and used as _____ on the fields.



slats

Jackie was very excited to see the _____.



Episode II

Dennis and Patty Staudt farm

Jackie visited Dennis and Patty Staudt on their Century Farm near Marble Rock, Iowa. A Century Farm is a farm that has been in the same family for at least 100 years.

Dennis and Patty raise hogs that eventually become food for us.

Number the steps from 1-10 in the process to make bacon. The first one is done for you.

_____ Baby pigs are sold to Dennis and Patty.

_____ The hogs are sold at market.

_____ The hogs eat and grow up to 280 pounds.

_____ The pigs are moved to the finishing building when they weigh 60 pounds.

_____ Mom buys bacon at the grocery store.

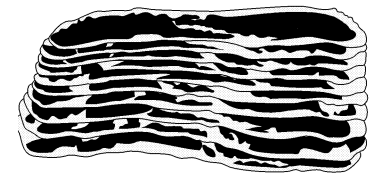
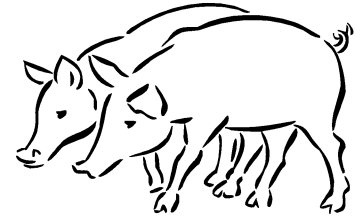
 1 Baby pigs are born.

_____ When the pigs weigh over 120 pounds they are called hogs.

_____ The hogs are taken to a processing plant.

_____ Dad cooks bacon for breakfast.

_____ The pigs are raised in a nursery.



bacon

Answer the following questions:

1. What is the building called where the Staudts raise their hogs? _____

2. What is a bulk bin used for? _____

3. How is manure from the hogs recycled on the farm? _____

Episode 12

Dennis and Patty Staudt farm

Dennis Staudt told Jackie that he grows field corn.

Put an X under the picture that shows him standing in his field in the fall.

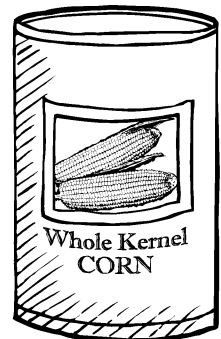
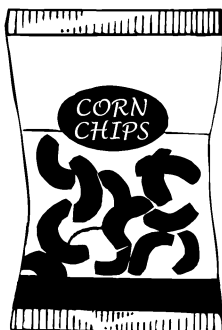
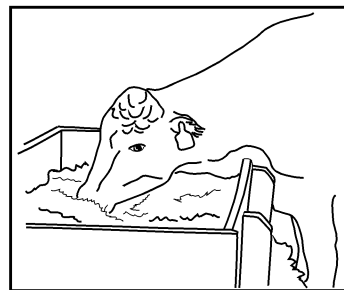
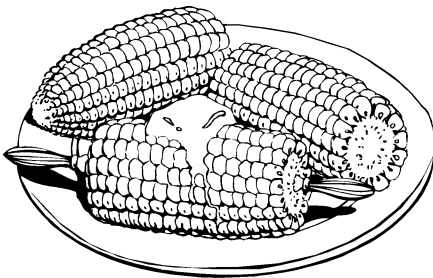


Dennis told Jackie that sweet corn is special and not used the same way as field corn.

Draw lines to show how each is used.

Field Corn

Sweet Corn



Episode 12

Dennis and Patty Staudt farm

Good conservation practices keep Iowa's farmland healthy and able to grow corn taller than Dennis! Below are descriptions of conservation practices that Dennis uses on his Century Farm.

Use the following words to fill in the blanks. You can use the words more than once.

nutrients cover crops grassed waterway
corn-soybean rotation cereal rye fertilizer

1. These are seeded from an airplane. _____
2. These stay in the soil when the cover crops die. _____
3. This protects the land and prevents a gully from forming in the field. _____
4. This means switching back and forth each year between crops grown in a field. _____
5. This practice helps keep soil in the field. _____
6. This is the cover crop that Dennis grows in his cornfield. _____
7. This practice leaves nutrients in the soil for the next crop. _____
8. This covers and protects the field all winter. _____
9. These are what crops need to grow. _____
10. This is what manure becomes for the crops. _____

Episode 13

Dennis and Patty Staudt farm

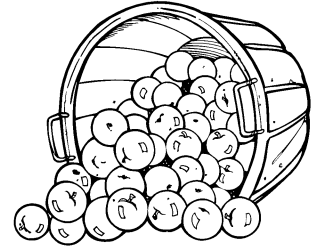
Patty showed Jackie some of her apple trees. *Fill in the letters in the puzzle to spell words that have to do with apple trees and things that Patty makes with her apples.*

A crossword puzzle grid with the word "APPLES" filled in across the top row. The grid consists of 6 columns and 6 rows. The letters A, P, P, L, E, S are in the top row. The rest of the grid is empty for the student to fill in.

How does Patty help people with her apples and other garden produce like cantaloupe, tomatoes, and peppers?

Episode 13

Dennis and Patty Staudt farm



Jackie visited Patty Staudt on her Century Farm.
Patty shared with Jackie what she does with all her apples.
Name the three ways that Patty uses apples.

1. _____
2. _____
3. _____

Farmers in Iowa, like Patty and Dennis, feed many people in Iowa and also in other parts of the world by raising corn, soybeans, and hogs. They sell their crops and hogs, which are then made into foods that humans and animals eat. We buy the food at grocery stores and supermarkets.

Patty also grows vegetables in her garden. *How does she help other people with her garden and apple trees?*

Many families in poor countries don't have enough to eat. Even right here in Iowa, where we have some of the richest soil in the world for growing crops, there are people who don't have enough food.

How can you help people in your community who need food?

Episode 14

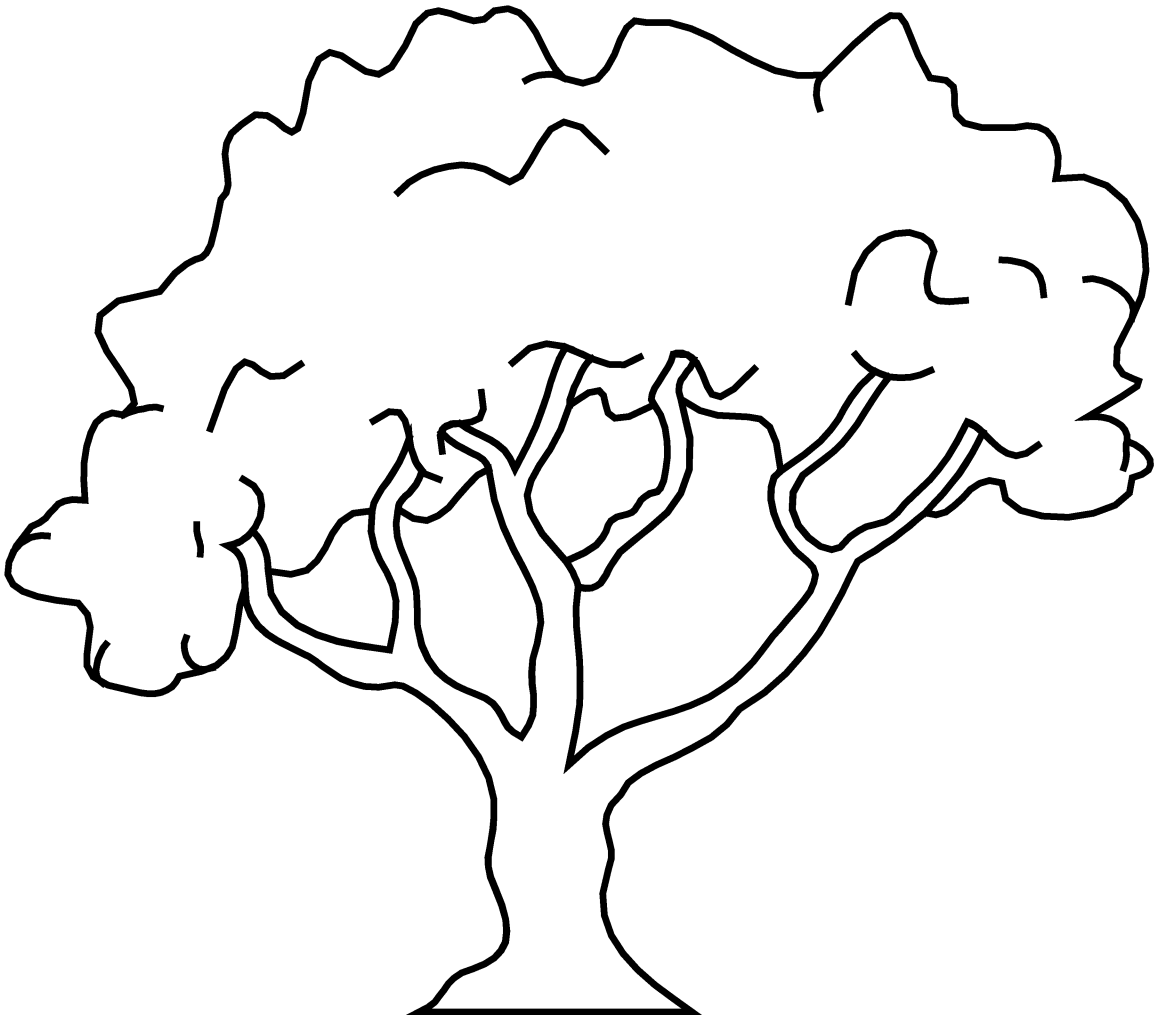
Jody Kerns and the forest

Trees are very important to all living things. *Use these words to complete the sentences:*

air water nuts native cedar

1. This word means the tree has always been in Iowa. _____
2. Trees help to clean the _____.
3. The _____ tree provides habitat for many animals.
4. Trees help to protect soil and _____.
5. We can eat _____ from the walnut tree.

Draw animals that live in a tree and color your picture.



Episode 14

Jody Kerns and the forest

Charlie visited Jody Kerns in a forest. She told him that trees in Iowa are important for protecting soil and water, removing carbon dioxide from the air, providing habitat for animals, and beauty.

How many of Iowa's trees can you name from the clues below?

1. What is left over after a fire. _____
2. Syrup that is good on pancakes. _____
3. Little Jack Horner pulled one out of his pie. _____
4. A fish + the material you need to build a house. B A _____
5. The name of this tree begins with the name of the sixth month of the year.
_____ I P E R
6. The first word is the color of a stop sign. The beginning of the second word sounds like what you put in the ground to grow plants. _____ A R
7. What is on the outside of a rabbit, bear, or fox, but spelled differently. _____
8. What bees make + an insect similar to grasshoppers.
_____ L _____
9. A name for people older than you + a word that comes after "straw"; "black"; and "blue." E _____
10. What happens when you get something stuck in your throat + a small red fruit you can make into pie. C _____ C _____
11. A pet that barks + building material you get from a tree. _____
12. Another name for a dollar + what you see with. B _____
13. It rhymes with back + the word that comes after "straw"; "black"; and "blue".
H _____
14. It rhymes with "Pillow." _____ O W
15. Delicious fruit that you can eat fresh, in a pie or sauce. _____ P _____
16. The darkest crayon in the box + where you hang a picture - L + what squirrels like to eat. _____ W _____
17. This word contains the two letters we often say when we mean "yes." _____
18. The name of this tree sounds a lot like a word we use to describe someone who is well-known and well-liked. P _____

Episode 15

Mark Rasmussen at the Leopold Center

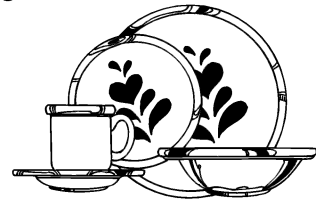
Mark Rasmussen told Stewy that Aldo Leopold was a man who worked hard to learn about how to take care of the earth. He taught many people about the importance of healthy natural resources for growing food and providing habitat for animals and people. Natural resources are things found in nature that humans use but cannot make.

Can you find some natural resources? Draw or cut pictures out of magazines of natural resources and things that people have made, then glue under the correct label.

Natural Resources



Things People Made



Episode 15

Mark Rasmussen at the Leopold Center

Stewy visited Mark Rasmussen at the Leopold Center for Sustainable Agriculture. Mark told Stewy that the Center helps people understand conservation issues and ways to help the environment.

Match the descriptions below with the words on the right.

- | | |
|--|--------------------|
| 1. _____ A person who works to protect the environment | A. Restore |
| 2. _____ Author of <i>A Sand County Almanac</i> | B. Carbon dioxide |
| 3. _____ To bring something back to good condition | C. Productive |
| 4. _____ Worldwide weather change due to burning fossil fuels | D. Environment |
| 5. _____ Gas in the atmosphere that is like a blanket on the earth | E. Climate change |
| 6. _____ Soil able to grow many healthy crops | F. Sustainable |
| 7. _____ The natural world around us | G. Erosion |
| 8. _____ Soil wearing or washing away | H. Aldo Leopold |
| 9. _____ Providing for today and tomorrow | I. Conservationist |

Write a paragraph about ways you can help make sure that the environment stays healthy so that future generations will be able to grow healthy crops and enjoy the natural world. Use at least five of the words in the list above and underline them in your paragraph.

Episode 16

Mary Harris and bees

There are about 200 kinds of native bees that live in Iowa. Bees move from plant to plant spreading pollen. When the pollen from a bee touches a flower on a tomato plant or an apple tree, the flower can then grow into a tomato or an apple. We wouldn't have very many fruits or vegetables without bees!

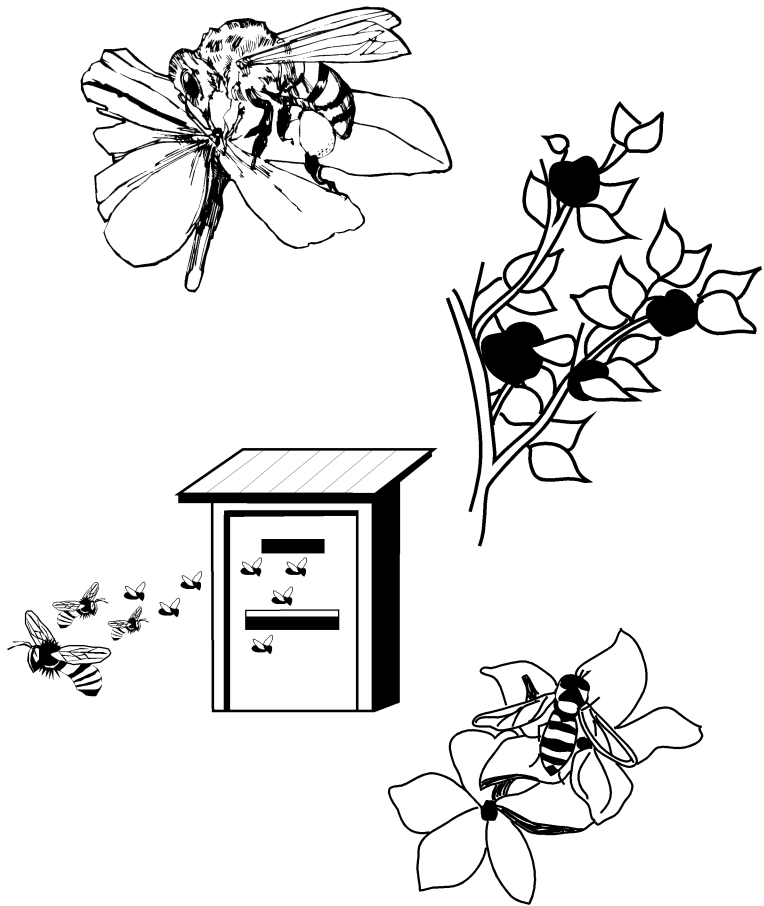
What happens first? Draw a line from the numbers to the pictures in the order they happen.

1

2

3

4



Choose the correct word to write on the line:

fruit food nectar pollen

1. Pollen is _____ for baby bees.
2. Adult bees eat _____.
3. Pollen helps _____ grow.
4. Bees spread _____ from flower to flower.

Episode 16

Mary Harris and bees

Stewy learned that bees are essential to keep healthy ecosystems in Iowa. Honey bees have been disappearing and many people are concerned that it will affect our ability to grow food for humans and animals. Mary Harris and other researchers are trying to find out why this is happening and what can be done to help the bees.



There are about 200 species of native bees in Iowa that help pollinate plants. Honey bees and other bees are alike in some ways and different in others.

Write "honey bees" on the line if the statement is only true for honey bees. Write "native bees" if the statement is true only for native bees. Write "both" if the statement is true for both kinds of bees.

1. They live together in hives. _____
2. They pollinate plants in Iowa. _____
3. Many of them are dying. _____
4. They dig holes in the ground. _____
5. They live alone. _____
6. They eat nectar. _____
7. They produce honey. _____
8. They forage for food. _____
9. There are over 200 species. _____
10. They need plants and plants need them. _____

Bonus: Unscramble the letters to find the word that is described in #10 above.

SILMMUUTA _____

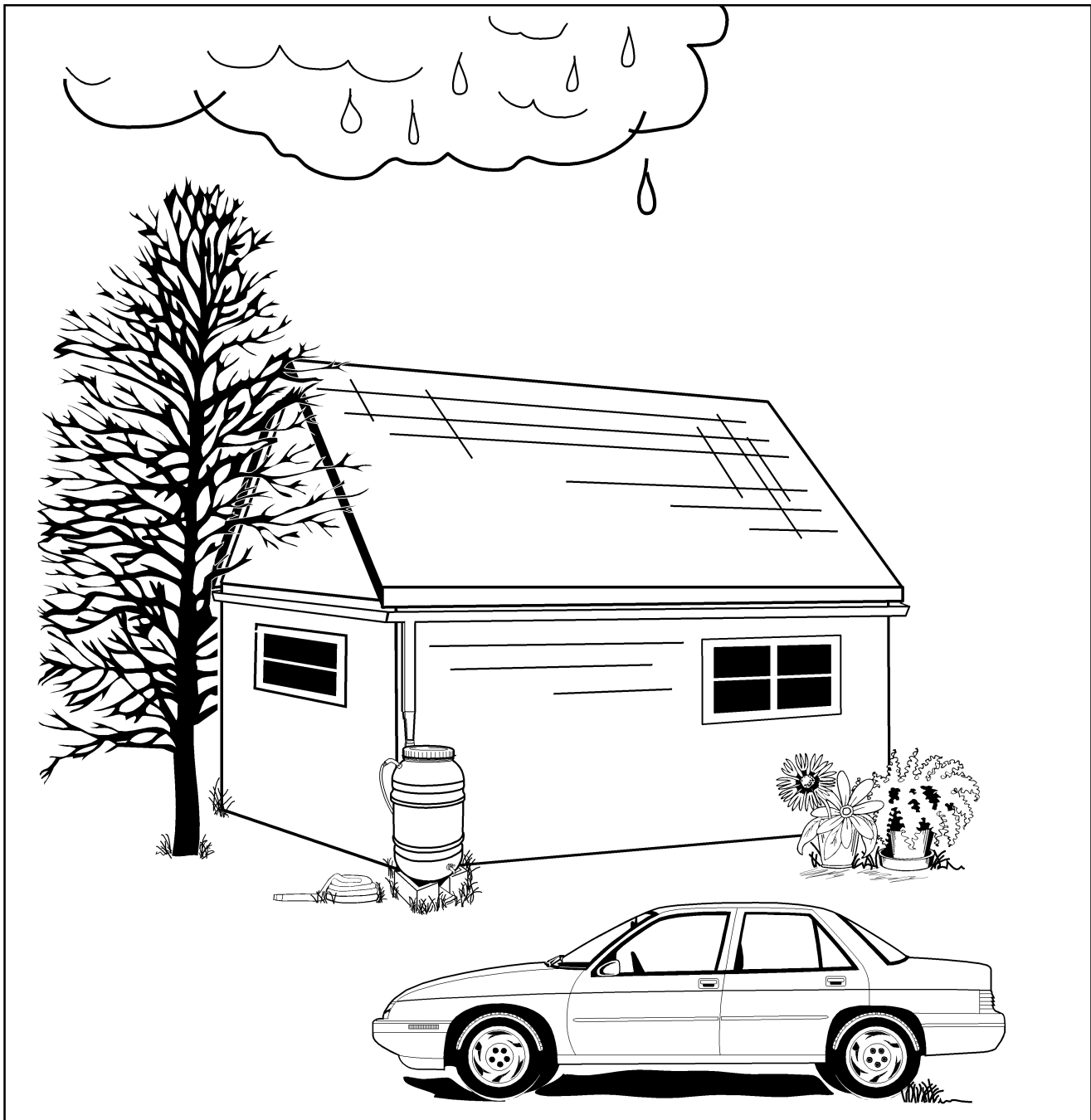
Episode 17

Derek Namanny, urban conservationist

Jackie visited Derek Namanny who is an urban conservationist. An urban conservationist helps people in towns and cities learn how to keep water clean and keep soil in their yards and gardens. One thing urban people can do is add a rain barrel to catch the rain water from their houses. The collected water is called "gray water," which can be used to water flowers and trees and even for washing cars.

Draw the path of the raindrops from the cloud to the rain barrel using a blue crayon.

Draw the path of the gray water with a gray crayon.



Episode 17

Derek Namanny, urban conservationist

Jackie visited Derek Namanny who is an urban conservationist. An urban conservationist shows people in towns and cities how to keep their land healthy and their water clean.

Water ¹running off of roofs, ²sidewalks, yards and streets can go ³right ⁴into storm drains.

From ⁵there the water quickly ⁶goes into ⁷streams, lakes, or ⁸ ⁹rivers, taking with it ¹⁰pollution

such as lawn ¹¹chemicals, oil and ¹²gas that has ¹³leaked ¹⁴from vehicles, ¹⁵litter, and ¹⁶soil that

has washed off of ¹⁷bare ¹⁸ground. When water ¹⁹moves slowly into the earth, it ²⁰has a

²¹chance to get clean before it gets to the river, lake, or stream.

Derek talked about several conservation practices that people can use to slow down water and allow it to soak into the ground. *Write the letters that go with the numbers on the lines below to name two of these practices.*

_____ 1 7 3 4 _____ 6 20 8 13 2 4 15

_____ 10 5 18 11 2 21 16 14 2 _____ 10 12 9 5 17 19

Mark the following statements "T" for true and "F" for false.

- _____ 1. Excess phosphorus from yard chemicals can cause green algae growth in lakes and ponds.
- _____ 2. Mowing your grass often is a good conservation practice.
- _____ 3. Putting rain barrels below downspouts allows you to use water that runs off of your roof.
- _____ 4. Picking up trash doesn't help to keep water clean.
- _____ 5. Using more fertilizer on the lawn will help keep water clean.
- _____ 6. Putting in a rain garden will help slow down water so it doesn't run right into storm drains.
- _____ 7. Impervious means that water can soak into it.

Episode 18

Marty Adkins, soil expert

Charlie visited Marty Adkins at the Natural Resources Conservation Service. Natural resources are things found in nature that humans use but cannot make.

Circle all of the things that are not natural resources in the picture below.

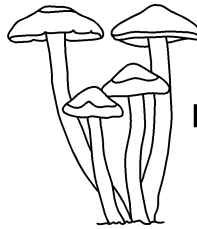


Marty sang a song about millions and billions and trillions and zillions of interesting things underground. Some of them are small and some of them are very, very tiny.

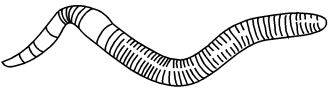
Write words on the lines next to the pictures to name some of these creatures that live under our feet.



B _____



F _____



W _____



I _____



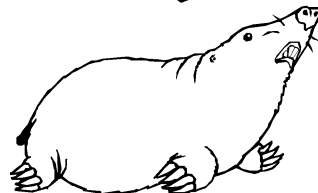
B _____



B _____



A _____



M _____

Episode 18

Marty Adkins, soil expert

Charlie visited Marty Adkins at the Natural Resources Conservation Service. Marty said that one of the natural resources he works to protect is the rich soil here in Iowa.

1. Why is good soil important in Iowa?

2. Charlie asked Marty what tilling means. Explain what tilling is.

3. Marty told Charlie that there are many creatures who live in the soil and help make our soil healthy. What are two things Marty said that these small creatures do?

4. Did you know there are more living organisms in a shovelful of soil than there are people living on the earth? That's more than 7 billion! How is that possible?

Using each letter of the word "underground," write a sentence or word about the living ecosystem under our feet or how to keep it healthy.

Examples: Disturb the soil as little as possible. Read information about healthy soil.

U _____

N _____

D _____

E _____

R _____

G _____

R _____

O _____

U _____

N _____

D _____

Episode 19

Geocaching with Nathan Stevenson

Charlie and Jackie met Nathan who is the geocache coordinator for Water Rocks!. The Conservation Dogs saw special things used in geocaching, pictured below.

Draw a line to connect each picture with its word.

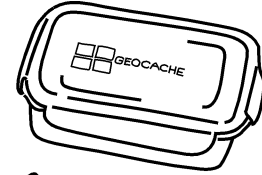
GPS device

Geocache

Log Book

Trinket

Charlie and Jackie



Jackie and Charlie found a geocache in a dead tree in the woods.

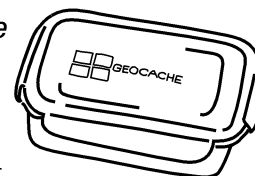
Draw a picture below of another place in nature and hide a geocache in it!

Episode 19

Geocaching with Nathan Stevenson

Charlie and Jackie met Nathan who is the geocache coordinator for Water Rocks!.

Unscramble the words and place them in the correct spaces to complete the paragraph below.



Geocaching is a real-life hunt where you use a

(Global Positioning System) device to locate the coordinates of a .

The geocache often contains a to record your find and take a

 . Put the geocache back where you found it and enjoy .

Nathan told Charlie and Jackie some reasons why geocaching is fun and beneficial. *List three, or more, reasons below.*

1. _____
2. _____
3. _____
4. _____
5. _____

Extra credit: *Research Global Positioning System technology and write a complete paragraph explaining how it works. You can also draw a simple sketch to go along with the paragraph.*

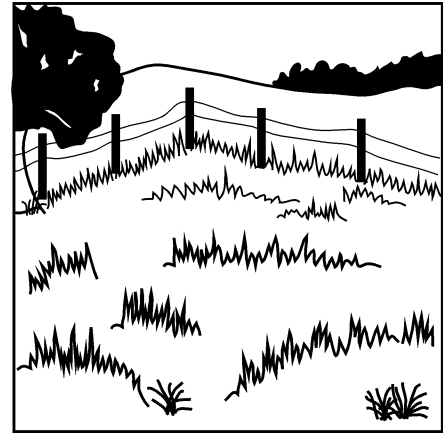
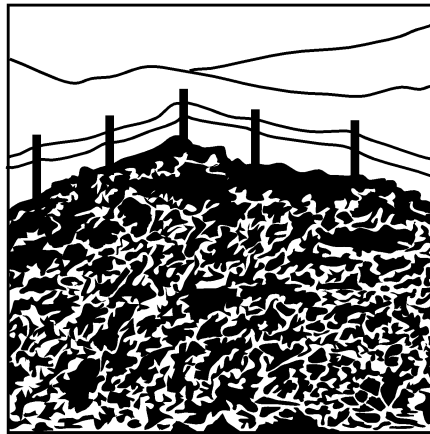
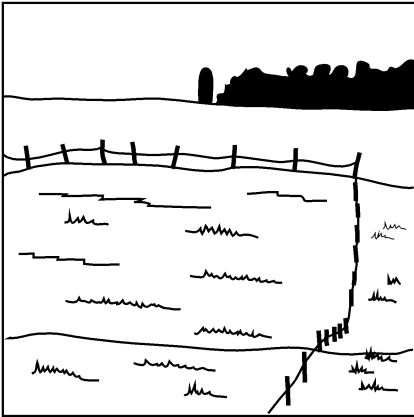


Episode 20

Todd Coffelt and Triple C Farms

Jackie talked to Todd Coffelt about raising cows in southern Iowa. The cows move to different paddocks to keep the pastures healthy. A paddock is a fenced in area of the pasture.

Circle the paddock that the cows should move to next.



Why did you choose this paddock for the cows to graze in?

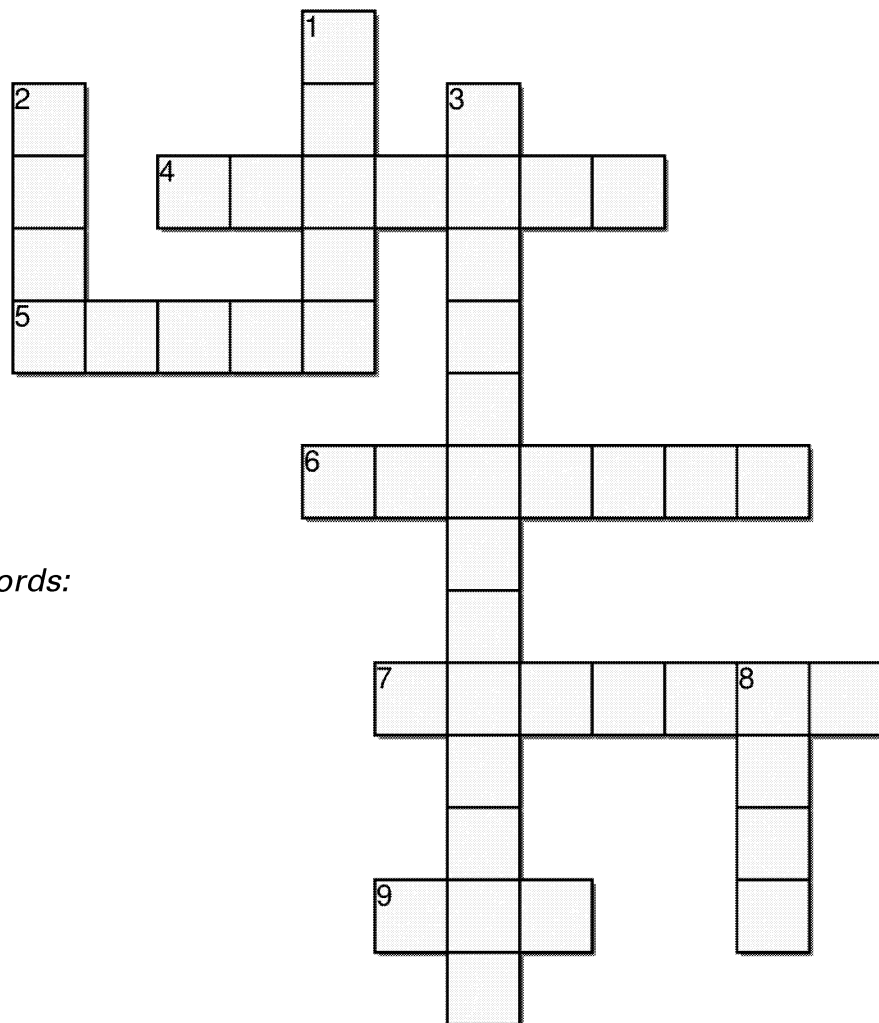
Episode 20

Todd Coffelt and Triple C Farms

Jackie visited Todd's cow-calf farm in southern Iowa to learn about rotational grazing.

Fill in the blanks and put the answer into the crossword puzzle.

1. Grazing cows eat _____ as their main food source.
2. To _____ the flow of water . . .
3. Todd installed a grade _____ structure because southern Iowa has many hills.
4. Rotational grazing helps to keep pastures _____ .
5. Grazing cows help to control _____ .
6. Todd helps to build a _____ of Conservation by helping to educate other farmers and people like you!
7. Cows are put in a fenced _____ to keep them in one pasture at a time.
8. Todd's cows get _____ as a treat!
9. Since the cows eat the grass, Todd does not need to _____ his pastures.



Choose from these words:

GRASS
HEALTHY
CORN
STABILIZATION
PADDOCK
MOW
WEEDS
SLOW
CULTURE

Episode 21

Jennifer Terry, Environmental Lawyer

Charlie learned what Jennifer Terry does as an environmental lawyer. She works with rules that are called laws to protect the land and water.

Draw a picture of a rule that you have in your classroom or at home.

Jennifer grew up on a farm and was taught to love the environment.

Draw a picture below to show three, or more, things that you love in the environment.

Episode 21

Jennifer Terry, Environmental Lawyer

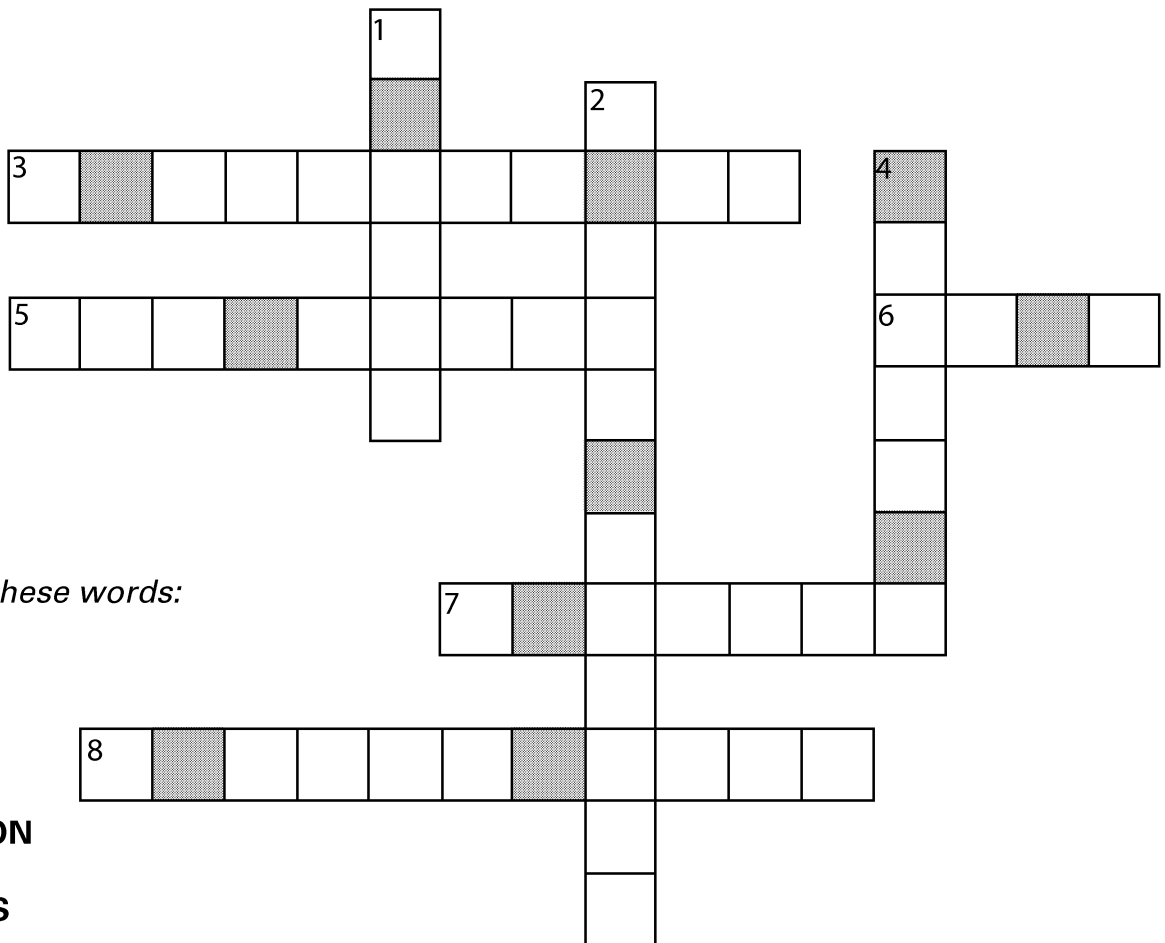
Charlie and Jennifer Terry talked about how environmental lawyers protect the land and water. *Enter the answers to the clues into the crossword puzzle.*

Across

- 3. Another word for law makers
- 5. The type of animals that lived on Jennifer's farm
- 6. Rules for adults are called _____
- 7. Conservation Pack star of the video
- 8. Another words for rules and laws

Down

- 1. _____ is what Jennifer uses to help people make decisions about rules
- 2. To save and protect the environment
- 4. Jennifer's dad used minimum _____ on their farm



Choose from these words:

- POLICY**
- TILLAGE**
- LAWS**
- LEGISLATORS**
- CHARLIE**
- CONSERVATION**
- DAIRY COWS**
- REGULATIONS**

When you finish the crossword puzzle, unscramble the letters in shaded boxes to finish the message below (one letter is already given for you):

At the end of the video, Jennifer said that to make a big difference, people should

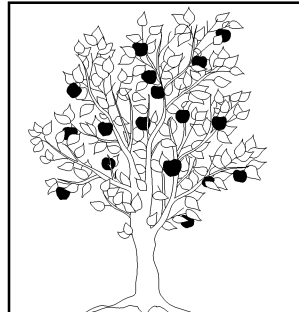
___ _ _ K ___ _ _ _ _ _ _ _ _ _ !

Episode 22

Leslie Berckes, Trees Forever

Trees help people all the time. *Describe how trees are helping people in each picture.*

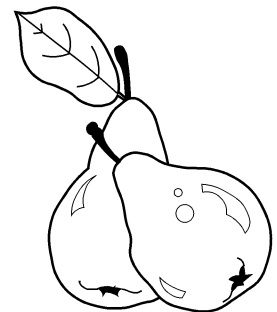
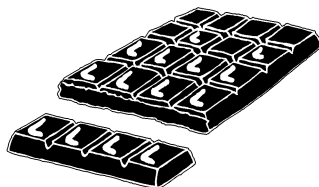
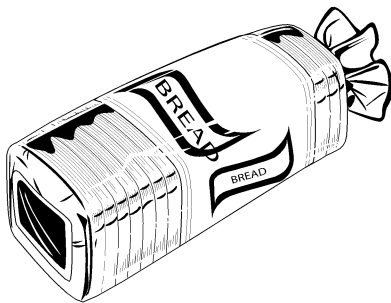
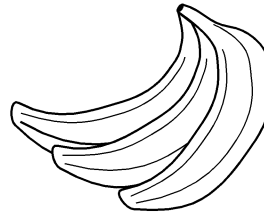
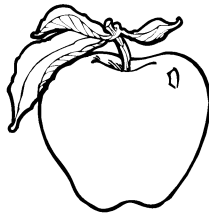








Color all of the food and then circle the ones that come from trees.



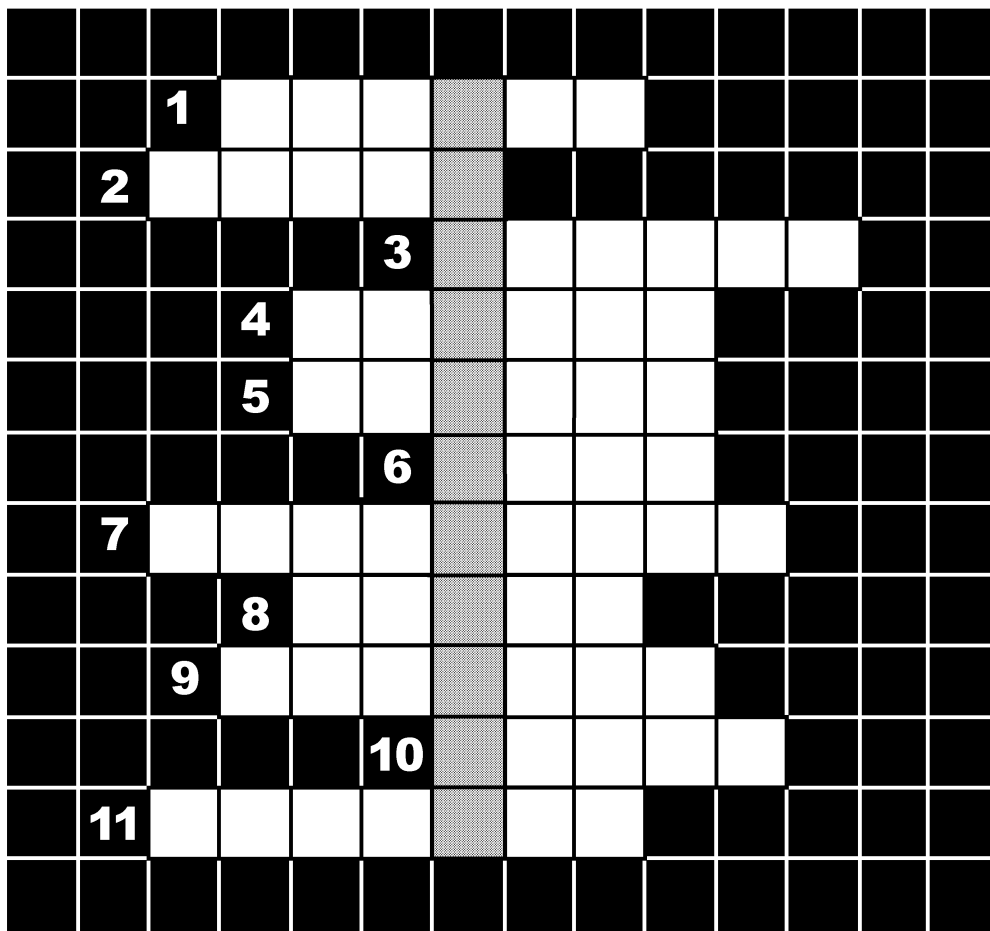
Episode 22

Leslie Berckes, Trees Forever

Trees have many uses and are very helpful to people.

Solve the clues and fill in the words in the numbered spaces below.

1. You can find trees outside in _____.
2. Trees help absorb excess _____ after it rains
3. A tropical yellow fruit grown on trees
4. The _____ on a tree help water evaporate and transpire.
5. During this season, trees block the cold wind, keeping people warm.
6. Nuts from trees, like acorns and walnuts, are _____ for squirrels.
7. A sweet treat that comes from trees.
8. A pancake topping.
9. Never ending
10. In the summer, trees provide this to keep us cool.
11. A home where creatures live.



The words in the shaded box above should finish the sentence below:

Trees in your neighborhood, park and town are part of an _____.

Episode 23

Farmer Seth Watkins

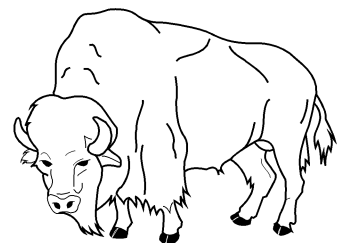
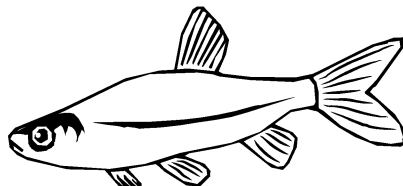
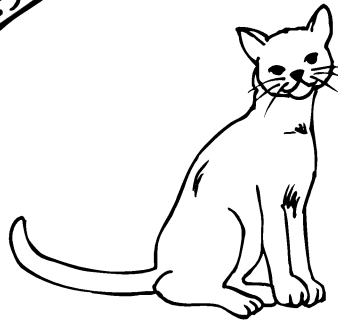
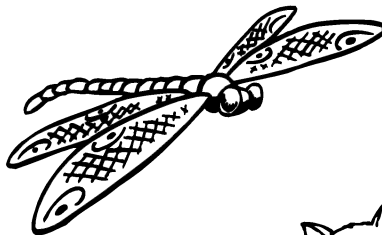
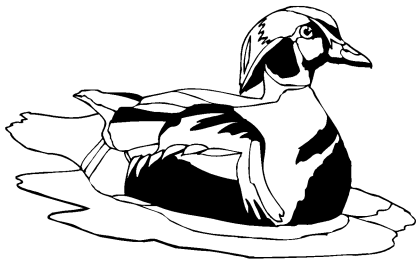
Seth Watkins uses different crops each year and cover crops to keep the soil healthy and always covered.

Find the crops that he plants on his fields in the word search below.

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

Seth's pond provides a habitat, or home, to many different creatures.

Circle the creatures that would use Seth's pond for their habitat.



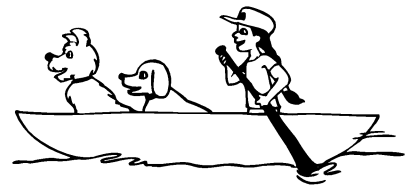
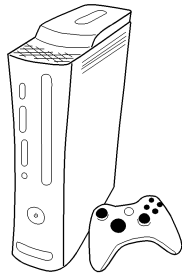
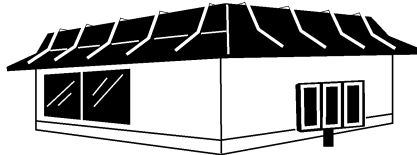
Episode 24

Park Ranger Todd Coffelt

Jackie talked to Todd Coffelt, a park ranger with the Iowa Department of Natural Resources. He helps to keep our state parks clean and safe so we can enjoy them.

Iowa's state parks have a lot of cool things to do—all for free!

Circle the pictures of things that you can do at the state parks of Iowa.



Draw a picture of something you would like to do at a state park.

Episode 24

Park Ranger Todd Coffelt

Park ranger Todd Coffelt talked about the fun, free things you can do at a state park.

List activities that you can do at a state park. Can you name 10 or more?

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____

Todd told Jackie what he likes about state parks and his favorite memory of being at one. *Choose one of the topics below and write five or more full sentences about a state park experience.*

1. What is your favorite memory from a visit to a state park?
2. What do you like about state parks and why?
3. If you haven't visited a state park, what would you like to do at one and why?

WORKSHEET ANSWERS

Episode 1

Grades 3-5

Allen's job: look at animals, take water samples, manage deer populations

1. pollution
2. nutrients, bacteria, soil
3. nutrients
4. pollution
5. phosphorus and nitrogen
6. bacteria

Hidden pollution: apple core, fast food cup, water bottle, graffiti, newspaper, boot, banana peel, bath tub

Episode 2

Grades K-2

Side oats grama, Switchgrass, Big bluestem, Goldenrod

Grades 3-5

The prairie has grasses that are really tall

Up to 20 feet

To get water, even in drought years

Big bluestem, Side oats grama, Switchgrass, Goldenrod

air; water; soil

T	B	S	A	E	B	U	M	B	L	E	B	E	E	J	
K	G	H	P	K	G	O	L	D	F	I	N	C	H	A	
Z	F	B	T	P	L	S	P	X	P	B	J	D	S	W	bison
F	N	O	S	I	B	P	H	E	A	S	A	N	T	O	brown snake
G	R	A	S	S	H	O	P	P	E	R	V	Q	K	R	bumble bee
C	Y	K	N	K	N	U	K	S	A	J	Z	D	R	A	deer
J	E	K	A	N	S	N	W	O	R	B	Z	E	T	B	goldfinch
R	E	H	P	O	G	T	E	K	C	O	P	E	E	B	grasshopper
W	S	D	I	N	Z	E	W	E	X	E	F	R	J	I	pheasant
S	U	D	N	S	U	D	E	E	Y	G	O	E	X	T	pocket gopher

Episode 4

Grades K-2

Circled words: Shallow, minnow, frogs, insects, cleans the water

Grades 3-5

Venn diagram

Ponds could be: deep, boating, people swimming, fishing, large mammals

Wetlands could be: shallow, denitrification, submerged plants, slow water, dragonflies

Both could be: insects, frogs, salamanders, birds, minnows, environment, slow, water, nitrogen, soil

Episode 5

Grades K-2

The manure from the chickens fertilizes the garden that Laura puts in the next year.

Grades 3-5

chickens, house, sleep, perches, nests, screens, canola, sweet clover, bugs, seeds, manure, garden, fertilizer

Top layer: garden soil

Green Materials layer: grass clippings, vegetable peels, fruit rinds

Middle layer: garden soil

Brown Materials: fall leaves, straw, dead flowers, cornstalks

Garden hose: water

Episode 6

Grades K-2

Transparency tube = shows if the water is cloudy

Thermometer = measures temperature

Sieve = catches small insects on creek bottom

Dip net = catches fish

Test strips = measure chemicals in water

Grades 3-5

Jackie checks for water clarity; tests for oxygen, temperature, pH, chemicals; uses a sieve to “pan” for insects and a dip net to find living things on the bottom of the creek

Transparency tube = shows water clarity

Thermometer = measures temperature

Oxygen meter = measures oxygen

Test strips = measure chemicals in water

pH meter = measures pH

Sieve = catches small insects from the water

Dip net = gathers small living things from creek bottom

You can go to an IOWATER training session to learn how to use the water monitoring equipment.

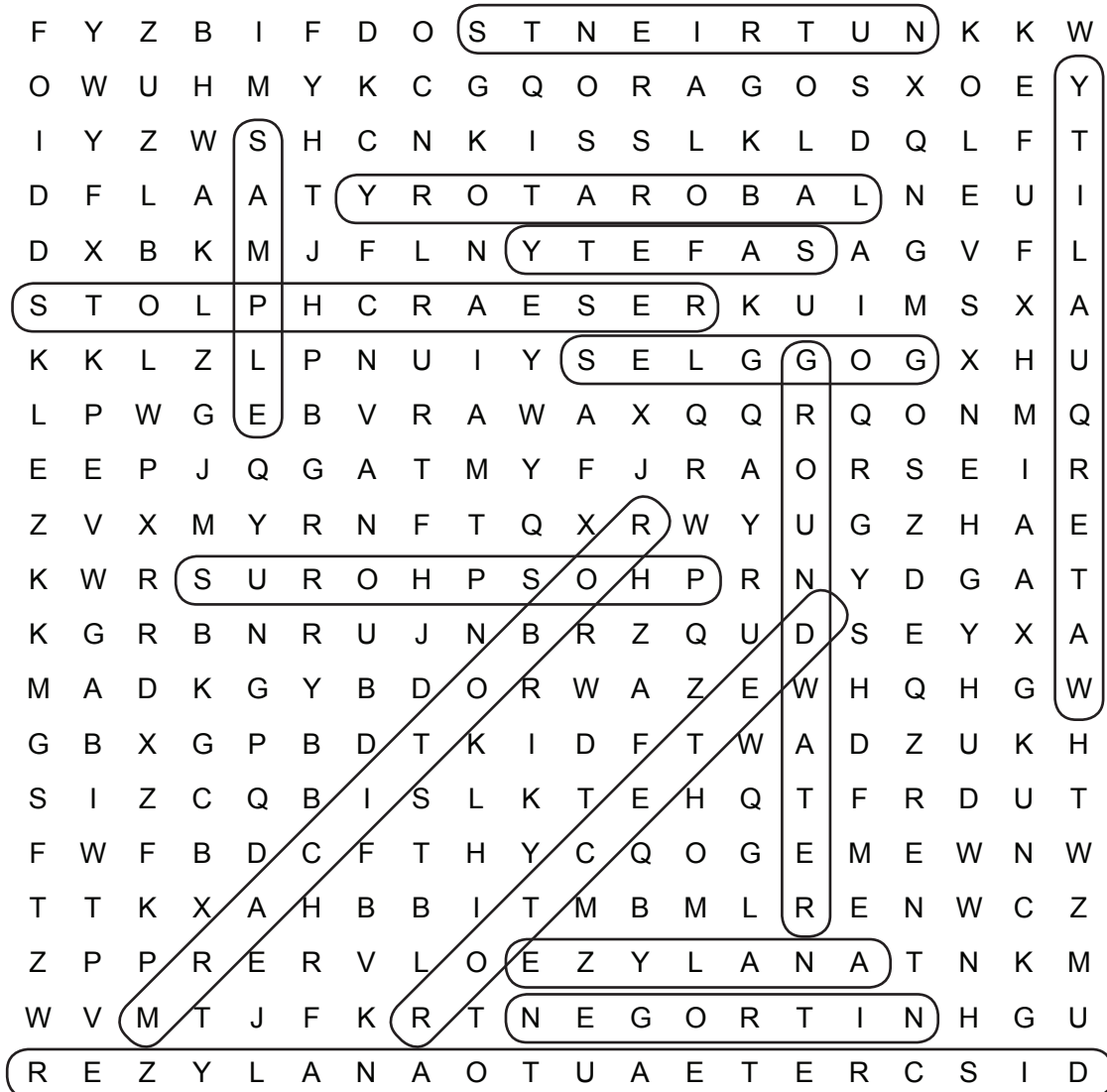
Episode 7**Grades 3-5**

collards, green beans, tomatoes, lettuce, carrots, cucumbers, cabbage, kale

1. Contour planting--rows wrap around the hill, acting like mini dams to hold the water back when it rains so that it can soak in.
 2. Waterway is planted with plants that have strong roots and stems to help hold soil in place and slow water.
- Both help ensure that the water flowing off the farm is clean.

Episode 8**Grades K-2**

1. plants, 2. rabbits, 3. flowers, 4. fish, 5. birds, 6. kids, 7. Stewy

Grades 3-5

Episode 9**Grades K-2**

CANola

turNIP

HAIRy Vetch

raDISH

cLOVEr

whEAT

Grades 3-5

True statements:

- E Rye and clover take nitrogen out of the air.
- R Cover crops are planted after harvest.
- O Cover crops are grown to feed the soil food web.
- S Cover crops slow down water so the Earth can clean it.
- I Cover crops act like a blanket on the land.
- O Two things living and working together to help each other is called sybiosis.
- N Some plants we usually find in the garden, like turnip and beets, can be grown for cover crops.

Episode 10**Grades 3-5**

Words should be changed to:

shallower

settle

tiny or small

break down

insects, amphibians, frogs, toads, birds

do

slow down

salamander, minnow, toads, amphibians, herons, cranes, frogs, dragonflies

vole

Episode 11**Grades 3-5**

Correct order for steps:

- 2
- 7
- 6
- 4
- 9
- 1
- 5
- 8
- 10
- 3

1. Finishing building
2. Storing animal feed
3. Fertilizer for the crops

Episode 12**Grades K-2**

Corn on the cob = sweet corn

Bag of corn chips = field corn

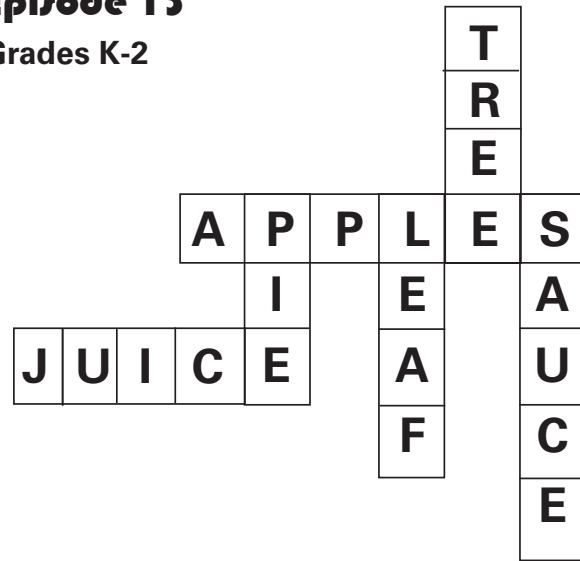
Cow eating feed = field corn

Corn on a plate = sweet corn

Bottle of corn oil = field corn

Grades 3-5

1. Cover crops
2. Nutrients
3. Grassed waterway
4. Corn-soybean rotation
5. Cover crop and/or grassed waterway
6. Cereal rye
7. Corn-soybean rotation and/or cover crops
8. Cover crops
9. Nutrients
10. Fertilizer

Episode 13**Grades K-2**

A: shares it with people at a food pantry

Episode 13**Grades 3-5**

Patty makes pie, apple crisp and apple sauce or eats them fresh.

Patty shares her apples and garden product with a local food bank. The food bank then gives it to people who need it.

Episode 14**Grades K-2**

1. Native
2. Air
3. Cedar
4. Water
5. Nuts

Episode 14**Grades 3-5**

1. Ash
2. Maple
3. Plum
4. Basswood
5. Juniper
6. Red Cedar
7. Fir
8. Honey Locust
9. Elderberry
10. Choke Cherry
11. Dogwood
12. Buckeye
13. Hackberry
14. Willow
15. Apple
16. Black Walnut
17. Oak
18. Poplar

Episode 15**Grades 3-5**

1. I
2. H
3. A
4. E
5. B
6. C
7. D
8. G
9. F

Episode 16**Grades K-2**

Order: 3, 4, 1, 2

1. Food
2. Nectar
3. Fruit
4. Pollen

Episode 16**Grades 3-5**

1. Honey bees
2. Both
3. Honey bees
4. Native bees
5. Native bees
6. Both
7. Honey bees
8. Both
9. Native bees
10. Both

Bonus: Mutualism

Episode 17**Grades 3-5**

Rain Gardens
Permeable Pavers

1. T
2. F
3. T
4. F
5. F
6. T
7. F

Episode 18**Grades K-2**

Not natural resources: farm buildings,
boat, beach ball, picnic table, bicycle

Beetle	Fungi
Worm	Insect
Bacteria	Bee
Ant	Mole

Grades 3-5

1. Because we grow so much corn and soybeans
2. Plowing or digging up the soil
3. Chew roots and dig tunnels
4. Most of those living organisms are microscopic.

Episode 19

Grades 3-5

Geocaching is a real-life **treasure** hunt where you can use a **GPS** (Global Positioning System) to locate the coordinates of a **geocache**. The geocache often contains a **log book** to record your find and take a **trinket**. Leave the geocache where you found it and enjoy spending time in **nature**.

Possible answers for why you should go geocaching:
get outside, explore nature, exercise mind and body, etc.

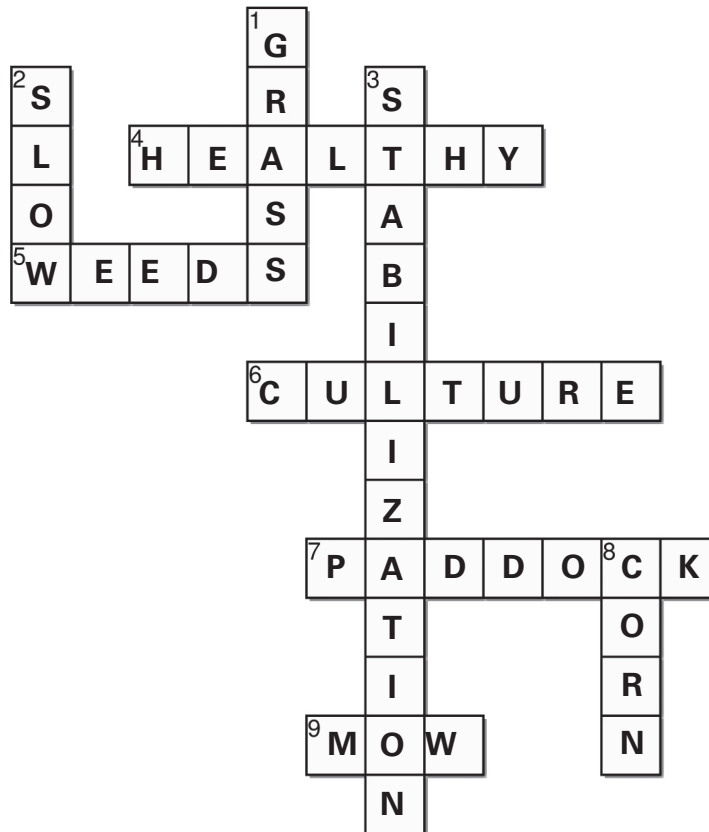
Episode 20

Grades K-2

Reasons why to choose paddock #3:

- needs weed control
- grass is too long and would like to be eaten by the cows

Grades 3-5



Episode 21

Grades 3-5

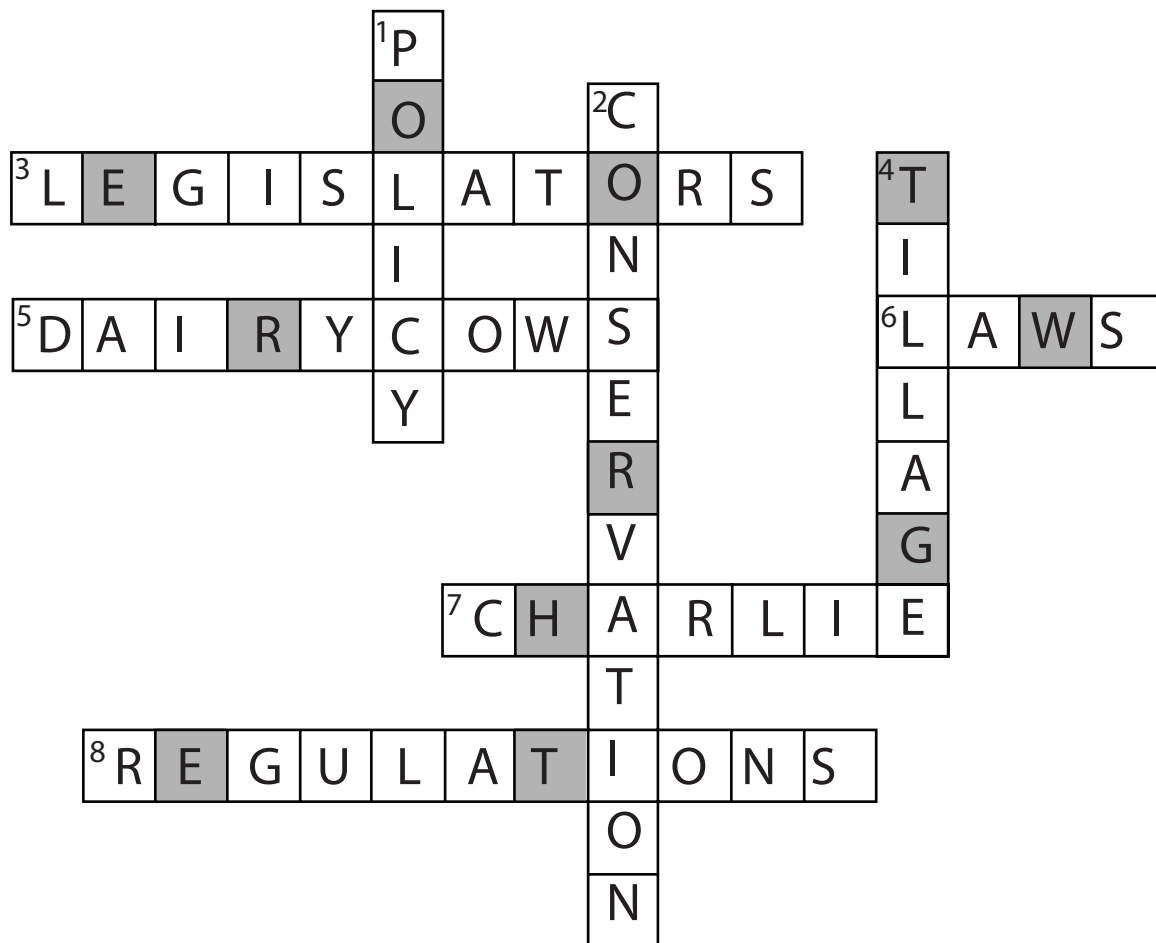
Across

- 3. Legislators
- 5. Dairy cows
- 6. Laws
- 7. Charlie
- 8. Regulations

Down

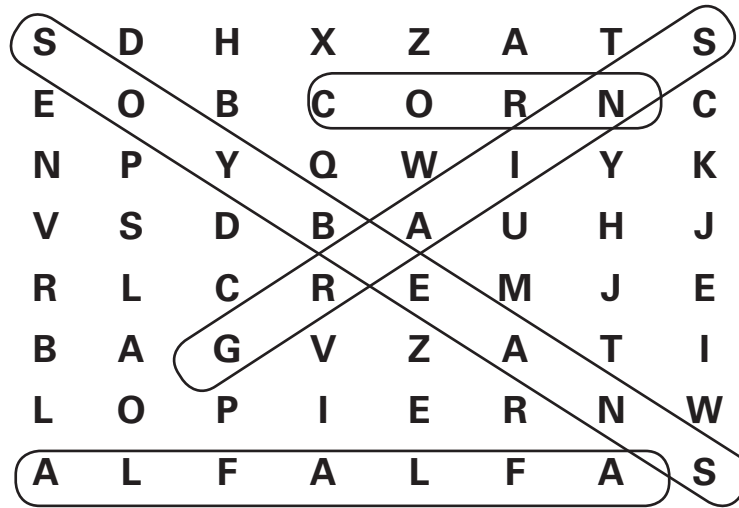
- 1. Policy
- 2. Conservation
- 4. Tillage

Special message: At the end of the video, Jennifer said that to make a big difference, people should **work together.**



Episode 22

Grades K-2

**Episode 23**

Grades 3-5

1. Pond
2. Rotation
3. Pasture
4. Cover crops
5. Soil tests
6. Manure

Why did Seth build a pond? Possible answers: the pond and plants around it help reduce soil erosion, catch nutrients that run off farm fields, to keep water cleaner for plants, wildlife, and people.

Water Rocks! is a statewide youth water education campaign that fosters the interplay of knowledge, caring and engagement among Iowa's youth. Through a combination of STEM (science, technology, engineering and mathematics) and the arts, Water Rocks! challenges and inspires Iowans towards a greater appreciation of our water resources. Water Rocks! is based on campus at Iowa State University.



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