

Hi

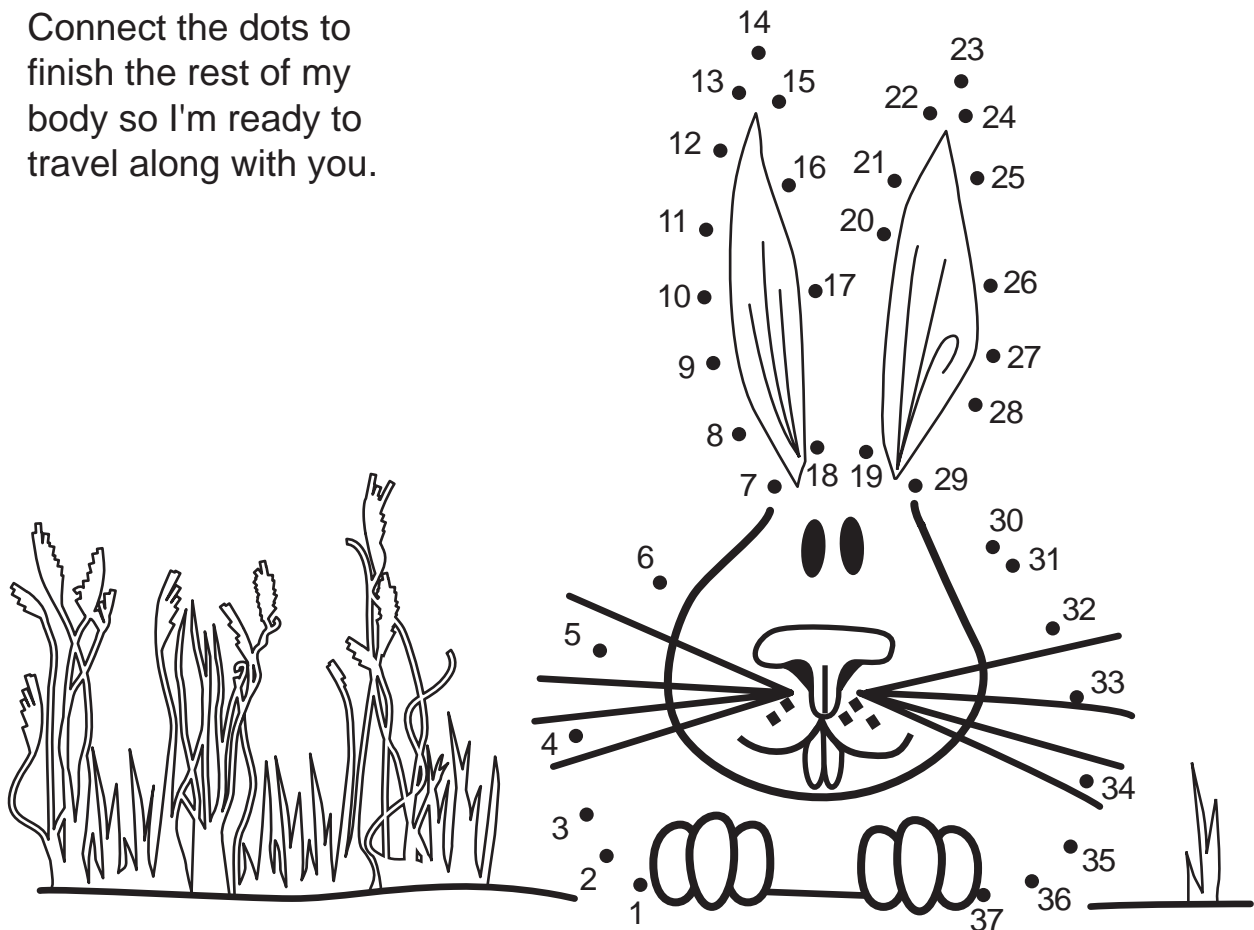
My name is Dust E. Bunny. I dig dirt. You know, the stuff humans call "soil". I live in a watershed in Montana, and my home just wouldn't be the same without soil.

A watershed is an area in which all the water flows into one larger body of water, such as a river or lake. When the water gets to the river or lake it needs to be clean for fish to live in and for farmers and ranchers to irrigate with. A watershed needs plenty of healthy vegetation, not just for me to eat, but also to keep the soil from eroding and making the water dirty.

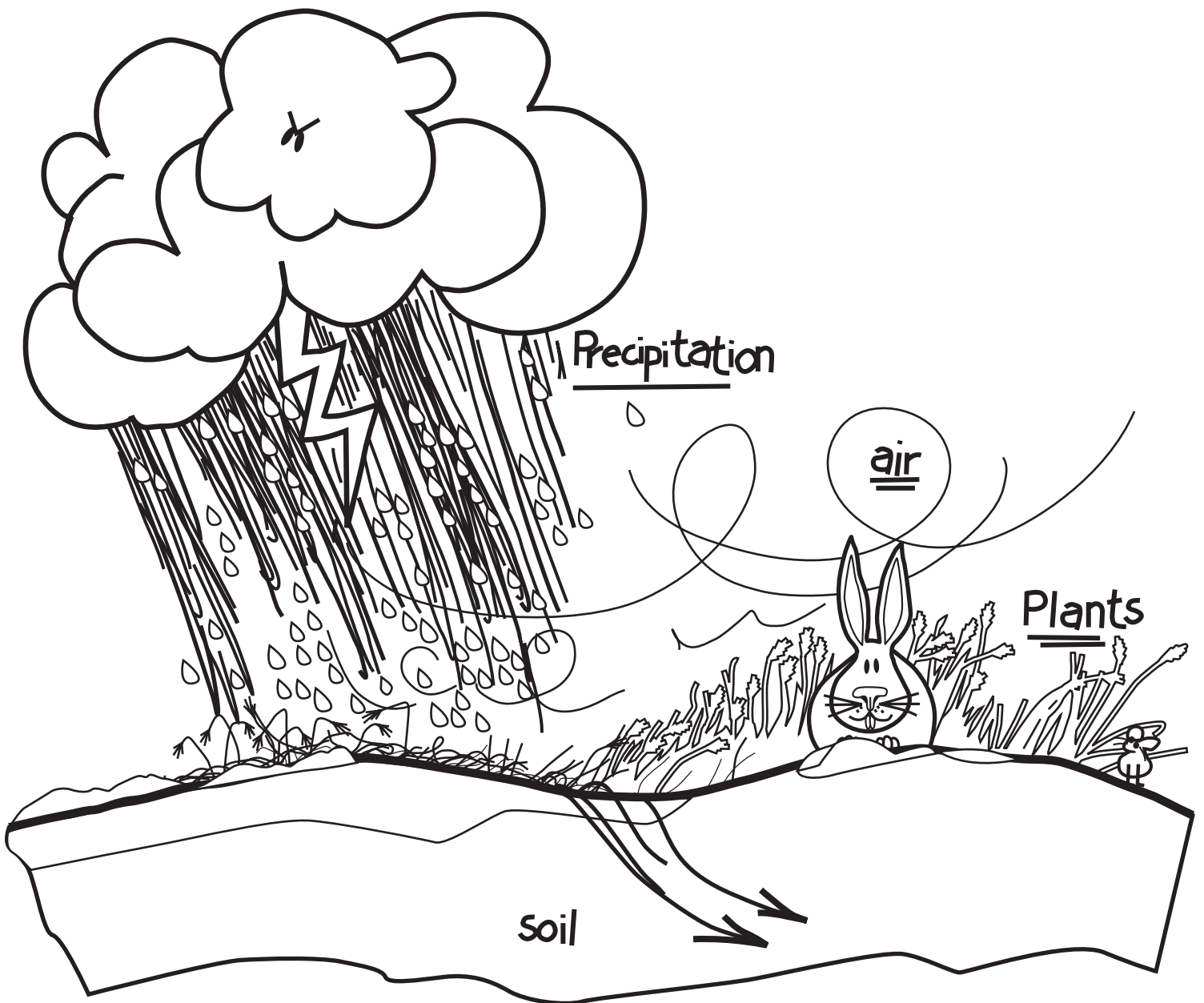
This activity book will explain what is needed to make a watershed healthy, how plants grow, and ways to keep the soil from eroding. Hop along with me and let's learn more about watersheds, plants, and soil. I'll be on every page of this activity book.

Can you find me?

Connect the dots to finish the rest of my body so I'm ready to travel along with you.

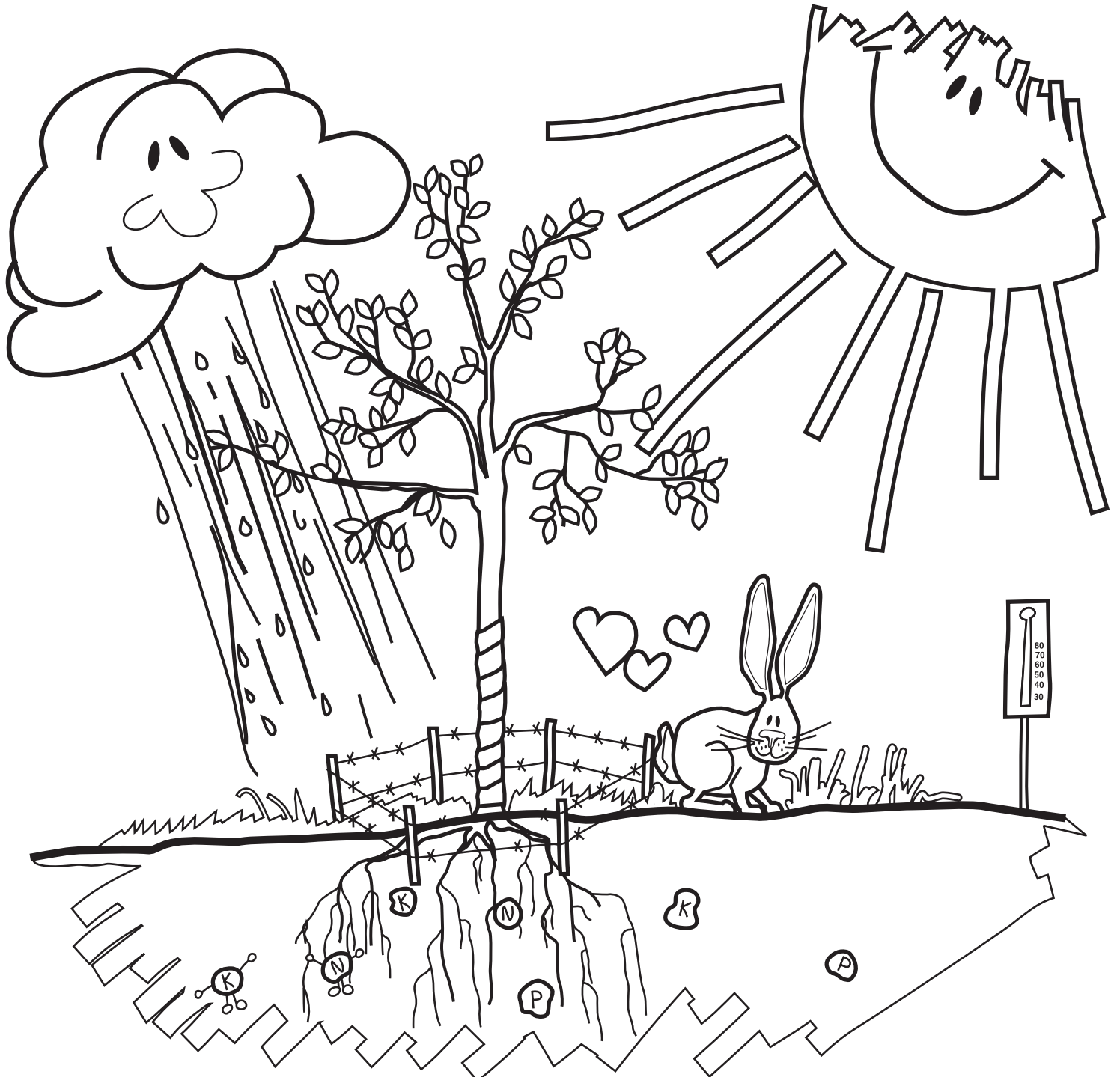


Watershed components



Watershed component: plants

What is needed to make plants
GROW??

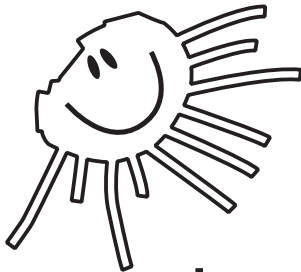


Plants need:

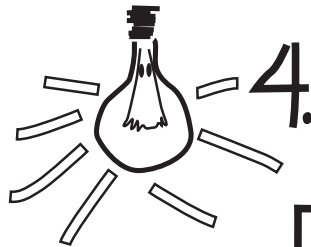
1. Soil



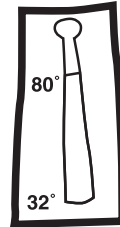
3. air



light



5. temperature

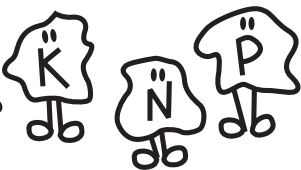


6.

7. organic matter



8. nutrients

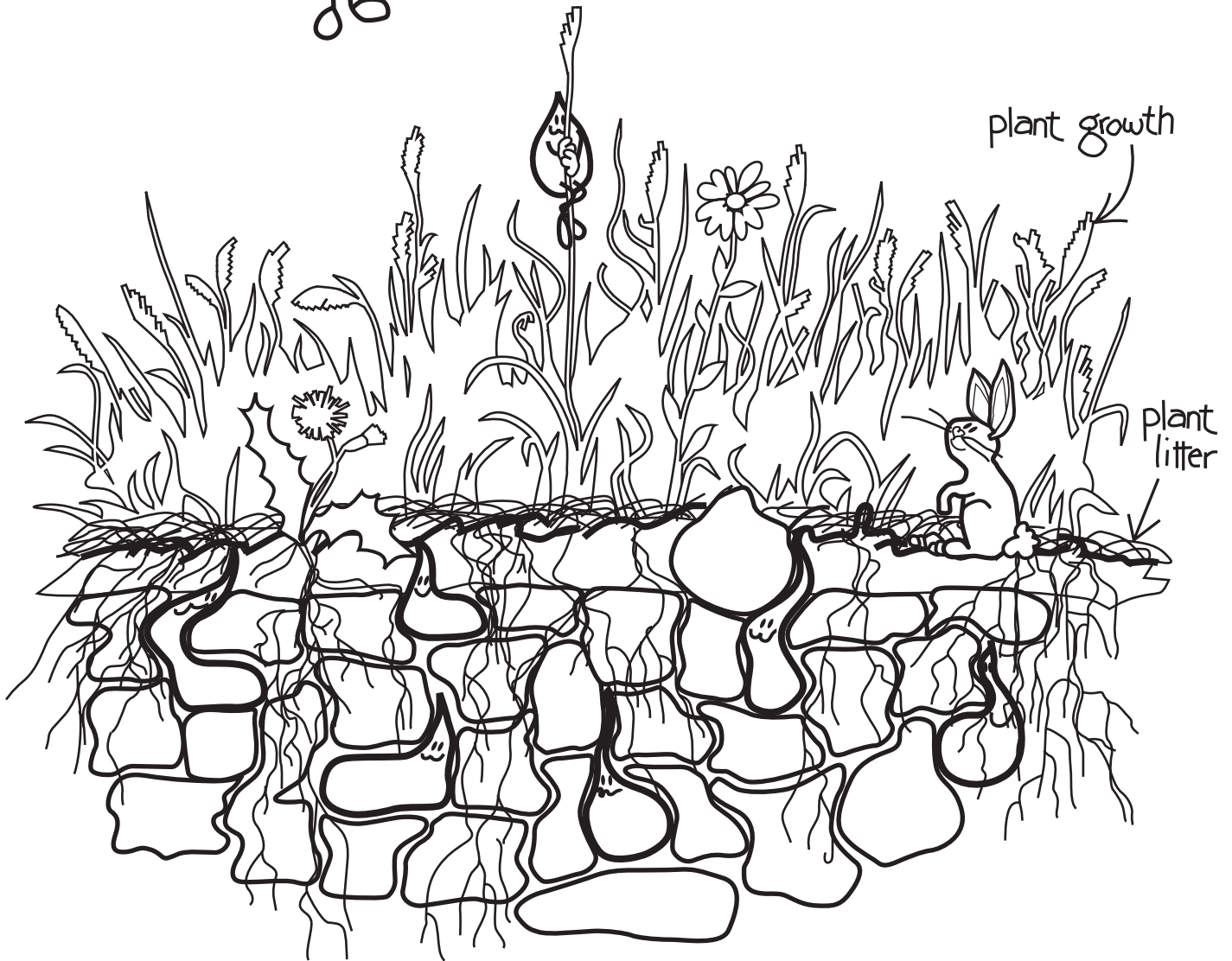


9. care



The effect of Plants on watershed stability





ground cover is needed for:

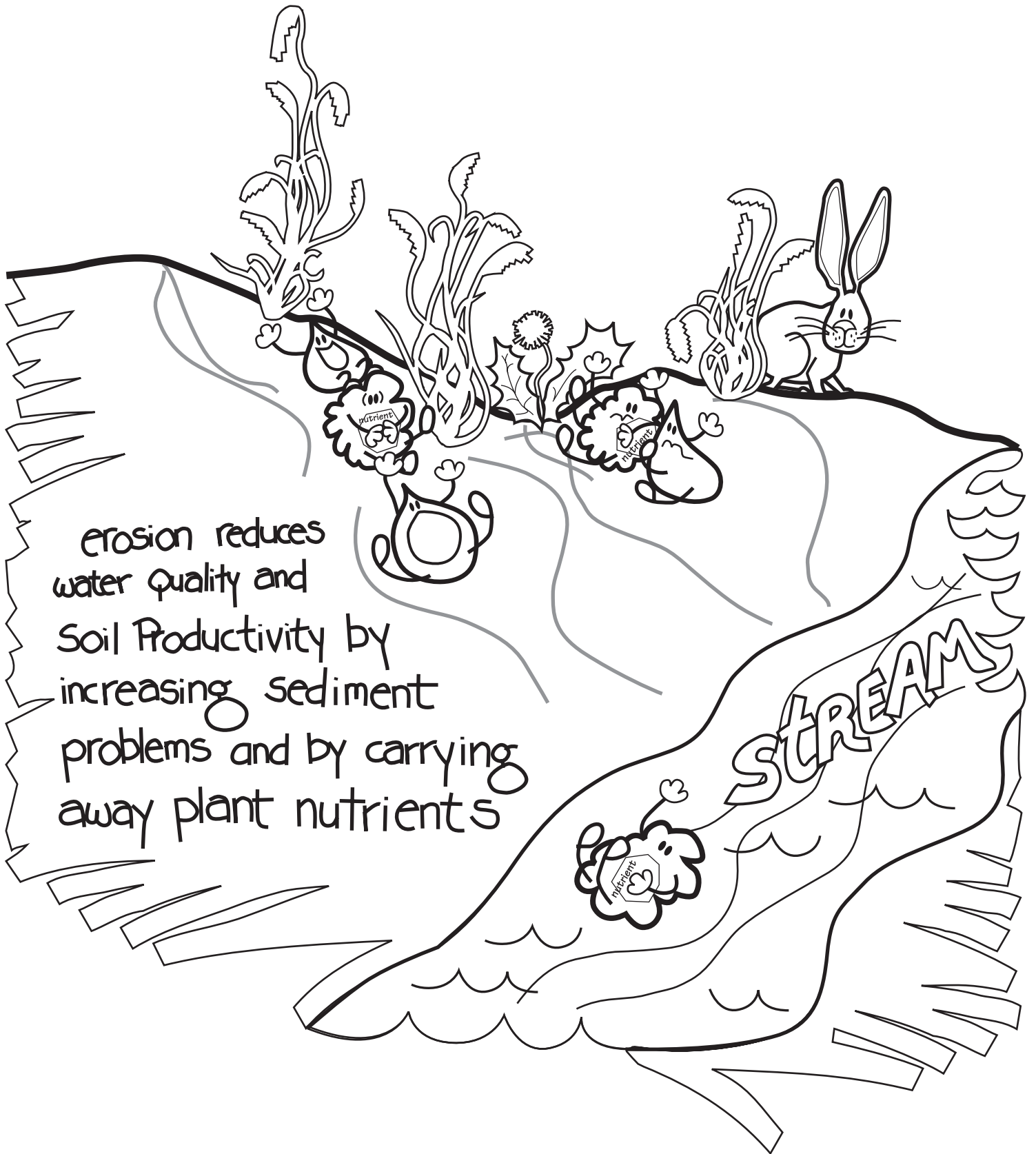
rainfall interception
good infiltration
erosion control

water Quality
Grazing
Wildlife Habitat

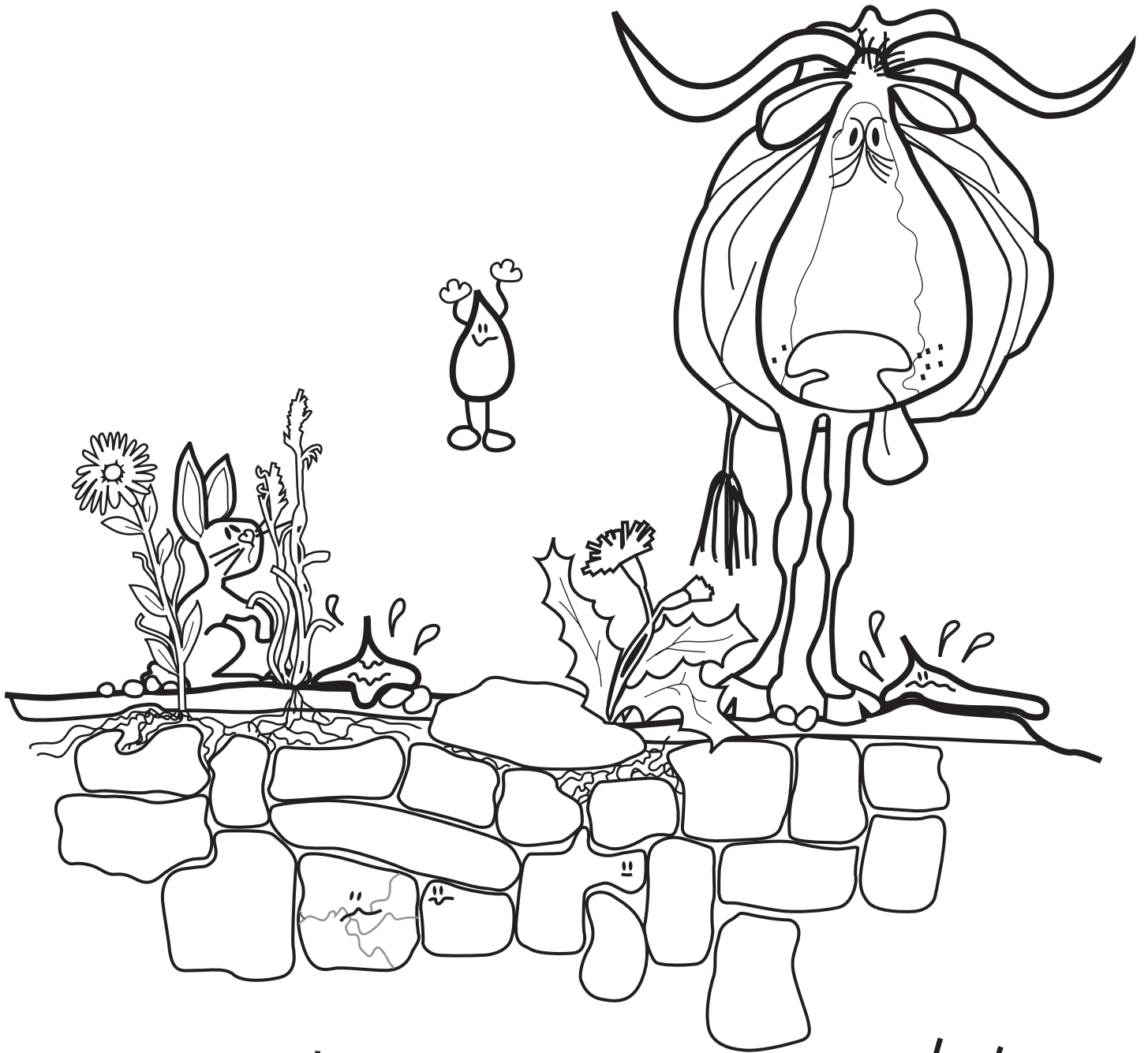
reduced ground cover, from overgrazing, insect damage and/or drought, results in increased runoff & reduced available soil water.



reduced plant growth & plant litter
increases wind & water erosion



erosion reduces
water quality and
Soil Productivity by
increasing sediment
problems and by carrying
away plant nutrients



... and results in less vegetation
for livestock, wildlife and
watershed stabilization

Watershed component: soil

Soil

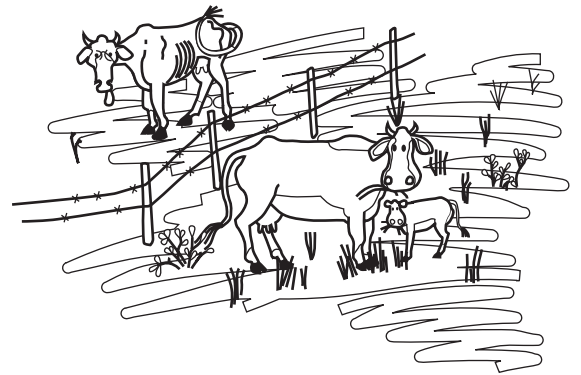
 characteristics & climate vary.

So do Land Use opportunities!!

Roads



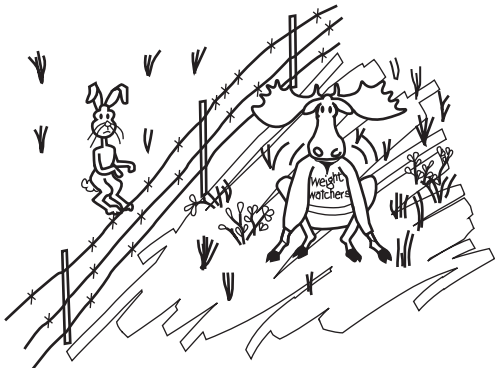
Livestock



Farming



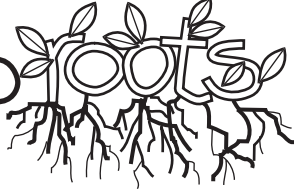



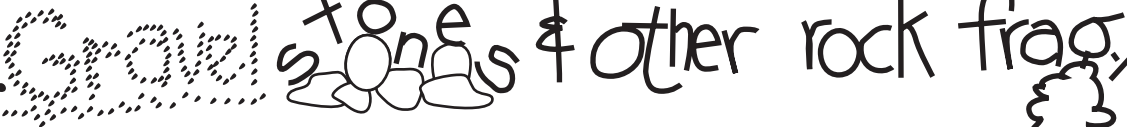

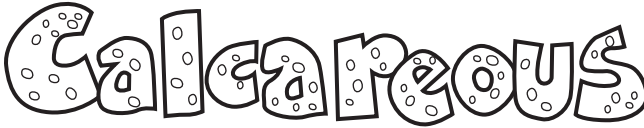
Wildlife



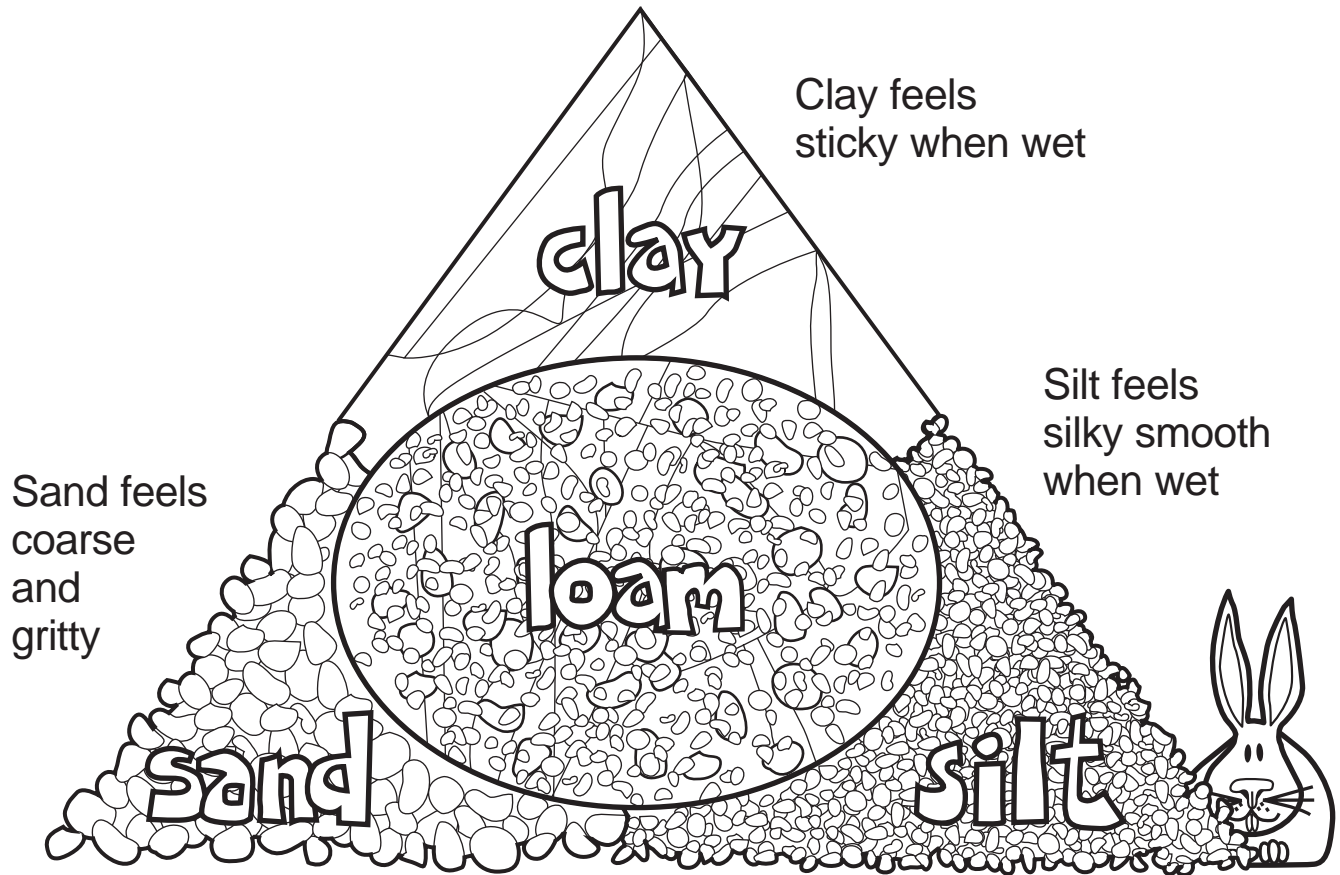
Homes



Soil Factors

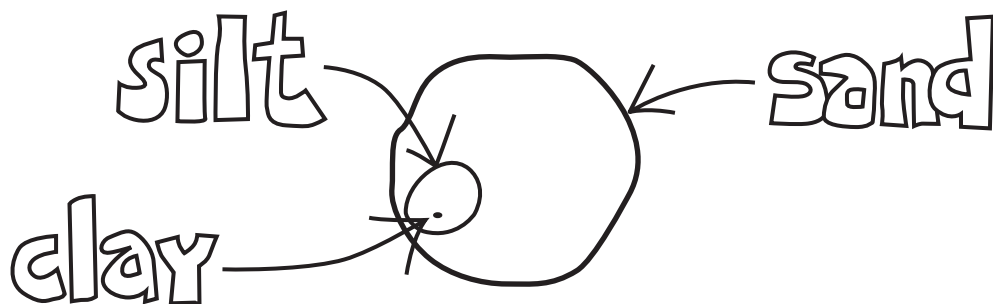
1. Natural soil drainage & overflow conditions
2. Soil depth favorable to  roots
3.  Texture
4.  Structure
5.  Permeability
6.  Soil stones & other rock fragments
7.  Slope & shape of land
8.  Salinity or sodium problems
9. Strongly  Calcareous
(which means it has lime in it)

Soil Textures



Loam is a combination of sand, silt, and clay.

Relative size of sand, silt, and clay particles:



Plants

need all kinds of things to grow and be healthy. Fill in the blanks with words from the list below to continue learning about what makes plants healthy.

1. _____ falls from the sky and helps plants grow.
2. Your lawn grass needs _____ to hold the roots.
3. There are four basic soil textures, one of them is _____.
4. The soil texture with the largest particle size is _____.
5. Name one kind of soil erosion _____.
6. _____ help reduce soil erosion into streams.
7. Three-fourths of the earth is covered by _____.
8. _____ is a home for wildlife.
9. Protection of our natural resources is called _____.
10. Plants need _____ to make their leaves green.
11. The water _____ is nature's way of recycling water.

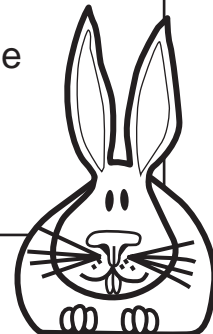
Word List

rain
sheet
clay

buffers
sand
water

topsoil
habitat
conservation

sunshine
cycle



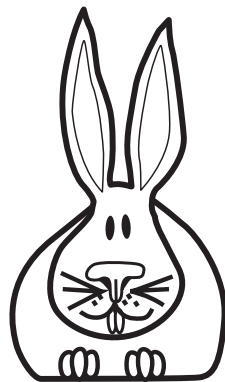
Many things are needed to make a watershed healthy.
 Find the following words which help describe a healthy watershed.
 (Hint: some words may be spelled backwards.)

Plants
 Grow
 Watershed
 Soil
 Water

Air
 Light
 Temperature
 Nutrients
 Climate

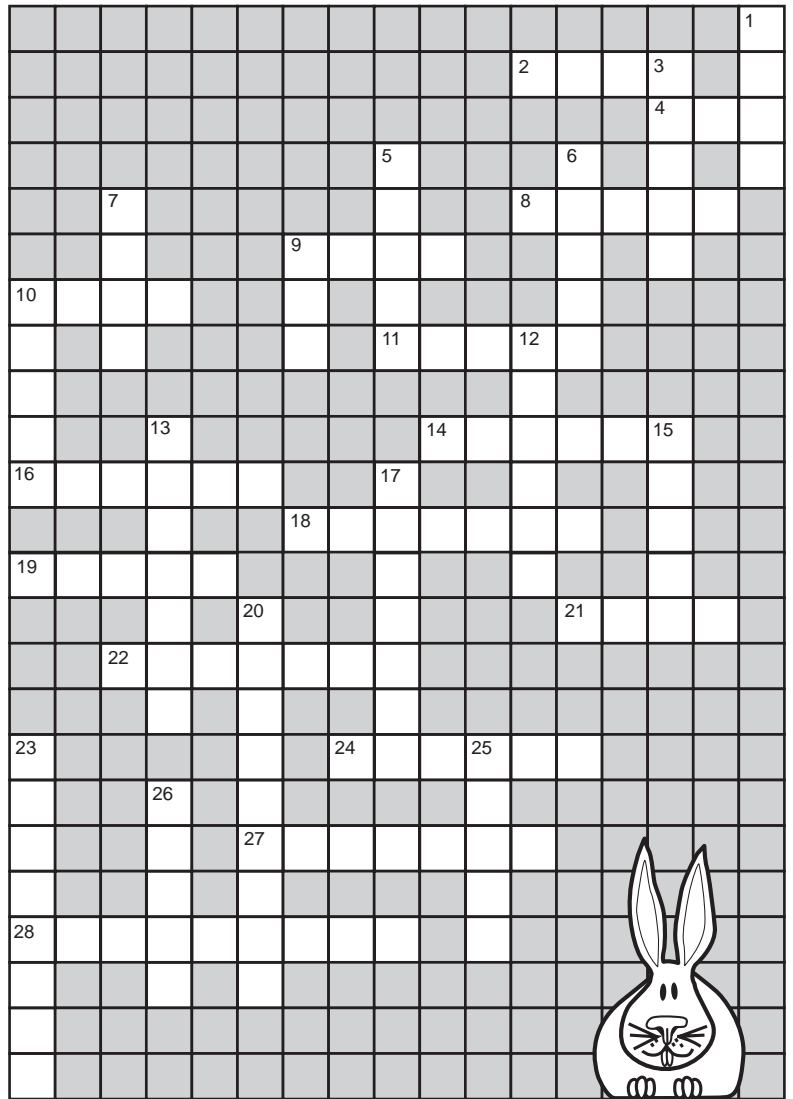
Rainfall
 Erosion
 Wildlife
 Livestock

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



Across

2. Nutrients, organic matter, and temperature are some more things that help plants ____.
4. Wind, or moving ____, can cause soil erosion.
8. Forests are full of ____.
9. Soil is also called ____.
10. ____, sleet, and snow are all forms of precipitation.
11. A ____ or hillside, would be a great place for sledding in the winter.
14. Organic matter can be sticks, ____, or mulch on the soil surface.
16. A small body of water that flows and meanders is called a ____.
18. Erosion reduces water ____.
19. ____ are the part of the plant that helps it to get water and nutrients from the soil.
21. An animal that lives in the water, such as a trout, is a ____.
22. Lack of moisture and severe heat cause a ____.
24. Clay is a type of soil that can be very ____ when wet, and very hard when dry.
27. When soil is blown or washed away, it is called ____.
28. Agriculture is the process of growing crops and ____ to provide food and other products for the world.



Down

1. A ____, or burning, is one way to manage vegetation.
3. When ____ infiltrates soil, it moves through the soil where it can be taken up by plant roots.
5. Crops are grown and livestock are raised on ____.
6. Livestock ____ plants that grow in watersheds.
7. Plant roots increase ____ stability by binding it together.
9. Some animals, like gophers, ____ burrows in the soil for their homes.
10. ____ break down slowly over time to form soil.
12. Rain, sun, and good soil are needed for ____ to grow.
13. Soil ____ is based on the types of particles in the soil and can be determined by the feel of the soil.
15. Farmers plant ____ in the soil that grow into crops.
17. Wildlife's homes can also be called their ____.
20. Nitrogen, phosphorous, and potassium are just some of the ____ plants need to grow.
23. ____ like rabbits, elk, and frogs can all share the habitat found in a watershed.
25. Farmers grow and harvest ____ to feed the world.
26. Where people build ____ depends on soil factors such as texture, structure, and drainage.

Complete each blank by matching the number to the letter to figure out the message below:

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

10	11	12	13	14	15	16	17	18
J	K	L	M	N	O	P	Q	R

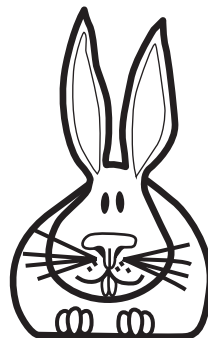
19	20	21	22	23	24	25	26
S	T	U	V	W	X	Y	Z

19 15 9 12 9 19 20 8 5

6 15 21 14 4 1 20 9 15 14

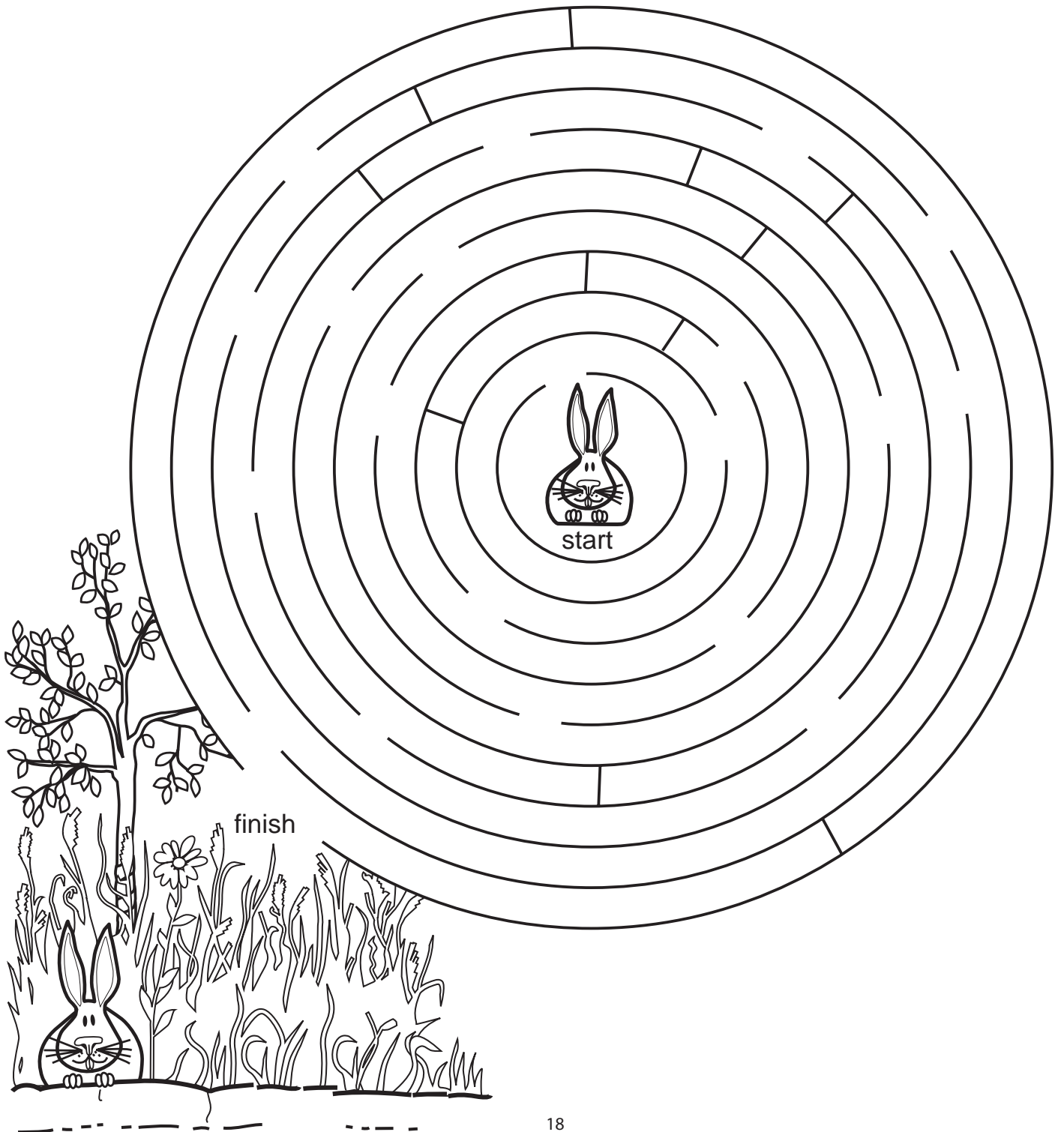
15 6 1 12 12 12 9 6 5

15 14 5 1 18 20 8

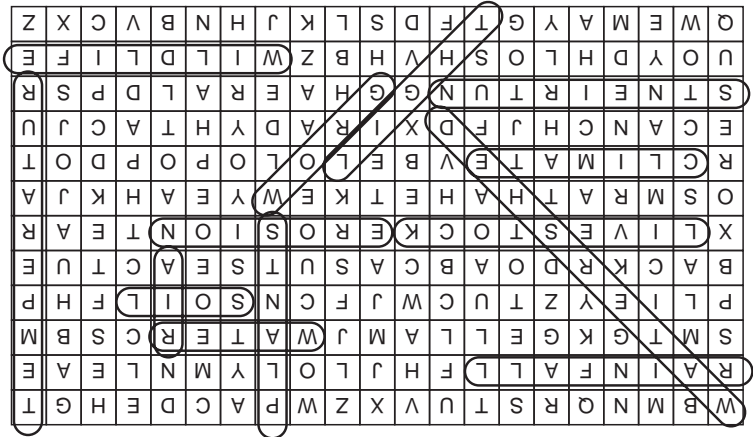
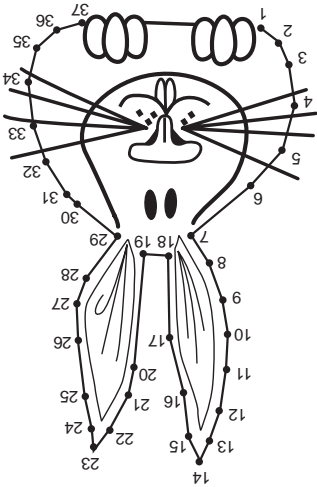
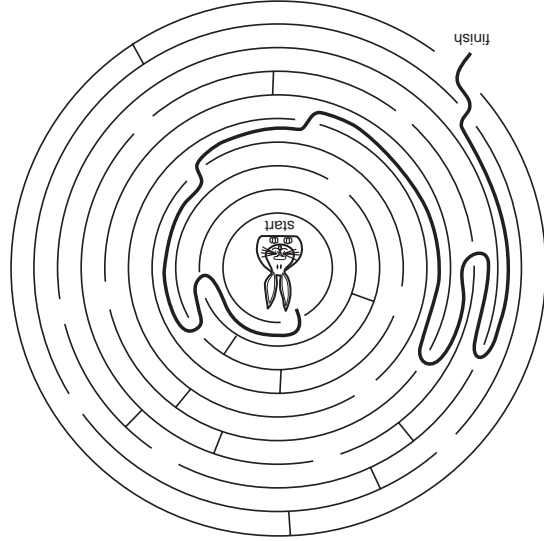
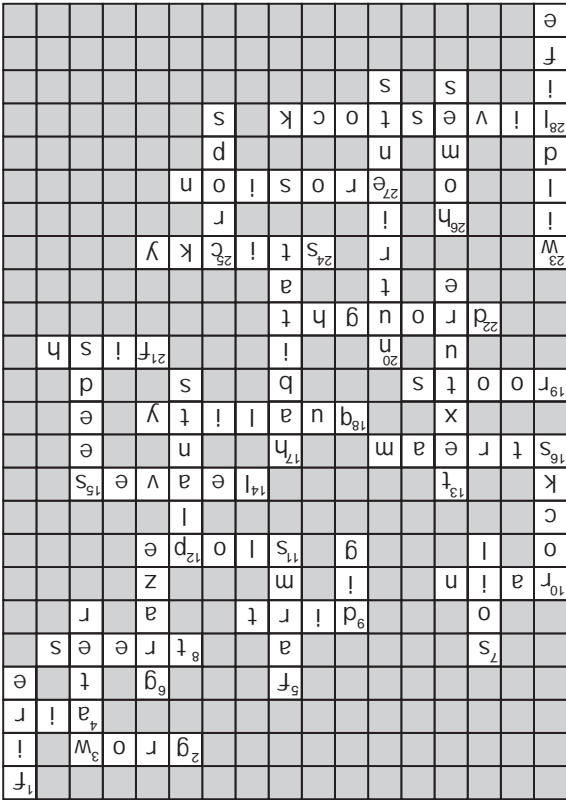


We have learned a lot throughout this activity book about how conserving our natural resources makes a healthy watershed and makes my home in Montana a great place to live.

Help me make my way through this maze to my healthy watershed.

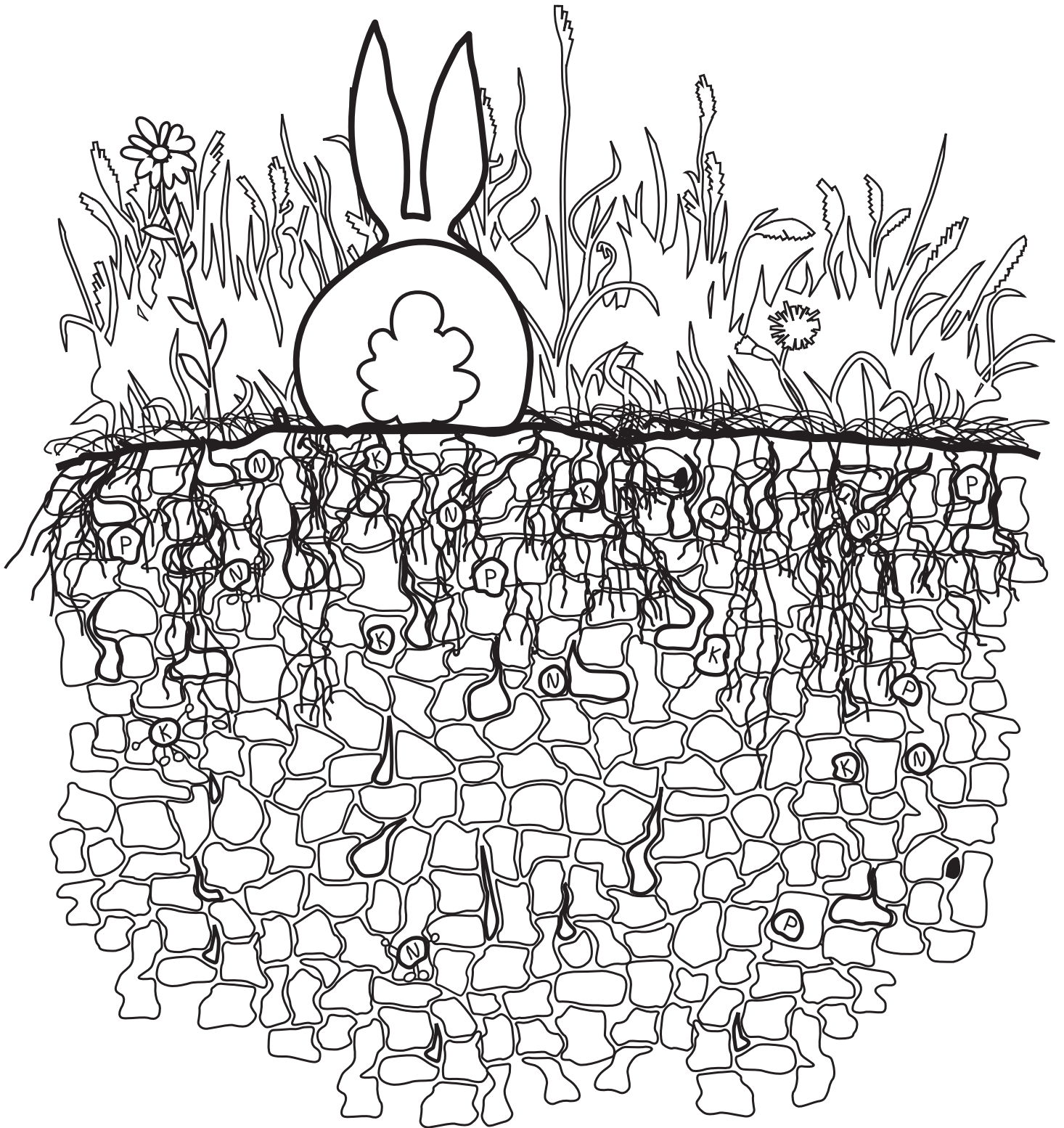


Answer Page



S O I L 1 12 9 19 9 15 19
 U N D E R 21 14 4 1 15 6 15
 F O U N D A T I O N 14 20 9 15 14
 O F A L L 12 12 9 6 15
 O N E A R T H 18 20 8

1. Rain falls from the sky and helps plants grow.
2. Your lawn grass needs topsoil to hold the roots.
3. There are four basic soil textures, one of them is clay.
4. The soil texture with the largest particle size is sand.
5. Name one kind of soil erosion: sheet.
6. Buffers help reduce soil erosion into streams.
7. Three-fourths of the earth is covered by water.
8. Habitat is a home for wildlife.
9. Protection our natural resources is called conservation.
10. Plants need sunshine to make their leaves green.
11. The water cycle is nature's way of recycling water.



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