My Tree Notebook

Name:_____

Date:_____

What Makes a Tree a Tree? KWL Chart

In the first column, write what you already **k**now about trees. In the second column, write what you **w**ant to know about trees. After you're done with the lessons, come back and write what you learned in the third column.

What I **K**now	What I **W**ant to Know	What I **L**earned

What are some ways to find the answers to my questions?

Observations

Choose a tree to <u>observe.</u>

Use your senses to listen, smell, touch, and look around the tree. Make observations of your tree up-close, from a distance, looking up and down. Describe your observations below. Be specific.

I think threes are:

How can I tell that this plant is a tree?

My Tree

Use detail to draw different views of your tree.

First, stand by your tree's trunk. Walk 25 paces away. Draw your tree from a distance.

A Mouse's View

Get up close to your tree. Imagine you are a miniscule mouse looking up at your tree. Draw your tree from this "mouse" perspective.

A Bird's View

Imagine you are a bird flying over your tree. What do you think the tree looks like to a bird flying over the tree? Draw your tree from this "bird's eye" view.

Trees as Habitats

What do plants and animals need to survive?

Make Observeations

Can you see signs that show animals or plants have been using your tree? Look and listen. What things can you observe? Mark the boxes that you find with an X

Scratched or chewed bark	Spider web	Squirrel in tree	Nest	Insect holes
Holes in leaves	Moss	Scat	Birds chirping	Mushroom or fungus
Squirrel chattering	Bird in tree	Insect on tree	Woodpecker holes	Vines climbing trunk or branches

Were there other things you observed?

Which animals use your tree?

Use the table to write animals, what sign you observed, and how it uses the tree.

	Animal	Sign	How it is using the tree
Example:	Spider	Web	Shelter
1.			
2.			
3.			
4.			
5.			

Measure your tree's average crown spread

All the branches together make up a tree's <u>crown.</u>

The <u>average crown spread</u> is the average distance that the branches reach away from the trunk.

Edge of branches

Distance from trunk to edge of branches
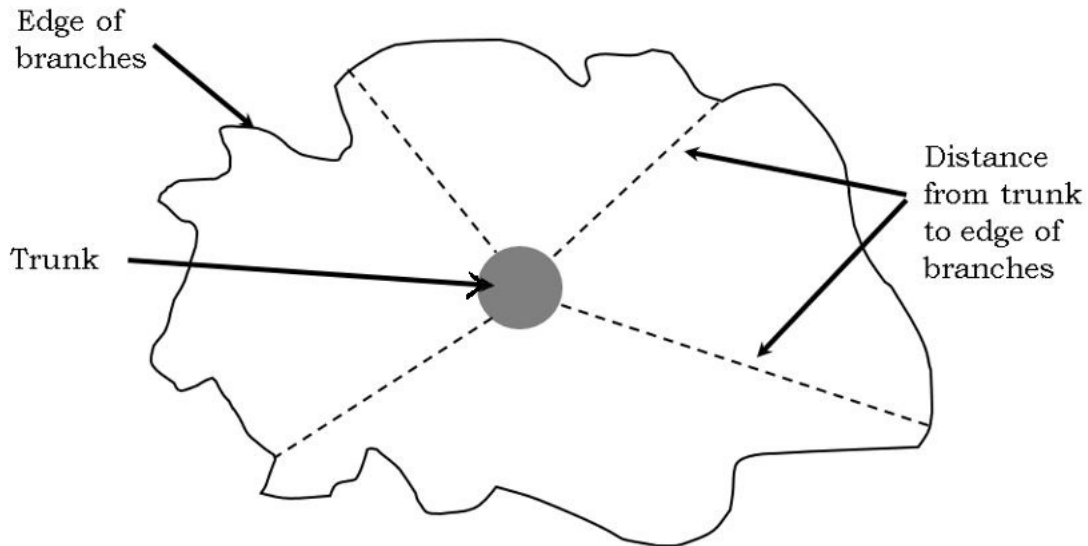
Trunk

1. Have a partner hold one end of the tape measure next to the tree's trunk.

2. Pull the tape measure away from the trunk. Stop when you reach where the branches end above you. Record the distance in the table below. Repeat steps 1 and 2 four times.

3. Find the total by adding the four distances together.

4. Find the average crown spread by dividing the total by four (the number of measurements you took).

First measurement	inches
Second measurement	inches
Third measurement	inches
Fourth measurement	inches
TOTAL	inches
Divide the total by 4 to get the **average crown spread**	inches

Measure Your Tree's Trunk

Perimeter is the distance around an object. The perimeter of a circle is circumference. This exercise will walk you through finding the circumference of your tree's trunk. You may want to work with a partner.

1. Estimate the circumference around your tree's trunk in inches.

   Estimate: _____

2. Measure the circumference around your tree using a tape measure. Don't forget to label with the correct units.

Height for measurement	Circumference	Unit of measurement
1 foot from the ground		
3 feet from the ground		
4.5 feet from the ground		

3. What did you notice about the width of the trunk as you measured at different heights?

4. Foresters always measure circumference at 4.5 feet from the ground. Why do you think it's important they take measurements from this height only?

Measure your tree's diameter

Diameter is the length of a straight line that passes through the center of a circle.
You can calculate diameter by dividing the circumference by 3.14, known as Pi.

1. Use the circumference at 4.5 feet from the previous page to find the tree's diameter. Remember to label your answer with the correct units.

$$\frac{\text{Circumference}}{3.14} = \text{Diameter}$$

$$\frac{\underline{\hspace{4cm}}}{3.14} = \underline{\hspace{4cm}}$$

When you find the diameter of a tree at 4.5 feet above the ground it's called "diameter at breast height" (DBH). One reason foresters use DBH is to estimate the amount of lumber a tree could provide.

2. Lots of objects in nature have diameters. Measure the diameter of three other things in nature. List what you measured and its diameter.

Example: Rock, diameter = 4 inches

1.

2.

3.

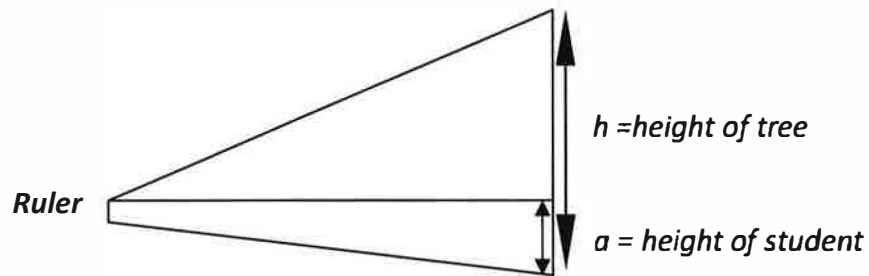## Meausre your tree's height

x = length of ruler (12 in.)
y = measurement at top of student's head on the ruler
b = proportional number
a = student's height in inches
h = tree's height

Ruler

h =height of tree

a = height of student

1. One student should stand at base of tree.
2. Other student holds ruler at arm's length, then walks backward, keeping arm stiff, until top and bottom of ruler appear to line up with the top and bottom of the tree.
3. Note where the top of the first student's head appears.
4. Use the following equation to find the proportional number.

x / y = b

12 inches / _____ = _____

5. Using the student's actual height (a), multiply it by the proportional number to find the height of the tree.

b * a = h

_____ *_____ = _____inches

6. Divide by 12 inches to find the tree's height in feet.

h/12 inches = _____feet

7. Measure another student's tree, then compare answers. Did you have similar calculations?

Poet-tree

Sit beside your tree. Record ten observations of your tree and surroundings. Use your senses to listen, look, smell, and feel. Include descriptive adjectives for each observation.

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

Use your observations to write different poetic forms.

Haiku is a Japanese form of poem that has three lines.

Line 1: five syllables	*The snow-covered tree*
Line 2: seven syllables	*Sparkles under the moonlight*
Line 3: five syllables	*The wind rushes by*

Windspark poems have five lines, starting with these prompts:

Line 1: I dreamed	*I dreamed*
Line 2: I was	*I was a tree*
Line 3: Describe a place	*On a hillside*
Line 4: Describe an action	*Playing with the wind*
Line 5: An adverb ending in –ly	*Joyfully*

Cinquains have five lines. They have a required number of words and type of words used in each line.

Line 1: one word, the title of the poem

Line 2: two words, adjectives that describe the topic.

Line 3: three words that tell the reader more about the subject or show action. Often, these words end in –ing.

Line 4: four words that contain a longer description.

Line 5: one word that is a synonym or relates to the title.

Forests

Graceful, growing

Reaching toward clouds

Calmly awaiting the sunrise

Alive

Acrostic poems are like acronyms. The first letter in each line, read vertically, spells what it is describing. Here is one about a TREE.
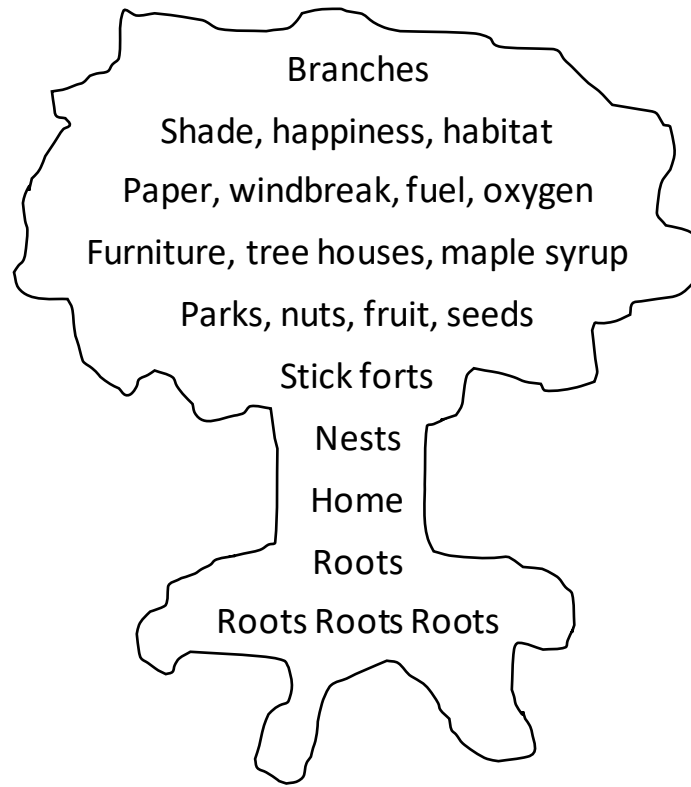
Towering above

Reaching out

Extending and stretching

Embracing the sky

Diamante poems are diamond-shaped and have seven lines.

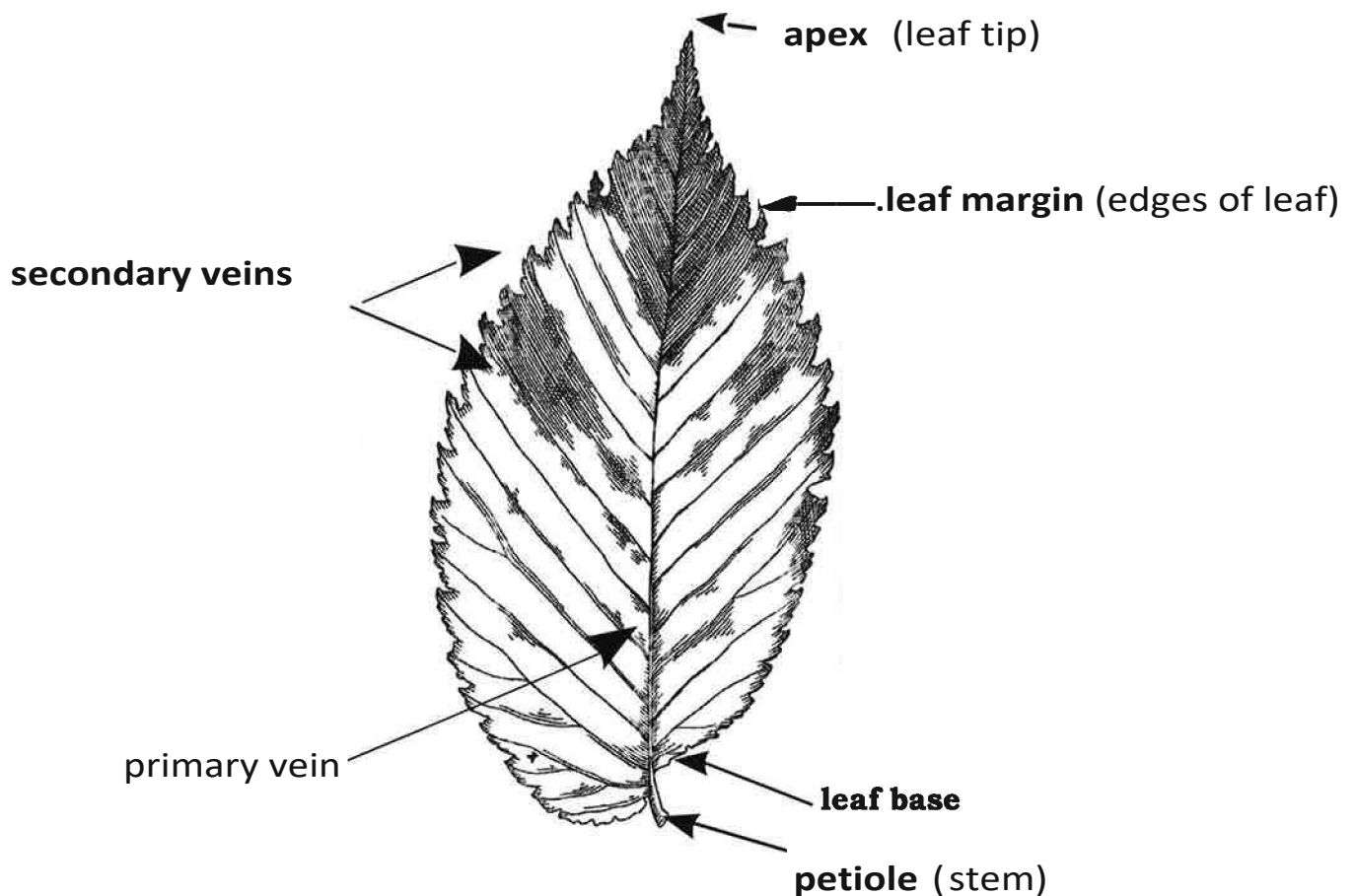|	
Noun	Seed
Adjective adjective	Small, buried
Participle particle particle	Growing, breathing, living
Noun noun noun noun	Oxygen, shade, habitat, life
particle particle particle	Waiting, reaching, moving
Adjective adjective	Hopeful, excited
Noun	Seedling

Picture poems form a picture of what is happening in the poem.

Branches

Shade, happiness, habitat

Paper, windbreak, fuel, oxygen

Furniture, tree houses, maple syrup

Parks, nuts, fruit, seeds

Stick forts

Nests

Home

Roots

Roots Roots Roots

Leaves

1. Does your tree have broad leaves or needles?

2. Most deciduous trees drop their leaves in the fall. Most coniferous trees keep their needles all year. Is your tree deciduous or coniferous?

Tamarack is a special coniferous tree. It is the only coniferous tree in Minnesota that drops its needles each winter.

apex (leaf tip)

.**leaf margin** (edges of leaf)

secondary veins

primary vein

leaf base

petiole (stem)

Draw a picture of a leaf from your tree. Clearly label the parts.

Describe your leaf using interesting and descriptive adjectives.

Measure Your Leaf

Use a ruler or measuring tape to measure the length and width of your leaf.

At its longest point, how long is your leaf? _____centimeters

At the widest part, how wide is your leaf? _____centimeters

Estimate the surface area of your leaf in cubic centimeters. Trace your leaf on the graph paper. Count each square your leaf covers half or more of.

Example: The traced leaf below takes up 45 squares = 45 cubic centimeters
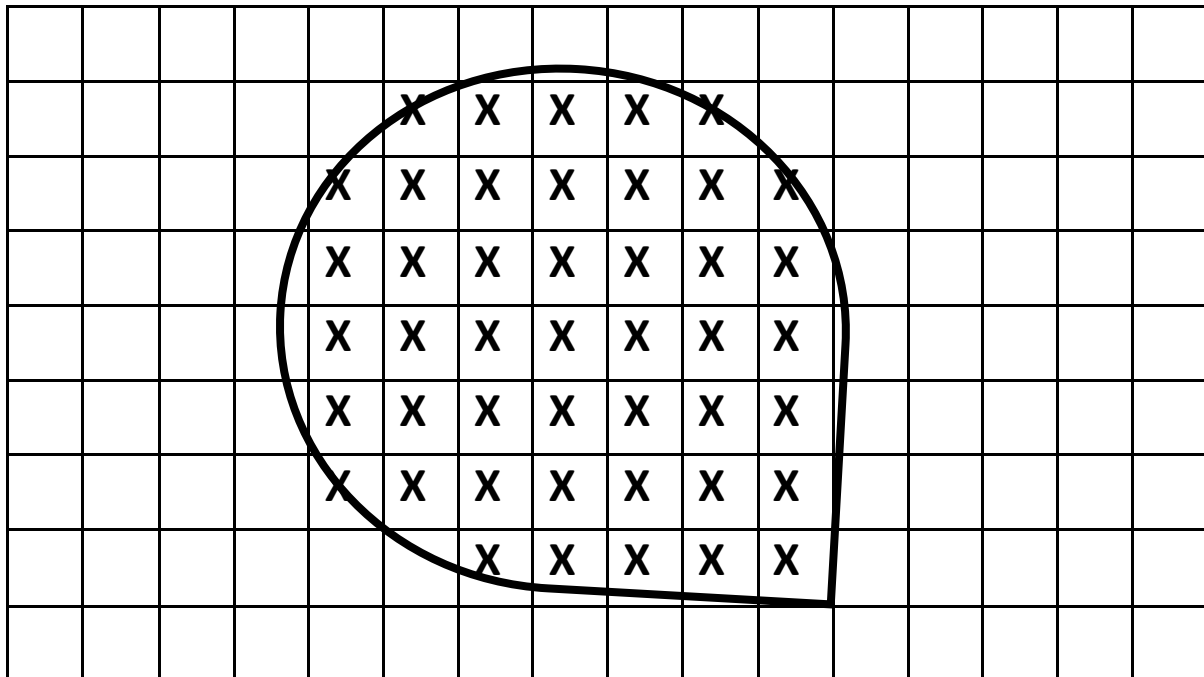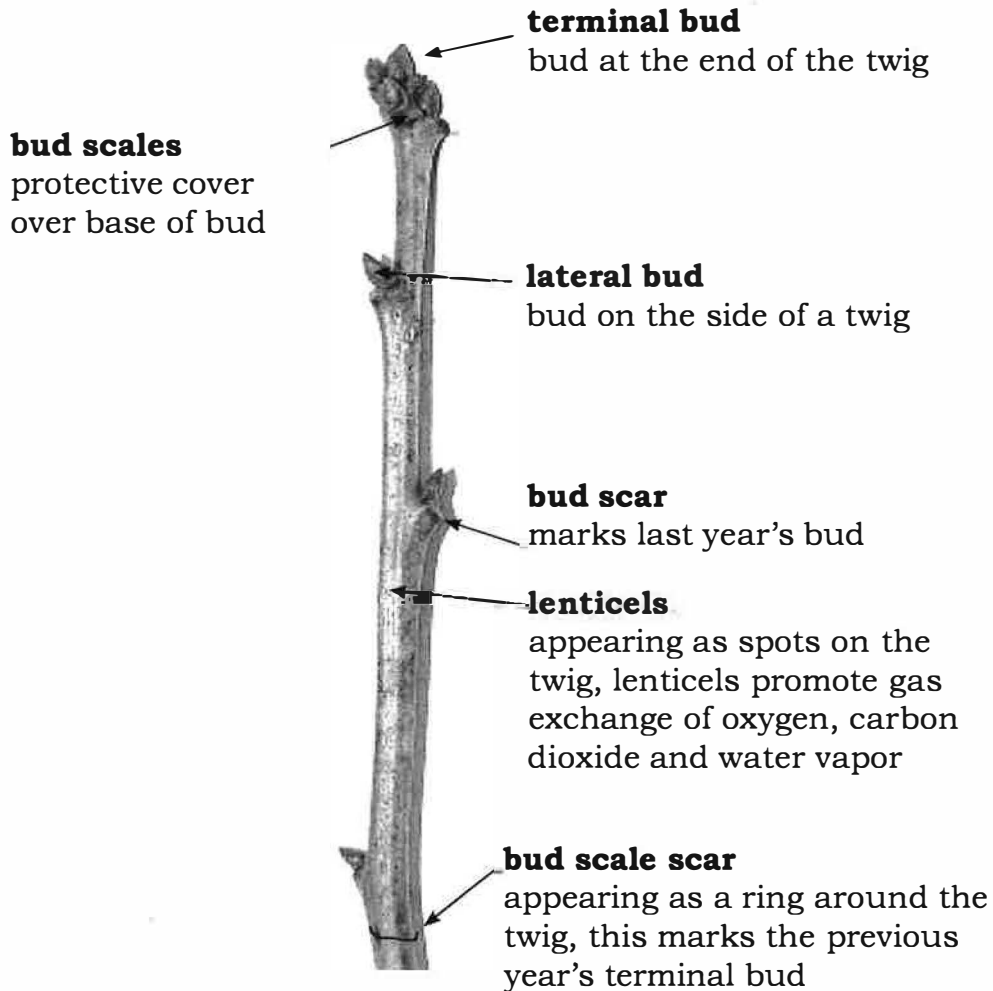

Your leaf surface area estimate: _____cubic centimeters.
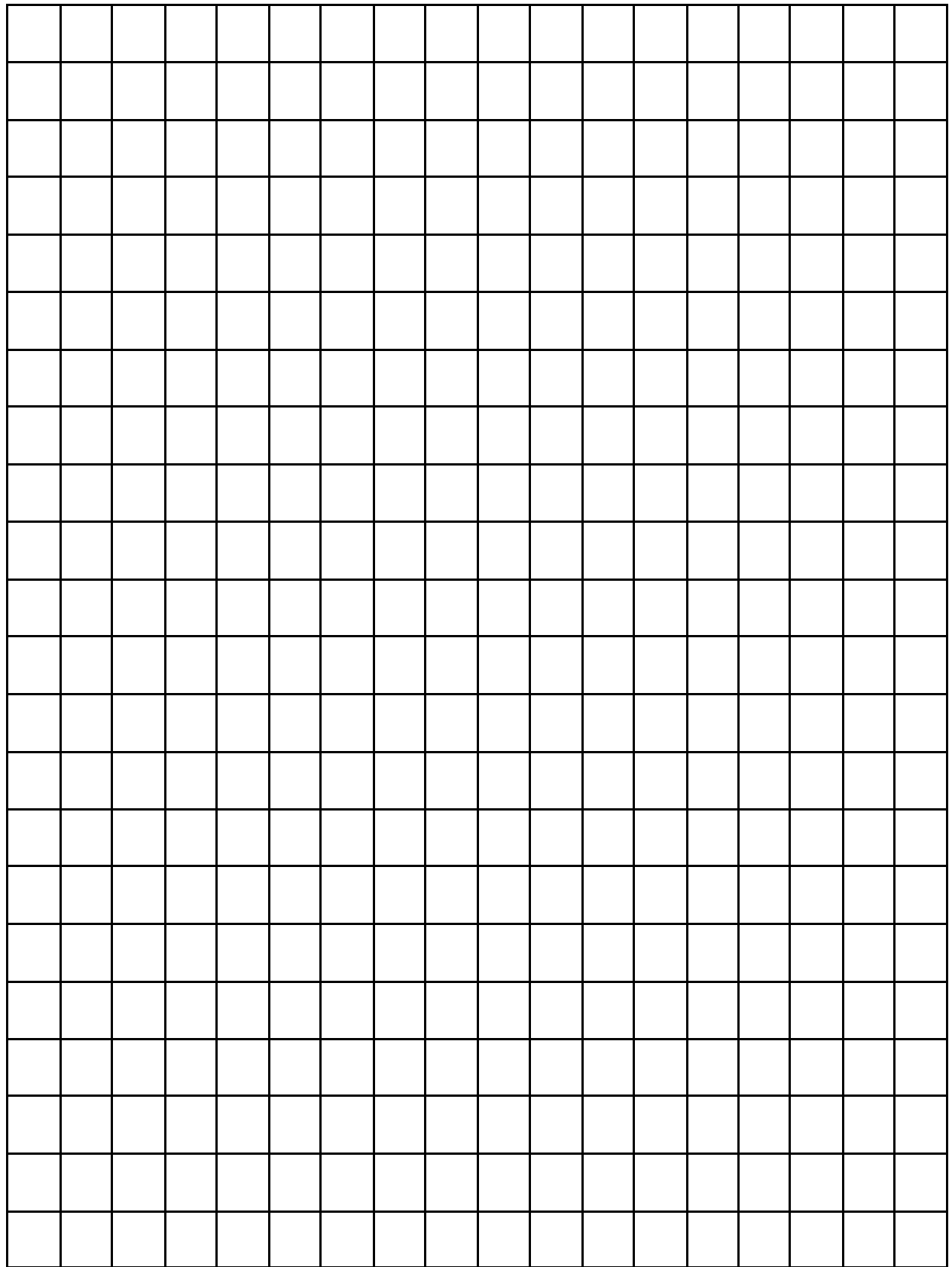
Seeds

Tree seeds come in a variety of packages. For example:

- Fruit
- Nuts
- Acorns
- Pods
- "Helicopter" seeds
- Cones (if your tree is coniferous)

1. Does your tree have seeds you can see right now?

2. What kind of seeds does it have?

3. Draw a picture of one of your tree's seeds. If you're not sure, see if you can search online to find a picture of your tree's seeds.

Twigs and branches

terminal bud
bud at the end of the twig

bud scales
protective cover
over base of bud

lateral bud
bud on the side of a twig

bud scar
marks last year's bud

lenticels
appearing as spots on the
twig, lenticels promote gas
exchange of oxygen, carbon
dioxide and water vapor

bud scale scar
appearing as a ring around the
twig, this marks the previous
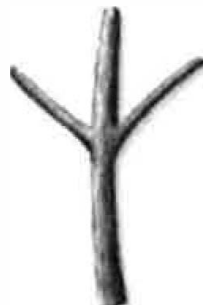year's terminal bud

Look at your twig. Are leaves, leaf scars, or side shoots arranged in an opposite, alternate, or whorled pattern?

Circle your answer.

alternate   opposite   whorled

1. Draw a picture of a twig from your tree. Include any characteristics you observe such as color, shape, spots, holes, patterns, other markings.

2. Cleary label the parts of your twig.

Species

Identify your tree's species.

Now that you've closely observed your tree's leaves, seeds, and twigs, use a tree identification book or website to identify your tree.

Tree Species:_____

Common names for your tree:

1. Go back to your KWL chart on page 2.

2. Fill in the third column about what you have learned.

3. What do you wonder about your tree? Did you learn something new that sparked a question about trees? Write any additional questions you're wondering about in the middle column of your KWL chart.

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This journal was designed to accompany Project Learning Tree (PLT) lessons #21 "Adopt-a-Tree," #45 Poet-Tree," #22 "Trees as Habitats," #67 "How Big is Your Tree?" and #68 "Name That Tree."