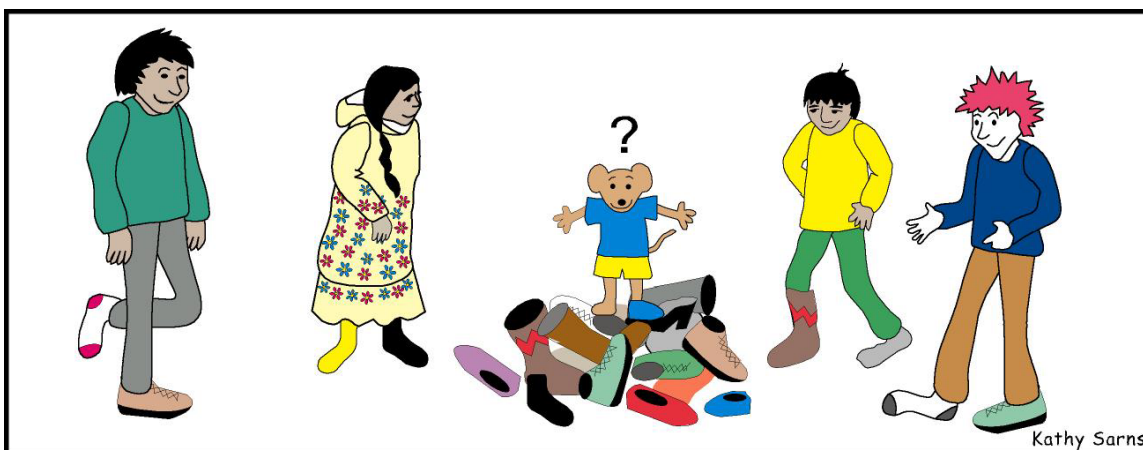


IDENTIFYING OBJECTS



Grade Level: 3-8

Alaska State Content Standards: SA15

Subject: Science

Skills: Classification

Duration: 1 class period

Group Size: whole group and 2-4

Setting: indoors

Vocabulary: dichotomous key

OBJECTIVE

The students will use a dichotomous key to identify local trees.

TEACHING STRATEGY

The students will participate in a variety of activities that help them to understand a dichotomous key.

MATERIALS

- Examples of tree leaves from the area (leaves or twigs)
- Plant Key
 - Summer
 - Winter

ADVANCED PREPARATION

Familiarize yourself with dichotomous keys. A **dichotomous key** is a classification / identification tool that continually divides the characteristics of objects to be

identified into two branches or parts until all are identified. Look at the "Alaska Trees and Shrubs" identification guide (see Role of Fire Kit) for an example of a working dichotomous key.

PROCEDURE

1. Divide students into groups of 7-8. Have them stand or sit in a circle. Each should take off one shoe and put it in a pile in the center of the circle.

2. Have students divide the eight shoes or other objects into two piles, according to any criteria they wish (color, style, shape, etc). For younger students the teacher may want to model this first. Next divide each pile into two piles according to a specific criteria written by the students. Continue dividing the shoes until they have only one shoe in each pile.
3. Explain a **dichotomous key**. Draw a diagram on the board of the dichotomous key that was created here to identify the names of shoes.
4. Choose a shoe that was not used in the creating the key. Using the key on the board to identify it.
5. Again, review that these are dichotomous keys. Scientists use them out in the field to identify plants.
6. Divide the class into teams of 2-4. Give each group a Plant Key and some tree leaves from the area. Have students identify the trees using the key.

EXTENSION

Do the same activity as above using the Winter Plant Key. Bring in twigs, branches and cones or take your students on a winter plant hike!

EVALUATION

Give each student at least 10 different leaves. Using the Plant Key, the student successfully identifies at least 5 plants from the sample of leaves.

Dichotomous Summer Plant Key

Willow

Narrow, sometimes hairy leaves
Smooth, twin twigs
Tassel-like upright catkins

Balsam Poplar (young)

Broad large leaves!
Stout twigs with sticky buds
Catkins hang down

Balsam Poplar (mature)

Leaves on long round stalks
Medium to large tree

Birch

Double toothed leaves, dark-green
above, yellow-green below
White or tan bark that peels

Tamarack

Needles are really leaves that
grow in clusters on branch,
then fall off each autumn

White Spruce

New twigs are
whitish and smooth
Elongated cones fall
off each year

Black Spruce

New twigs are reddish and fuzzy
Egg-shaped cones stay on tree in
big clusters

Aspen

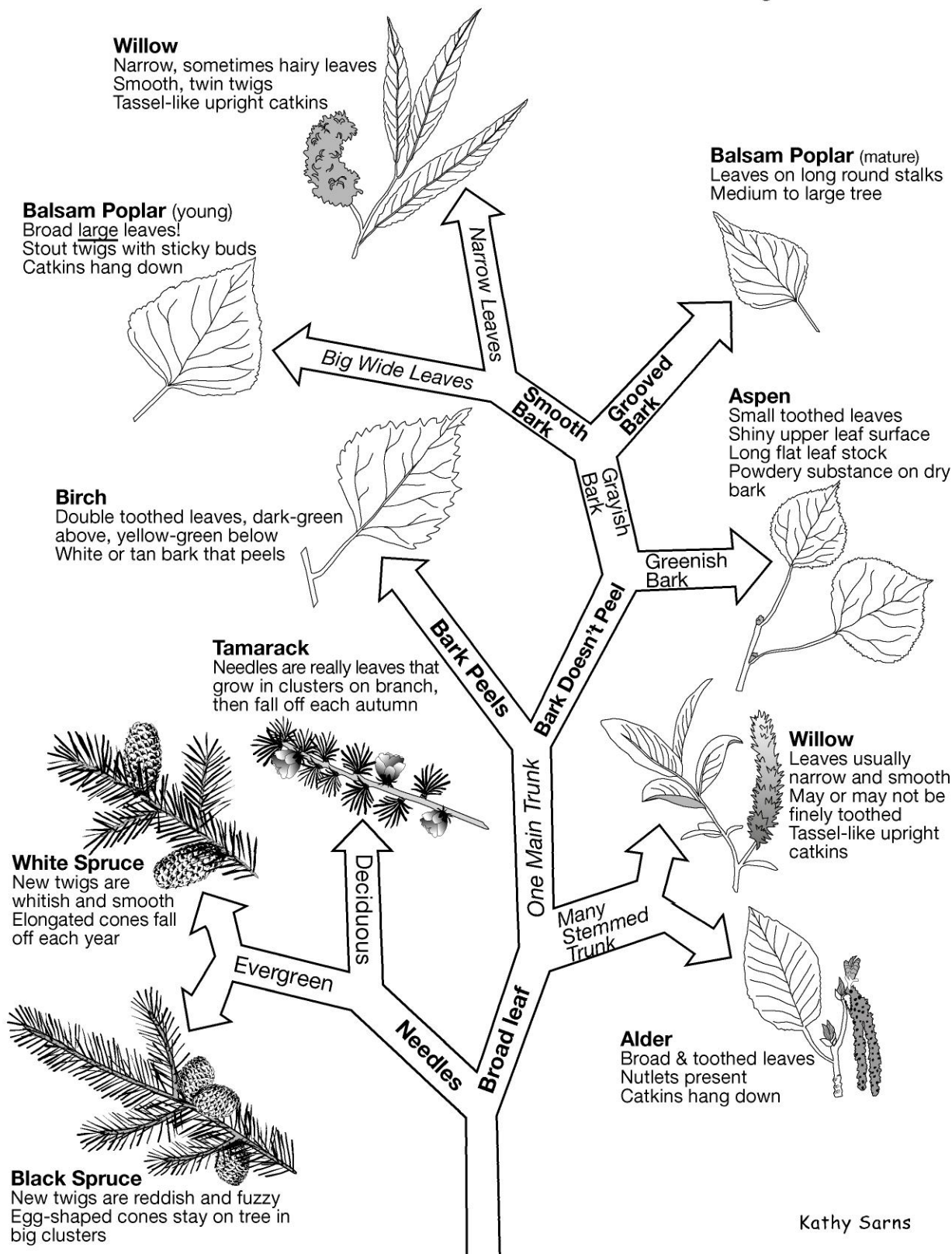
Small toothed leaves
Shiny upper leaf surface
Long flat leaf stock
Powdery substance on dry
bark

Willow

Leaves usually
narrow and smooth
May or may not be
finely toothed
Tassel-like upright
catkins

Alder

Broad & toothed leaves
Nutlets present
Catkins hang down



Dichotomous Winter Plant Key

Aspen

Smooth trunk
Shiny, pointed leaf buds

Willow

Smooth thin twigs
Small buds are covered by only one scale

Balsam Poplar

Young: smooth to lightly grooved bark
Mature: deeply grooved bark
Reddish-brown twigs
Large, sticky buds
Bud present on end of twig

Birch

Slender twigs are orange-brown with small white dots when young

Willow

Smooth thin twigs
No nutlets
Small buds

Alder

Nutlets present
Smooth twigs with many dots

White Spruce

New twigs are whitish and smooth
Elongated cones fall off each year

Tamarack

Looks like a dead Christmas tree
"Needles" are really leaves that fall off each autumn

Black Spruce

New twigs are reddish and fuzzy
Egg-shaped cones stay on tree in big clusters

Kathy Sarns