Forest Quiz 2017

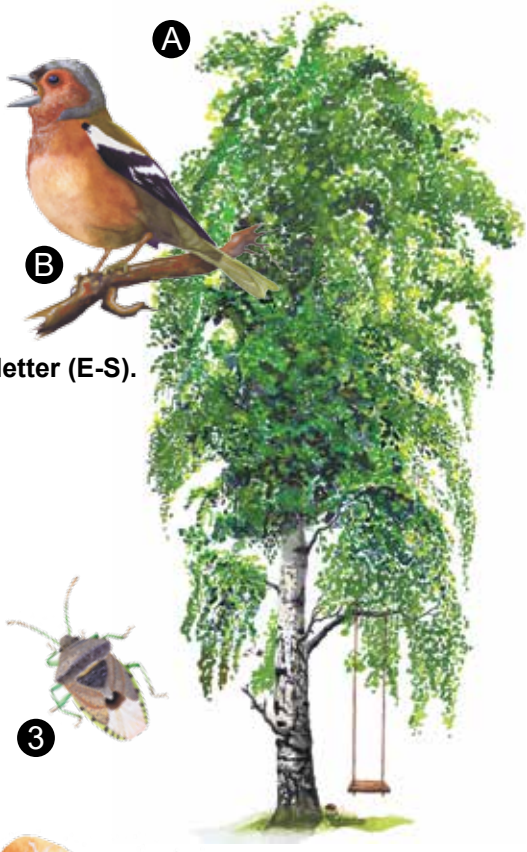
Name _____

School _____

Points _____/117

Suomi Finland 100

1 FINLAND'S NATIONAL TREE can live to be over 100 years old. Many species utilise it in various ways. The buds and leaves alone are eaten by over 500 species.



a) Name the species of the national tree (A) and the bird nesting in it (B).

A. _____ B. _____

b) Connect the names of the species that utilise birch with the images by writing the image numbers 1-9 in the <u>blue</u> boxes.

c) Mark the species' relationship to the birch in the <u>white</u> boxes with the letter (E-S).

E = epiphyte
D = decays dead birch
P = parasite
N = uses the birch leaves as nutrition
S = in symbiosis with the birch

		Woolly milkcap	1
		Large emerald	2
		Horned stag beetle	3
		Birch sawfly	4
		Parent bug	5
		Tinder fungus	6
		Chaga mushroom	7
		Evernia lichen	8
		Grass-green Russula	9
		Birch rust	10

d) Birch has been used and is used to make all sorts of things. **Connect the raw materials and manufactured products. Write the correct product group letter in the box.**

	Bole part of the trunk
	Branches and roots
	Buds and leaves
	Birch bark
	Tree cellulose
	Tree lignin

A Paper, Dissolving pulp, Fabric, Cellophane, E466

B Bast, Containers, Fine tar, Betulin

C Tea, Cosmetics

D Xylitol, Vanillin, Plastic

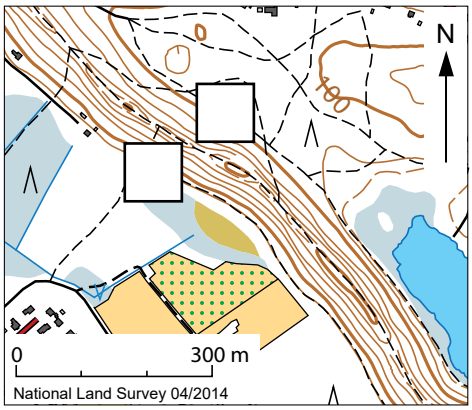
E Brooms, Sauna whisks, Decorations, Jewellery

F Skis, Skateboard, Ice hockey bat, Sawn timber, Veneer

Wooden backpack and shoes (1895) and dress (2017).

/29 p

2 SUNLIT HILLSIDE – ENDANGERED HABITAT



a) Name the Northwest-southeast parallel formation shown on the map that was formed at the end of the Ice Age.

_____

b) The formation has formed

☐ at the edge of the glacier ☐ at the meltwater channel of the glacier

c) The soil type of the formation is

☐ moraine ☐ gravel and sand (consolidated material)

d) Mark the correct numbers 1 and 2 (1 = sunlit hillside, 2 = shady hillside) in the boxes on the map. Explain:

_____

e) Compare the differences between the sunlit hillside and shady hillside habitats. _____

_____

f) Name the species A–G. Write the plant's typical habitat in the box with the number 1 (sunlit hillside) or 2 (shady hillside).

A) _____ ☐

B) _____ ☐

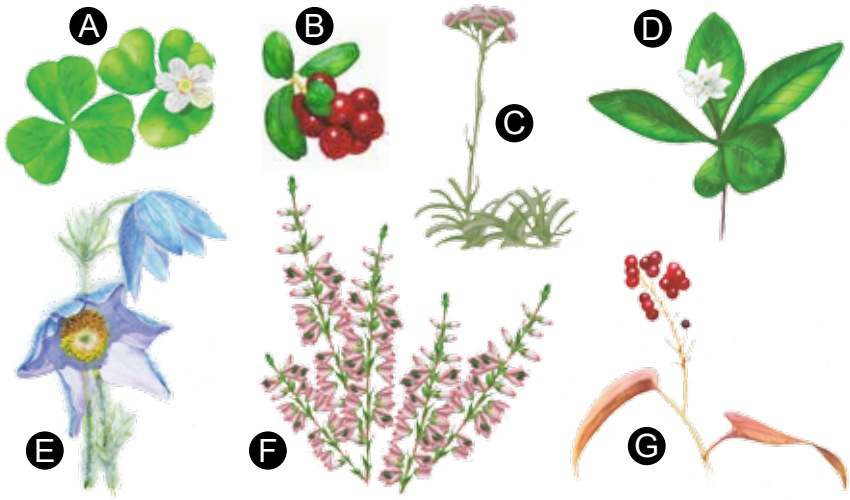
C) _____ ☐

D) _____ ☐

E) _____ ☐

F) _____ ☐

G) _____ ☐



g) Plants of sunlit hillsides have developed characteristics that allow them to survive in extreme conditions. How do plants benefit from

1. thick, wax-coated leaves? _____

2. evergreen, small leaves? _____

3. far-extending roots? _____

4. hairy coating? _____

5. air holes on the underside of leaves? _____

h) In recent decades, the species of sunlit hillsides have reverted as a result of the overgrowth of open habitats. The species of sunlit hillsides require a lot of light and a lot of bare, oligotrophic mineral soil. They fare badly in a competitive habitat. Forest management helps them prosper.

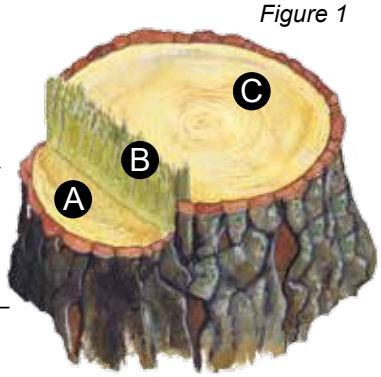
Check the management measures, which improve the survival of sunlit hillside species.

☐ Thinning out trees
☐ Leave the forest unmanaged
☐ Light tillage
☐ Removing grass
☐ Minor burn-clearing
☐ Leaving logging residue
☐ Planting saplings
☐ Planting or seeding of sunlit hillside species

/37 p

3A TRUNK GROWTH RINGS PROVIDE INFORMATION ON

Figure 1



a) The forester has felled the tree with a chainsaw. The trunk is in figure 1. **Mark the parts A, B and C in the boxes. What is their purpose when felling a tree?**

☐ Backcut. Purpose: _____

☐ Scarf. Purpose: _____

☐ Hingewood. Purpose: _____

b) Has the tree fallen towards part A or C? _____

c) Figure 2 shows a sector from the same stump. The tree was felled in 2016. **When has the tree looked like in figure 3?**

☐ At the start of Finland´s autonomy

☐ At the time of Finland becoming independent

☐ During the Winter War

☐ When Finland was a mobile phone industry power

Figure 2

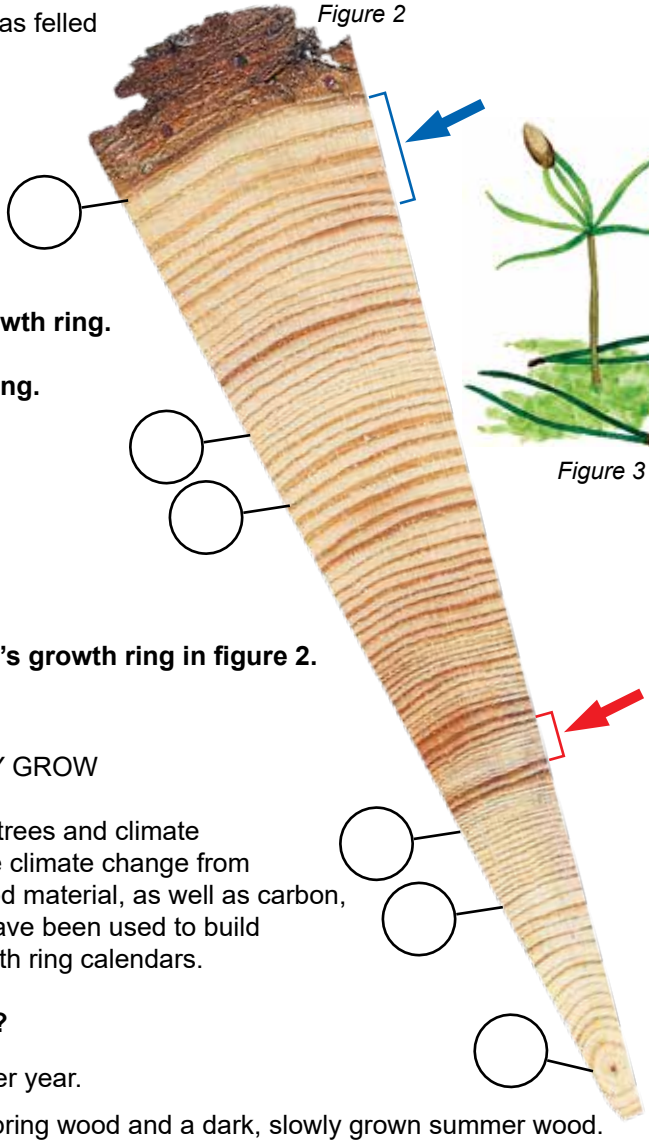


Figure 3

d) Connect the Finnish history related event with the growth ring. Write the event number in the circles of figure 2, which took place during the birth year of the growth ring.

1. The first national parks were established
2. The Helsinki Olympic games were organised
3. Finland won its first World Championship in ice hockey
4. The first female President of Finland was elected
5. The most recent Nobel prize was awarded to a Finn
6. The inventory of the state's forests was started

e) Mark a cross (X) at the location of your own birth year's growth ring in figure 2.

3B TREES STORE ENVIRONMENTAL INFORMATION AS THEY GROW

Heat and dry periods, natural disasters, competition between trees and climate change leave their mark in growth rings. Researchers analyse climate change from the width of growth rings, the density and cell structure of wood material, as well as carbon, oxygen and hydrogen isotopes. The pines grown in Finland have been used to build a 7,600-year-long time series, one of the world's longest growth ring calendars.

a) Which of the following growth ring statements is true?

☐ The dark and light growth ring have formed every other year.

☐ The growth ring has a light-coloured, quickly grown spring wood and a dark, slowly grown summer wood.

☐ The growth ring has a light-coloured, quickly grown summer wood and a dark, slowly grown winter wood.

b) At which arrow location has the tree in figure 2 grown its thickness the quickest?

☐ At the red arrow ☐ At the blue arrow

c) List reasons, which may cause differences in the growth ring widths in figure 2.

_____

_____

_____

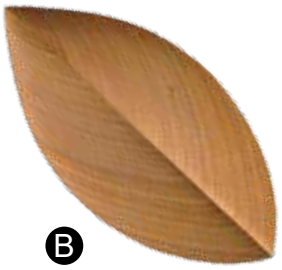
_____

/23 p

4

FINNISH CULTURE AND COMPETENCES. The Finnish national tree is related to the following images in different ways. **Select the correct letter from the image texts for the artists and craftsmen related to the images. Mark the letters in the boxes.**

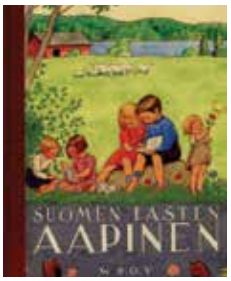
A *'Päätä pahkaa' birch bark sculpture (2009)*



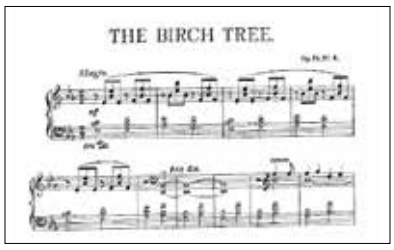
B *Leaf platter, birch plywood (awarded the most beautiful object in the world, 1951)*

C *World champion who has played with a birch hockey stick*

D *'Koivu ja tähti' fable (1893)*



E *Illustration of the Aapinen book (1951)*



F *The Birch piano composition Op. 75 (1914)*

G *Paimio chair (1931)*

H *Internationally recognised instruments*

I *Aino triptych (1891)*

J *Slash and burn agriculture in North Karelia (photo,1893)*

☐ Saku Koivu	☐ Tapio Wirkkala	☐ Jean Sibelius	☐ Hannu Saari	☐ Akseli Gallen-Kallela
☐ Rudolf Koivu	☐ Zacharius Topelius	☐ I. K. Inha	☐ Alvar Aalto	☐ Jenni Tieaho, Artist of the Year 2015

5

EVERYMAN'S RIGHTS AND RESPONSIBILITIES. **Check everyman's rights in commercial forests.**

- ☐ Skiing along own tracks
- ☐ Camping for a couple of nights
- ☐ Driving a moped on the trails of a local forest
- ☐ Collecting raspberries at a logging area site
- ☐ Running sap from a birch to drink
- ☐ Collecting lichen for Christmas decorations
- ☐ Collecting cones and bark from the ground
- ☐ Picking one lady's-slipper to put in a vase
- ☐ Collecting chanterelles or blueberries to sell at a market
- ☐ Picking a lily of the valley for a graduating student
- ☐ Taking peat moss for the growth base of orchids
- ☐ Taking birch branches for a sauna whisk
- ☐ Collecting chaga mushroom as tea ingredients
- ☐ Making a camp fire for cooking caught fish
- ☐ Washing oneself in the water of a forest brook
- ☐ Hiding rubbish away behind rocks and out of sight

Lady's-slipper

6

SUMMER WORK IN THE FORESTRY SECTOR

Would you like to explore the forest sector and work for two weeks in the sector's summer job? Summer jobs all around Finland will be drawn among schools' Forest Quiz winners. The job will be arranged at your local municipality or as close as possible, at the beginning of June 2017. Good skills in Finnish or Swedish are required.

Would you like to participate in the summer job draw?

☐ Yes, I'd be happy to. ☐ Not this time, thank you.

/28 p

Forest Quiz

Correct answers

This is an indicative checklist prepared by the Forest Quiz working group. Each teacher can check and score the answers according to their own teaching. However, all teachers in the same schools should use the same scoring.

Points

max. 117 p / 117 p

1

FINLAND'S NATIONAL TREE can live to be over 100 years old. Many species utilise it in various ways. The buds and leaves alone are eaten by over 500 species.

a) **Name the species of the national tree (A) and the bird nesting in it (B).**

A. **Silver birch 2 p (birch 0 p)** B. **Chaffinch 1 p**

b) **Connect the names of the species that utilise birch with the images by writing the image numbers 1-9 in the blue boxes.**

c) **Mark the species' relationship to the birch in the white boxes with the letter (E-S).**

E = epiphyte
D = decays dead birch
P = parasite
N = uses the birch leaves as nutrition
S = in symbiosis with the birch

6	S	Woolly milkcap
4	R	Large emerald
5	H	Horned stag beet
7	R	Birch sawfly
3	R	Parent bug
1	L/H	Tinder fungus
9	L/H	Chaga mushroom
8	E	Evernia lichen
2	S	Grass-green Russ
10	L	Birch rust

Correct number in the blue box 1 p

Correct letter in the white box 1 p

Maximum total 20 points for parts B and C.

Both are accepted for tinder fungus and chaga mushroom, L or H. One is sufficient.

d) Birch has been used and is used to make all sorts of things. **Connect the raw materials and manufactured products. Write the correct product group letter in the box.**

F	Bole part of the trunk
E	Branches and roots
C	Buds and leaves
B	Birch bark
A	Tree cellulose
D	Tree lignin

Correct letter in the box 1 p

Maximum total 6 p for part D

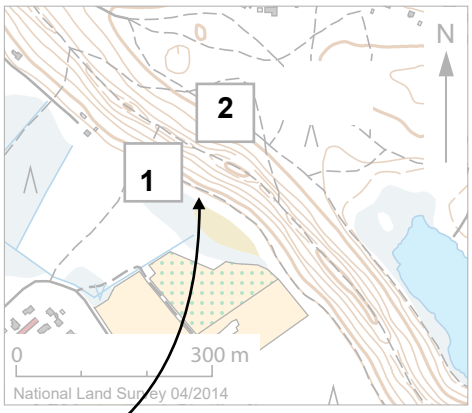
Wooden backpack and shoes (1895) and dress (2017).

max. 29 p / 29 p

2 SUNLIT HILLSIDE – ENDANGERED HABITAT

a) Name the Northwest-southeast parallel formation shown on the map that was formed at the end of the Ice Age.

Esker / longitudinal esker 1 p



b) The formation has formed

☐ at the edge of the glacier ☒ at the meltwater channel of the glacier **1 p**

c) The soil type of the formation is

☐ moraine ☒ gravel and sand (consolidated material) **1 p**

d) Mark the correct numbers 1 and 2 (1 = sunlit hillside, 2 = shady hillside) in the boxes on the map. Explain:

The sunlit hillside is on the southern/south-west side AND/OR the shady hillside is on the northern/ north-east side (one is sufficient). For reasons 1 p and numbers on the map in the correct boxes 1 p. Maximum total 2 points for part D

e) Compare the differences between the sunlit hillside and shady hillside habitats. **Sunlit hillside: brighter, warmer, dryer, snow melts earlier, extreme conditions (large temperature changes between day and night). Maximum total 5 p for part E. This question can be used to differentiate, if the students have equal amounts of points.**

f) Name the species A–G. Write the plant's typical habitat in the box with the number 1 (sunlit hillside) or 2 (shady hillside).

A)	Wood sorrel	2
B)	Lingonberry	1
C)	Mountain Everlasting	1
D)	Chickweed-wintergreen	2
E)	Eastern pasqueflower	1
F)	Heather	1
G)	May lily	2

Correct species name 1 p

Correct letter in the box 1 p

Maximum total 14 p for part F

g) Plants of sunlit hillsides have developed characteristics that allow them to survive in extreme conditions. How do plants benefit from

1. thick, wax-coated leaves? **Prevention of water evaporation 1 p**
2. evergreen, small leaves? **Saves nutrients 1 p**
3. far-extending roots? **Better supply of water and nutrients 1 p**
4. hairy coating? **Prevention of water evaporation 1 p**
5. air holes on the underside of leaves? **Prevention of water evaporation 1 p**

Other correct answers can be accepted. Total 5 p for part G.

h) In recent decades, the species of sunlit hillsides have reverted as a result of the overgrowth of open habitats. The species of sunlit hillsides require a lot of light and a lot of bare, oligotrophic mineral soil in a competitive habitat. Forest management helps them prosper.

Check the management measures, which improve the survival of sunlit hillside

☒ Thinning out trees
☐ Leave the forest unmanaged
☒ Light tillage
☒ Removing grass
☒ Minor burn-clearing
☐ Leaving logging residue
☐ Planting s
☒ Planting c sunlit hills

For correctly ticked or correctly empty box 1 p.

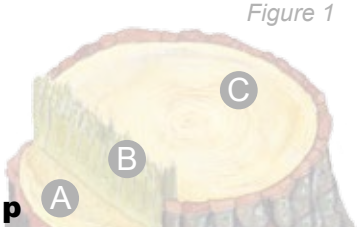
If the pupil has not ticked any options 0 p.

Maximum total 8 p for part H

max. 37 p / 37 p

3A TRUNK GROWTH RINGS PROVIDE INFORMATION ON

Figure 1



a) The forester has felled the tree with a chainsaw. The trunk is in figure 1. **Mark the parts A, B and C in the boxes. What is their purpose when felling a tree?**

C **1 p** cut. Purpose: **Fells tree 1 p (sawed last)**

A **1 p** . Purpose: **Determines direction in which the tree will fall 1 p**

B **1 p** ewood. Purpose: **Hinge, which remains between the saws and against which the tree remains upright OR falls in a controlled manner in the desired direction 1 p**

(Other correct answers can be accepted.)

b) **Has the tree fallen towards part A or C?** **A 1 p**

c) Figure 2 shows a sector from the same stump. The tree was felled in 2016. **When has the tree looked like in figure 3?**

- ☐ At the start of Finland´s autonomy
- [X] **1 p** ne of Finland becoming independent
- ☐ During the Winter War
- ☐ When Finland was a mobile phone industry power

Figure 2

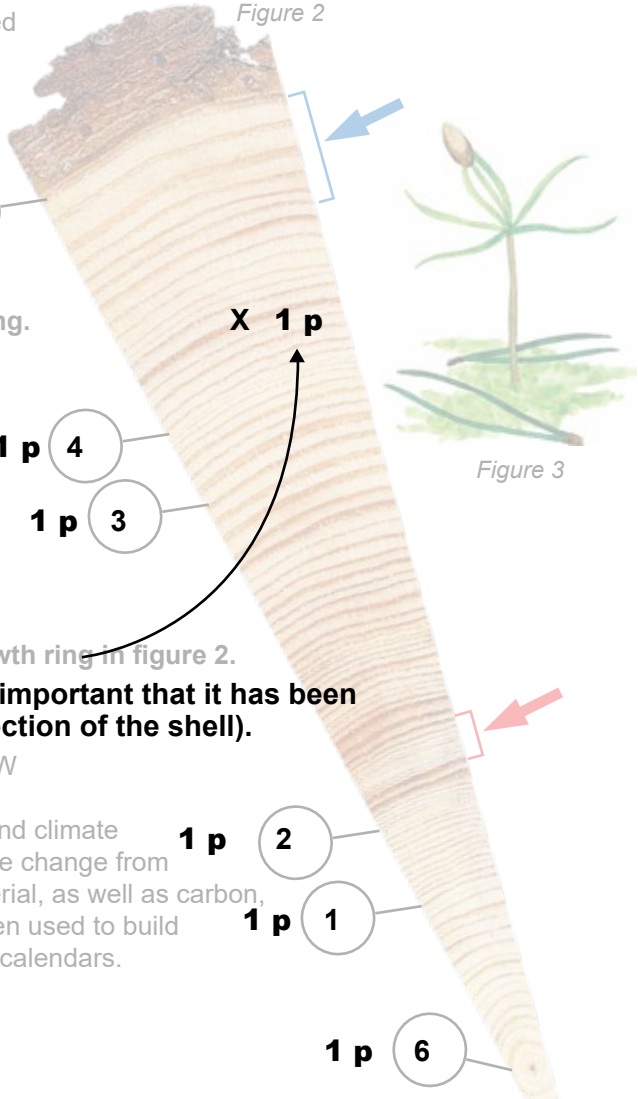


Figure 3

d) **Connect the Finnish history related event with the growth ring. Write the event number in the circles of figure 2, which took place during the birth year of the growth ring.**

1. The first national parks were established
2. The Helsinki Olympic games were organised
3. Finland won its first World Championship in ice hockey
4. The first female President of Finland was elected
5. The most recent Nobel prize was awarded to a Finn
6. The inventory of the state's forests was started

e) **Mark a cross (X) at the location of your own birth year's growth ring in figure 2.**

An approximately correct position is enough for the cross (important that it has been calculated from the right end of the sector, i.e. from the direction of the shell).

3B TREES STORE ENVIRONMENTAL INFORMATION AS THEY GROW

Heat and dry periods, natural disasters, competition between trees and climate change leave their mark in growth rings. Researchers analyse climate change from the width of growth rings, the density and cell structure of wood material, as well as carbon, oxygen and hydrogen isotopes. The pines grown in Finland have been used to build a 7,600-year-long time series, one of the world's longest growth ring calendars.

a) **Which of the following growth ring statements is true?**

- ☐ The dark and light growth ring have formed every other year.
- **1 p** [X] The growth ring has a light-coloured, quickly grown spring wood and a dark, slowly grown summer wood.
- ☐ The growth ring has a light-coloured, quickly grown summer wood and a dark, slowly grown winter wood.

b) **At which arrow location has the tree in figure 2 grown its thickness the quickest?**

☐ At the red arrow [X] At the blue arrow

1 p

c) **List reasons, which may cause differences in the growth ring widths in figure 2.**

Natural conditions: Growth season's temperature sum/temperature, rainfall, light, density (competition), damage to forests (e.g. Insects), climate change (CO level, length of growth season). Forest management: Thinning (increases nutrients and light, decreases competition), fertilisation of forest (increases nutrients)

Max. 6 p for part C. **Other answers than the above can also be accepted.**

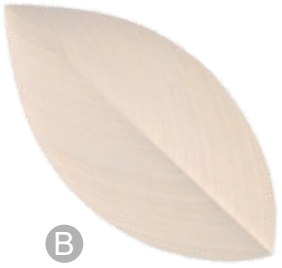
This question can be used to differentiate, if the students have equal amounts of points.

max. 23 p / 23 p

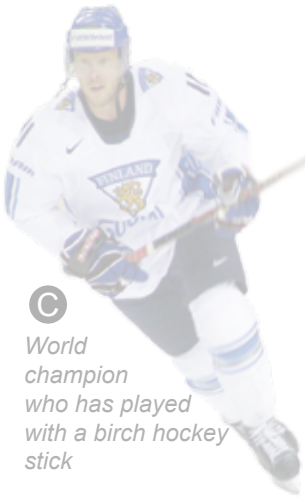
4

FINNISH CULTURE AND COMPETENCES. The Finnish national tree is related to the following images in different ways. **Select the correct letter from the image texts for the artists and craftsmen related to the images. Mark the letters in the boxes.**

A *'Päätä pahkaa' birch bark sculpture (2009)*

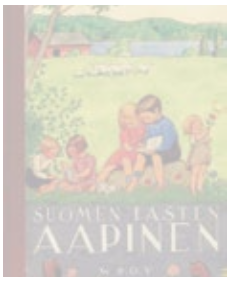


B *Leaf platter, birch plywood (awarded the most beautiful object in the world, 1951)*

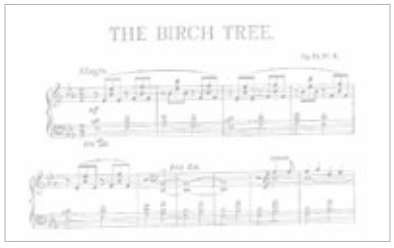


C *World champion who has played with a birch hockey stick*

D *'Koivu ja tähti' fable (1893)*



E *Illustration of the Aapinen book (1951)*



F *The Birch piano composition Op. 75 (1914)*

G *Paimio chair (1931)*

H *Internationally recognised instruments*

I *Aino triptych (1891)*

J *Slash and burn agriculture in North Karelia (photo,1893)*

C	Saku Koivu	B	Tapio Wirkkala	F	Jean Sibelius	H	Hannu Saari	I	Akseli Gallen-Kallela
E	Rudolf Koivu	D	Zacharius Topelius	J	I. K. Inha	G	Alvar Aalto	A	Jenni Tieaho, Artist of the Year 2015

1 p for each correct letter, maximum total 10 p

5

EVERYMAN'S RIGHTS AND RESPONSIBILITIES. **Check everyman's rights in commercial forests.**

- [X] Skiing along own tracks
- [X] Camping for a couple of nights
- [ ] Driving a moped on the trails of a local forest
- [X] Collecting raspberries at a logging area site
- [ ] Running sap from a birch to drink
- [ ] Collecting lichen for Christmas decorations
- [X] Collecting cones and bark from the ground
- [ ] Picking one lady's-slipper to put in a vase
- [X] Collecting chanterelles or blueberr
- [X] Picking a lily of the valley for a gra
- [ ] Taking peat moss for the growth ba
- [ ] Taking birch branches for a sauna
- [ ] Collecting chaga mushroom as tea
- [ ] Making a camp fire for cooking cau
- [X] Washing oneself in the water of a
- [ ] Hiding rubbish away behind rocks

For correctly ticked or correctly empty box 1 p.

If the pupil has not ticked any options, rewarded with 0 p.

Maximum total 16 p

6

SUMMER WORK IN THE FORESTRY SECTOR

Would you like to explore the forest sector and work for two weeks in the sector's summer job? Summer jobs all around Finland will be drawn among schools' Forest Quiz winners. The job will be arranged at your local municipality or as close as possible, at the beginning of June 2017. Good skills in Finnish or Swedish are required.

Would you like to participate in the summer job draw?

- [ ] Yes, I'd be happy to.
- [ ] Not this time, thank you.

2 p for either answer. If neither have been crossed, 0 p.

max. 28 p / 28 p