

“TREEVIA” Forest Ecology Quiz ANSWER KEY

1. Canadian scientists run long-term studies to look at effects of forest harvesting techniques on watersheds and fish habitat. Techniques studied are:

- a. Clear cutting b. Strip cutting c. Leaving seed trees d. Selective horse logging **e. All 4 (a, b, c and d)**

More info on one such initiative in Ontario: https://publications.gc.ca/collections/collection_2012/rncan-nrcan/Fo122-1-54-2012-eng.pdf but, many more boreal and deciduous forest studies can also be found elsewhere!

2. Which of the following forest regions in Canada has the most threatened ecosystem?

- a. Boreal **b. Deciduous** c. Montane

More info: The deciduous forest of Southern Ontario is the most threatened because of the clearing of trees for agricultural or urban development.

3. True or False: Fire can be beneficial to a forest. **True.**

More info: Fire is often a natural event in the forest contributing to pest control, soil enrichment, forest regeneration, and forest diversity.

4. When deciduous trees are defoliated (leaves eaten) by insects they generally respond by:

- a. Growing new leaves** b. Dying c. Going dormant until next season

More info: Most deciduous trees will grow new leaves that same season if defoliation exceeds 60%.

5. Trees make their own food. What is this process called?

- a. Respiration b. Transpiration **c. Photosynthesis**

More info: Photosynthesis is the process by which plants use sunlight, water, and carbon dioxide to create oxygen and food.

6. Because trees make their own food, ecologists refer to them as:

- a. Primary Producers** b. Primary Consumers c. Decomposers

More info: Trees and plants are at the bottom of the land food chain and are eaten by primary consumers.

7. Trees give off excess water through microscopic holes in the leaves called:

- a. The Palisade Layer b. The Epidermis **c. The Stomata**

More info: The stomata are enclosed by two 'guard' cells which open or close depending on the amount of sunlight and the amount of moisture in the air.

8. Leaves are green because of a pigment called:

- a. Xanthophyll **b. Chlorophyll** c. Carotene

More info: Xanthophyll and carotene produce yellow and orange pigments, and anthocyanin produces red pigment.

9. Why do green leaves change colour in the fall?

- a. Less chlorophyll production b. Short day length c. Cooler weather **d. All 3 (a, b and c)**

“TREEVIA” Forest Ecology Quiz ANSWER KEY (continued)

10. Why might the cones of conifers be viewed as flowers?

- a. Their scales are like hard flower petals b. The female cones produce pollen and the male cones produce seeds
c. The male cones produce pollen and the female cones produce seeds

More info: The cones of conifers can be viewed as very simple flowers since they produce both pollen and seeds but lack the complex structure of true flowers. The smaller (and not often noticed) male cones produce pollen while the female cones produce seeds once fertilized by the pollen.

11. What are three key parts of a seed?

- a. Seed coat, outer germ layer, embryo b. Seed coat, pistil, stamen **c. Seed coat, stored food, embryo**

More info: The seed coat protects the entire seed. The embryo is the part that develops into a new plant. The stored food (endosperm) provides food, mostly in the form of starch, to the developing embryo.

12. On average, what percentage of a tree biomass falls to the forest floor and becomes “litter” each year?

- a. <10% b. >10% c. >20%

More info: Most tree “litter” (needles from conifers shed intermittently through the year and leaves from deciduous trees shed in the fall) becomes food and habitat for forest floor organisms such as insects, spiders, worms and fungi.

13. On average, what percentage of the plant “litter” on the forest floor is eventually turned into soil?

- a. 5% b. 25% c. 99%

More info: The rest is used by other organisms such as worms and insects that drag it into their tunnels in the soil.

14. What are the key biological characteristics that distinguish hardwood from softwood trees?

- a. Their seeds b. Their leaves c. Their cellular structure **d. All 3 (a, b and c)**

More info: Seeds: hardwood trees are angiosperms whose seeds are enclosed in protective fruits. Softwood trees are gymnosperms that do not have fruits, instead, their seeds are “naked” and are usually produced in cones. Leaves: generally, hardwood trees are deciduous (broad-leaved) and softwood trees are coniferous (have needles). Cellular structure: hardwood trees have a visible pore system to transport water nutrients which is absent in softwood trees.

15. What is an old growth forest?

- a. **A forest with old trees** b. A forest logged >100 years ago c. A forest with no young trees d. All 3 (a, b and c)

More info: Old growth forests are found throughout Canada’s forest regions, with the most notable (most biomass and the oldest trees) located in B.C.’s Pacific Maritime forest region.

Bonus question: How do trees communicate with one another?

- a. Chemicals from leaves b. Chemicals from roots c. Mycorrhizae **d. All 3 (a, b and c)**

More info: Mycorrhizae are symbiotic relationships between trees and fungi under the earth. Researchers are also finding out that trees send weak electrical impulse signals as well. And, check out this article for more information on tree communication: <https://onetreeplanted.org/blogs/stories/how-do-trees-communicate>.

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