

Deforestation Simulation

You don't have to print or buy anything for this game!

You don't even need anyone to play it with (although you can play with one other person if you like).

Supplies and Preparation Needed:

- Go outside and find small leaves, sticks, or even blades of grass to represent trees. (You can also use pennies or pieces of cereal.) Each player will need 40 of them. Put them on a plate or tray.
- Instead of dice, use this random number generator:
<https://www.google.com/search?q=random+number> (set it up for numbers 1-35).
- You'll also need a piece of paper (use scrap paper if you can) and a pencil (you can also use crayons and colored pencils if you'd like).
- Review the provided vocabulary words (after the *Instructions* page).

Instructions

1. Start with 30 of your “trees” on a plate or tray. This is your forest. Leave the other 10 “trees” in a pile to the side.
2. Each player takes turns selecting a random number (using [the number generator](#)).
3. Look at the *Deforestation Simulation Chart* to find the number you generated. The number determines what you do each turn. Every time your forest loses a tree, you remove a stick, leaf, or twig and add it to the pile of “trees” on the side. When it says “Leave the trees alone” do not do anything to your “forest.” If you are asked to “add a tree” take the new trees from the pile on the side.
4. If you are playing alone, take 20 turns. If playing with a partner, each person can take 15 turns.
5. Pay attention to the actions that help our forests and those that hurt our forests. Think about the choices you can make to help forests today!

Disclaimer: Please note that this game is a simulation intended to demonstrate some of the reasons that trees are lost and some of the ways that trees can be protected. It is not a real representation of how many trees are actually lost or saved by each action, nor is it a scientific representation of the implications that deforestation has on animal species or carbon dioxide levels. However, the activity does highlight actual reasons trees are lost, actual ways trees can be protected, and the fact that saving trees helps animals and reduces the amount of carbon dioxide in the atmosphere.



Vocabulary Words

- **Atmosphere** - the layer of gas that surrounds planets, stars, and moons; For example, the atmosphere of the Earth consists of several different gases, including oxygen.
- **Carbon dioxide (CO₂)** - a chemical compound that is usually in the form of a gas; It is released into the atmosphere through natural processes such as volcano eruptions. Unfortunately, it is also released into the atmosphere through human activities such as deforestation and animal agriculture. People have increased the amount of CO₂ in the atmosphere by so much that it is one of the reasons heat is being trapped on the Earth, which is causing climate change.
- **Deforestation** - when people clear, or cut-down, a large area filled with many trees.
- **Ecosystem** - all the living beings and the nonliving things within a certain area.
- **Habitat** - the home of a plant or animal; A healthy and appropriate habitat can provide for all of a plant or animal's needs including food, water, shelter, and space.
- **Sustainable** - when people interact with the Earth in a way that ensures there will be enough resources for the needs of people and other animals for future generations; For example, everyone on Earth depends on water to live and there is a finite amount of drinkable water available. People need to keep the water clean and accessible so that there is enough water for everyone on Earth to live now and in the future.
- **Wildfire** - an unplanned and uncontrolled fire that burns in a forest, grassland, or other wildland; 90% (9 out of 10) of wildfires are started by people and could have been prevented. 10% of wildfires happen because of natural causes, such as lightning striking.



Deforestation Simulation Chart

1	Trees are cut down for grazing land for cows raised for hamburgers. Take down three trees.
2	Trees are cut down and used to make paper. Take down two trees.
3	Loggers use sustainable forestry practices and replant many trees. Add a tree.
4	A farmer decides to plant the crops inside the forest without clearing the trees. Leave the trees alone!
5	Trees are cut down and used for firewood to heat homes and food. Take down a tree.
6	The trees are cleared to make space for a new hotel. Take down two trees.
7	The trees are cut down and used for firewood which is used for cooking. Take down a tree.
8	A family buys their kitchen table from a garage sale. Leave the trees alone!
9	A family gets tired of their furniture. They throw it away and buy all new furniture. Take down a tree.
10	A company chooses to use palm oil in their cookies. Take down two trees.
11	The government changes laws to stop people from cutting down parts of the forest. Take down two trees.
12	Many people are using recycled paper, so not as many trees need to be cut down. Leave the trees alone!
13	Illegal loggers cut down some trees. Take down two trees.
14	People cancel their junk mail and don't waste trees for paper that will be thrown away. Leave the trees alone!
15	The trees are cleared to make room for new roads. Take down a tree.
16	The trees are cleared so that a farmer can plant more crops. Take down a tree.
17	The trees are burnt because of a wildfire. Take down three trees.
18	Local people stand up and defend a local forest, forcing land developers to use land that is not currently occupied by a forest. Leave the trees alone!
19	A nonprofit buys a forest and protects it (doesn't allow anyone to cut down any trees.) Leave the trees alone <u>and</u> add a tree!



Deforestation Simulation Chart

20	People are using email more and using recycled paper for writing letters. Leave the trees alone!
21	The trees are cleared to make room for a diamond mine. Take down a tree.
22	People are eating less beef, so farmers are using less land to let their cattle graze. Leave the trees alone!
23	People are building brand new homes (using wood from the forests) instead of fixing up old houses. Take down 2 trees.
24	Kids speak out for the trees and companies and adults start to pay attention. Leave the trees alone!
25	Companies stop using so much paper and cardboard for packaging. Leave the trees alone!
26	People are buying less “stuff” so fewer trees are cut for furniture, paper, and packaging. Leave the trees alone!
27	The trees are cut down and used for wood to make paper. Take down two trees.
28	The trees are cut down and used for wood to build houses. Take down two trees.
29	The trees are destroyed because of damage caused by a war. Take down two trees.
30	The trees are cleared to make room for a golf course. Take down two trees.
31	The trees are cleared to make room to mine for materials to make cell phones. Take down a tree.
32	The trees are cleared to make space for a new village. Take down two trees.
33	A group of students plant trees all over their community. Add two trees!
34	A nonprofit works to plant trees all over the world. Add three trees!
35	A city decides to not allow trees to be cut in their community for new homes but instead fixes up older homes for people. Leave the trees alone!



Time to Draw!

Check out the chart on the next page to see how to determine the amount of pollution and the number of animals in your forest.



Count how many trees remain in your forest.

Remaining Trees

Consequences For Your Forest

1-5 trees

Your forest's ecosystem has collapsed. There are very few animals left because they have lost their habitat and there is a lot more carbon dioxide in the atmosphere because so few trees exist to absorb it.

Draw your remaining trees and 3 animals and 5 clouds of carbon dioxide.

6-15 trees

Your forest is on the brink of collapse and will probably only last a few more years. This means that there are far fewer animals. There is more carbon dioxide in the atmosphere because fewer trees exist to absorb it.

Draw your remaining trees, 8 animals, and 4 clouds of carbon dioxide.

16-25 trees

Your forest is shrinking. There are fewer species but still your forest is a home to animals. Your forest is still absorbing some carbon dioxide from the atmosphere but not nearly as much as it used to.

Draw your remaining trees, 12 animals, and 3 clouds of carbon dioxide.

26-40 trees

Your forest is sustainable and shows no sign of collapsing. The animals are thriving and your trees are breathing in a large amount of the carbon dioxide in the atmosphere.

Draw your remaining trees, 15 animals of all different species, and 2 clouds of carbon dioxide.



Who wins?

- In a traditional game there are winners and losers.
- Who loses when deforestation occurs? Who wins?
- What can we do to help forests, animals, and people?
- Go back through the table and see if you can find any actions that you and your family can take to help forests.