



JOHANNITER

TREEADS Wildfire Game

What is TREEADS?

TREEADS is a research project that deals with wildfires. In the project, researchers are looking for good solutions to the following questions: How can wildfires be prevented? How can they be detected quickly if they do happen? How can people and animals be protected from the fire? How can the fire brigade fight the fire better? How can we help the emergency services train for emergencies? And how can we help the forest to recover from the fire?

All these questions about wildfires can be divided into three phases:

Phase 1 - Before the wildfire: preventing and preparing

Phase 2 - During the wildfire: detecting and firefighting

Phase 3 - After the wildfire: restoring and adapting

In the project, the researchers develop and test new systems and technologies for each of these three phases.

Johanniter Research and Innovation centre has designed a game as part of the TREEADS project to help you learn more about wildfires.



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TREADS Wildfire Game

The game consists of 12 odd pairs of cards on different topics related to forests and wildfires. Similar to Memory®, the aim is to find the matching pair for each card. The coloured frames and the symbols tell you which cards belong together.



The game is designed for 2-4 players. To play, shuffle the cards and place them face down on the table. The player whose turn it is may turn over two cards. If they are two different cards, they are turned over again and it is the next player's turn (clockwise). If the player turns over two matching cards (a pair), they may turn over two more cards. This continues until the player reveals two different cards. Whenever a pair is found, you can look at them together. What is it about? What pictures do you see? Think about what the pictures might mean. Then read the description together. Have you guessed correctly? Whoever has the most pairs in the end wins.

Explanation of the 12 pairs



Wildfire risks

A lot of heat, lack of rain and wind can lead to drought. Dry forests are more likely to burn, and fires can spread faster when it is dry. Wind can also fan a fire. Look at the weather today. Do you think the risk for a wildfire is high or low?



Causes of wildfires

Wildfires can be started by natural causes such as lightning striking a tree. Most wildfires are caused by people, for example by dropping cigarette butts. When it is very dry, smoking cigarettes in the forest is not smart. Littering can also cause wildfires. Glass and plastic bottles or broken glass left lying around can act like magnifying glasses, focusing sunlight and setting dry leaves on fire. It is important to dispose of them correctly. Open fires are also dangerous. Flying sparks and underground smouldering can start a wildfire. They are only allowed in designated spots like campfire sites or barbecue areas.



Types of forest

Forests differ according to their tree species. There are broadleaf forests with broad-leafed trees and coniferous forests with conifers. Broad-leafed trees lose their leaves in winter, conifers do not. A forest with both types of trees is called a mixed forest. Have you ever been on vacation? Perhaps you have noticed that other countries have different forests! For example, tropical rainforests near the equator, where it is humid and warm all year round and therefore the trees remain evergreen.



In case of fire

What do you do if you spot a wildfire? It is important to get yourself to safety first! Then you need to call the fire brigade or an emergency service as soon as possible. The sooner the firefighters can start putting out the fire, the better. This way the fire can be fought quickly and spread less.



Types of wildfire

There are different types of wildfires. Ground fires (also known as smouldering fires) smoulder in the ground. A ground fire spreads slowly. A surface fire (also known as a foliage fire) burns bushes and fallen leaves and branches. It spreads quickly if it is dry, but it spreads more slowly if the forest floor is damp. Crown fires (also known as full fires) are very dangerous. This is where the tops of the trees burn. Crown fires spread particularly quickly, especially if it is dry and windy.



Putting out a wildfire

A wildfire can be fought from the air or from the ground. On the ground, firefighters use large tankers and fire hoses. Aeroplanes, helicopters and drones can help from the air by flying over the wildfire and dropping water. This is particularly important when a forest is burning in the mountains. The large fire engines cannot drive well on steep terrain, so firefighters usually need a combination of different extinguishing methods. After the fire, they use pickaxes to break up pockets of embers in the ground (ground fires). This is important to prevent new surface or crown fires from forming.



Forest and environment

Forests are important for the Earth's climate. Trees store carbon dioxide (CO₂) from the air and produce oxygen (O₂). Forests have a cooling effect. The forest is also home to many animal species, such as deer, wild boar or foxes. Many different birds live and breed in the forest, such as woodpeckers. In other regions around the world monkeys or parrots also call the forest their homes. The forest is additionally an important home for insects and spiders. They hide in the undergrowth and live in dead tree trunks, where birds can use them as food. Can you think of any other animals living in the forest?



Forest and humans

The forest is not only important for the environment and animals. We humans can find food in the forest, such as berries. The forest is also a place where we can enjoy nature and relax. Oxygen produced by the trees is also very important for us. We use wood from the forest to build houses and furniture, and to make fires for cooking and heating. Wood is also used to make paper.



Walking in the woods

The forest is a great place to spend your free time. Being out and about in the forest is very healthy for us humans and there is a lot to discover. But to protect the forest, you should always follow the local rules, e.g. keep your dogs on a leash. That way you won't disturb the animals that live there. You also should not leave any garbage lying around. Animals can be observed with magnifying glasses and binoculars, but are we allowed to touch them? NO!



Information

A good understanding of wildfire risk as well as following rules and warnings can help us to prevent wildfires. You can do that by informing yourself well before going out into the woods. Information can be found on the internet, through weather reports in the news or a weather app on your phone. If the risk is high, for example, people may not be allowed to smoke cigarettes in the forest or barbecue in areas near the edge of a forest. If a fire does break out, it is important for the firefighters to have a good view of the fire so that they can extinguish it quickly and effectively. The best view is from above, from the air. To get this special kind of view, firefighters can use drones, for example.



Healthy forests

After a wildfire, the forest needs to be replanted with new trees and bushes. It is best to plant hardy trees and establish a mixed cultivation. That means, that many different trees are planted. Mixed cultivations are also less prone to pests like the bark beetle, which only likes specific trees. Just like you have a favourite food! In monocultures, forests where there is only one type of tree growing, the bark beetle can spread quickly and make all the trees sick. In mixed cultivations only a few trees are affected and the forest stays healthy as a whole.



Training for emergency services

Firefighters need to be trained for emergencies so that they know exactly what to do when they happen. This training can take place, for example, at fire service training centres. There, with the help of trainers, firefighters practise different extinguishing methods and how to get people to safety in case of a fire. Emergency services sometimes use VR (virtual reality) goggles for training. This allows them to practice dangerous situations without risking their safety.

