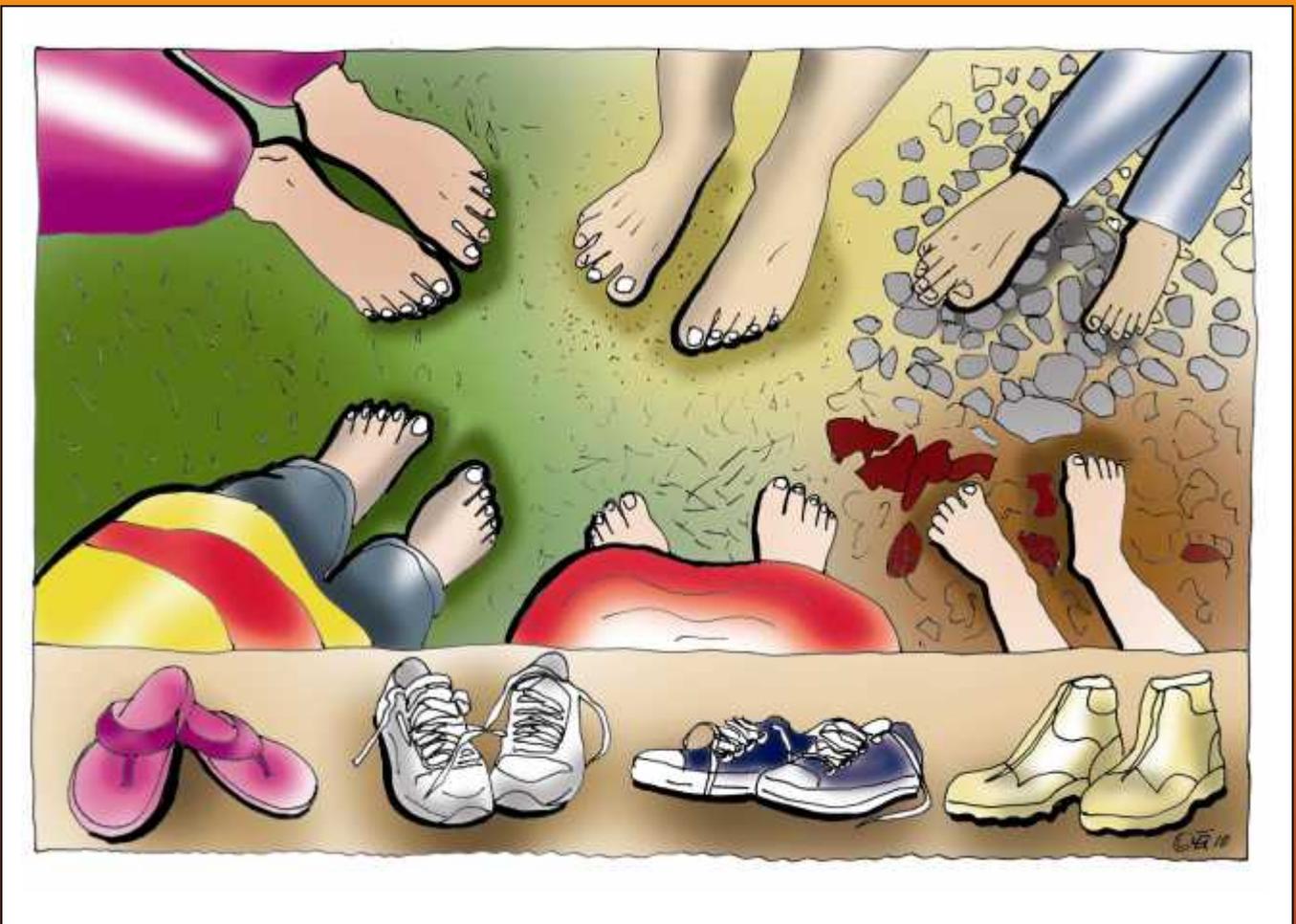




# WELCOME

... to the Puzzle Forest!  
There are 15 information stations to explore. Try out some of the activities for yourself and get to know the forest better.



## Have fun visiting the Puzzle Forest!

If you want to, you can take off your shoes and walk barefoot around the stations. Place your shoes in the shelves.

## STATION 1

### THE TREE SPALINGS

Trees do not just appear !  
They start out as small saplings.  
In the wood square, there are different  
small trees growing.

Try to find out which kinds !



### Did you know?

- The fruits (seeds) of trees become propagated by wind or by animals.
- The years in which the trees produce many fruits, are called "mast years".
- Although many fruits (seeds) are produced, only a few will become old trees.

## STATION 2

### VARIOUS SPECIES

The oak you see here is more than 200 years old! In the pictures are some inhabitants of this tree.

Do you know them all?



### Did you know?

- A lot of animal species are dependant on old oaks and cannot survive without them.
- Several hundred different animal species can live in and around an old oak tree.
- Therefore, the old oaks in Hardtwald are specially protected.

## STATION 3

**DEAD WOOD  
FULL OF  
LIFE!**

The trees you see here are dead - but they serve as living space for a lot of different animal species.

Can you discover their traces or even find some inhabitants of this dead wood?



### Did you know?

- About one third of all living animals in the forest are dependent on dead wood.
- If woodpeckers have pecked holes in the dead wood with their beaks, other animals can also use the "dead wood" as living space.
- Mushrooms are responsible for dead wood decomposing and becoming earth.

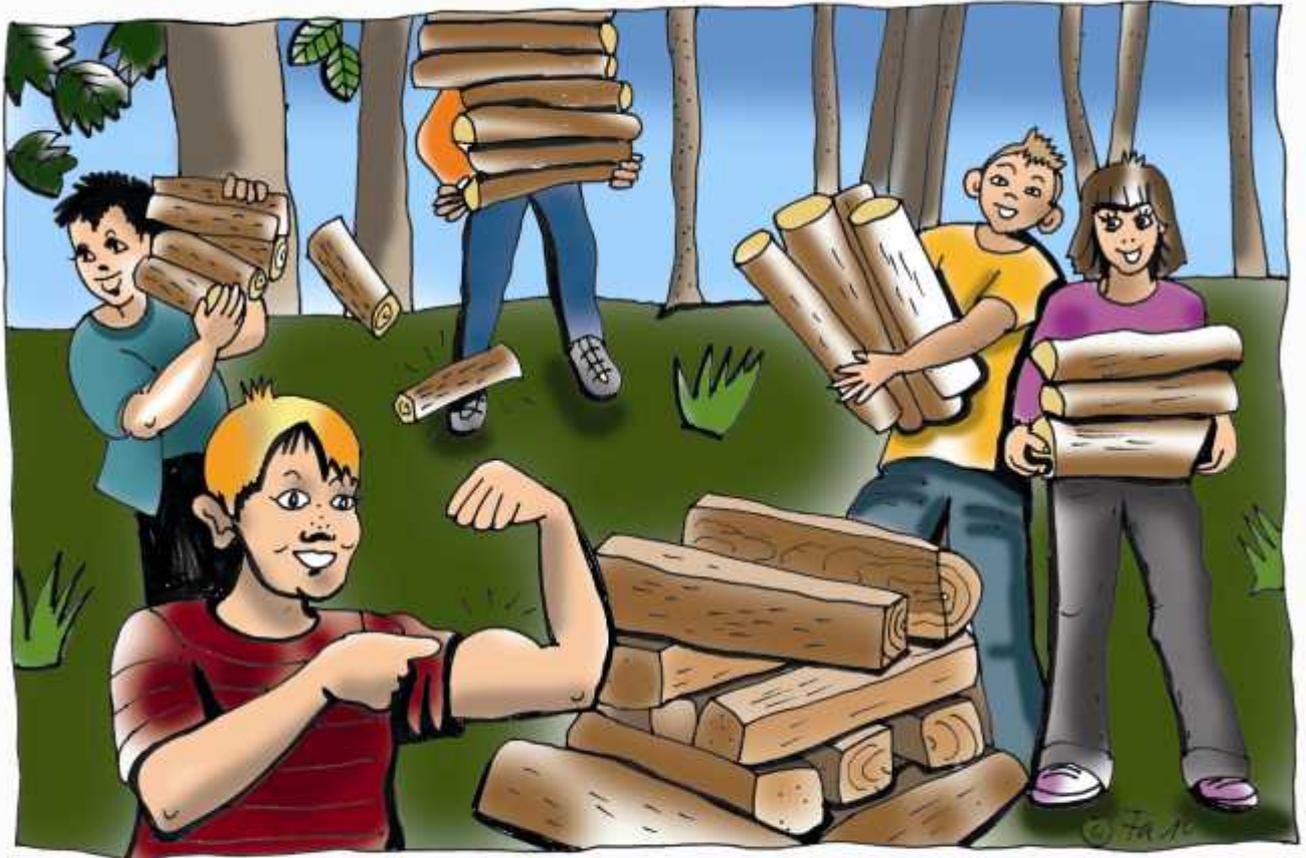
## STATION 4

### FORKLIFT

Let's work now!

It is your challenge to transport the whole stack of wood from one side to the other.

How long do you need for this?



### Did you know?

- The energy in this wood pile roughly corresponds to the energy contained in 100 liters of fuel.
- This wood pile contains about 150 kgs of carbon dioxide (CO<sub>2</sub>).
- To transport the pile of wood from one side to the other, you will burn about 50 kilocalories.

## STATION 5

### GROUND UNDER YOUR FEET

Here you can see,  
smell and feel,  
the forest ground  
under your feet!



### Did you know?

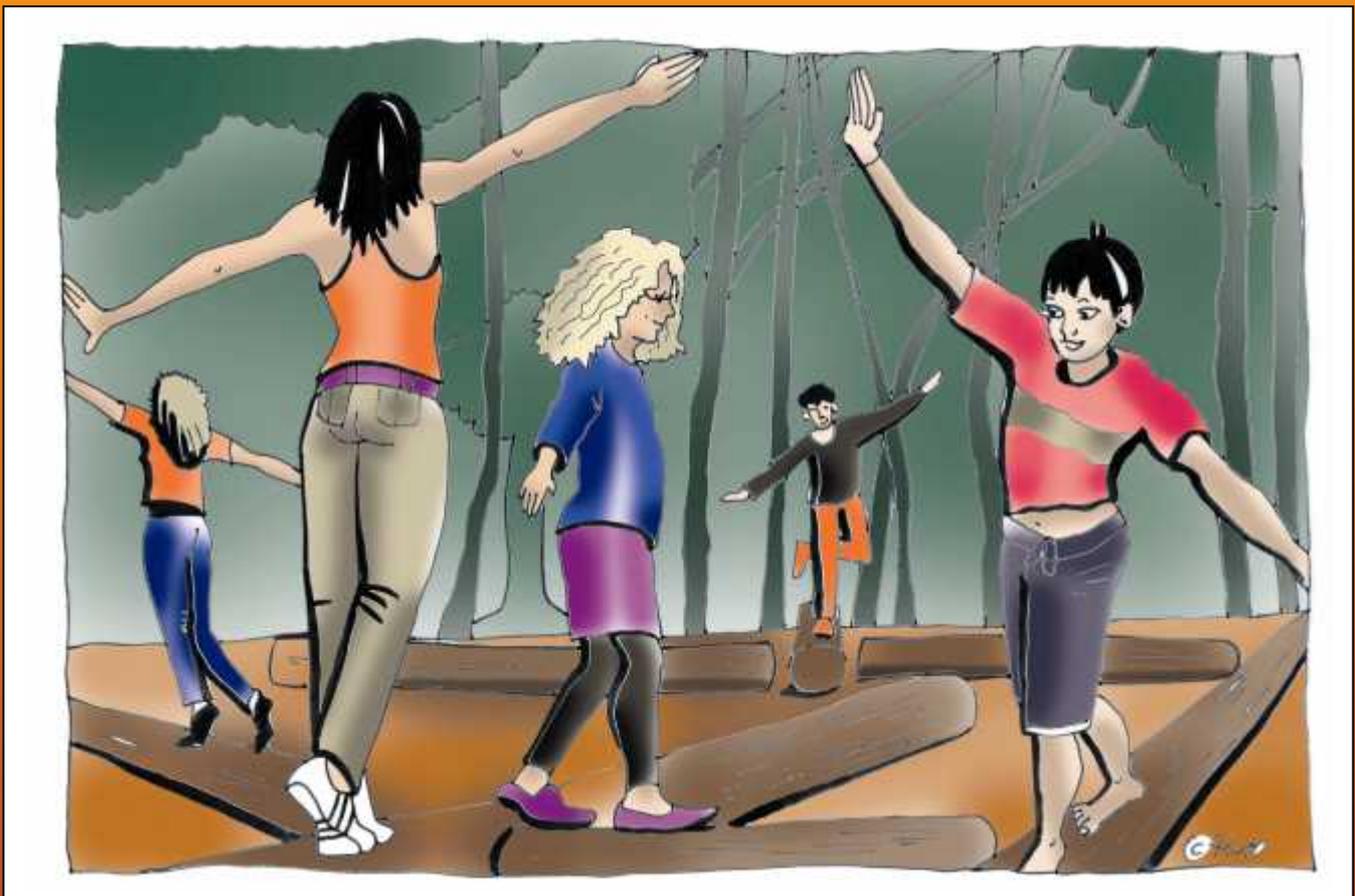
- The roots of trees form a widespread network to absorb water from the ground.
- There are more organisms in one handful of forest dirt than people on the earth.
- The pebbles deeper down in the ground are evidence that the Rhine has already flowed here.

## STATION 6

### FOREST IN BALANCE

Walk on the tree trunks and try to stay balanced.

The ecosystem forest of the forest must also be kept in balance.



### Did you know?

- To keep the forest in balance, only so much wood can be felled as it grows back.
- We call this sustainable management of the forest.
- In the forest the level of carbon dioxide (CO<sub>2</sub>) is also balanced:
- The trees absorb the CO<sub>2</sub> and store it in their wood.
- Through this process, they also produce our vital oxygen (O<sub>2</sub>).

## STATION 7

### ON THE HUNT

Climb carefully on the raised hide, observe the forest like a hunter and try to discover hidden animals in the forest.

But totally silent...



### Did you know?

- Big predators like the lynx, the wolf or the bear left Baden-Württemberg a long time ago.
- However, there are still small ravenous predators here, like the members of the ground beetle family.
- Some hunters use animals such as dogs, ferrets or birds of prey to help them hunt.

## STATION 8

**LISTEN !**

Close your eyes for 30 seconds and concentrate on the sounds of the forest. What do you hear ?

If you put your ear in the funnel, you may hear the sounds of the forest much better.



### Did you know?

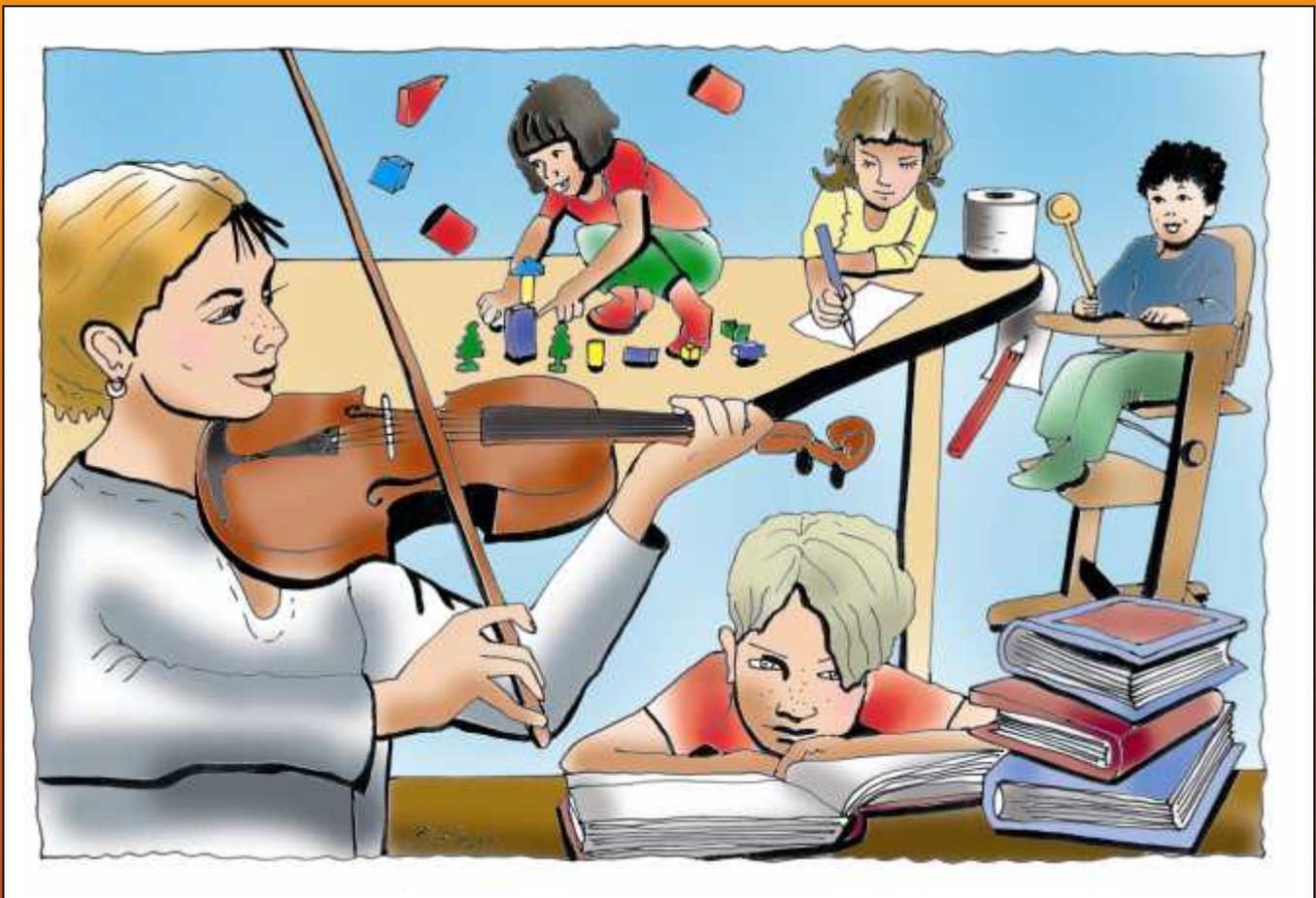
- A lot of animals can hear better than a human. An example of this is the hare whose big ears are called "spoons".
- The wood crickets don't have any ears, but they hear with their legs!
- In spring, you can hear little male birds singing everywhere in the forest, to attract a female and defend their district.

## STATION 9

### MULTI-PURPOSE WOOD

Take a look at the different pieces of sawn tree trunks.

Do you think they all look the same ?  
What can we do with wood ?



### Did you know?

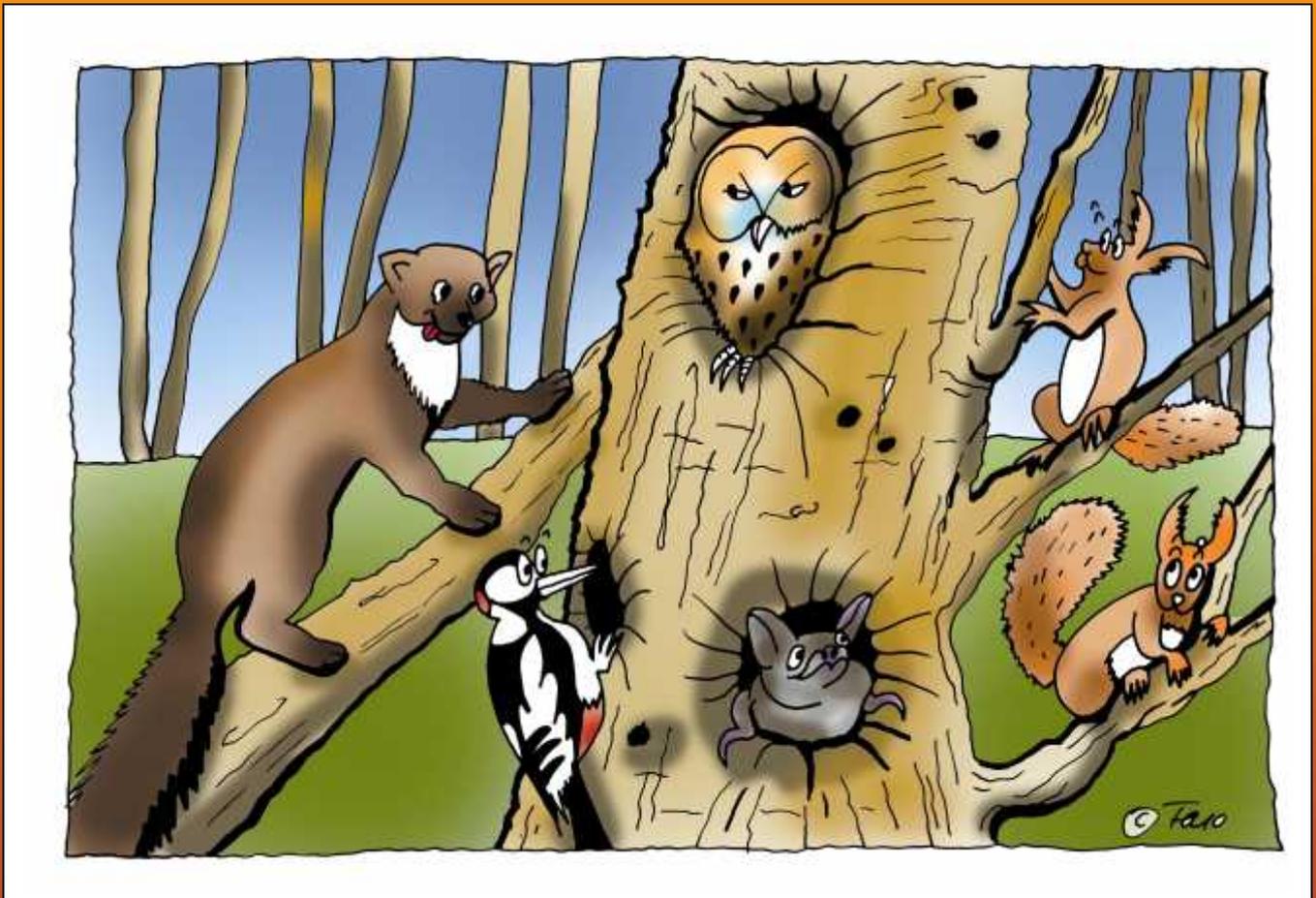
- The most common trees in Baden-Württemberg are the spruce and the beech.
- More than one third of the whole surface of Baden-Wurtemberg is covered by forest.
- The sustainable raw material wood has multiple uses.

## STATION 10

### ANIMALS IN AIRY HEIGHTS

Not all forest animals live on the ground. Many spend their whole time in or at the trunks or branches.

Can you find any of these animals nearby?



### Did you know?

- The woodpecker knocks on trees not only to build holes, but also to communicate with his counterparts.
- Animals which live in holes, like the tawny owl or the bat can't build their houses themselves, so they use abandoned woodpecker caves as living space.
- Pine martens and squirrels have long, sharp claws for climbing and a bushy tail to help them stay balanced during their daredevil jumps.

## STATION 11

### WOOD-TV

Our television program in the forest is busy and varied. The picture changes according to light, the time of day and the seasons. If you're patient, you might be lucky enough to see a mouse running or a bird flying through the picture.



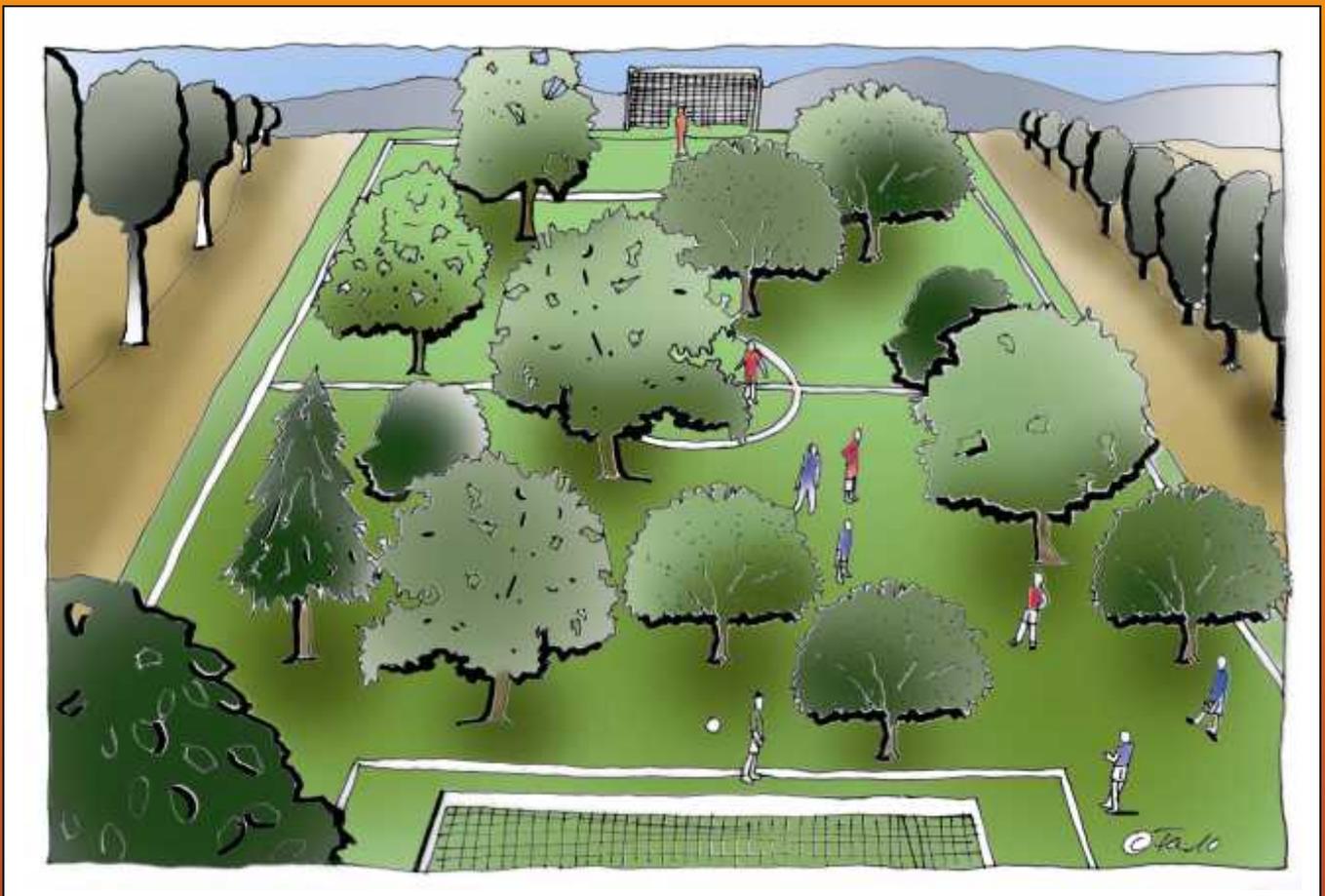
### Did you know?

- The "actors" (trees) you see in our television are between 1 and 125 years old.
- The green color has a comforting effect on people.
- In forest television, several films run at the same time: a crime film, a documentary, a soap opera - and all that in real time and 3D!

## STATION 12

### GROWTH

This cube shows you how much wood is produced every year in Hardtwald, on a surface the size of two football fields. Take a look at the cube to see what we could utilise this wood for.



### Did you know?

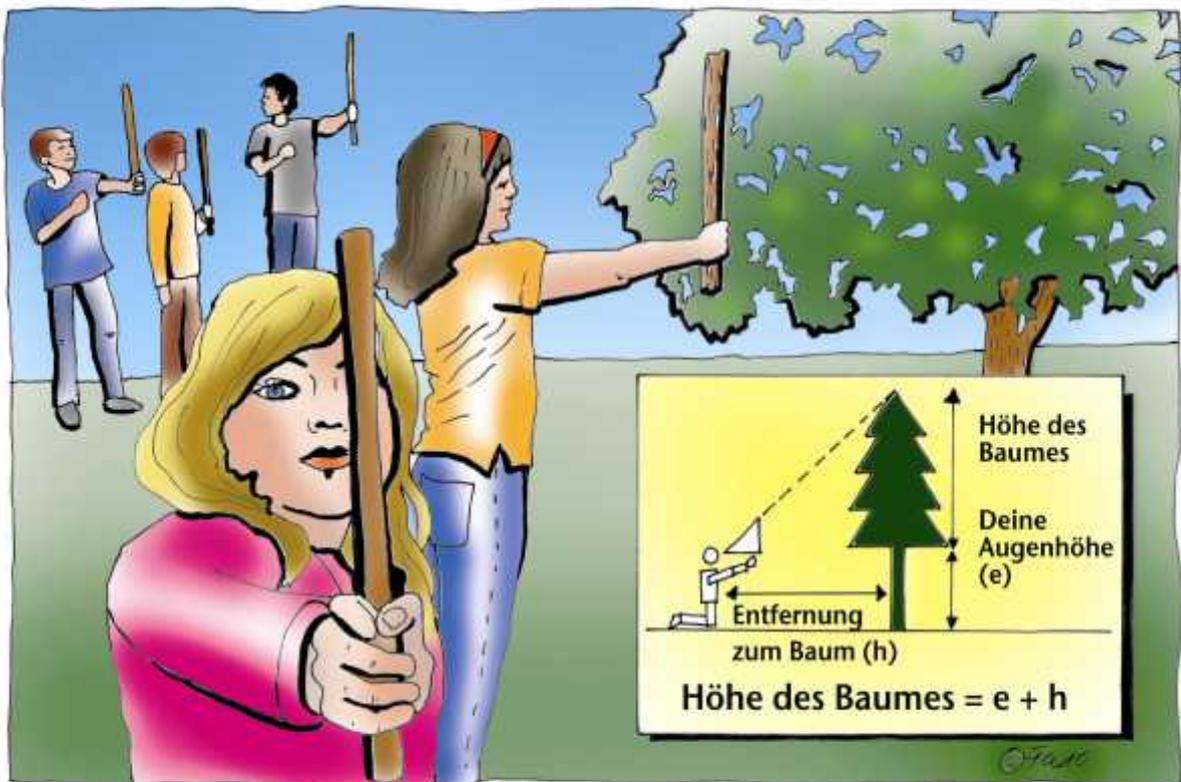
- Our cube has a volume of 7 cubic meters.
- If the cube were composed of massive oak wood, it would weigh almost 7.000 kgs.
- A cubic meter of wood needs approximately 550 ls of water and almost one ton of carbon dioxide (CO<sub>2</sub>).

# STATION 13



## GEODESIST

In this station you can find out the height and thickness of this pine tree. For the thickness use the tape measure. You can determine the height with the "forester's triangle". You will need a straight branch which is as long as your arm. Hold it vertically in front of you with your arm stretched and walk forward or backwards (do not fall!) until the top of the tree is exactly in line with the top of your branch. Now count how many metres between you and the base of the tree, add your body height and the result gives you the height of the tree!



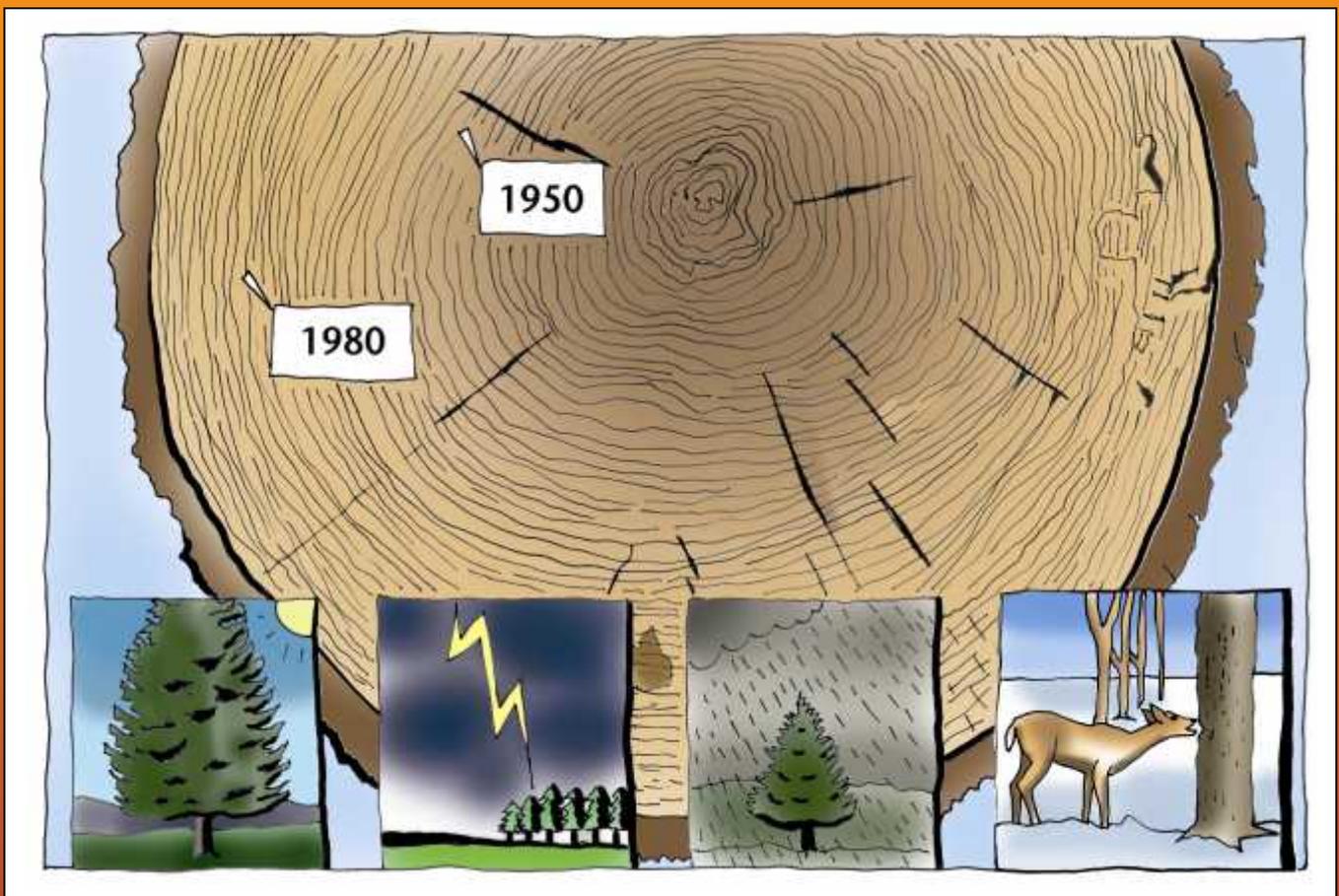
## Did you know?

- If you halve the thickness in centimeters, you get the average age of the tree.
- In the forest, everything is measured in ten year periods, so that the foresters know how much wood they can harvest.
- We call this measuring forest management.

## STATION 14

### EVERY RING (RE)COUNTS

If you would like to know how old the tree was, then count all rings on the disc. Try and find the ring from the year you, or your mother, your grandparents, etc....were born. Do you think that all rings are identical?



### Did you know?

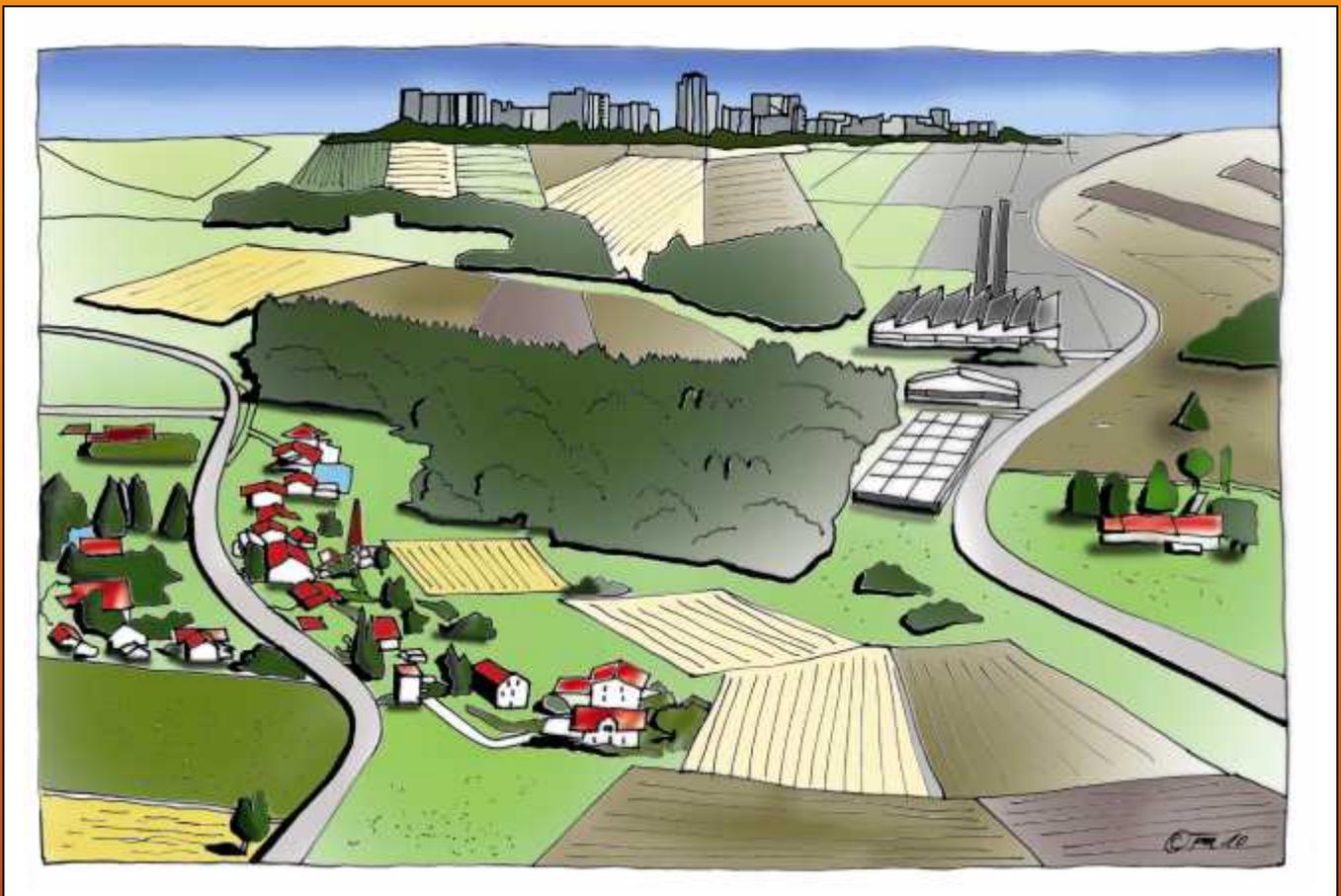
- The annual rings appear on different wood in summer and winter, whilst trees growing in the tropics have no annual rings.
- The annual rings of a tree tell a lot about old damage, dry years or limited space for the tree-top to grow.
- Using the annual rings, the age of old wood can be determined, such as beams from old castles or sunken ships. We call this method Dendrochronology.

## STATION 15

### FOREST

Humans started to use the forest a long time ago as a raw material supplier, as a living space and for agriculture.

On this map you can see how the forest of Karlsruhe has developed over time.



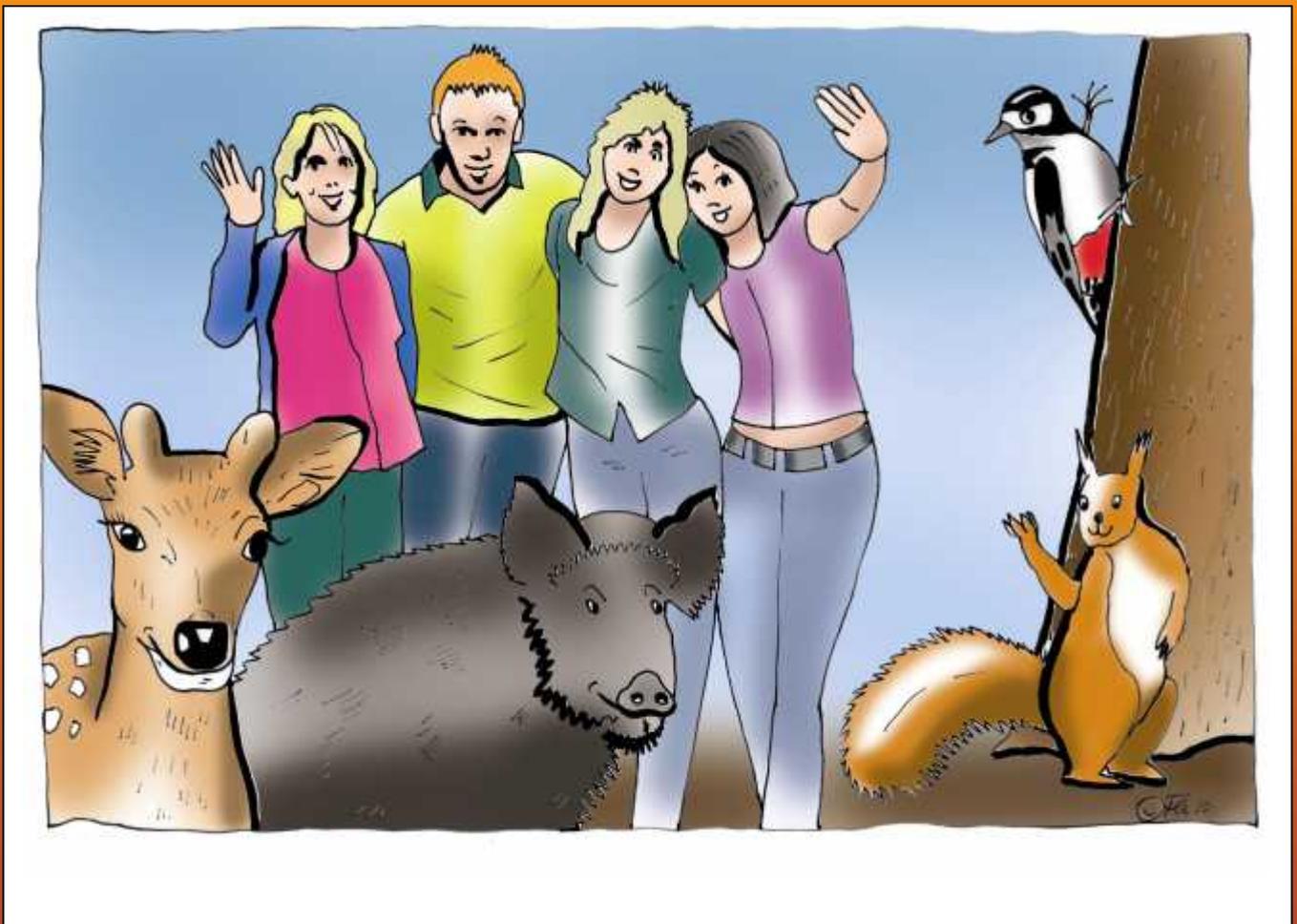
### Did you know?

- The map shows the agglomeration of the forest, using Karlsruhe as an example.
- The forest covers 26% of the district surface of the city of Karlsruhe, a high percentage for a city.
- In Baden-Württemberg, 39% of the regional surface is covered by forest.



# GOODBYE...

and see you soon - in the Puzzle Forest!



We hope that you enjoyed our Puzzle Forest!