

- MS. SCHLAU:** Hello and welcome, dear students. Today, you will have to listen closely, because ... Um....hello...? Can I help you? What or who are you?
- PROFESSOR EINSTEIN:** It's me. Hello, Ms. Schlau. Here! Down here!
- MS. SCHLAU:** Professor Einstein, what are you doing on the floor?
- PROFESSOR EINSTEIN:** I'm on the hunt for sounds rarely heard. Just from today my recordings include: freezing flies, coughing ants, and the crackling of ice cream.
- MS. SCHLAU:** Oh really? And why?
- PROFESSOR EINSTEIN:** Aha! Because I'm holding a competition. The Einstein Prize for the world's most beautiful sound. And if I put forth enough effort, I might just win the prize.
- MS. SCHLAU:** Your own prize?
- PROFESSOR EINSTEIN:** Yessss! The crackling fire in Christoph's film inspired me. Ever since, I've heard the world with entirely different ears. Isn't that right, little microphone? Hahahaha.
- MS. SCHLAU:** Well then we shouldn't keep the students waiting and go ahead and watch the film ourselves. JOWO? Start the film, please. Reading by the **fireplace (KAMIN)** is lovely, Christoph thinks. But somehow, something is missing. The wood in the fireplace doesn't crackle at all. That's part of it. Something is missing. Who can help? Who knows about this?
- PROFESSOR EINSTEIN:** Forester Schreibeiss, of course. He works with wood a lot. But unfortunately, his wood doesn't crackle either. This is beech wood, says Mr. Schreibeiss, which neither pops nor crackles.
- MS. SCHLAU:** A beech tree. That's how it looks. It's easily identified by its **smooth (GLATT)** bark.
- PROFESSOR EINSTEIN:** This is how the leaves look. And the fruits. Let's try a different wood. How about oak? This is how an oak tree looks. It's bark is really **rough (RAU)**. These are oak leaves – easily recognizable. And these are the fruits – the acorns. Let's see if oak wood crackles.
- MS. SCHLAU:** A piece of oak in the fire and... No. Nothing is crackling. So oak wood is the wrong choice for **crackling (KNISTERN)**. What about birch? This is what birch trees look like. Easily identified by their white bark. And these are the birch leaves. The tassels there are the fruit. The seeds are inside.
- PROFESSOR EINSTEIN:** But crackling? Birch wood doesn't crackle either. These were all deciduous trees. Perhaps we should try it with a conifer. Spruce, for example. These are how spruce trees look in the woods. Here is the bark, the needles and the fruit – spruce cones. Let's see if it works better with spruce wood.

- MS. SCHLAU:** Nothing's happening yet. But there: it's starting to crackle. There's real sparks spraying out. That's all good and well. But forester Schreibweiss has another idea: Larches. Also a conifer.
- PROFESSOR EINSTEIN:** The larch is the only conifer tree that loses its needles in the **winter (WINTER)**. This is how the bark looks. Pretty scaly. And here are the needles - already colored for autumn.
- MS. SCHLAU:** These are the cones. The fruits of the larch. And its wood crackles wildly in the **fire (FEUER)**. Now that's how it should sound, Christoph thinks. It also produces a lot of heat. Mila also thinks larches are the most interesting. Larch wood is the wood that crackles the best. This of course raises the question: What causes this and why?
- PROFESSOR EINSTEIN:** Forester Schreibweiss suggests taking apart a piece of larch wood and a piece of beech wood - which doesn't crackle - to compare them more closely. Mila is coming as well. But where to?
- MS. SCHLAU:** To the forester's workshop. To Mr. Hoffmann. There, you'll find a number of tools and machines. With the band saw, you can saw off a slice of the larch.
- PROFESSOR EINSTEIN:** Here you can clearly see the growth rings. And how about the beech? Many fewer recognizable growth rings. Let's take a closer look. Here the difference is very clear. In the **summer (SOMMER)** time, when the larch grows quickly, the wood is light. In the winter, the darker growth rings are formed. The tree grows more slowly then. The beech appears to grow much more consistently.
- MS. SCHLAU:** The larch wood also has cracks. These are from drying. And if you look very closely, you can see many little holes in the light wood.
- PROFESSOR EINSTEIN:** Beech wood is much denser. Meaning larch wood is much lighter and softer than beech. But what does this have to do with crackling? Dr. Kremer will show us under the microscope. He cut off a very thin piece of larch wood with a razor blade. When he looks at it under the microscope, there are holes visible from above. These form long tubes in the wood.
- MS. SCHLAU:** The water and nutrients for the tree are **transported (TRANSPORTIEREN)** through these. We've already seen these holes.
- PROFESSOR EINSTEIN:** Without a microscope, you can't see any holes in the beech wood. They're only visible when enlarged. If you look at the holes from the side, you can see how they form long tubes. These also exist in larch wood, but there's a little difference. In some places the tubes are blocked - they don't go further. And when water or resin steams in the wood while it's being burned, the **gas (GAS)** that's produced can't escape.

- MS. SCHLAU:** If you mix baking soda with vinegar, there is also a gas produced. And if the gas can't escape, then... then... it explodes! So the crackling wood is nothing more than many little explosions. Because that's the only way the gas in the wood can escape.
- PROFESSOR EINSTEIN:** Forester Schreibweiss gave Christoph wood for his fireplace. Larch wood – for crackling, of course. But larch wood is rare and also burns very hot, so Mr. Schreibweiss also gives Christoph some beech wood, as well. That will burn for a long time. He gives him as much as he can carry.
- MS. SCHLAU:** At home, Christoph first loaded his fireplace with larch wood. Because of the crackling, of course! Then... what's he doing now? Headphones? Oh, he's recording the crackling - for quite a while. Then he loaded the beech wood, which unfortunately doesn't crackle. But for the crackling, Christoph burnt a **CD (CD)** and put it in his stereo. Now he has both: a long-lasting fire and, at the same time, a cosy crackling. Now this is what I call comfortable. Don't you think?
- PROFESSOR EINSTEIN:** The sound of crackling fire is wonderful, isn't it.
- MS. SCHLAU:** Indeed it is.
- PROFESSOR EINSTEIN:** You think of a cosy warm fire, while outside snow slowly falls. Ah...! This sound takes third place on my list of personal favorites.
- MS. SCHLAU:** Uhuh. And which ranks second?
- PROFESSOR EINSTEIN:** JOWO? Would you please play sound 437.
- MS. SCHLAU:** Oh, how nice. The ocean! Yes, truly wonderful.
- PROFESSOR EINSTEIN:** But wait. First you have to hear my absolute number 1. A sound so full of life, depth, and authenticity. JOWO, sound 774, please. I...that... umm... oh my.
- MS. SCHLAU:** Hmm... a sound full of life, depth, and authenticity. Indeed.
- PROFESSOR EINSTEIN:** Umm...I'm sorry. I think I confused the numbers. JOWO, I meant sound 747. That - you know then one.
- MS. SCHLAU:** Oh... birds chirping. How nice. I think of a spring morning. A light wind blows across a fragrant field of flowers.
- PROFESSOR EINSTEIN:** Yes, and this sound also smells much nicer. Oops.