

During the lecture/film		
Step	Content	Materials
5	The children watch the film sequence and summarize the answer: <i>Not every type of wood crackles equally. The wood from conifers crackles better than the wood from deciduous trees. Larch wood crackles the best.</i> During the discussion, the instructor writes the words <i>conifers</i> , <i>deciduous trees</i> and <i>larch</i> on the board.	Blackboard and chalk/whiteboard and markers
6	Instructor hangs the matching pictures under the words and introduces the other types of trees that are mentioned in the film: <i>beech</i> , <i>birch</i> , <i>oak</i> and <i>spruce</i> . These new pictures and words are also added to the board.	Blackboard and chalk/whiteboard and markers; <i>Conifer</i> , <i>deciduous tree</i> , <i>larch</i> , <i>beech</i> , <i>birch</i> , <i>oak</i> and <i>spruce</i> images; Magnets/blu-tack;
7	Instructor hands out a <i>Trees</i> (Bäume) cutout template to each child. The children cut out the 20 pictures. They watch the film sequence they just saw one more time (Minute: 1:08-4:37) and match the pictures accordingly.	<i>Trees</i> (Bäume) cutout template; Scissors
8	They check their answers with the help of the answer key, which the instructor projects. The children glue the matched pictures on the <i>Trees</i> template for gluing, which the instructor hands out to them. Note: The instructor can set up additional sets of pictures that the children can use to play memory in small groups.	<i>Trees</i> (Bäume) answer key; <i>Trees</i> (Bäume) template for gluing; Glue
9	Instructor says: <i>Now we know that not every type of wood crackles equally loudly. But why does wood crackle in general? Do you have any ideas?</i> The children make guesses.	
10	Instructor suggests that they watch the next film sequence (Minute: 4:37-7:26). The children then discuss with each other what they understood.	Laptop and projector; Audio speakers;
11	Instructor hands each child a <i>Crackling fire</i> (Feuerknistern) worksheet with sentences explaining the phenomenon. The children their suggestions for the correct order in small groups. At the end they compare their answers as a group.	<i>Crackling fire</i> (Feuerknistern) worksheet
12	Instructor projects the answers on the board and reads the sentences. The children repeat them as a group. The instructor asks the children to memorize the sentences.	<i>Crackling fire</i> (Feuerknistern) answer key; Laptop and projector

13	Instructor hands out the <i>Crackling fire</i> (Feuerknistern) fill-in-the-blank to the children. The children work individually and then compare their answers with the <i>Crackling fire</i> (Feuerknistern) answer key, which the instructor projects on the board.	<i>Crackling fire</i> (Feuerknistern) fill-in-the-blank; <i>Crackling fire</i> (Feuerknistern) answer key
14	Instructor asks: <i>So now we know that not every type of wood that burns well, also crackles well. What do you think Christoph does so that he can always hear the fire crackling?</i> Instructor shows the children the picture "Christoph solves the problem." The children think of possible explanations. The instructor then shows the final film sequence (Minute: 7:26-8:56). The children test out their guesses.	Laptop and projector; Audio speakers; Picture "Christoph solves the problem"

After the lecture/film

Step	Content	Materials
15	Instructor projects the <i>Crackling fire</i> (Feuerknistern) word bank on the board. The children copy the new words onto their <i>Crackling fire</i> (Feuerknistern) word bank sheets. Note: While doing this, the fire can quietly crackle in the background: https://goo.gl/336uiV	Laptop and projector; Audio speakers; Internet (YouTube); <i>Crackling fire</i> word bank My word bank sheet <i>Crackling fire</i>
16	Instructor and children end the unit with a reflection round, in which they discuss what they have learned. Each child then fills out the <i>Now I know</i> (Ich kann schon) questionnaire to find out whether they have achieved the learning objectives. Instructor also gives feedback on student performance.	<i>Now I know</i> (Ich kann schon) questionnaire
17	The children hold onto the following in their portfolios: - <i>Trees</i> (Bäume) template for gluing - <i>Crackling fire</i> (Feuerknistern) fill-in-the-blank - My word bank sheet <i>Crackling fire</i> (Feuerknistern) - <i>Now I know</i> (Ich kann schon) questionnaire	Portfolios

Further ideas for subject matter or CLIL teaching (natural sciences, literature):

- Literature project on the James Krüss poem „Das Feuer“, focusing on reciting the poem with its many onomatopoeic words - <https://goo.gl/zy9Lxi>
- Fires are both useful and dangerous - Research project with poster presentations or PowerPoint presentations
- Visit to a fire department
- School-wide event with a bonfire (optionally together with the literature project)

Suggestion for the children at the end of the learning scenario

At the very end, the children gather around a computer or the instructor projects a computer desktop onto a screen. They look at the home page of the German Digital Kinderuniversität together. The instructor explains to the children that they now have completed the *Crackling Fire* (Feuerknistern) lecture in the *Nature* faculty together and draws their attention to the fact that there are many more interesting lectures in this faculty and in the *Technology* and *Humankind* faculties.

The instructor and the children click together on the At Home link and discover how the website works. As an example, the instructor logs in and goes to the lecture that they just worked through.

The instructor shows the children that the lecture begins with an introduction by Professor Einstein and Ms. Schläu and that their work is supported by Jowo and Christoph, the field researcher. Professor Einstein and Ms. Schläu also wrap up all the lectures and thereby frame the work on each theme.

The instructor explains to the children that they can re-watch the film at home and can even set the subtitles to German or English. That way, they can “catch” key words while watching and use these to collect points and solve three exercises and a bonus exercise on the film. The children can also get help from their parents or grandparents, from registering to solving the exercises. The whole family can have fun learning and everyone gradually becomes a professor at the Kinderuni.