

Content

- Fireflies

Target group

- Children ages 8 to 12
- Level: A1+ / A2

Language goals

The children will be able to

- Understand a short (technical) film
- Find precise information in a text
- Expand their passive and active vocabulary
- Understand technical terminology in context
- Understand, memorize and summarize a short technical text
- Understand and answer simple thematic questions
- Formulate their ideas using simple language
- Use and develop learning strategies (use pictures as a learning tool, make conjectures, correctly spell words)
- Prepare and carry out a joint performance (Firefly show)
- Understand and follow instructions

Word bank

Lichtsignal (light signal), *leuchten* (to glow), *Spezialkamera* (special camera), *Falle* (trap), *beobachten* (to observe), *auf der Wiese* (in the meadow), *am Waldrand* (at the edge of the forest), *im Garten* (in the garden), *Männchen* (male), *Weibchen* (female), *Larve* (larva), *Puppe* (pupa), *Käfer* (bug), *fliegen* (to fly), *zwei weiße Streifen* (two white stripes), *finden* (to find), *Schnecken* (snails), *fressen* (to eat), *Gift* (poison), *Dunkelheit* (darkness), *Lichtverschmutzung* (light pollution)

Materials

- Laptop and projector
- Audio speakers
- Blackboard and chalk/whiteboard and markers
- Magnets/blu-tack
- Pieces of paper (strips of standard letter paper)
- (Online) dictionaries
- Cell phones and/or flashlights
- Opt. dark-colored clothes for the children
- Wool blanket with fasteners to attach to them
- Students' portfolios

Materials for printing and/or copying

- *Fireflies* (Glühwürmchen) exercise sheet and answer key
- *Firefly trivia* (Wissenswertes - Glühwürmchen) worksheet
- *Fireflies* (Glühwürmchen) question cards
- *Fireflies* (Glühwürmchen) logic puzzle
- My word bank sheet *Fireflies* (Glühwürmchen)
- *Now I know* (Ich kann schon) questionnaire

Materials for download

- Lighthouse:
https://upload.wikimedia.org/wikipedia/commons/3/34/Leuchtturm_roter_sand.jpg
- Traffic light:
https://t4.ftcdn.net/jpg/01/43/42/03/240_F_143420377_wJp6GWYsUzyiv3fCvkQLoLNIKG7nkNEW.jpg

- Railroad crossing:
<http://www.bahnbilder.de/1024/gerade-schliesst-schranke-am-bahnuebergang-487824.jpg>
- Signal rocket:
https://www.bz-berlin.de/data/uploads/multimedia/archive/00484/sewol_6_484002a.jpg
- Beacon:
<http://www.reisenews-online.de/wp-content/uploads/2012/05/bergfeuer-zugspitze.jpg>
- Fireflies
http://www1.wdr.de/wissen/gluehwuermchen-124~_v-ARDFotogalerie.jpg

Duration

3x45 minutes

Before the lecture/film		
Step	Content	Materials
1	<p>Instructor shows the children pictures. They are instructed to name what they recognize. Instructor helps them to formulate what they see: <i>Lighthouse/traffic light/railroad crossing/signal rocket/beacon</i></p> <p>Instructor writes the words one after the other on the board and, with the help of the children, determines what connects them: <i>These are all objects that send out light signals. The light serves to transmit information in situations in which one cannot communicate using language.</i> Instructor also writes the word "light signals" on the board.</p>	<p>Laptop and projector; Lighthouse, traffic light, railroad crossing, signal rocket and beacon pictures (see materials for download)</p>
2	<p>Instructor says: <i>So people use light signals to transmit information. Can animals do this too?</i> The children think about whether they know animals that communicate using light signals. Ideally they come up with the solution: <i>fireflies</i>. The instructor writes the word on the board and shows a picture of a <i>firefly</i>.</p>	<p>Fireflies picture (see materials for download)</p>

During the lecture/film		
Step	Content	Materials
3	Instructor suggests that they watch a film about <i>fireflies</i> (Minute: 1:25-9:50). During the first viewing, the children are instructed to focus on the general content. Instructor says: <i>Lean back and enjoy the film.</i>	Laptop and projector; Audio speakers
4	Before they watch it a second time, the instructor hands out the <i>fireflies</i> (Glühwürmchen) exercise sheet, which they read through carefully before the film. Instructor helps if anything is not clear. The children should then work through the exercise sheet either while watching the film or immediately afterward. They check their work with the help of the answer key, which the instructor hangs out at multiple locations throughout the classroom. They can also discuss it as a group.	Laptop and projector; Audio speakers; <i>Fireflies</i> (Glühwürmchen) exercise sheet <i>Fireflies</i> (Glühwürmchen) answer key
After the lecture/film		
Step	Content	Materials
5	Instructor divides the children into three equal groups and hands out the short text <i>Firefly trivia</i> (Wissenswertes über Glühwürmchen) texts 1, 2, 3) on one question each on the topic of <i>fireflies</i> . Group 1: <i>How do fireflies feed themselves?</i> Group 2: <i>How long do fireflies live?</i> Group 3: <i>Why are there fewer and fewer fireflies?</i> The groups read their texts. If they don't know any of the words or expressions, they look them up in a dictionary (optionally online) or they consult the instructor.	<i>Firefly trivia</i> (Wissenswertes über Glühwürmchen) worksheet If needed, (online) dictionaries
6	The instructor asks the children to memorize their texts, which they now know fully understand.	<i>Firefly trivia</i> (Wissenswertes über Glühwürmchen) worksheet
7	Using the group puzzle method, the instructor forms new groups, in which there are now 1-2 "experts" on each question. The experts share their knowledge one after the other with the other group members, so that by the end each child knows the answers to all three questions on the topic of <i>fireflies</i> . Note: Group puzzle method (simplified version) Group work phase 1: Group 1 – ABC, Group 2 – ABC, Group 3 – ABC; Group work phase 2: Group 1 – AAA, Group 2 – BBB, Group 3 – CCC More on this here https://lehrerfortbildung-bw.de/st_kompetenzen/weiteres/projekt/projektkompetenz/methoden_a_z/gruppenpuzzle/	<i>Firefly trivia</i> (Wissenswertes über Glühwürmchen) worksheet

8	<p>Instructor divides the children into two groups and asks a fast series of questions. The two groups take turns answering the questions. For each correct answer they get a point, which the instructor records on the board. If the group whose turn it is does not know the answer, the other group is given an extra chance to answer it.</p>	<p><i>Fireflies (Glühwürmchen)</i> question cards for instructor; Blackboard and chalk/whiteboard and markers</p>
9	<p>Instructor projects the <i>Fireflies (Glühwürmchen)</i> logic puzzle on the board:</p> <p>He or she asks the children to think in groups of two or threes about the solution to the puzzle. They should write the answer in their notebooks without saying the answer out loud, so all children have enough time to think about the question. After a few minutes the answers are compared and discussed as a class.</p> <p>Answer: <i>Small glowworms</i> (Source: Wikipedia)</p>	<p>Laptop and projector; <i>Fireflies (Glühwürmchen)</i> logic puzzle</p>
10	<p>Instructor asks the children to think about the content that they covered and select 5-7 words/expressions on the topic that they would like to learn. They write these in neat handwriting on pieces of paper that the instructor hands out.</p>	<p>Pieces of paper and thick pencils</p>
11	<p>Instructor collects the pieces of paper and sorts them on the board with the help of the children.</p> <p>Note: With this step, the instructor has the possibility of correcting the word list or increasing/expanding the word list.</p> <p>Instructor then hands out the word bank sheet <i>Fireflies (Glühwürmchen)</i> to the children. They are instructed to fill in the fireflies' wings with words from the board.</p>	<p>My word bank sheet <i>Fireflies (Glühwürmchen)</i>; Magnets/blu-tack</p>
12	<p>Instructor suggests that they put on a firefly show. He or she first shows the children a possible soundtrack: <i>Wolfgang Amadeus Mozart: Eine kleine Nachtmusik</i> https://www.youtube.com/watch?v=FCi2u265wxQ</p> <p>Instructor and children listen to the music together. They then discuss what they need for the show (<i>cell phones and/or flashlights</i>) and how they can darken the classroom (<i>hang wool blankets over the window</i>). As a third step, the children think about what choreography fits with the music and the practice it.</p>	<p>Laptop; Internet (YouTube); Cell phones/flashlights; optionally dark-colored clothing for the children Wool blankets with material to attach to them</p>

	A possible example: https://www.youtube.com/watch?v=zCtPCRx6dm8 Students from other classes or parents can be invited to the show.	
13	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
14	The children hold onto the following in their portfolios: - My word bank sheet <i>Fireflies</i> (Glühwürmchen) - <i>Fireflies</i> Glühwürmchen exercise sheet - <i>Firefly trivia</i> (Wissenswertes über Glühwürmchen) worksheet - <i>Now I know</i> (Ich kann schon) questionnaire	Portfolios

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

- Why do fireflies glow - Conduct more in-depth research assignment and present the results (more on this, for example, at: http://www.gluehwuermchen.ch/biolumineszenz/wie_leuchten.htm)
- Communication through light signals - Learn about number-based code systems (more on this, for example, at: <http://kryptografie.de/kryptografie> or <http://kryptografie.de/kryptografie/chiffre/klopf.htm>), experiential learning (cell phone/flashlight)
- How does a lighthouse work? – Research assignment, or, if possible, visit to a lighthouse and discussion with an expert (more on this, for example, at: <https://www.kids-and-science.de/wie-funktioniert/detailansicht/datum/2009/10/18/wie-funktioniert-ein-leuchtturm.html> or <http://www.planet-wissen.de/technik/schiffahrt/leuchttuerme/index.html>)

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 Kinderuniversity together. The instructor explains to the children that they now have completed the *Fireflies* (Glühwürmchen) 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. Schlau and that their work is supported by Jowo and Christoph, the field researcher. Professor Einstein and Ms. Schlau 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.