Picture *Windmill* (Windmühle)

Photo: Rolf Handke / pixelio.de

Student materials

Developed by Bernadett Veress
Technical proofreading by Dr. Edit Morvai
Translated by Sally Hudson Dill

Picture *Wind farm* (Windpark)

Photo: Maren Beßler / pixelio.de

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Quiz sheet *Wind turbines* (Windräder)

Read the statements and decide whether they are correct. Mark what you think is correct.

- ☐ Wind turbines are used to produce electricity.
- ☐ Wind turbines can be on solid ground or in the ocean.
- ☐ Wind turbines can be more than 1000 meters high.
- ☐ There are wind parks that have more than 50 wind turbines.
- ☐ A large rotor blade weighs as much as an elephant.
- ☐ A large wind turbine can supply multiple thousands of people with electricity.
- ☐ If you pay an entry fee, you can visit wind turbines.
- ☐ One can walk freely on the top of a wind turbine.
- ☐ One can turn the rotor blades so they are not facing the wind to stop them.
- ☐ Modern wind turbines have three rotor blades.

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Answer key for the *Wind turbines* (Windräder) quiz sheet

- [X] Wind turbines are used to produce electricity.
- [X] Wind turbines can be on solid ground or in the ocean.
- [ ] Wind turbines can be more than 1000 meters high.
- [X] There are wind parks that have more than 50 wind turbines.
- [X] A large rotor blade weighs as much as an elephant.
- [X] A large wind turbine can supply multiple thousand people with electricity.
- [ ] If you pay an entry fee, you can visit wind turbines.
- [ ] One can walk freely on the top of a wind turbine.
- [X] One can turn the rotor blades so they are not facing the wind to stop them.
- [X] Modern wind turbines have three rotor blades.

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Note sheet with guiding questions on the film
Group 1: *Up the tower*

What does Christoph need in order to be allowed to go up the tower?

How does Christoph travel up the tower?

How high is the tower?

How long does it take for the elevator to get to the top of the tower?

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Note sheet with guiding questions for the film
Group 2: *Arrived at the top*

What generates electricity in the turbine's "head" (top/upper section)?

Is there a railing on the top?

What does Christoph need to do when he arrives at the top?

What does Christoph see from up high?

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Note sheet with guiding questions on the film
Group 3: *The rotor blades*

What do the rotor blades look like?

Can the rotor blades be adjusted?

How does one know what direction the wind is coming from?

Can one bring the rotor blades to a stop?

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Worksheet *Discovering the wind turbine* (Das Windrad entdecken)

What fits? Find the appropriate answer to the questions.

What does Christoph need in order to be allowed to go up the tower?	Safety harness, thick rope, hook, helmet
How does Christoph travel up the tower?	100 meters
How high is the tower?	The generator
How long does it take for the elevator to get to the top of the tower?	No
What generates electricity in the turbine's head?	On the elevator
Is there a railing on the top?	6 minutes
What does Christoph need to do when he arrives at the top?	Like airplane wings
What does Christoph see from up high?	There is a device in the head of the turbine that measures the strength and direction of the wind.
What do the rotor blades look like?	He has to hook himself in right away.
Can the rotor blades be adjusted?	Yes, one can turn them so they are not facing the wind to stop them.
How does one know what direction the wind is coming from?	Yes, one can turn them so they are facing the wind in order to use the full strength of the wind.
Can the rotor blades be brought to a stop?	Lots of wind turbines, the shadow of the wind turbine he is on, and the large rotor blades

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Answer key *Discovering the wind turbine* (Das Windrad entdecken)

What does Christoph need in order to be allowed to go up the tower?	Safety harness, thick rope, hook, helmet
How does Christoph travel up the tower?	On the elevator
How high is the tower?	100 meters
How long does it take for the elevator to get to the top of the tower?	6 minutes
What generates electricity in the turbine's head?	The generator
Is there a railing on the top?	No
What does Christoph need to do when he arrives at the top?	He has to hook himself in right away.
What does Christoph see from up high?	Lots of wind turbines, the shadow of the wind turbine he is on, and the large rotor blades
What do the rotor blades look like?	Like airplane wings
Can the rotor blades be adjusted?	Yes, one can turn them so they are facing the wind in order to use the full strength of the wind.
How does one know what direction the wind is coming from?	There is a device in the head of the turbine that measures the strength and direction of the wind.
Can the rotor blades be brought to a stop?	Yes, one can turn them so they are not facing the wind to stop them.

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Film script *Why three?* (Warum gerade drei?)

PROFESSOR EINSTEIN:
Now Mr. Lutz can explain the trick with the three blades.The higher up, the stronger the wind. And below, especially in front of the pole, the wind is weakest. When a blade is at the bottom, the other two blades aren't where the wind is strongest, because they're far apart from one another.

FRAU SCHLAU:
And when a rotor blade is at the highest point, the two below are placed far apart. This means that the wind doesn't simultaneously push against the wind turbine both very strongly and very weakly and strain it unnecessarily.

PROFESSOR EINSTEIN:
The wind's energy is divided as evenly as possible and the wind turbine is able to run smoothly.

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My word bank sheet *Wind Turbine* (Windrad)

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Now I know **(ich kann schon) questionnaire for the** *Wind Turbine* (Windrad) **lecture**

Lecture ***Wind turbine***	**How I see myself:**		**How my teacher sees me:**	
	I know this.	**I still need to work on this.**	**You know this.**	**You still need to work on this.**
I can understand a short (technical) film on the topic.				
I can find precise information.				
I can read and understand simple technical content.				
I can take notes.				
I can summarize what I heard or read.				
I know new words and expressions on the topic.				
I can understand technical terminology in context.				
I can understand and answer simple questions on the topic.				
I can make guesses.				
I can create an informational poster as part of a group.				
I can correctly spell words on the topic.				
I can understand and follow instructions.				
I can work successfully with others.				

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