Study pack: Life after Fukushima

Chapter 4 – Fukushima and Belgium

Learning objectives

English	
2.7	Pupils take notes for their own use when reading and listening to texts based on purposeful information processing and communication.
Mathematics, sciences, technology, STEM	
6.18	Pupils use measurement values, quantities and units in mathematical, scientific, technological, and STEM contexts.
6.36	Pupils use measurement values, quantities, and units appropriately in mathematical, scientific, technological, and STEM contexts.
6.43	Pupils explore the interaction between STEM disciplines and between STEM disciplines and society on the basis of specific societal challenges.

Expected duration

20-25 minutes

Materials/media

- Part 4 Prezi presentation/website: Fukushima and Belgium
- Workbook Part 3: Fukushima and Belgium
- Online quizzes:
  - What to do in the event of a nuclear accident?: https://forms.gle/dEkVz4eJN2um52u16
  - The Tele-rad network: https://forms.gle/uvFq7YfuaxGPqTyA8
- YouTube (Crisis Centre video): https://www.youtube.com/watch?v=t4aopHHCseY (1:45)
- Websites:
  - TELERAD: https://telerad.fgov.be/Html5Viewer/index.html?viewer=telerad_nl
  - SAFECAST: https://map.safecast.org/
  - Japanese government: https://ramap.jmc.or.jp/map/eng/#lat=37.434239832898626&lon=140.97587222374597&z=10&b=std&t=soil&s=13,0,1,0&c=20120425_dr,20171001earth_dr

Method

First of all, pupils learn about the different steps they can take themselves in the event of a nuclear accident. Using the video produced by Crisis Centre, pupils have to find some tips and note them in their workbook or in the online quiz. The quiz can be found at the following link: https://forms.gle/dEkVz4eJN2um52u16. A transcript of the video is included in the appendix.

Tip*:* the Crisis Centre videos are also available in French and German via the links below:

- French: https://www.youtube.com/watch?v=a347xAe9kGE
- German: https://www.youtube.com/watch?v=5FjTahtSUkU
- An English-language version can be found at this link: https://www.youtube.com/watch?v=6i7QbNgzT4A

In the next section, pupils are introduced to the TELERAD network and the various agencies that monitor radioactivity in the area. Pupils use the TELERAD network website to search for the measuring station closest to their home. The measured value of that station can be obtained by clicking on the measuring station (the dot). A small box then appears showing the measured value.

Pupils then compare the measured value with that of the measuring station at Fukushima station. To do this, they will be given two links: one from the Japanese government and another from the Japanese organisation SAFECAST. The latter organisation was founded by citizens in the aftermath of Fukushima and has grown into an internationally recognised initiative. To obtain the readings on the two websites, pupils must first locate Fukushima town (centrally located in Fukushima Prefecture) and then zoom in on the Fukushima town train station. The train station is indicated by a symbol for a train station. You may wish to recommend that pupils first locate the Fukushima train station using Google Maps to make their search easier.

On the website of the Japanese government, pupils have to click on the measuring station to obtain the measured value. Pupils have to find out the measurement value of SAFECAST using the key on the map.

! SAFECAST has a number of fixed measuring stations in Fukushima Prefecture, but the data on the map is also collected by SAFECAST volunteers, who measure by attaching measuring equipment to a car and driving around or taking it with them when they go for a walk or go cycling.

Pupils can record the data (the measuring station of the TELERAD network, the measurements on the SAFECAST website and those of the Japanese government) in the workbook (part 4) or online at this link: https://forms.gle/uvFq7YfuaxGPqTyA8. The workbook is completed with a brief opportunity for reflection. Pupils are asked to reflect on what they have learned and what has left an impression on them. This activity can also be discussed in class.

PART 4:

Fukushima and Belgium

Contents:

- Protecting yourself in the event of a nuclear accident
- The TELERAD network
- What have you learned?

1. **Do you know what to do in the event of a nuclear accident?**

   Watch the following clip and then answer the question below:
   https://www.youtube.com/watch?v=xftWQZbTT0k.

   Identify the best measures to take in the event of a nuclear accident.

	Running away
X	Sheltering
	Opening windows
X	Closing windows
X	Following government recommendations via the news or other channels
X	Switching off ventilation and air conditioning systems
	Switching on ventilation and air conditioning systems

2. Go to the TELERAD network website via this link:
   https://telerad.fgov.be/Html5Viewer/index.html?viewer=telerad_nl

   Search for your town on the map. Then find the measuring station closest to where you live. Write down the location of that measuring station below.

   _____

   Compare the measured value from that measuring station with that of the measuring station at Fukushima train station. Use the following websites for to make this comparison:

   - SAFECAST: https://map.safecast.org/
   - Japanese government :
     https://ramap.jmc.or.jp/map/eng/#lat=37.434239832898626&lon=140.97587222374597&z=10&b=std&t=soil&s=13,0,1,0&c=20120425_dr,20171001earth_dr

   Write down the values you found below:

   - SAFECAST website: **between 0.012 and 0.05 µSv (measurement 03/2021)**
   - Japanese government: **0.2 < measurement ≤ 0.5 (measurement 03/2021)**

3. **What will you take away from this lesson about Fukushima?**

You may wish to add additional questions or suggestions to encourage class discussions in relation to the four themes.

- **Chapter 1:** How to prepare a society for a natural disaster, what would you miss the most if you had to evacuate from your hometown?
- **Chapter 2:** In your own words, explain how the nuclear disaster affected the daily lives of Masako and her family
- **Chapter 3:** Do you think it is important for citizens to be able to measure radioactivity themselves? Why? Would you also take measurements if there were a nuclear disaster in Belgium or elsewhere in Europe?
- **Chapter 4:** you have used several sources of information to look up measurement values (a Belgian and Japanese government source and an independent source). What is your impression of the different sources? Do you think it is important to consult a mix of independent and government sources during a (nuclear) disaster? Explain why or why not.

Transcript: Do you know what to do in the event of a nuclear accident?

Source: RiskinfoBE (2016). Do you know what to do in the event of a nuclear accident
Available at: https://www.youtube.com/watch?v=xftWQZbTT0k

Do you know what to do in the event of a nuclear accident? If something goes wrong in a nuclear power plant, various safety mechanisms come into play. In the worst case, radioactivity will have escaped from a nuclear power plant for a certain period of time. This forms a cloud of radioactive particles that you cannot see, feel, taste or smell. This cloud is blown along by the wind. Some of these radioactive particles swirl down from the cloud to the ground. Anyone outside at this point is at risk of being irradiated or contaminated by inhaling particles or by particles landing on skin or clothing. This is why sheltering is the best way to protect yourself. It reduces the risk of irradiation or contamination by 80%. So you should go inside the nearest building. Stay inside until you get word that it's safe again. Close all windows doors and turn off all ventilation, heating, and air conditioning systems. Inform yourself about the right measures via BE-Alert, radio, TV, the official websites and the government social media channels. They will give you information about taking iodine tablets and will tell you when you can leave your house. The three steps to take in a nuclear accident. Find out more at nucleairrisico.be.