

Name: Portugal

Topic: nuclear waste

Learning time: 60 minutes

Size of class: 28 students

AIMS:

- Raise questions about the possibility of long-term nuclear waste storage;
- Reflect on the limits of science and human knowledge, along with our responsibility to future generations.

Description: the teaching scenario is divided in 3 activities:

1. **Activity 1:** Students watch a short video documentary about nuclear waste disposal and storage;
2. **Activity 2:** The class is divided in teams of four to do an interactive online quiz on Kahoot!, which features multiple-choice questions about the video;
3. **Activity 3:** the class is divided in two teams to do the “Handkerchief game”.

TLA 1: (VIDEO) “A nuclear waste dump for eternity”

description:

The world’s nuclear power plants have generated an estimated 300,000 tons of high-level radioactive waste that must be safely stored for 100,000 years or more. Every year, they generate another 12,000 metric tons of high-level waste.

“A nuclear waste dump for eternity” is a feature documentary to explore the mind-boggling scientific and philosophical questions long-term nuclear waste storage poses.

France has found a €25 billion solution to the unanswerable question of what to do with its high-level nuclear waste - bury it deep underground.

While nuclear energy has a small carbon footprint, its waste still produces a puzzling problem for the industry. For the moment, it is treated and held in temporary sites but the plan is to store it 500 metres below the Earth's surface.

The video features a reporter who went to the most radioactive waste site in Europe where the spent fuel is waiting to be buried, before visiting the underground tunnels that may be the final resting place for this indestructible toxic trash.

TLA 2: Quiz Kahoot!

'NUCLEAR WASTE - What to do with it?'

<https://play.kahoot.it/#/k/eafe44f8-03a6-403e-945d-e33513b0caa3>

TLA3: Game “Handkerchief game” - adapted

The students must be divided in 2 teams of 13 members each (in this case) and stand at opposite sides of the room. Each student in the team must be given a number from 1 to 13.

A student stands in the middle with a handkerchief in his/her hand. He/She shouts out a number and the 2 students that have that number must run and try to be the first one to get hold of the handkerchief.

Then that student has to answer the question that has the same number. If the answer is correct, that team gets one point and they both go back to their teams. If the answer is incorrect, that team doesn't get any point and they both go back to their teams.

The student in the middle shouts out another number.

In the end the team that has scored more points wins.

The students did some research work on the topic in order to devise the questions to be asked. The document with the questions for the game is in the folder.

Here's a short list:

<https://whatisnuclear.com/waste.html>

<https://www.ucsusa.org/resources/nuclear-waste>

<https://www.bbc.co.uk/bitesize/guides/zxbnh39/revision/2>

<https://www.ansto.gov.au/education/nuclear-facts/managing-waste>

<https://www.world-nuclear.org/information-library/nuclear-fuel-cycle/nuclear-wastes/radioactive-waste-management.aspx>

<https://www.world-nuclear.org/nuclear-essentials/what-is-nuclear-waste-and-what-do-we-do-with-it.aspx>

http://greenliving.lovetoknow.com/Advantages_and_Disadvantages_of_Nuclear_Energy

<https://www.conserve-energy-future.com/pros-and-cons-of-nuclear-energy.php>

