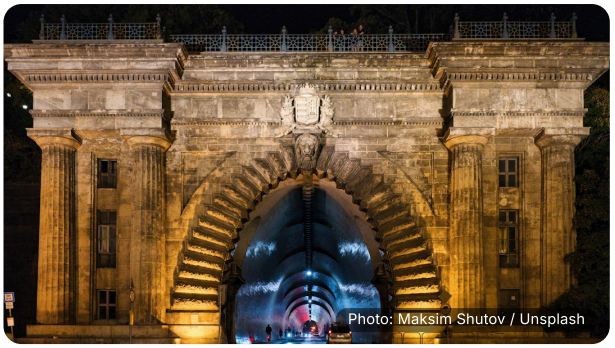
Finland advances with Onkalo waste repository

LEVEL B1


Photo: Maksim Shutov / Unsplash

I. WARM-UP

1. What energy sources are common in your country?
2. How should dangerous waste be stored safely?
3. Would you live near a power station? Why or why not?

II. KEY VOCABULARY

licence
an official document that gives permission to do something

underground
below the surface of the ground

storage
the act of keeping things in a place for later use

reactor
a machine in a nuclear plant where energy is produced

copper
a reddish-brown metal used to make strong containers and wires

clay
a heavy, sticky earth that can be shaped and hardens when dry

radioactive
giving off energy from atoms that can be dangerous

verify
to check that something is true or correct

III. READING

Finland has granted an operating licence to Onkalo, the world's first permanent underground storage site for spent nuclear fuel. The facility is on Olkiluoto island in western Finland and is run by waste company Posiva. Posiva says operations are expected soon, but no exact date is set after 22 years of construction.

Before opening, tests and inspections must be verified and approved by STUK, Finland's radiation safety authority. Onkalo will hold 6,500 tonnes of uranium from the country's five reactors.

The fuel will be sealed in copper canisters, lowered into holes in bedrock, packed with bentonite clay, then closed with a steel-reinforced concrete plug. The waste will stay highly radioactive for tens of thousands of years. Posiva says after about 100,000 years, levels should be similar to those of uranium ore.

Final repositories are also being built in Sweden and France, but Finland is expected to open first. The project's cost is estimated at $1.16bn.

Reading text adapted from reporting by **Al Jazeera***: "Finland nearing opening of world's first...". Original article linked at theenglishwire.com.*

IV. COMPREHENSION QUESTIONS

1. What major step did Finland take for the Onkalo facility?
2. Where in Finland is Onkalo located?
3. Who must verify and approve the tests before opening?
4. How much uranium can Onkalo store?
5. Which other countries are building final repositories?

V. DISCUSSION

1. Is long-term underground storage a good solution? Why?
2. Which safety steps at Onkalo seem strongest or weakest to you?
3. Should local people have a say in where such sites are built?
4. How should countries handle the cost of nuclear waste?

VI. GRAMMAR FOCUS

Both/either/neither

Both ... and + plural verb. Either ... or / Neither ... nor: the verb agrees with the nearer subject (proximity rule). Two singular parts → singular verb; if the nearest part is plural → plural verb.

> *"**Both tests and inspections are** required before opening."*
>
> *"With no set date, **neither day nor month is** confirmed."*

VII. GRAMMAR EXERCISE

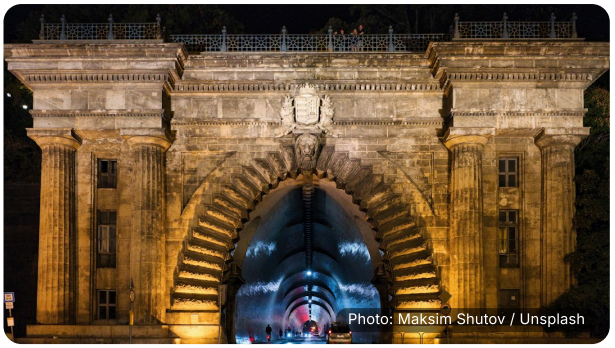
Circle the correct option in each sentence.

1. Both canisters (is / are) sealed before lowering. _____
2. Neither the clay nor the plug (are / is) made of copper. _____
3. Neither test nor inspection (is / are) skipped. _____
4. Both the canisters and the plug (keeps / keep) the waste safe. _____
5. Either a hole or a tunnel (is / are) mentioned in the article. _____

Teacher's Notes

TEACHERS ONLY

These notes are designed to help you get the most out of this lesson. Please do not share this page with students.


Photo: Maksim Shutov / Unsplash

I. LESSON GUIDE

- Timing: 8–10 minutes warm-up, 10 minutes vocabulary, 12–15 minutes reading and comprehension, 8–10 minutes grammar, 10–12 minutes discussion.
- Pre-teach or check: licence, underground, reactor, radioactive, canister, clay, verify. Use a simple diagram to show layers: canister, clay, rock.
- Reading: set a skim task (where, what, who). Then scan for numbers (6,500 tonnes, 100,000 years, $1.16bn). Pair-check before whole-class feedback.
- Differentiation: stronger students summarise the safety steps; others order a list of steps you provide. For discussion, mix pairs so each includes a confident speaker.

II. DISCUSSION FACILITATION TIPS

1. Start with a quick show of hands, then ask pairs to give one reason for or against.
2. Have students list the sequence (canister–clay–plug) and justify which step matters most.
3. Run a mini-debate in two groups: one for more local control, one for national decision.
4. Elicit examples of funding models (company fees, taxes) and ask for pros and cons.

III. EXTENSION ACTIVITIES

Writing: In pairs, write a 70-word public notice explaining how Onkalo stores waste safely.

Debate: Split the class: argue Finland should open Onkalo soon vs wait for more testing; 8 minutes prep, 6 minutes debate.

IV. ANSWER KEY OVERVIEW

Comprehension questions: short factual answers from the text.

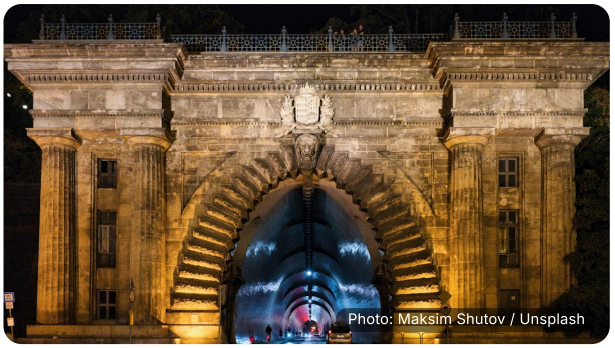
Grammar exercise: Both/either/neither

Discussion: open-ended. Accept any reasonable ideas supported by examples and reasoning.

Answer Key

TEACHERS ONLY

These answers are for teachers only. Please do not share this page with students.


Photo: Maksim Shutov / Unsplash

IV. COMPREHENSION QUESTIONS

1. What major step did Finland take for the Onkalo facility?
   It granted an operating licence.
2. Where in Finland is Onkalo located?
   On Olkiluoto island in western Finland.
3. Who must verify and approve the tests before opening?
   STUK, the radiation safety authority.
4. How much uranium can Onkalo store?
   6,500 tonnes of uranium.
5. Which other countries are building final repositories?
   Sweden and France.

V. DISCUSSION

Open answers. Accept any reasonable ideas supported by examples and reasoning.

VII. GRAMMAR EXERCISE

Circle the correct option in each sentence.

1. Both canisters (is / are) sealed before lowering. **are**
2. Neither the clay nor the plug (are / is) made of copper. **is**
3. Neither test nor inspection (is / are) skipped. **is**
4. Both the canisters and the plug (keeps / keep) the waste safe. **keep**
5. Either a hole or a tunnel (is / are) mentioned in the article. **is**

VI. GRAMMAR FOCUS

Key point: Both ... and + plural verb. Either ... or / Neither ... nor: the verb agrees with the nearer subject (proximity rule). Two singular parts → singular verb; if the nearest part is plural → plural verb. (Examples constructed.)

> *"**Both tests and inspections are** required before opening."*
>
> *"With no set date, **neither day nor month is** confirmed."*