

Mercury and Minamata mystery

Class: Middle school/high school

Level: Upper-intermediate.

Time : 45 minutes

Aims:

- To learn about mercury as an element
- To learn about mercury poisoning
- To learn about Minamata mercury poisoning
- To learn vocabulary connected with elements
- To look for specific information on the internet
- To read for specific information
- To transfer the information.
- To use web pages

CLIL: Ecology, Biology, Chemistry

Materials : included photocopies, access to the internet and personal computer, speakers.

STAGE	AIMS	PROCEDURE	CLASSROOM LANGUAGE	TIME	MATERIALS
Introduction	To start the lesson	Check the register /check homework		1 min/ 6 min	
Warm –up activity	To provide students with introduction to the topic	Tell the students the lesson will be about elements , ask if they know any elements and what they know about them.		5 min	
The main part of the lesson	To learn about mercury	Put the students in pairs, ask them to read the questions. Explain any difficult vocabulary. Allow time for the research. Check the answers as a class.	<p>In pairs go online and find answers to the questions about mercury:</p> <ul style="list-style-type: none"> • What is 80Hg? What do they symbolize? • What are other two names for mercury ? • What element category is mercury? • What is the standard physical state of mercury? • Where is mercury used? • Does mercury occur naturally in the environment? • Why is mercury dangerous to humans? 	10 min	Worksheet 1 Internet
	To learn about mercury in the	In pairs students read the quote, analyse the diagram and understand how mercury accumulates in ground water	Look at the diagram and read about mercury pollution. What is the process of mercury	10 min	

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	environme nt	and fish. Students check which fish is safe to eat.	accumulation in fish ? Go to http://thefisheriesblog.blogspot.com/2012/10/mercury-in-fish-what-should-i-eat.html and check which fish is safe to eat and which to avoid.		
	To learn about Minamata mercury poisoning.	Students work in pairs and read about mercury poisoning in Japanese village of Minamata. Check the answers as a class.	Mercury poisoning is very dangerous and the symptoms may include heart problems, skin allergies, nervous disorders among many. Go online and read about one of the greatest environmental disasters and the Minamata Disease. <ul style="list-style-type: none"> • Where did the disaster happen? • When was that? • How did it start ? • What were the symptoms? • How many people were affected by the incident? • What was the cause of the Minamata disease? 	10 min	
Wrap- up	To revise and summarise the lesson	Ask the students to write 5 sentences about what they have learnt today.		5 min	

Sources:

<http://thefisheriesblog.blogspot.com/2012/10/mercury-in-fish-what-should-i-eat.html>

<http://www1.umn.edu/ships/ethics/minamata.htm>

<http://www.einap.org/envdis/Minamata.html>

[http://en.wikipedia.org/wiki/Mercury_\(element\)#Toxicity_and_safety](http://en.wikipedia.org/wiki/Mercury_(element)#Toxicity_and_safety)

<http://www.eoearth.org/view/article/154567/>

<http://www.epa.gov/hg/about.htm>