SCHOOLS GO GREEN

Co-funded by the Erasmus+ Programme of the European Union

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Project number: 2020-1-DE03-KA201-077258

Water Resources Protection and Management

Scoala Primara EuroEd

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LESSON PLANS FOR TEACHERS

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Project Information

PROJECT: Schools Go Green

PROJECT TITLE: DEVELOPING A WHOLE-SCHOOL APPROACH TO PROMOTE SOCIAL CHANGE AND SUSTAINABLE DEVELOPMENT AS A RESPONSE TO ENVIRONMENTAL CHALLENGES

ACRONYM: SCHOOLS GO GREEN

PROJECT WEBSITE: https://schoolsgogreen.eu/

PROJECT NO.: 2020-1-DE03-KA201-077258

PROJECT COORDINATOR: LEIBNIZ UNIVERSITAT HANNOVER, GERMANY

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Module: Water Resources Protection and Management

Topic 1 Title: Introduction	
Lesson Plan 1 – Introduction into Water Resources Topic	
Duration: 45 Minutes	
Short Description of the Lesson	**Introduction to the main topic of the Module** **Water around us and its importance** This activity is important to start with. It serves as a tool to find out the state of knowledge in the classroom. It means you will find out what children already know about water. You can later build on their knowledge in the following activities. Pupils realize different forms of water. They are aware of places where they can find them. You can adjust the questions according to the thematic plan of your subject. Some questions should seem too easy or too difficult. It is up to each teacher to manage a dialogue.
Learning Goals	The important goal is to find out what children already know, what you can use to build further knowledge, what should be repeated and what is completely new for them.
Green Competences Linked	• material use and impact quantification • impact and use minimisation • procurement and selection
Target Group	Primary school students aged 6-9 years old
Educational Approach	Classroom Setting, Presentations and Discussions
Link to School Curricula (if applicable)	Sciences in the Romanian Curricula, Ministry of Education https://www.edums.ro/invpresc/Curriculum-pentru-invatamantul-prescolar.pdf ; https://www.edu.ro/
Facility/ Equipment	• Classroom • White board • YouTube access
Tools/ Materials	• Paper, pencils
Main Tasks	1. Searching for pupils' experience with water (preconcept) – the goal is to find out the state of knowledge. Do pupils know where they can find water? Do they know it has different forms and functions? • Where can you find water at home? • Where can you find water at school?

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	• Where can you find water in the city? • Do you know where water comes from? • Do you know what happens with water after rain? • Why do we need water? • Who else needs water? Dialogue - whiteboard for writing ideas Children can speak about their own experience and the world around them. They can share it with the group. 10-15 min 2. Drawing – specific picture about water, building of knowledge The topic for drawing can be: • water in the household, • water in the landscape, • water in the city, • positive experience with water, • animals and water Drawing, creating a product Activity is on the side of the pupils, they can draw. 15–20 min Papers and pencils for pupils 3. Summary – anchoring of knowledge This activity varies depending on the lesson time left. It can be a very short summary of the knowledge and information that were mentioned in the lesson or it can be a longer activity that will help pupils to remember the information better. Monologue plus visual elements (https://www.youtube.com/watch?v=c-3KCzxEgek) Could be some summary on paper or a picture/video Tell pupils they will remember it better if they revise. If they get a picture it could also be motivating. Pupils should be able to: • name where they can find water around them, • explain why water is important (for people, animals, etc.), and • understand that water is rare. 10-15 min 4. Homework – E-card – ask students to complete an E-card (use ANNEX 1 as model) at home, they can resume the things they have learned.
Extracurricular Activities	ANNEX 1 E-card

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Module: Water Resources Protection and Management

Topic 2 Title: Properties of Water	
Lesson Plan 2 – Properties of Water **Three States of Water**	
Duration: 45 Minutes	
Short Description of the Lesson	Three States of Water Students explore and discover another one of water's unique property – its ability to exist in three different states.
Learning Goals	This lesson aims to develop students' observation skills to identify and explain water - its characteristics and properties. The suggested learning sequence will: • explore using physical senses to discover the characteristics of water • develop observation and communication skills to describe water • explore water's unique properties • discover the three states of water. Students will explore and develop an appreciation for water's unique qualities.
Green Competences Linked	• management systems (waste, energy, water) • quantification and monitoring (waste, energy, water)
Target Group	Primary school students aged 6-9 years old
Educational Approach	Classroom Setting, Presentations and Discussions
Link to School Curricula (if applicable)	Sciences in the Romanian Curricula, Ministry of Education https://www.edums.ro/invpresc/Curriculum-pentru-invatamantul-prescolar.pdf ; https://www.edu.ro/
Facility/ Equipment	• Classroom • Internet access • Projector • White board
Tools/ Materials	• PowerPoint Presentation • Printed sheets with ANNEX 2 • 3 transparent containers with lid • Ice, water (cold and hot)
Main Tasks	1. Using a PowerPoint or a simple presentation and everyday objects describe the characteristics that define each state – solid, liquid, gas (save water for the practical investigation).

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	Solids – a wooden block or toy, keeps and holds their shape. Liquids – oil, syrup, soap or sanitizer takes the shape of their container. Gases – blow up a balloon, bubbles or light a match or an incense stick (consider allergies) to see smoke spread and move around freely. 20 min 2. Activity: Practical investigation – ANNEX 2 What are the states of water? Preparation: Prepare the following for a class demonstration or in groups. a. Fill one container halfway with water and secure the lid. b. Fill a second container halfway with ice cubes and secure the lid. c. Place a lid on the third empty container. Practical investigation: Use the demonstration to identify the different states and how each state fills and react with space. 1. Pass the containers around the class. Ask students to consider: Do all the containers contain water? Decide which contains– solid, liquid or gas. 2. Students draw or describe why they classified the containers as a particular state or using Water senses Worksheet – ANNEX 2, to scaffold their discussion. In pairs or as a class, discuss, share and compare. 3. Using the PowerPoint explore how water can exist in three different states and discuss how the empty container represents water too. Optional - show water is in the air using a kettle or breathing onto a mirror. 20 min 3. Summary – anchoring of knowledge How does water change states? Water changes forms depending on temperature changes. Can other object change states? This activity varies depending on the lesson time left. It can be a very short summary of the knowledge and information that were mentioned in the lesson or it can be a longer activity that will help pupils to remember the information better. 10-15 min
Extracurricular Activities	ANNEX 2 Water senses

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Module: Water Resources Protection and Management	
Topic 3 Title: Water resources on Earth	
Lesson Plan 3 – Water resources on Earth	
Duration: 55 Minutes	
Short Description of the Lesson	Water resources on Earth To build students' understanding of water on Earth, it's limited availability and that there are different types of water and usable amounts.
Learning Goals	The suggested learning sequence will: • investigate the distribution and location of water on a range of scales on Earth • explore the difference between water sources – freshwater, saltwater and the useable amounts on Earth • recognise that drinking water can come from a mix of water supply sources • engage and connect students with their local waterways.
Green Competences Linked	Students will appreciate that all the water on Earth is all that we have. Water is precious. This will build a foundation for understanding the water cycle, water saving behaviours and caring for water.
Target Group	Primary school students aged 6-9 years old
Educational Approach	Classroom Setting, Presentations and Discussions
Link to School Curricula (if applicable)	Sciences in the Romanian Curricula, Ministry of Education https://www.edums.ro/invpresc/Curriculum-pentru-invatamantul-prescolar.pdf ; https://www.edu.ro/
Facility/ Equipment	• Classroom • Internet access • Projector • White board • PC/Tablets or Geography globe
Tools/ Materials	• PPT Presentation, also in printed form • Other Resources: Google Earth and Google Maps • YouTube access https://www.youtube.com/watch?v=bW2kFQzlu5o
Main Tasks	1. Using a PowerPoint presentation engage students to answer to the following questions:

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	• What does the blue on the Earth represent? • Where is water on Earth? • How much water is on Earth? • Is all water the same? • Does ice count as water? • Where is water in your country? Is water near you? 20 min 2. Students explore the Earth's surface on PC/Tablets or Geography globe. They should identify features such as the seven major continents, five oceans. Find examples of lakes, rivers, snow and glacial ice and consider: What does Google Earth or a world globe show/represent? 15 min 3. Watch the Water on Earth video https://www.youtube.com/watch?v=bW2kFQzlu5o at reduced playback speed (YouTube settings) then visually demonstrate the concept. 10 min 4. Summary – anchoring of knowledge This activity varies depending on the lesson time left. It can be a very short summary of the knowledge and information that were mentioned in the lesson or it can be a longer activity that will help pupils to remember the information better. ***May be left as homework.*** Using the Is it salty or fresh? Worksheet - ANNEX 3, ask students decided which source of water is fresh or salty. 10 min
Extracurricular Activities	ANNEX 3 - Is it salty or fresh? Worksheet

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Module: Water Resources Protection and Management

Topic 4 Title: Relationship between Humans and Water	
Lesson Plan 4 – Relationship between Humans and Water	
Duration: 45 Minutes	
Short Description of the Lesson	**Relationship between Humans and Water** **Water in our body** Starting Point: How much water do we incorporate every day? Main teaching focus: Humans need a lot of water every day. Where do we get this water? Students are led, through guided questioning and observations, that their bodies contain a lot of water
Learning Goals	Students need to consider what needs to be done for all to live in a world where all people have sufficient food and water for a healthy life. The important goal is to find out what children already know, what you can use to build further knowledge, what should be repeated and what is completely new for them.
Green Competences Linked	• quantification and monitoring (waste, energy, water) • procurement and selection • impact and use minimisation
Target Group	Primary school students aged 6-9 years old
Educational Approach	Classroom Setting, Presentations and Discussions
Link to School Curricula (if applicable)	Sciences in the Romanian Curricula, Ministry of Education https://www.edums.ro/invpresc/Curriculum-pentru-invatamantul-prescolar.pdf ; https://www.edu.ro/
Facility/ Equipment	• Classroom • Internet access • Projector • White board • YouTube access
Tools/ Materials	• PPT Presentation, also in printed form
Main Tasks	1. Use pupils' senses to determine if a living thing needs water: Seeing (wilting plants), feeling (thirsty), hearing (a human saying they need a drink). Using a PowerPoint presentation engage students to answer to the following questions: How much water do we incorporate every day?

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	Where do we get this water? Dialogue - whiteboard for writing ideas 10-15 min 2. Drawing – Colour in the body outline to show how much of the body is water (~60%) see ANNEX 4. Drawing Activity is on the side of the pupils, they can draw. Papers and pencils for pupils 15 min 3. Summary – anchoring of knowledge This activity varies depending on the lesson time left. It can be a very short summary of the knowledge and information that were mentioned in the lesson or it can be a longer activity that will help pupils to remember the information better. Monologue plus visual elements (https://www.youtube.com/watch?v=6mMX4fxOJLA) Tell pupils they will remember it better if they revise. If they get a picture it could also be motivating. 10-15 min 4. Homework ANNEX 4_1 - Create A Water Diary Help students understand the importance of water by developing awareness of their own daily consumption. For one day, have students write down all the water or fluids they consume and, if possible, all of their water their family use during the day. Ask them to think about their entries in detail, e.g. do they leave the tap on whilst brushing their teeth? How long to they spend in the shower; how many glasses of water do they drink? Typical activities that require water might include: Morning activities (brushing teeth etc.), Drinks, Cooking food, Bathroom visits, Laundry, Cleaning, Washing dishes, Watering plants etc.
Extracurricular Activities	ANNEX 4 - Colour in the body outline to show how much of the body is water ANNEX 4_1 - Create A Water Diary

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Module: Water Resources Protection and Management

Topic 5 Title: Water resource management (WRM)	
Lesson Plan 5 – Water resource management (WRM)	
Duration: 45 Minutes	
Short Description of the Lesson	**Water resource management (WRM)** This lesson is an introduction to the context and human need for clean drinking water. Many students are unaware that in several parts of the world, clean drinking water is unavailable. This introductory lesson is intended to increase students' awareness of the problem in terms of human health and as a potential source of conflict between nations, especially as the world population grows.
Learning Goals	After completing this lesson students will be able to: • Visualize how much water is available to humans • Explain the importance of water • Understand the problem of water scarcity Pupils realize that it is important to reduce water consumption and they know they should start with their own behaviour. Pupils find it important to share the idea of water savings further.
Green Competences Linked	• quantification and monitoring (waste, energy, water) • management systems (waste, energy, water) • impact and use minimisation • impact assessment • risk management
Target Group	Primary school students aged 6-9 years old
Educational Approach	Classroom Setting, Presentations and Discussions
Link to School Curricula (if applicable)	Sciences in the Romanian Curricula, Ministry of Education https://www.edums.ro/invpresc/Curriculum-pentru-invatamantul-prescolar.pdf ; https://www.edu.ro/
Facility/ Equipment	• Classroom • Internet access • Projector • White board
Tools/ Materials	• PPT Presentation, also in printed form • YouTube access
Main Tasks	1. Display and introduce the definitions of Water resource management (WRM). Managing water resources www.youtube.com/watch?v=vRF39NjdEOY

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	10 min 2. Introduce students to the main water risks Brainstorm What happens when drinking unsafe water? Discuss with your students what their experiences have been (or that they have known about) when someone drinks impure water. Water Safety for your Child www.youtube.com/watch?v=DfjO2Dcg7mY 15 min 3. Introduce students to water crisis Inform students that many people globally do not have access to clean drinking water. The "gap" is a term to describe the difference between the numbers of people who need clean drinking water compared with the number of people who need clean drinking water. Display images with children that don't have access to clean water resources. 10 min 4. Give the students ANNEX 5 – How to save water and ask them to match the sentences to the image. 15 min
Extracurricular Activities	ANNEX 5 – How to save water

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Module: Water Resources Protection and Management

Topic 6 Title: Sustainable Development Goals 6	
Lesson Plan 6 – Sustainable Development Goals 6	
Duration: 45 Minutes	
Short Description of the Lesson	**Sustainable Development Goals 6** Pupils must realize why is important to reduce water consumption and they know they should start with their own behaviour.
Learning Goals	The important goal is to find out what children already know, what you can use to build further knowledge, what should be repeated and what is completely new for them.
Green Competences Linked	• quantification and monitoring (waste, energy, water) • management systems (waste, energy, water) • procurement and selection • impact and use minimisation • impact assessment • risk management
Target Group	Primary school students aged 6-9 years old
Educational Approach	Classroom Setting, Presentations and Discussions
Link to School Curricula (if applicable)	Sciences in the Romanian Curricula, Ministry of Education https://www.edums.ro/invpresc/Curriculum-pentru-invatamantul-prescolar.pdf ; https://www.edu.ro/
Facility/ Equipment	• Classroom • Internet access • Projector • White board
Tools/ Materials	• PPT Presentation • YouTube video
Main Tasks	1. Display and introduce the definitions of Sustainable Development Goal 6 Understand Goal 6: Clean Water and Sanitation (Primary) www.youtube.com/watch?v=qTX28qH5jT4 15 min 2. Explore some of the main reasons it is important to conserve water. Students can take a piece of paper and work individually. Everyone writes down one concrete thing that they will do to save water, plus

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	one thing that they found out about water that they will share with their family and friends. 15 min 3. Discover with the students the water storage solutions. Choose a student to explain at the whiteboard the poster from ANNEX 6 - Store Your Water Safely. 15 min
Extracurricular Activities	ANNEX 6 - Store Your Water Safely.

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ANNEXES

ANNEX 1

E-Card

To: **Subject:** **Dear I am writing to you from** **I have learnt** **Another thing I have learnt is** **The most surprising thing I have learnt is:**	

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ANNEX 2

Put in front of the class the 3 water recipients, like in the example bellow:

Ask students to use their senses and draw or write a description of the water in front of them.

Water senses

Using your senses draw or write a description of the water in front of you.

Name: _____

Water **looks** like…	Water **smells** like…	Water **sounds** like…	Water **feels** like…	Water **tastes** like…

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ANNEX 3

Is it salty or fresh?

Check which box you think is correct.

Where we find water	Saltwater	Freshwater
Ocean		
Lakes		
Kitchen tap		
Puddle		
River		
Rain		
Snow		
Creeks		
Glacier		
Underground		
Sea		
Ice		
Bathroom		
Clouds		
Swamp		

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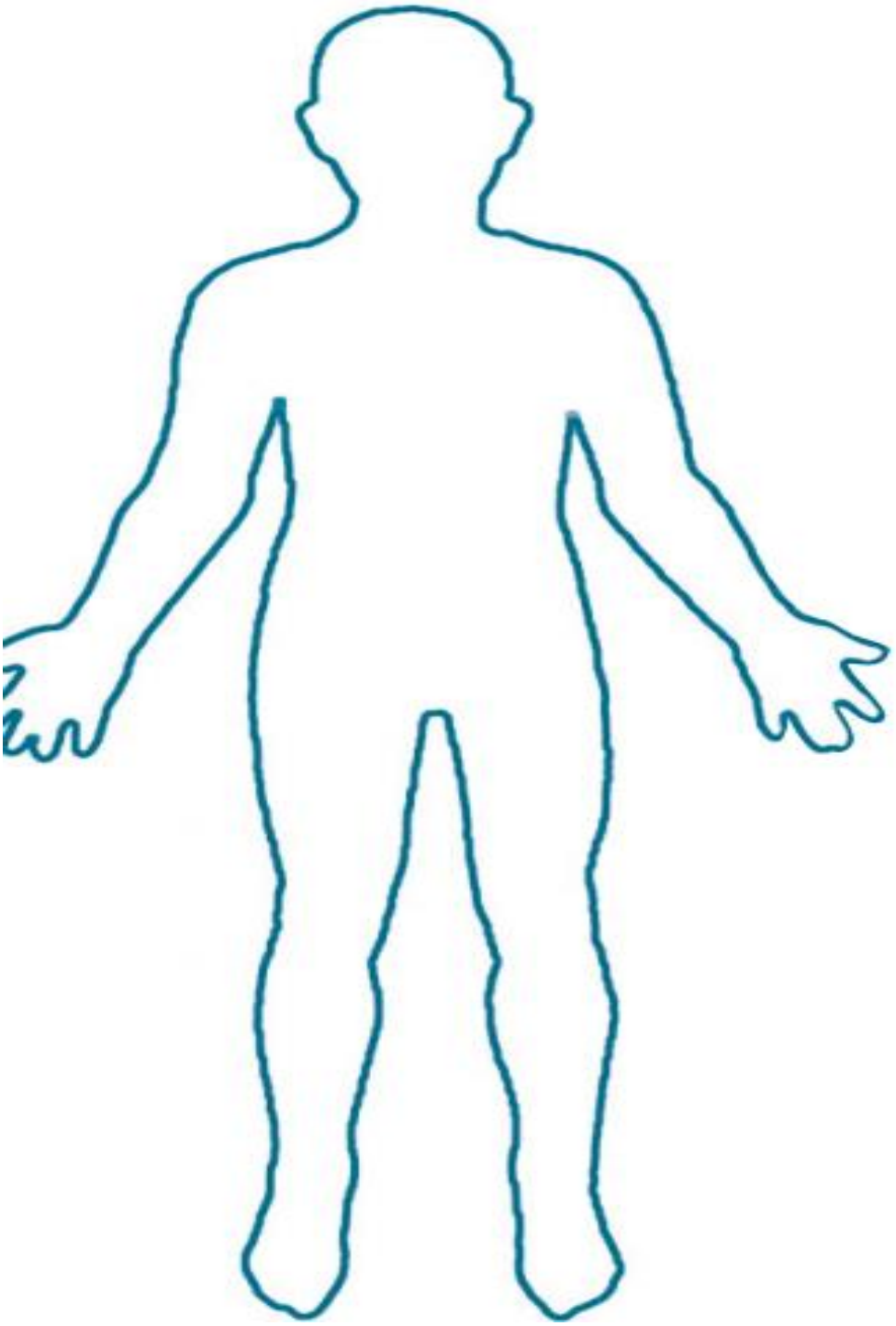
ANNEX 4

Colour in the body outline to show how much of the body is water.



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ANNEX 4_1

Create a Water Diary –

Write down all the water or fluids you consume during the day.

Do you leave the tap on whilst brushing their teeth?

How long do you spend in the shower?

How many glasses of water do you drink?

How many times do you flush the toilet?

Name other activities that you do and include water and how much/many times?

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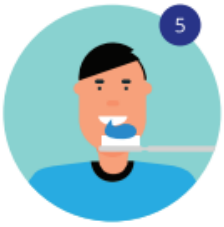
ANNEX 5

HOW TO SAVE WATER

There are many ways that we can help save water

The below images show ways of water being used. Match the senstences to the images, to show how water can be saved.



A Spend less time in the shower.

B Turn off the tap when brushing your teeth.

C Collect rain water in a container for watering plants.

D Put a basin in the sink to wash dishes, then use it to water the plants.

E Fix the leaking water pipe.

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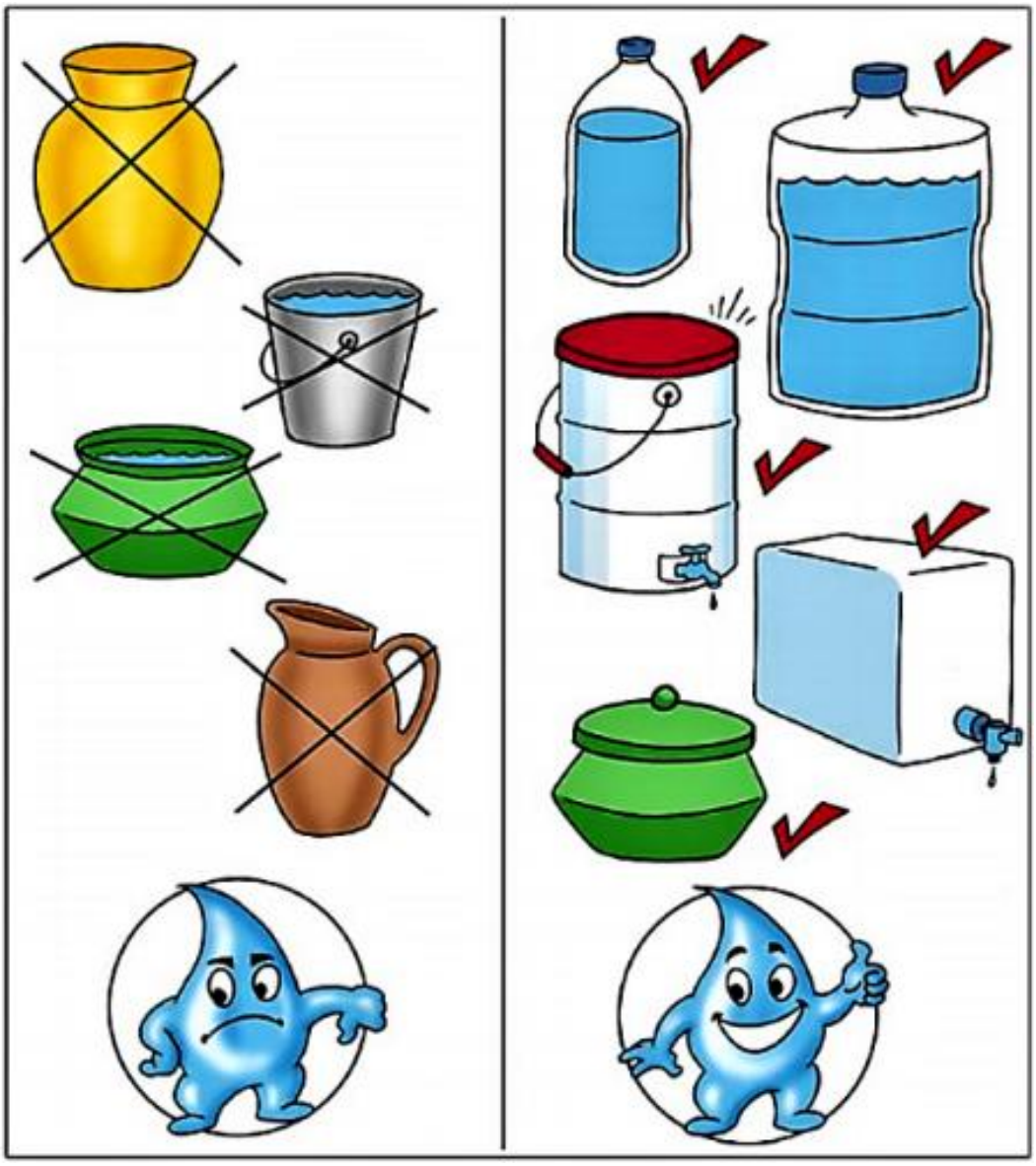
ANNEX 6

Present the poster bellow: Store Your Water Safely. Choose a student to explain the poster:



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