Topic 1- A Precious Water Resource (Key Stage 1)

English voice over script and super:

Super: Topic 1 A Precious Water Resource Key Stage 1

FVO: Topic 1 A Precious Water Resource Key Stage 1

Water Save Dave: Hello and welcome to the world of water resources. I am your tour guide, Water Save Dave, you can call me Dave.

Super:
W = Water
S Supplies
D = Department

Water Save Dave: First, let me introduce myself. Did you notice my “W”-shaped pants, the “S”-shaped mark on my belly, my “D”-shaped mouth, and also my body shape is like a water droplet...? You’ve guessed it! I’m the mascot for the Water Supplies Department, or WSD for short.

Super
March 22
World Water Day
Cherishing water resources
Promoting water conservation

Water Save Dave: I was born on the 22nd of March in 2016, which is also the World Water Day. That’s why I was born for a special mission: to advocate cherishing water resources and promoting water conservation.

Super:
Uses of water
General situation of water resources
Water consumption pattern
Water resources in HK

Water Save Dave: We are here at the world of water resources today, I will first introduce the uses of water, followed by the general situation of water resources all over the world. Lastly, I will introduce the water consumption pattern and water resources in Hong Kong. I hope after the tour today, all of you can learn to cherish water resources.

Super: Water resources?

Girl: Dave, what exactly do water resources mean?

Water Save Dave: Good question! Why don't we watch a video first and have a brief idea of it?

Video (Cantonese voice over)

Super: Water and Humans

MVO: Water is a prominent part of the human body. The body of an adult is made up of more than 60% of water in average. Water has an undeniable role in our biological activities. First, saliva and gastric juice are needed to digest what we consume, then plasma, lymph and related components are responsible for tasks such as absorption, transportation and assimilation, most of them are water. The body also regulates its temperature by respiration and perspiration. Blood circulation also requires water. Therefore, it is important for us to drink sufficient water every day. So how much water should we drink each day? A normal person needs to drink about 2 to 3 litres of water, and up to 4 litres in the summer.

MVO: When our body lacks water, it will send a signal asking for supplementing water, which is what we know as thirst. If a person loses 15% of water in the body, then that person will feel discomforted, or even faint. If not immediately rescued, that person's life may be under threat. Between water and food, water is much more important to humans. Even without food, a person can stay alive with just water for more than 10 days, relying on the stored nutrients in the body. This has certainly reported in the news before, where a man got lost in the wilderness and he sustained his life for more than 10 days with water until he was found.

MVO: In all aspects of our everyday life, nothing can be done without the presence of water. When you wake up, you need water to brush your teeth and wash your face. You also need water for toilet flushing, cleansing, shower, doing laundry, cooking etc.

Water is necessary. In developed countries, water may not be treated as precious resources, citizen may use about 300 litres of water per day in average. But in developing countries, due to the scarcity of rainfall, water is considered as luxury.

Video ended

Water Save Dave: What impression do you have of water resources after watching the video?

Girl: Water is really important to us! We cannot survive without water!

Boy: Furthermore, water is the source of life. Without water, there wouldn't be any lives, humans nor any civilisations on Earth!

Water Save Dave: Both of you are correct! Water is a precious resource to humans. Let me ask you a question. Do you still remember how much water a normal person need to drink in one day? It was just mentioned in the video.

Girl: I know the answer! We normally need to drink about 2 to 3 litres of water, while in the summer, we will need to drink about 4 litres of water.

Super:
15%

Water Save Dave: That's right. People can survive for a period of time without food, but if we lose about 15 percent of water in our body, our health will suffer or it might even threaten our lives.

Super:
Clothing
Food
Housing
Transportation

Water Save Dave: Besides, water is necessary to our daily lives. Here's another question: as mentioned in the video, which parts of our daily lives require water?

Boy: I remember! We need water for teeth brushing, face washing, toilet flushing,

cleaning, bathing, doing laundry, cooking… they all require water!

Water Save Dave: Correct! Apart from them, what are the other uses of water?

Super:
Transportation industry
Agriculture

Girl: Transportation and agriculture. We make use of the buoyancy of the water such that ships and boats can float on the surface of the sea. Through agriculture, we can obtain food to satisfy our needs.

Super:
Manufacturing

Boy: Industries also need water. Water is a significant raw material for many production processes, especially in the chemical industries. Without water, many products cannot be produced.

Super:
Generate electricity
Hydropower
Water
Steam
Generator
Thermal power

Water Save Dave: You two really did pay attention! Well done! In fact, water can also be used to generate electricity! For example, flowing water can turn the blades of a turbine, which spins the generator to provide electricity-- this is called Hydropower. On the other hand, steam from boiling water can also run the turbine to turn the generator, which produces electrical energy-- this is called thermal power.

Girl: I never knew water could have that many uses!

Water Save Dave: Yes! That's why we have to cherish water. Otherwise, we would never know what happens next.

Boy: What do you mean?

Water Save Dave: Water is a limited resource. If we waste it, the Earth would run out of water in one day.

Boy: How is that possible? We have so much water on Earth, it should be more than enough!

Water Save Dave: Let me put it this way. Have you gone swimming at the beach with your family before?

Girl: Of course! I love swimming in the summer!

Water Save Dave: So, have you ever drunk some seawater accidentally while swimming?

Girl: Yes! It was extremely salty!

Water Save Dave: That's right. Seawater contains a very high concentration of salt, therefore it is not suitable for us to consume directly. If our body takes in too much salt, it will be a great burden to the kidneys. That's why we can only drink fresh water.

Girl: So how much fresh water and seawater are there on Earth actually?

Super:
Seawater: 97.5%
Fresh water: 2.5%

Water Save Dave: Let's have a look at the world map here. Even though you may think that we really have a plentiful source of water because two thirds of the Earth's surface is water-covered, the truth is, most of the water you see is seawater, whereas only 2.5% of all water on Earth is fresh water.

Super:
100 glasses
2 and a half glasses

Water Save Dave: Say we have a hundred glasses of water in the world, only two and a

half glasses have fresh water. But still, not all of the fresh water can be used!

Girl: Why?

Super:
Less than 1%

Water Save Dave: Among the fresh water resources in the world, a large part of it is the polar ice caps that have not yet melted. Therefore, the amount of fresh water we can really use is less than 1%.

Girl: Does that mean... if we have a hundred glasses of water, we can't even use one glass?

Water Save Dave: Exactly. What's worse is that the distribution of fresh water across the globe is very uneven.

Boy: How is that so?

Super
China
Russia
USA
Canada

Water Save Dave: Apparently, most of the fresh water resources in the world are concentrated in just a few countries, such as China, Russia, USA and Canada etc.

Boy: Whoa, if they already accounted for most of the fresh water in the world, then the other countries would likely be in shortage of fresh water...

Super:
Africa
Middle East
Geographic and climatic constraints
Lack of fresh water resources

Water Save Dave: That's very true. Regions such as Africa and the Middle East are

threatened by geographic and climatic constraints, therefore their fresh water resources are really scarce, and they are constantly under water shortage. Why don't we watch a video to know more about the situation of water shortage in Africa?

Video

Super:

MVO: Their pictures worth a thousand words. A grandmother worn down by the AIDS virus with a little girl who cares for her. At only 9 years old, she's her grandmother's lifeline to food and to water. It's the water that worries the grandmother most.

Grandmother Mara: I worried about the water because of what we found in it.

MVO: Dorcas is the water-bearer for her grandmother Mara, weak and frail from disease. The water she carries is beyond hideous.

Dorcas: The water that we would drink, you could see the dirtiness just by looking at it. You could tell it's not something you'd want to be drinking.

Grandmother Mara: Dogs, cows and pigs would drink from the same source.

MVO: And not only would they drink from the pond, sometimes the animals would die there.

Dorcas: There was a dog that died inside. We only found out when the skin floated to the top.

MVO: Dorcas and her grandmother suffered from constant diarrhea. Dorcas had missed so much school to take care of her grandmother, and sometimes she herself would be too sick to go.

Grandmother Mara: Dorcas would miss school because of me. I would always be down in bed.

Video ended

Girl: I never thought that some children in the world need to share and drink the same water as pigs and cattle!

Boy: Not just that. As you can see, the water is even contaminated by the dead bodies of animals. That's horrible!

Water Save Dave: That may sound impossible to us living in Hong Kong, but in different parts of the world, this is truly happening to a lot of people, on a daily basis. Even though the water is dirty, that's possibly the only source of water for the local residents. They drink this water just because they have no choice at all. Drinking the unsafe water often causes sicknesses, or even deaths.

Girl: Deaths?

Super:
340000
2.1 billion
No safe drinking water

Water Save Dave: According to the reports of the World Health Organization (WHO) and United Nations International Children's Emergency Fund (UNICEF), every year, 340,000 children under the age of 5 die from diarrhea because of consuming dirty water. In a bigger picture, 2.1 billion people in the world lack access to safe drinking water, which is 3 out of every 10 people in the world!

Water Save Dave: Besides, in order to get the fresh water, people who live in the remote areas, have to walk through long and bumpy routes on foot every day. The average distance that women in Africa and Asia walk to collect water is about 6 kilometres!

Girl: How long is 6 kilometres?

Super:
400m
6km = Laps x 15

Water Save Dave: In terms of a standard 400-metre running track, that is 15 laps!

Girl: I can't even run a lap on the sports ground without panting, but those people need to walk with such a weight on their shoulders, that is absolutely not easy! Not to mention that the water contains impurities and germs…

Boy: What if they place a few buckets right outside their home to collect rainwater? Then they would not have to take such a trek to fetch water. Rainwater might even be cleaner.

Water Save Dave: I like your attempts to solve the problem. However, the problem is not that simple, because rainwater is not something that is always available for them to collect, especially under such extreme weather conditions now, due to global warming. Droughts are much more frequent and fiercer than ever. Some places have very low rainfall year-round, or even get no rainfall.

Boy: No rain? That means no water as well!

Girl: Apart from that, without water for irrigation, crop failure is common. Even drought resistant crops cannot grow well in dry soil due to deprivation of nutrients.

Boy: Both humans and animals need water to survive. So not only do crops die, livestock would too.

Super:
Famine

Water Save Dave: Seems like you both get the idea of it. Crop failure, plus death of livestock, would lead to famine. Just like in East Africa, those people are constantly under the threat of climate change. Because of frequent droughts, nomads who rely strongly on pastureland are under an unprecedented crisis.

Girl: I think we are extremely blessed to be living in Hong Kong, without worrying about the cleanliness of water and water supply.

Super:
Developing countries
Developed countries

Water Save Dave: We really are blessed. But don't let that mislead you to think that water shortage only happens in developing countries. A lot of developed countries also experience such a problem, including those water rich countries we mentioned earlier. They are also facing threats of drought. In fact, water deficiency isn't that

distant of a problem from us!

Boy: Our textbooks always tell us that China holds plentiful resources of every kind. Why is it still under the threat of drought?

Super:
1.4 billion

Water Save Dave: Yes, surely China has relatively more fresh water resources, but don't forget the massive demand from a population of 1.4 billion. Inland areas always experience dry weather and low rainfall, sometimes even drought. That's why I have been telling you how big of an impact of water shortage to our daily lives is.

Super:
2025

Water Save Dave: The whole world is facing a water crisis now. If we don't start implementing water conservation measures to save water, it's forecasted that around half of the world's population will be living in water deficient regions by 2025.

Girl: You always say we need to save water. So how much water are we actually using?

Super:
130 L/day
2L x 65
110 L/day
2L x 55

Water Save Dave: In Hong Kong, the average domestic water usage per capita is about 130 litres a day, which is about 60 big bottles of 2-litre soft drinks! That is not counting the water for toilet flushing. Besides, the world average for domestic water usage per capita is about 110 litres a day, so the water usage in Hong Kong is still considered high.

Boy: Then what is the suggested amount of water use?

Super:
50L – 100L

Water Save Dave: Actually, according to the WHO, 50 to 100 litres can be more than enough to satisfy our daily needs.

Boy: In that sense, we are way above that standard!

Super:
2018
Total water consumption in Hong Kong:
1 billion m^3

Water Save Dave: Yup. Annually speaking, Hong Kong has used up to 1 billion cubic metres of fresh water in 2018.

Girl: Sounds like a massive number. But I have no idea how much that actually is. How much is one cubic metre?

Super:
$1m^3$
1000 L
500 bottles

Water Save Dave: It is equivalent to 1000 litres, that is 500 big bottles of 2-litre soft drinks.

Super:
500 billion bottles

Girl: A billion... that is 500 billion 2-litre soft drink bottles! My goodness, that is an insane amount!

Super:
$2500m^3$
1 billion m^3
400000

Water Save Dave: Let me explain using a simpler example. A world-class swimming pool has 2500 cubic metres of water. 1 billion cubic metres is equivalent to 400,000

swimming pools of water.

Girl: Can't believe Hong Kong people use so much water in a year...

Boy: Where did all this water go?

Super:
Domestic
Service trades
Other
= 1 billion m^3

Water Save Dave: Out of the total fresh water consumption, domestic consumption takes up the largest portion with over 50%. Second is service industries and commercial use of water, such as in restaurants and hotels, taking up a quarter of the total fresh water consumption in Hong Kong. Other uses include using fresh water for toilet flushing, by industries, government establishments, and construction and shipping. Cumulatively, the total fresh water use annually is 1 billion cubic metres.

Boy: We use so much water. Where does all our water come from in the present?

Super:
2018
Rainwater from local catchment 21%
Seawater for toilet flushing 22%
Dongjiang water 57%

Water Save Dave: The water in Hong Kong is mainly supplied by three sources, rainfall collected from local catchments, imported water from Dongjiang in Guangdong and seawater for toilet flushing. In 2018, they make up 21%, 57% and 22% of the total water consumption in Hong Kong respectively.

Girl: I see, only a small portion of water is actually coming from collected rainwater.

Boy: How does the rainfall gathering process work?

Water Save Dave: Rainwater is first collected by water catchments, which then flows into impounding reservoirs. This map shows the distribution of catchment areas and

reservoirs in Hong Kong, yellow indicates the catchment areas. The rainwater collected is directed to reservoirs, indicated by the blue regions.

Girl: What is the largest reservoir in Hong Kong?

Super:
17 Reservoirs
Largest area
Plover Cove Reservoir

Water Save Dave: There are currently 17 impounding reservoirs in Hong Kong. The one with the largest area is the Plover Cove Reservoir. It is also the first “reservoir in the sea” in the world. It was an unprecedented project, and an imposing construction at the time.

Super:
Largest capacity
High Island Reservoir
Most recent

Water Save Dave: As for the largest capacity, that goes to the High Island Reservoir in Sai Kung. That is also the most recent reservoir.

Super:
First reservoir

Girl: Then which one is the first reservoir built in Hong Kong?

Pok Fu Lam Reservoir

Boy: This I know! That is the Pok Fu Lam Reservoir in Hong Kong Island.

Water Save Dave: Correct!

Girl: So how does the water stored in reservoirs reach our home?

Super:
Reservoirs
Water
Treatment
Works
Service
reservoirs
Consumers

Water Save Dave: Rainfall collected in reservoirs, together with Dongjiang water, will be transported to the 20 Water Treatment Works in Hong Kong. After undergoing different stages of treatment, the water is clean enough to be transported to pumping stations, then stored in service reservoirs. Lastly, the water will be supplied to consumers through the water distribution network.

Boy: That sounds complicated!

Water Save Dave: Of course! You should now understand that having a reliable and safe drinking water supply is not a must.

Girl & Boy: Yes, we do!

Water Save Dave: Okay, let me give you a quick test. What have we learnt today?

Super:
Daily necessities

Girl: Water is a very important resource which has a lot of uses and we cannot survive without it. It is one of our necessities.

Super:
Extreme weather
Droughts

Boy: However, the water resources are not evenly distributed across the globe. Also, due to global warming and droughts, many countries are now facing the problem of water shortage. Many people do not have access to clean water like we do.

Water Save Dave: Good! Do you still remember the situation of fresh water consumption in Hong Kong?

Super:
Hong Kong average daily domestic fresh water consumption
130 L

Girl: Yes! The average daily domestic fresh water consumption in Hong Kong is 130 litres per person.

Super:
Others

Boy: The fresh water consumption by domestic use is the highest. Meanwhile, the water is also used for service trades, flushing, industries, government establishments, construction and shipping.

Girl: For the water resources in Hong Kong, they are the rainwater from local catchments, imported water from Dongjiang in Guangdong and the seawater for toilet flushing.

Boy: Most importantly, we have learnt that we should be grateful to have a safe and reliable drinking water supply. Although Hong Kong does not have the problem of water shortage now, many countries do. Therefore, we should cherish water.

Water Save Dave: Very good! We now understand the importance of water resources, let's work hard together on water conservation.

Girl & Boy: Yes, sir!

Super:
Acknowledgements:
Education Bureau
World Vision