Amanda Liles

Aqua Bodies: Why Care About Water?

Lesson length: 60 minutes (one class session)

Setting: Middle school science class

Learner Background: Upper Intermediate Level students

Materials and Equipment: video, worksheets, whiteboard, markers, colored pens with labels, essays from previous lesson

Aims:
Students will be able to:

- read texts and identify articles
- identify patterns related to the meaning and use of definite, indefinite and zero articles
- distinguish between informal and formal texts (differences in register)
- comprehend and produce structures with articles appropriate to a formal register used in relevant scientific texts
- identify the amount of water in the human body and recognize the role it plays in keeping the body functioning properly

Time	***Procedures/ T Actions***	***Materials/Equipment***
3-5 minutes	**Business + Attendance** • Make announcements • Take attendance while collecting homework	• Attendance sheet
3-5 minutes	**Warm-Up** • Go over the lesson sequence (write on the board before class..*Warm-up/pre-task: Video, Reading the text (What's missing?); During task activities: Gap fill, Jigsaw; Post-task: Class discussion of answers, homework assignment*). • Tell students that today we are starting a new unit called "Why Care About Water?" and now we will watch a short video about the important role water plays in keeping our bodies functioning properly. • Play the video.	• Whiteboard, video, projector
5-7 minutes	**Pre-task (What's missing?)** • Pass out the worksheet and ask students to look at Part 1 (*Make sure students don't look at the next page because Part*	• Worksheet

	2 would give away the answers). • Read the directions aloud and have students read the passage and fill in the blanks. • Call on students to say what words are missing *Answer: articles. The, a/an.*	
15-20 minutes	**During task (Gap fill)** • Ask students to turn the page to Part 2. • Split students into groups of four. • Give each student a different color pen each with a different label: a, an, the, ∅ • Tell the students they should read the passage aloud and stop to fill in the blanks with the correct articles. Tell them to write ∅ if they think no article is necessary in a given space. • Review the correct answers with the whole class once every group is finished. • Ask students if they noticed a pattern for where, when and why each article was used. • Provide explanations to fill in the gaps as needed: *Articles always occur before noun phrases. A, an, the, and ∅ are used differently depending on first use of a noun phrase, plural/singular, count/non-count. Proper nouns don't need articles preceding them.*	• Worksheet, pens with labels
15-20 minutes	**During task (Jigsaw)** • Ask students what happened to the text when the articles were deleted and make a list of their responses on the board. *Possible answers: It wasn't specific. It was confusing. It didn't seem correct. *Guide students to the idea that the text seemed less academic or formal to transition to the next activity focusing on register.* • Tell students to turn to Part 3 of their worksheet. • Call on a student to read the directions. • Go over the example as a class. • Assign each group of four students a text(s). • Circulate to help students as they are reading the texts and discussing and	• Worksheet, whiteboard

	writing their answers. • Regroup the students so there is one student from each of the previous groupings in the new groups. • Tell students to talk about their texts and share their answers with their new groups. • Ask students to take notes while their classmates are speaking.	
5-10 minutes	**Post task (Review answers and homework assignment)** • Come together as a whole class to review the answers and make a list of characteristics of formal and informal writing on the board. • Tell students that they should keep these characteristics in mind as they are writing for this class. • Return students' essays from last unit and for homework ask them to edit their writing by paying close attention to their use of articles. Remind them to strive to write in a formal register.	• Worksheet, essays

Appendix A: Student Worksheet

Name: _____ **Date: _____**

Why Care About Water?

We all drink water when we become thirsty, but we rarely think about the importance of water in our bodies.

Part 1: Look at the text below that was taken from the video. Some of the words have been deleted. Can you identify what words are missing? Write examples of the missing words in the spaces provided.

_____ _____ _____

What If You Stopped Drinking Water?

The initial signs of dehydration are obvious dry mouth, following which your urine becomes darker with stronger odor, as your body attempts to conserve more fluids. The lack of H_20 then begins to affect your brain. You may feel lightheaded; have slower response time and decreased ability to feel pain.

In fact, when you're dehydrated, your brain tissue literally shrinks. In studies observing hydrated versus dehydrated participants, same task required more brainpower and oxygen in dehydrated individuals compared to those fully hydrated. After day or two with no fluids you'll stop peeing all together, have trouble swallowing, suffer from muscle spasms and likely experience nausea.

After all, your body can survive without food much longer and attention to digestion is not priority at this point. Eventually, victims may become delirious with severely impaired brain function.

Part 2: Work with your group members to write in the missing articles: a, an, the, or ∅(for zero article). The first one is done for you.

Every living organism we know of requires water to survive. It's part of 1) _the__ reason we look so feverishly for 2)_____ water on other planets, across 3)_____ universe and consume it consistently every day here on 4)_____ Earth. So what would happen to your body if you stopped drinking 5)_____ water? Of course, when we say 'water' we're including all fluids, which simply contain water like juices, pop, or tea.

Much like desire to breath in oxygen, thirst is 6)_____ survival instinct. H_20 is the most abundant molecule in the human body making up, on average, 65% of 7)_____ adult. As a universal solvent, it carries 8)_____ nutrients and hormones through body, regulates body temperature, cushions our joints and even lubricates our eyes. You produce around 1.5 liters of urine every day, with another liter lost from breathing, sweating, and pooping.

So it's essential that the body replaces this liquid. The thirst center of 9)_____ brain is located in the hypothalamus and is constantly using sensors in your blood vessels to monitor 10)_____ amount of sodium and other substances in your body. For example, if you sweat too much, your blood volume and pressure fall. The brain then detects this change and creates 11)_____ urge to drink something now. So what happens if you are unable to satisfy this thirst?

Part 3: Read the text(s) assigned to your group. Then work with your group members to answer the questions. Be prepared to explain your answers to the members of a different group.

Example:

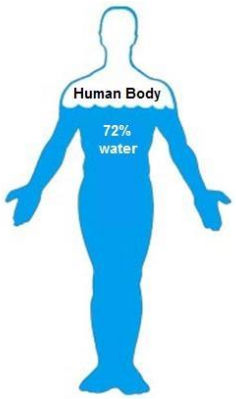
Water is the major constituent of the human body, since about 60 percent of adult body weight is due to water. Water content varies depending on age, gender and body composition. In infants and children, the percentage of water is higher than in adults. Given the large percentage of water in the human body, it is not surprising that water plays an extremely important role in many of the body's critical functions.

1. Identify whether the text is formal or informal. Can you guess where it might have come from? ***I believe the text is formal and think it came from a science textbook.***

2. Why do you think it is formal or informal? What aspects of the language helped you guess how formal or informal the writing is? Give at least two examples. ***I think it is formal because it has scientific terms like "constituent" and "composition" that people don't use in casual conversations or when writing everyday notes or messages. The paragraph has articles like "the" and "a" so it seems impersonal. If it was more personal or informal the writer might say "my body" or relate the information to her own life instead of writing about humans in general.***

Group A

Without water, your body would stop working properly. Water makes up more than half of your body weight and a person can't survive for more than a few days without it. Why? Your body has lots of important jobs and it needs water to do many of them. For instance, your blood, which contains a lot of water, carries oxygen to all the cells of your body. Without oxygen, those tiny cells would die and your body would stop working.



1. Identify whether the text is formal or informal. Can you guess where it might have come from?

2. Why do you think it is formal or informal? What aspects of the language helped you guess how formal or informal the writing is? Give at least two examples.

Group B

Your body doesn't get water only from drinking water. Any fluid you drink will contain water, but water and milk are the best choices. Lots of foods contain water, too. Fruit contains quite a bit of water, which you could probably tell if you've ever bitten into a peach or plum and felt the juices dripping down your chin! Vegetables, too, contain a lot of water — think of slicing into a fat tomato from the garden or crunching into a crisp stalk of celery.

1. Identify whether the text is formal or informal. Can you guess where it might have come from?

2. Why do you think it is formal or informal? What aspects of the language helped you guess how formal or informal the writing is? Give at least two examples.

Group C

When your body doesn't have enough water, that's called being dehydrated. **Dehydration** also can keep you from being as fast and as sharp as you'd like to be. A bad case of dehydration can make you sick. So keep that water bottle handy when the weather warms up! Not only does water fight dehydration, but it's awfully refreshing and has no calories.

1. Identify whether the text is formal or informal. Can you guess where it might have come from?

2. Why do you think it is formal or informal? What aspects of the language helped you guess how formal or informal the writing is? Give at least two examples.

Group D

1

BUT salt water is bad for its skin n causes irritation to eyes n severe dehydration. This baby elephant prolly died.

Wishing I was at a beach right now.

2

I used that same filter in NY too to avoid **contaminations** but man the hard **water** in cali is no joke. So noticeable!

1. Identify whether the texts are formal or informal. Can you guess where they might come from?

2. Why do you think they are formal or informal? What aspects of the language helped you guess how formal or informal the writing is? Give at least two examples.

Group E

1

HOW many glasses of water a day do you drink? I am a terrible water drinker and would like to change that! Who wants to join the challenge? This week we will start by waking up and drinking 8 oz of water. Can you do that?

2

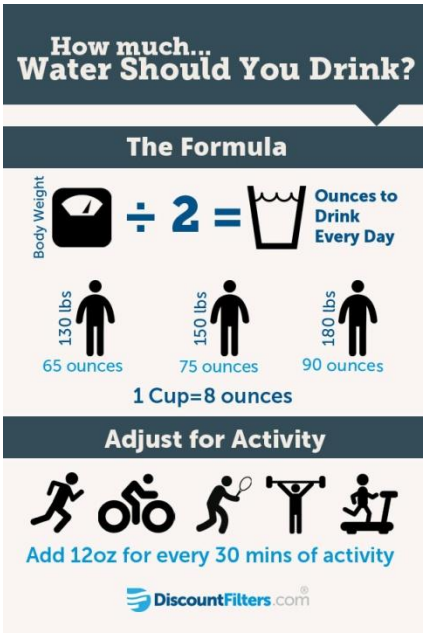
1. Identify whether the texts are formal or informal. Can you guess where they might come from?

2. Why do you think they are formal or informal? What aspects of the language helped you guess how formal or informal the writing is? Give at least two examples.

Group F

1 Water intake must balance water loss. To maintain water balance—and to protect against dehydration, the development of kidney stones, and other medical problems—healthy adults should drink at least 1½ to 2 quarts (about 2 liters) of fluids a day (about 2 liters) of fluids a day.

2 Water represents on average 60% of the body weight in adult men, and 50-55% in women (EFSA 2010; IOM 2004). This means that, for a man of average weight (70 kg), body water content is about 42 liters.



1. Identify whether the texts are formal or informal. Can you guess where they might come from?

2. Why do you think they are formal or informal? What aspects of the language helped you guess how formal or informal the writing is? Give at least two examples.

Appendix B: Video

Retrieved from: https://www.youtube.com/watch?v=zCheAcpFkL8

Full transcript:

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Every living organism we know of requires water to survive. It's part of the reason we look so feverishly for water on other planets, across the universe and consume it consistently every day here on Earth. So what would happen to your body if you stopped drinking water? Of course, when we say 'water' we're including all fluids, which simply contain water like juices, pop, or tea.

Much like the desire to breath in oxygen, thirst is a survival instinct. H_20 is the most abundant molecule in the human body making up, on average, 65% of an adult. As a universal solvent, it carries nutrients and hormones through the body, regulates body temperature, cushions our joints and even lubricates our eyes. You produce around 1.5 liters of urine every day, with another liter lost from breathing, sweating, and pooping.

So it's essential that the body replaces this liquid. The thirst center of the brain is located in the hypothalamus and is constantly using sensors in your blood vessels to monitor the amount of sodium and other substances in your body. For example, if you sweat too much, your blood volume and pressure fall. The brain then detects this change and creates the urge to drink something now. So what happens if you are unable to satisfy this thirst?

The initial signs of dehydration are the obvious dry mouth, following which your urine becomes darker with a stronger odor, as your body attempts to conserve more fluids. The lack of H_20 then begins to affect your brain. You may feel lightheaded; have a slower response time and decreased ability to feel pain.

In fact, when you're dehydrated, your brain tissue literally shrinks. In studies observing hydrated versus dehydrated participants, the same task required more brainpower and oxygen in dehydrated individuals compared to those fully hydrated. After a day or two with no fluids you'll stop peeing all together, have trouble swallowing, suffer from muscle spasms and likely experience nausea.

After all, your body can survive without food much longer and attention to digestion is not a priority at this point. Eventually, victims may become delirious with severely impaired brain function.

Interestingly, studies looking at elderly patients who suffer from delirium found that many are simply suffering from chronic dehydration in the first place. After even more time without water, the blood stops flowing to your skin, reducing heat loss but increasing your core body temperature. This can lead to a grey-bluish tinge to your skin. Beyond three to five days without water, and your body will begin to shut down its organs and eventually the brain.

Of course, unlike the plentiful oxygen we breathe, only 2.5 percent of all of Earth's water is fresh; most of which is locked up in glaciers, ice caps and underground lakes known as aquifers,

leaving less than 1 percent available for drinking. And most of this water is actually used to grow crops. Approximately 500 billion liters of freshwater is used daily for agriculture in the USA alone with another 500 billion liters to cool electric power plants.

And as our personal drinking sources become increasingly contaminated, over 783 million people on Earth are unable to access clean water. Scientists around the world are trying to find solutions to this problem. From attempts to remove salt from ocean water, tap into underground aquifers and creating innovative water filtration systems. If we look to space, NASA has developed technology for astronauts to turn their urine into water more pure than what we drink on Earth.

But we can't just rely on science and technology. Perhaps the solution relies on us as a species to understand and contribute to this global water crisis. If you want to help in the mission to end global thirst, join in World Water Day on March 22nd.

There are a lot of really amazing projects out there like Water.org or even the awesome UNICEF app, which donates one day of clean water to a child in need for every ten minutes you put your phone down. We'll leave links in the description for these and other great water charities. Small investments really do make a huge difference.

We'll be donating all the proceeds from this video to a water project close to us called Morocco 5 Villages. So thanks for supporting and watching. And subscribe for more weekly science videos.