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NOTE: I have provided the article with and without questions. Included is also options for optimized single-sided or double-sided printing. Choose which one you prefer.

- For Single-Sided Article Printing with Questions Print pages #7 & 8
- For Single-Sided Article Printing without Questions Print pages #7 & 9
- For Double-Sided Article Printing with Questions Print pages #7 & 10
- For Double-Sided Article Printing without Questions Print pages #7 & 11
- Suggestions for Implementation are on Page # 6
- Answer Key is on Page # 12

The Articles: I love using articles to help support classroom resources, however, it is often a challenge to find good articles that engage students as well as ones written in a language that they can understand. Online sources are sometimes risky because the links to them may fail in the future. Formatting online articles to print is also sometimes a challenge and can waste a lot of paper. Text books usually have case studies that are too short to be useful.

Due to these types of frustrations, I have written a collection of engaging science reading articles to help make no-prep articles ready at your disposal. They are also great for sub plans. Please enjoy!
**SUGGESTIONS FOR IMPLEMENTATION**

**SCIENCE CLASSROOM USES**

**All Grades:**

1) **Sub plan** – no prep printable; easy to assign and collect.
2) **In school suspension plan** – have something ready for these difficult days.
3) **Independent work for early finishers** – always have a set of printable articles with questions handy.
4) **No prep extra credit assignment** – easy to assign and mark.
5) **Warm up at the beginning of class** – start your day with science literacy.
6) **Assign at the beginning of the week and take up at the end of the week** – get a reading routine going.
7) **Assign as homework and take up next day.**

**Younger Grades: (Gr. 7-10)**

1) **Read along with the class or with student volunteer readers.** Give time for students to work on answers individually or in small groups. Take up answers after. (30-45 minutes)

**Older Grades: (Gr. 11 & 12)**

1) **Individual warmup work at the beginning of the class.** Take up answers at the end of the warm up period or at the end of class. (15-25 minutes in class)
2) **Individual warmup work at the beginning of the class.** Assign questions for homework and take up the next morning. (10-15 minutes in class)

**ELA CLASSROOM USES**

Use the article as a non-fiction informational text for close reading. Questions have been provided but you can choose to include your own reflection questions for more in-depth analysis.
THE TRUTH BEHIND BOTTLED WATER

(1) Even though your tap water is most likely clean and safe to drink, you’ve probably used a lot of bottled water in your life, or know people who do. Why would anyone pay for bottled water when they have easy access to drinking water in their home? Our modern day concept of bottled water only began when the French company, Perrier, expanded into the North American market in 1976. They began an intensive advertising campaign to convince Americans that bottled water should be a significant beverage choice. Up to that point, almost everyone got their drinking water from wells or their taps and would never think of buying bottled water.

(2) Initially it was hard for bottled water companies to convince the average citizen to pay for water, so these companies began marketing campaigns that made tap water seem unhealthy and bottled water seem like the safer choice. Huge bottled water brands like Dasani (owned by Coca-Cola) and Aquafina (owned by Pepsi) now admit that they use tap water in their bottles, though years of misleading marketing have made most consumers think that bottled water comes from a superior and healthier natural source. For example, the brand Everest Water isn’t from Mount Everest, it’s from Corpus Christi Texas, and Glacier Clear isn’t from a glacier, it’s from taps in Greenville Tennessee.

(3) Why have 30% - 40% of bottled water companies decided to use tap water? It’s because they recognize that tap water is safe and also very cheap. They can make huge profits by charging consumers a large price for something that’s very inexpensive for them to make. Manufacturers spend less than 10 cents to make one bottle of water while they charge consumers $0.99 to $2.50 to buy it. Per liter, bottled water is more expensive than the gasoline we put in cars. Bottled water companies have been so successful that bottled water now outsells alcohol, juice and soda in North America. North Americans spend over $16 billion on bottled water a year.

(4) Bottled water is usually contained in PET / PETE bottles. PET is short for polyethylene terephthalate which is the most common type of plastic used for soda, juice and water containers. You will find a number 1 on the bottom of a PET bottle which indicates that the material is PET and can be recycled. PET has been the material of choice for plastic bottles because it seals in liquids, is lightweight, impact resistant and can be made transparent. It’s also cheap for manufacturers to make so this helps keep their costs down and keeps their profits high.

(5) PET is a pretty remarkable material, but it has its downsides. PET is made from naphtha, which comes from non-renewable fossil fuels like natural gas and petroleum. Though it’s recyclable, only 60%-70% of PET plastic bottles make it into the recycling system, and for those bottles that are recycled, most are actually “down-cycled”. This means that used plastic bottles are turned into a lower quality materials that aren’t as strong as the original PET. Once PET has been down-cycled into another product, it usually isn’t strong enough to be down-cycled again after that product is no longer of use. That’s when it ends up in a landfill. Down-cycled PET materials are typically used to make furniture, carpets and polar fleece for clothing.

(6) Before the adoption of plastic beverage bottles, most beverages came in refillable glass containers. To this day, some places in North America still accept glass wine and beer bottle returns. When this happens, the average beer bottle is cleaned and refilled up to 15 times before it finds itself broken and in need of recycling. This type of reuse saves a lot of materials and energy because there was no need to make 14 brand new bottles. Refilling
glass bottles is made possible because glass is inert so it doesn't absorb beverage particles like PET does. Glass also holds up well under the high heat needed for the sterilization of the bottle, while PET would just begin to melt. Before the widespread use of PET plastic bottles, beverage containers were thought of as multi-use containers except where cans were concerned. Now we've been convinced to think of most beverage containers as single use and ready for the trash after our last sip.

(7) The problem with this disposable attitude is that all the PET eventually ends up in the landfill or in our oceans. PET doesn’t biodegrade, but it can photodegrade. This means it needs to be exposed to the Sun to break down. Most plastics in landfills are buried so they’ll never be exposed to the Sun. PET that ends up in the oceans is a different matter. Since PET floats, it will be exposed to the Sun, but this causes the PET to break down into toxins and into small pellets that are ingested by marine life. Turtles and other sea creatures are found with bellies full of plastic.

(8) Some parts of the world are beginning to realize that the huge environmental impact of bottled water isn’t acceptable. In 2009, Bundanoon, a small town in New South Wales, Australia, decided that it would be the first town in the world to ban the sale of bottled water. Local governments in San Francisco, Toronto, and over 70 cities around the world have also instituted municipal bans on purchasing bottled water for their employees.

**Article Questions**

1) What did bottled water companies do to convince us to buy bottled water?

2) What is PET and what are some of its properties?

3) What is down-cycling and why is PET down-cycled?

4) When PET photodegrades in ocean ecosystems, why is this harmful?

5) What are some things governments have done to help decrease the harmful impact of PET?

6) What are two things you can do to decrease the number of PET bottles you contribute to landfills? (various answers)
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Article Questions

1) What did bottled water companies do to convince us to buy bottled water?
   They made marketing campaigns that made us think that tap water wasn’t safe and that bottled water was the safer choice. They also led us to believe that most bottled water came from safer natural sources when 30%-40% come from the tap. (2)

2) What is PET and what are some of its properties?
   PET is short for polyethylene terephthalate and it is a type of plastic that is recyclable, waterproof, lightweight, impact resistant and can be made transparent. (4)

3) What is down-cycling and why is PET down-cycled?
   Down-cycling is when something is recycled into a lower quality material. PET is down-cycled because it is difficult for it to be reused as plastic beverage bottles because: 1) the PET doesn’t stand up well to the high heat needed for sterilization and 2) beverage particles get embedded into the plastic and are hard to remove. (5) & (6)

4) When PET photodegrades in ocean ecosystems, why is this harmful?
   When PET photodegrades, it releases toxins and breaks down into plastic pellets that get into the bodies of sea creatures and harms them. Turtles for example end up with bellies full of plastic. (7)

5) What are some things governments have done to help decrease the harmful impact of PET?
   Some towns, like Bundanoon in Australia, have banned the sale of plastic water bottles and some municipal governments have prohibited the purchase of bottled water for their employees. (8)

6) What are two things you can do to decrease the number of PET bottles you contribute to landfills? (various answers)
   Various answers. Common ones might include: convince parents that tap water is safe, starting using refillable water containers, start campaigning to have your school ban the sale of bottled water, get refillable water bottle stations in your school etc.