

## Master Action Plan Template

**Name: Zakiullah**

**Unit Title: The impact of science on environment.**

**Grade Level:** secondary school teachers (science teachers)

**Unit Length:** 3 months duration to train 25 teachers

**Unit Materials & Resources:** Books, charts and related resources of environment

<b>Desired Results</b>	
<b>Goals or Power Standards</b>	
<ul style="list-style-type: none"> <li>• The impact of science on environment</li> <li>• To introduce the environmental concepts in schools(both girls and boys schools)</li> <li>• Teachers trainings based on environmental issues</li> </ul>	
<b>Enduring Understandings</b>	<b>Essential Questions</b>
<p><i>Students will understand that ...</i></p> <ul style="list-style-type: none"> <li>• The concepts of environment</li> <li>• The damage caused by the development of industry</li> <li>• Why clean environment is necessary for life</li> </ul> <p>The teachers will understand that...</p> <ul style="list-style-type: none"> <li>• The teachers will learn the concepts of environment</li> <li>• They will promote the ideas that industries are necessary but we to protect the environment</li> <li>• The teachers will learn how to teach their students about environment and the issues related with environment</li> <li>• How we will be able to make our environment clean.</li> </ul>	<ul style="list-style-type: none"> <li>• How did science develop the world?</li> <li>• What is environment?</li> <li>• How did science effect the environment of the globe?</li> <li>• What will be our role as teachers to give environmental concepts to our students in schools?</li> <li>• How we will be able to give a clean environment to the next generations?</li> <li>• Can we provide an environment free of dust and pollution?</li> </ul>
<b>Knowledge</b>	<b>Skills</b>
<p><i>Students will know ...</i></p> <ul style="list-style-type: none"> <li>• Environment                             <ul style="list-style-type: none"> <li>○ The damage caused by industrial development to the environment</li> </ul> </li> <li>• Why clean environment is necessary for life.</li> </ul> <p><i>Teachers will know ...</i></p> <ul style="list-style-type: none"> <li>• Best pedagogical practices of environment.</li> </ul>	<p><i>Students will be able to understand.</i></p> <ul style="list-style-type: none"> <li>• To go outside the schools arrange the workshops</li> <li>• They will arrange visits to study those areas which are badly affected by industries</li> <li>• They will give the concepts of clean environment to the community.</li> </ul> <p><i>Teachers will be able to understand.</i></p>

<ul style="list-style-type: none"> <li>• The importance of clean environment.</li> <li>• Teach the students about environment and related issues.</li> <li>• How we will be to make our environment clean.</li> </ul>	<ul style="list-style-type: none"> <li>• Use content goals via service learning to enhance student achievement</li> <li>• Collaborate with members of the community to provide learning opportunities to the students</li> </ul>
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**Assessment Evidence**

<b>Performance Tasks</b>	<b>Other Evidence</b>
<ul style="list-style-type: none"> <li>• To go outside the schools arrange the workshops</li> <li>• Teachers will arrange visits to study those areas which are badly affected by industries</li> <li>• They will give the concepts of clean environment to the community</li> <li>• I will conduct writing project</li> </ul>	<ul style="list-style-type: none"> <li>• Teachers will successfully engage students in community partnerships with environmental experts in the community</li> <li>• Teachers will show confidence in reflecting on their teaching practice and altering past unit plans</li> <li>• I will pay visits to the schools under our project and will conduct tests of the students</li> </ul>

**Learning Plan/ Timeline (Include Benchmark Dates for PELI)**

**Learning Activities**

<ul style="list-style-type: none"> <li>• Teachers will read the concepts of environment.</li> <li>• Teachers will visit schools that are currently teaching through service learning</li> <li>• Teachers will develop UBD units</li> <li>• Teachers will teach UBD units and reflect upon them and make necessary changes</li> </ul> <p><b>Division of duration:</b>  <b>3 months duration (September, October, November)</b></p> <ul style="list-style-type: none"> <li>• 1<sup>st</sup> month: During the first three months I will train twenty-five teachers. I will arrange training camp at our school. The training will have the agenda of environmental awareness.  First of all I will teach them the concepts of environment and its related vocabulary. (Three days workshop)</li> <li>• The teachers will learn the concepts and will teach them to the students with help of enquiry method.</li> <li>• 2<sup>nd</sup> month: I will arrange a training program at my school that will be on the purification of water, how to clean our environment, what are the other sources that we can use instead of plastic bags and other dangerous things. (one week program)</li> <li>• 3<sup>rd</sup> month: I will arrange a field trip for the science students and will take test of their skill. We will practically do work for the cleaning of environment.</li> <li>• We will go to the areas which are not good and clean and will try our best to make</li> </ul>
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<b>Duration</b>	<i><b>Before</b></i>	<i><b>During</b></i>	<i><b>After</b></i>
1 <sup>st</sup> month	Pre-test of the teachers based on environmental concepts.	The teachers will learn about the concepts of environment and how to keep our environment clean.	The teachers will give this concept to the students.
2 <sup>nd</sup> month	The students will arrange workshops on environmental pollution and Global warming.	They will demonstrate these concepts in the form of diagrams, and models.	They will demonstrate them to the other students.
3 <sup>rd</sup> month	Field trip to the parks, industrial areas and in schools.	They will demonstrate these things to the other students in other schools.	They will promote the concepts of environment to their surroundings. They will work on the purification of water, cleaning of their surroundings and waste
<p>them clean and fit for health.</p>			

			disposal.

Never doubt that a small group of thoughtful committed citizens can change the world; indeed, it's the only thing that ever has." - Margaret Mead

**you can save your world.**



Definition of environment:







# The Five Most Important Things You Can Do for the Environment

## *Environmental Issues Like Overpopulation, Water Scarcity Require Serious Action*

By [Larry West](#), About.com

- **Have Fewer Children—Overpopulation** is arguably the world's most serious environmental problem, because it [exacerbates all of the others](#). The global population grew from 3 billion in 1959 to 6 billion in 1999, an increase of 100 percent in just 40 years. According to current projections, the world population will expand to 9 billion by 2040, a slower growth rate than during the last half of the 20th century but one that will leave us with many more people to accommodate.

Planet Earth is a closed system with limited resources—only so much fresh water and clean air, only so many acres of land for growing food. As the world population grows, our resources must stretch to serve more and more people. At some point, that will no longer be possible. Some scientists believe we have already passed that point.

Ultimately, we need to reverse this growth trend by gradually bringing the human population of our planet back down to a more manageable size. This means more people must decide to have fewer children. This may sound pretty simple on the surface, but the drive to reproduce is fundamental in all species and the decision to limit or forgo the experience is an emotional, cultural or religious one for many people.

In many developing countries, large families can be a matter of survival. Parents often have as many children as possible to ensure that some will live to help with farming or other work, and to care for the parents when they are old. For people in cultures like these, lower birth rates will only come after other serious issues such as poverty, hunger, poor sanitation and freedom from disease have been adequately addressed.

In addition to keeping your own family small, consider supporting programs that fight hunger and poverty, improve sanitation and hygiene, or promote family planning and reproductive health in developing nations.

- **Use Less Water—and Keep It Clean**  
Fresh, clean water is essential to life—no one can live long without it—yet it is one of the [scarcest and most endangered resources](#) on our increasingly fragile planet.

Water covers more than 70 percent of the Earth's surface, but most of that is salt water. Freshwater supplies are much more limited, and today a [third of the world's people lack access](#) to clean drinking water. According to the United Nations, 95 percent of the cities worldwide still dump raw sewage into their water supplies. Not surprisingly, 80 percent of all illnesses in developing countries can be linked to unsanitary water.

Use only as much water as you need, don't waste the water you do use, and avoid doing anything to taint or endanger water supplies.

- **Eat Responsibly**  
Eating [locally grown food](#) supports local farmers and merchants in your own community as well as reducing the amount of fuel, air pollution and [greenhouse gas emissions](#) required to move the food you eat from the farm to your table. Eating [organic meat and produce](#) keeps pesticides and chemical fertilizers off your plate and out of rivers and streams.

Eating responsibly also means [eating less meat, and fewer animal products](#) such as eggs and dairy products, or perhaps none at all. It's a matter of good stewardship of our finite resources.

Farm animals emit methane, a potent greenhouse gas that contributes to global warming, and raising animals for food requires many times more land and water than growing food crops.

Livestock now use 30 percent of the planet's land surface, including 33 percent of farmland worldwide, which is used to produce animal feed. Every time you sit down to a plant-based meal instead of an animal-based meal, you save about 280 gallons of water and protect anywhere from 12 to 50 square feet of land from deforestation, overgrazing, and pesticide and fertilizer pollution.

- **Conserve Energy—and Switch to Renewable Energy**

Walk, bike and use public transportation more. Drive less. Not only will you be healthier and help to preserve precious energy resources, you'll also save money. According to a study by the American Public Transportation Association, families that use public transportation can reduce their household expenses by \$6,200 annually, more than the average U.S. household spends on food every year.

There are dozens of other ways you can conserve energy—from turning off lights and unplugging appliances when they are not in use, to substituting cold water for hot whenever practical and weather stripping your doors and windows, to not overheating or overcooling your home and office. One way to start is to get a [free energy audit](#) from your local utility.

Whenever possible, choose renewable energy over fossil fuels. For example, many municipal utilities now offer green energy alternatives so that you can get some or all of your electricity from wind, solar or other renewable energy sources.

- **Reduce Your Carbon Footprint**

Many [human activities](#)—from using coal-fired power plants to generate electricity to driving gasoline-powered vehicles—cause greenhouse gas emissions that contribute to climate change.

Scientists are already seeing significant climate changes that point to the likelihood of [serious consequences](#), from increasing [drought](#) that could further [reduce food and water supplies](#) to [rising sea levels](#) that will submerge islands and coastal regions and create millions of [environmental refugees](#).

Online calculators can help you [measure and reduce your personal carbon footprint](#), but climate change is a global problem that requires global solutions and, so far, the world's nations have been slow to find common ground on this issue. In addition to lowering your own carbon footprint, let your government officials know that you expect them to take action on this issue—and keep the pressure on until they do.

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## **Benefits of Glass Recycling: Why Recycle Glass?**

### ***Glass Recycling is Efficient and Sustainable; Saves Energy and Natural Resources***

Glass recycling is both simple and beneficial. Let's start with the benefits of glass recycling:

**Glass recycling is good for the environment.** A glass bottle that is sent to a landfill can take up to a million years to break down. By contrast, it takes as little as 30 days for a recycled glass bottle to leave your kitchen recycling bin and appear on a store shelf as a new glass container.

**Glass recycling is sustainable** Glass containers are 100-percent recyclable, which means they can be recycled repeatedly, again and again, with no loss of purity or quality in the glass.

**Glass recycling is efficient.** Recovered glass from glass recycling is the primary ingredient in all new glass containers. A typical glass container is made of as much as 70 percent recycled glass. According to industry estimates, 80 percent of all recycled glass eventually ends up as new glass containers.

**Glass recycling conserves natural resources.** Every ton of glass that is recycled saves *more* than a ton of the raw materials needed to create new glass, including: 1,300 pounds of sand; 410 pounds of soda ash; and 380 pounds of limestone.

**Glass recycling saves energy.** Making new glass means heating sand and other substances to a temperature of 2,600 degrees Fahrenheit, which requires a lot of energy and creates a lot of industrial pollution. One of the first steps in glass recycling is to crush the glass and create a product called "cullet." Making recycled glass products from cullet consumes 40 percent less energy than making new glass from raw materials, because cullet melts at a much lower temperature.

**Recycled glass is useful.** Because glass is made from natural materials such as sand and limestone, it glass containers have a low rate of chemical interaction with their contents. As a result, glass can be safely reused. Besides serving as the primary ingredient in new glass containers, recycled glass also has many other commercial uses—from creating decorative tiles and landscaping material to rebuilding eroded beaches.

**Glass recycling is also simple**, as I pointed out at the beginning of this article. It's simple because glass is one of the easiest materials to recycle. For one thing, glass is accepted by almost all curbside recycling programs and municipal recycling centers. About all most people have to do to recycle glass bottles and jars are to carry their recycling bin to the curb, or maybe drop off their empty glass containers at a nearby collection point.

## ***Adding Up the Numbers When You Recycle Plastic Products and Containers***

**Dear Earth Talk: What is the deal with plastics recycling these days?**

**Can you explain what the different numbers molded onto the bottom of plastic containers stand for?**

The confusion over what we can and cannot recycle continues to confound consumers. Plastics are especially troublesome, as different types of plastic require different processing to be reformulated and re-used as raw material.

Some municipalities accept all types of plastic for recycling, while others only accept jugs,

Containers and bottles with certain numbers stamped on their bottoms.

### **Recycling by the Numbers**

The symbol code we're familiar with—a single digit ranging from 1 to 7 and surrounded by a triangle of arrows—

was designed by [The Society of the Plastics Industry](#) (SPI) in 1988 to allow consumers and recyclers to differentiate types of plastics while providing a uniform coding system for manufacturers.

The numbers, which 39 U.S. states now require to be molded or imprinted on all eight-ounce to five-gallon containers that can accept the half-inch minimum-size symbol, identify the type of plastic. According to the [American Plastics Council](#), an industry trade group, the symbols also help recyclers do their jobs more effectively.

### **Easy Plastics to Recycle**

The easiest and most common plastics to recycle are made of polyethylene terephthalate (PETE) and are assigned the number 1. They include plastic bottles, coats, sleeping bags and life jackets.

It can also be used to make bean bags, rope, car bumpers, tennis ball felt, combs,

cassette tapes, sails for boats, furniture and, of course, other plastic bottles.

Number 2 is reserved for high-density polyethylene plastics.

These include heavier containers that hold laundry detergents and bleaches as well as milk, shampoo and motor oil.

Plastic labeled with the number 2 is often recycled into toys, piping, plastic lumber and rope.

Like plastic designated number 1, it is widely accepted at recycling centers.

### **Plastics Less Commonly Recycled**

Polyvinyl chloride, commonly used in plastic pipes, shower curtains, medical tubing, vinyl dashboards,

and even some baby bottle nipples, gets number 3. Like numbers 4 (wrapping films, grocery and sandwich bags, and other containers made of low-density polyethylene) and 5 (polypropylene containers used in Tupperware, Among other products), few municipal recycling centers will accept it due to its very low rate of recyclability.

### **Another Useful Plastic to Recycle**

Number 6 goes on polystyrene (Styrofoam) items such as coffee cups, disposable cutlery, meat trays, packing "peanuts" and insulation.

It is widely accepted because it can be reprocessed into many items, including cassette tapes and rigid foam insulation.

### **Hardest Plastics to Recycle**

Last, but far from least,

are items crafted from various combinations of the aforementioned plastics or from unique plastic formulations not common

Usually imprinted with a number 7 or nothing at all,

these plastics are the most difficult to recycle and, as such, are seldom collected or recycled.

More ambitious consumers can feel free to return such items to the product manufacturers to avoid contributing to

the local waste stream, and instead put the burden on the makers to recycle or dispose of the items properly.

# Reusable Bags Are Best for Both Consumers and the Environment

[Plastic Produce Bags](#) [Plastic Plants](#) [Waste Bags](#) [Plastic Recyclers](#) [Styrofoam](#)

The next time the clerk at your favorite grocery store asks whether you prefer “paper or plastic” for your purchases, consider giving the truly eco-friendly response and saying, “neither.”

Plastic bags end up as litter that fouls the landscape, and kill thousands of marine mammals every year that mistake the floating bags for food. Plastic bags that get buried in landfills may take up to 1,000 years to break down, and in the process they separate into smaller and smaller toxic particles that contaminate soil and water.

Furthermore, the production of plastic bags consume millions of gallons of oil that could be used for fuel and heating.

## Is Paper Better Than Plastic?

Paper bags, which many people consider a better alternative to plastic bags,

carry their own set of environmental problems.

For example, according to the American Forest and Paper Association, in 1999 the U.S.

alone used 10 billion paper grocery bags, which adds up to a lot of trees.

## Reusable Bags Are a Better Option

But if you decline both paper and plastic bags, then how do you get your groceries home?

The answer, according to many environmentalists,

is high-quality reusable shopping bags made of materials that don't harm the environment

during production and don't need to be discarded after each use.

[You can find a good selection of high-quality reusable bags online at [reusablebags.com](http://reusablebags.com).

In addition, many organic grocery stores and consumer co-operatives carry reusable shopping bags.]

Experts estimate that 500 billion to 1 trillion plastic bags are consumed and discarded annually worldwide—

more than a million per minute.

Here are a few facts about plastic bags to help demonstrate the value of reusable bags—

consumers and the environment:

- Plastic bags aren't biodegradable. They actually go through a process called photodegradation—
- breaking down into smaller and smaller toxic particles that contaminate both soil and water,
- and end up entering the food chain when animals accidentally ingest them.
- According to the Environmental Protection Agency, more than 380 billion plastic bags are used in

- the United States every year. Of those, approximately 100 billion are plastic shopping bags,
- which cost retailers about \$4 billion annually.
- According to various estimates, Taiwan consumes 20 billion plastic bags annually (900 per person),
- Japan consumes 300 billion bags each year (300 per person),
- and Australia consumes 6.9 billion plastic bags annually (326 per person).
- Hundreds of thousands of whales, dolphins,
- sea turtles and other marine mammals die every year after eating discarded plastic bags they
- mistake for food.
- Discarded plastic bags have become so common in Africa they have spawned a cottage industry.
- People there collect the bags and use them to weave hats, bags and other goods. According to the BBC,
- one such group routinely collects 30,000 bags every month.
- Plastic bags as litter have even become commonplace in Antarctica and other remote areas.
- According to David Barnes, a marine scientist with the British Antarctic Survey,
- plastic bags have gone from being rare in the late 1980s and early 1990s to being
- almost everywhere in Antarctica.

Some governments have recognized the severity of the problem and are taking action to help combat it.

### **Strategic Taxes Can Cut Plastic Bag Use**

In 2001, for example, Ireland was using 1.2 billion plastic bags annually, about 316 per person.

In 2002, the Irish government imposed a [plastic bag consumption tax](#) (called a PlasTax),

which has reduced consumption by 90 percent.

The tax of \$.15 per bag is paid by consumers when they check out at the store.

Besides cutting back on litter, Ireland's tax has saved approximately 18 million liters of oil.

Several other governments around the world are now considering a similar tax on plastic bags.

### **Governments Use the Law to Limit Plastic Bags**

More recently, [Japan passed a law](#) that empowers the government to issue warnings to merchants that

overuse plastic bags and don't do enough to "reduce, reuse or recycle." In Japanese culture,

it is common for stores to wrap each item in its own bag,

which the Japanese consider a matter of both good hygiene and respect or politeness



