

# Earth Bowl Study Guides



Updated 12 April 2015

City of Ashland - Conservation Commission

Earth Bowl - Middle School Environmental Education Challenge

To be held Monday, April 20th 2015 at Ashland Middle School from 6pm to 8pm.

Refreshment provided at event.

Your team must pre register with Mark Weir from the Conservation Commission by email at [markalanweir@gmail.com](mailto:markalanweir@gmail.com).

It is recommended that two members of your team tackle each topic, so they can develop possible questions, quiz each other, and generally double check each others understanding.

There are a lot of questions so please do not get bogged down in any one subject, you will need to split up the studying within your group. All the questions will come from the websites listed in this study guide. If we need to add sites, we will send you an update. Additionally, sample questions are included for each topic but your actual questions may be different from the samples. Samples do not include all the potential questions (there will be more than 3 per topic area). All questions asked during the event will be in multiple choice format. Most of all, remember, this is meant to be fun and about you informing yourself about our planet. By the time you are through this study guide, you will know significantly more about the earth than most Americans, a true accomplishment. Have fun and good luck.

Topics and sources from which questions are to be drawn are listed below.

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[Recycling](#)

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# 1. Fauna

## Birds

Look up the most interesting facts you can find about the following local birds listed below. A great website you can use is : <http://www.allaboutbirds.org/> and <http://www.birdinginformation.com/>

Focus on the intro paragraphs and cool facts in the life history for each bird.

Bird list: Acorn Woodpecker, American Crow, American Dipper, Anna's Hummingbird, Black-capped Chickadee, Brewer's Blackbird, Common Raven, Cooper's Hawk, Dark-eyed Junco, Downy Woodpecker, European Starling, Golden Crowned Sparrow, House Finch, Killdeer, Lesser Gold Finch, Morning Dove, Northern Flicker, Osprey, Red-winged Blackbird, Spotted Towhee, Western Scrub Jay.

## Study Questions

- i. Why are bird populations valuable to monitor?
- ii. What fraction birds are threatened with extinction?
- iii. What are the dos and don'ts of having and placing bird feeders?
- iv. What are the minor and major causes of bird mortality?
- v. What local bird came to the U.S. initially by Shakespearian enthusiasts who wanted to bring to American all the birds Shakespeare wrote about?
- vi. What local native bird rebounded from being a threatened species when the pesticide DDT was outlawed in the U.S.?
- vii. What local native bird eats the eggs and nestlings of other birds and eats acorns as well?
- viii. What local bird nests behind waterfalls and eats aquatic insects?
- ix. What local bird scares squirrels into the road so that it can later eat them?
- x. What local bird is often found in groups, has a pendulous nest and huddles in groups to stay warm in the winter?
- xi. Of the following, which is the smallest source of bird mortality?
- xii. Birds are atop many food webs, often migrate and their populations have been studied for a long time. Because of this, they are considered:

- xiii. What native bird is found in wetlands, very abundant, and so territorial it may dive bomb people?
- xiv. What native bird is a cavity nester who will act like a snake, swaying, hissing and striking, to scare off an intruder?
- xv. Name 3 mammals that will happily raid your bird feeder if you don't keep it hanging from a wire 8 feet off the ground?

**Web sites to help with the above questions:**

<http://news.nationalgeographic.com/news/2014/08/140825-bird-environment-chemical-contaminant-climate-change-science-winged-warning/>

[http://wwf.panda.org/about\\_our\\_earth/species/flagship\\_keystone\\_indicator\\_definition/](http://wwf.panda.org/about_our_earth/species/flagship_keystone_indicator_definition/)

<http://www.birds.cornell.edu/citsci/take-action/2014/11/dos-and-donts-of-feeder-placement/>

**Fish**

Source: <http://www.mailtribune.com/article/20140811/NEWS/140819943/0/SEARCH>

**Study Questions**

What two species of anadromous fish can be found in Bear Creek?

**Other Fauna:**

Know interesting facts about wolves, black bears, mountain lions, rats, dogs, house & feral cats, raccoons, grey squirrels, bull frogs, black and fish in Bear Creek. Reflect how they interact with the city of Ashland if possible.

For good info on how cats affect wildlife:

<http://www.smithsonianmag.com/science-nature/feral-cats-kill-billions-of-small-critters-each-year-7814590/?no-ist>

For good info on how dogs affect wildlife:

<http://www.asPCA.org/pet-care/virtual-pet-behaviorist/dog-behavior/dogs-chasing-wildlife>

For good info on raccoons, grey squirrels, bats & Starlings:  
<http://www.pleasebekind.com/coexist.html>

For good info on black bears and mountain lions:  
<https://bouldercolorado.gov/osmp/bears-and-mountain-lions>

For info on how the school district deals with rats:  
<http://www.mailtribune.com/article/20141104/NEWS/141109905/101064/NEWS?template=printart>

For info on Bullfrogs in Oregon:  
[http://www.dfw.state.or.us/conservationstrategy/invasive\\_species/docs/bullfrog\\_fact\\_sheet.pdf](http://www.dfw.state.or.us/conservationstrategy/invasive_species/docs/bullfrog_fact_sheet.pdf)

### **Study Questions**

How did wolves affect the Yellowstone National Park ecosystem when they become established?

What is the 3 pronged approach the school district uses to control rats?

What are the benefits of spaying or neutering your dog?  
It behaves better and lives longer.

Name two ways cats negatively affect the environment?

Name two things you can do to reduce the number of raccoons:

What describe the diet of a grey squirrel?

Why are bats good for the city?

Why is it bad to provide food for black bears?

What invasive species threatens the western pond turtle and can eat ducklings?

## 2. Flora

### Good Websites

[http://www.statesymbolsusa.org/Oregon/flower\\_oregongrape.html](http://www.statesymbolsusa.org/Oregon/flower_oregongrape.html)

<http://www.mailtribune.com/article/20011215/News/312159995?template=printart>

<https://franceshunter.wordpress.com/2011/07/26/nearly-all-the-men-sick-lewis-and-clark-meet-the-camas-root/>

<http://www.temperate-rainforest-facts.com/Temperate-Rainforest-Plant-Facts/Douglas-Fir-Tree-Facts.shtml>

[http://en.wikipedia.org/wiki/Douglas\\_fir](http://en.wikipedia.org/wiki/Douglas_fir)

[http://oregonstate.edu/trees/broadleaf\\_genera/species/oak\\_spp.htm](http://oregonstate.edu/trees/broadleaf_genera/species/oak_spp.htm)

[http://www.oregonwild.org/oregon\\_forests/old\\_growth\\_protection/pacific-northwest-research-station-old-growth-a-unique-ecosystem](http://www.oregonwild.org/oregon_forests/old_growth_protection/pacific-northwest-research-station-old-growth-a-unique-ecosystem)

<http://www.srl.caltech.edu/personnel/krubal/rainforest/Edit560s6/www/what.html>

<http://www.fws.gov/oregonfwo/species/data/northernspottedowl/>

<http://www.srl.caltech.edu/personnel/krubal/rainforest/Edit560s6/www/what.html>

<http://sanctuaries.noaa.gov/about/ecosystems/kelpdesc.html>

### Sample Study Questions

What is the State Flower of Oregon?

What is the name of a purple lily that was an important food source for local Native Americans? The bulbs were dug up and baked in pits.

Pacific Northwest Forests are world leaders in what quality?

What is the name of the critically imperiled flower listed by the federal government that only grows on Mt Ashland?

Who is the most common conifer of our area, Douglas-fir, named after?

Name the two common oak tree species of the Rogue Valley

Pacific Northwest Forests are world leaders in what quality?

Which does not help define an old growth forest in Oregon?

Which describes the soil in a tropical rainforest?

A species whose absence dramatically affects the populations of many other species is called a?

### 3. Environmental History and Economics

**Good websites:**

<http://www.ohs.org/education/focus/governor-tom-mccall.cfm>

<http://www.ohs.org/education/focus/governor-tom-mccall.cfm>

<http://www.history.com/this-day-in-history/roosevelt-dedicates-the-grand-canyon-as-a-national-monument>

<http://www.history.com/this-day-in-history/roosevelt-dedicates-the-grand-canyon-as-a-national-monument>

<http://pubs.usgs.gov/fs/2002/fs092-02/>

<http://archives.nypl.org/mss/2099>

<http://www.britannica.com/EBchecked/topic/189191/Environmental-Protection-Agency-EPA>

<http://www2.epa.gov/aboutepa/administrator-gina-mccarthy>

<https://pacificforest.org/Cascade-Siskiyou-National-Monument.html>

<http://www.washingtonpost.com/blogs/wonkblog/wp/2013/08/21/al-gore-explains-why-hes-optimistic-about-stopping-global-warming/>

<http://www.nps.gov/nr/travel/ashland/lit.htm>

<http://clevelandhistorical.org/items/show/58#.VQRW59J4pcQ>

<http://www.biography.com/people/rachel-carson-9239741>

<https://www.walden.org/thoreau>

<http://www2.epa.gov/aboutepa/love-canal-tragedy>

<http://news.nationalgeographic.com/news/2010/06/100611-jacques-cousteau-100th-anniversary-birthday-legacy-google/>

[http://vault.sierraclub.org/john\\_muir\\_exhibit/life/muir\\_biography.aspx](http://vault.sierraclub.org/john_muir_exhibit/life/muir_biography.aspx)

<http://www.libertyellisfoundation.org/ellis-island-history>

### **Sample Study Questions**

Founded in 1905 by Gilbert Pierson, John Muir and George Grinnell, this was one of the nation's first environmental organizations?

This landscape architect designed Golden Gate Park. Name another of his famous projects?

In the late seventies, in a small community, it was discovered that over 20,000 tons of toxic waste had been buried nearby causing a disturbingly high rate of serious medical problems. It was one of the worst cases of toxic dumping ever discovered. Eventually the homes of almost 900 families near the site had to be demolished and their families moved. The incident was named?

This former journalist would eventually become a governor of our state. He was responsible for producing the influential TV documentary "Pollution in Paradise" which chronicled the poor state of the Willamette River and generally poor air quality throughout our state. As governor he signed the first "bottle bill" in the country

"The one great sight that every American should see" is how this President described this National Monument.

This great mountain erupted in 2290 BC, collapsed, and then filled with water to become the centerpiece of the most visited National Park in our State

Founded in 1905 by Gilbert Pierson, John Muir and George Grinnell, this was one of the nation's first environmental organizations

This president signed into law the formation of the Environmental Protection Agency

He preserved nearly 90,000 acres not far from Ashland as the Cascade-Siskiyou National Monument.

When this lake – or more exactly the Cuyahoga River which flows into this lake – caught fire in 1969, it ignited a firestorm of public outrage over the indiscriminate dumping of sewage and industrial chemicals into the Great Lakes.  
Name this lake

Her book “Silent Spring” in 1962 alerted us to the hazards of widespread pesticide use.

1. He was recognized as one of the early American environmentalists who recognized the peace and beauty of a life with nature. His book “Walden: Or, Life in the Woods” is an American classic

In the late seventies, in a small community i, it was discovered that over 20,000 tons of toxic waste had been buried nearby causing a disturbingly high rate of serious medical problems. It was one of the worst cases of toxic dumping ever discovered. Eventually the homes of almost 900 families near the site had to be demolished and their families moved. The incident was named:

His love of the sea and all its creatures led him to a lifetime of producing documentaries about the oceans that have been seen by millions. Though he was not particularly a religious man, he believed that the teachings of the different major religions provide valuable ideals and thoughts to protect the environment.

Writer, adventurer, friend of presidents, founder of the Sierra Club, this immigrant can arguably be considered the most influential environmentalist of the American West.

Now a national Monument, this facility welcomed millions of immigrants coming to America from 1892 to 1954. Today, over 100 million Americans—or something of about one-third of the population—can trace their ancestry to the immigrants who first arrived in America here before dispersing to points all over the country.

## 4. Climate Change

**All questions will come from these websites:**

<http://www.epa.gov/climatechange/kids/index.html>

Consider just the first page of the websites below:



[http://www.neaq.org/conservation\\_and\\_research/climate\\_change/climate\\_change\\_and\\_the\\_oceans.php](http://www.neaq.org/conservation_and_research/climate_change/climate_change_and_the_oceans.php)

<http://www.wri.org/blog/2014/11/6-graphs-explain-world%E2%80%99s-top-10-emitters>

### **Sample Study Questions**

Name 3 ways the oceans are changing in response to climate change?

The difference between the terms “weather” and “climate” is often described thus: “Weather” refers to short term average conditions (minutes to months), while “climate” refers to the average weather conditions over a \_\_\_\_\_ period?

How great of a sea level rise will threaten most of Southern Florida and the City of Boston?

Which natural factor contributes to the green house effect?

How do volcanoes affect the earth’s climate?

*Carbon dioxide released into the atmosphere today will remain there for an (average of )approximately*

Which of the following gases do NOT contribute significantly to warming of the atmosphere?

Which country produces the most green house gases?

### **Which is not a source of methane?**

The difference between the terms “weather” and “climate” is often described thus: “Weather” refers to short term average conditions (minutes to months), while “climate” refers to the average weather conditions over a \_\_\_\_\_ period at least.

The following activity DOES NOT contribute significantly to human-caused climate change:

## **5. Water**

**All questions will come from these websites**

[http://water.epa.gov/type/wetlands/vital\\_status.cfm](http://water.epa.gov/type/wetlands/vital_status.cfm)

[http://www.education.noaa.gov/Ocean\\_and\\_Coasts/Oil\\_Spill.html](http://www.education.noaa.gov/Ocean_and_Coasts/Oil_Spill.html)

<http://www.noaa.gov/ocean.html>

<http://www.epa.gov/heatisland/mitigation/greenroofs.htm>

<http://www.dnr.state.mn.us/wetlands/benefits.html>

<http://water.epa.gov/polwaste/nps/kids/middleschool/>

### **Sample Study Questions**

What is the Deepwater Horizon?

In the lower 48 U.S. States, what percent of wetlands have been lost?

Which aquatic life indicates good water quality if found in a stream?

Approximately what fraction of Earth's surface is covered by oceans?

What can you do to reduce marine plastic pollution

What is the leading cause of water pollution in the rivers and lakes of the U.S.?

When rain falls on natural ground cover, only 10% runs off the land. What percent runs off in the city?

In the lower 48 U.S. States, what percent of wetlands have been lost?

Nutrients from human activities can have dramatic effects on stream quality. All the following are human sources of nutrient pollution except?

Which aquatic insect indicates good water quality if found in a stream?

## **6. Air**

**Good Websites to study:**

<http://kidsenvirohealth.nlm.nih.gov/topic/001/air-pollution/>

[http://www.sandiegocounty.gov/grandjury/reports/2002\\_2003/MissionBayReport.pdf](http://www.sandiegocounty.gov/grandjury/reports/2002_2003/MissionBayReport.pdf)

<http://www.who.int/mediacentre/factsheets/fs313/en/>

<http://www.air-quality.org.uk/25.php>

[http://www.epa.gov/ozone/science/q\\_a.html#q4](http://www.epa.gov/ozone/science/q_a.html#q4)

<http://www.roguevalleycleanair.org/links-and-resources/inversion-layer.html>

<http://www.epa.gov/acidrain/education/teachersguide.pdf>

### **Sample Study Questions**

During the 1980's, acid rain had a devastating effect on rivers and streams in the United States, what is the name for when lakes become uninhabitable to life because of acid rain?

What problem did the 1987 Montreal Protocol significantly address?

How many people world wide face indoor smoke as a serious health risk from cooking and heating their homes with biomass fuels and coal?

What gas is present in the upper atmosphere and helps absorb ultraviolet radiation but is a health hazard at ground level?

The Rogue Valley sits between a number of mountain ranges which help to lock in air pollution during certain times of the year. What is the name of the layer which helps facilitate the build up of air pollution during these times?

What problem did the 1987 Montreal Protocol significantly address?

What is a catalytic converter?

## **7. Recycling**

[Http://www.benefits-of-recycling.com/recyclingsymbol/](http://www.benefits-of-recycling.com/recyclingsymbol/)

<Http://www.nrdc.org/recycling/default.asp>

<http://www.Oregon.gov>

<http://www.nrdc.org/living/stuff/what-to-do-about-e-waste.asp>

<http://www.recologyashland.com>

<http://www.recologyashlandsanitaryservice.com/index.php/for-home/prescription-drugs-deposit-box>

<http://www.nrdc.org/living/stuff/what-to-do-about-e-waste.asp>

<http://www.recologyashlandsanitaryservice.com/index.php/for-homes/Ashland-recycling-center#otherservices>

<http://www.recologyashlandsanitaryservice.com/index.php/for-business/commercial-recycling-compost-greendebri-garbage-services#compost>

### **Sample Study Questions**

How is glass collected for recycling in Ashland ?

If the U.S. recycled 75% of the nation's waste by 2030, it would create \_\_\_\_\_ jobs while significantly reducing pollution, water savings and energy, and building economically strong and healthy communities?

The universal recycling symbol is internationally recognized. It can be found on the bottom of a plastic bottle and other products. This symbol is :

What is the name of the Oregon Agency that manages waste, pollution, energy and recycling issues for the state?

he number of spent electronics in the form of cell phones, lap tops, computers, monitors, and printers are growing rapidly. In 2007 according to the U.S. Environmental Protection Agency (EPA), only 13.6 % of these materials were recycled. Some of the hazardous materials in electronics include :

What year did Oregon adopt the Paint Care Program?

Unused prescription drugs can be dropped off in Ashland year round at

Which of these items can be recycled in Ashland in a blue commingle recycle cart?

How is glass collected for recycling in Ashland ?

Which Ashland customers can participate in the “pre-consumer compost program ?

## 8. Energy

**Good Websites to study:**

<http://www.eia.gov/kids/index.cfm>

<http://oecdinsights.org/2010/01/25/biofuel/>

<http://www.eia.gov/tools/faqs/faq.cfm?id=427&t=3>

[http://www.energystar.gov/index.cfm?c=kids.kids\\_index](http://www.energystar.gov/index.cfm?c=kids.kids_index)

<http://www.altenergy.org/renewables/wholly-renewable.html>

### **Sample Study Questions**

What are sources of renewable energy and non renewable energy?

What is the highest percentage of electricity produced from renewable sources in any country?

Which of the following is a not a renewable energy source?

Which fossil fuel produces the least amount of air pollution and CO<sub>2</sub> when burned?

How many people could be fed the the grain the U.S. converted to ethanol in 2009?

What is the fastest growing source of renewable energy in the United States

What percentage of US electricity is generated by fossil fuels?

According to the energy star system, on average, what is the largest contributor to energy use in a US home?

What is the highest percentage of electricity produced from renewable sources in any country?

## 9. Sustainability

<http://www.seafoodwatch.org/ocean-issues/fishing-and-farming-methods>

### Sample Study Questions

Which form of fishing has the smallest by-catch?

## Human Population Growth:

### Good Websites to study

<http://www.prb.org/Publications/Datasheets/2014/2014-world-population-data-sheet.aspx>

Population Reference Bureau 2014 highlight video: 6 minutes

<http://www.prb.org/Multimedia/Video/2014/jeff-jordan-world-population.aspx>

### Sample Study Questions

Which region of the world has the fastest population growth rate?

Since 1970 what has happened to the average number of children born per woman?

How many people on the planet live in extreme poverty according to the United Nations?

What is the current human population of the the world, to the nearest billion?

Describe the average life span or longevity for a rapidly growing country:  
A person living in extreme poverty gets by on how much money each day?

What has happened to the infant mortality rate since 1970?

What has happened to the fraction of the global population that are younger than 20?

Which region of the planet is has the highest population today?

## **Ecosystems Sources:**

### **Good Web Site:**

<http://kids.nceas.ucsb.edu/biomes/index.html>

### **Sample Study Questions**

What type of ecosystem can have temperatures below freezing and averages 4 inches of rain a year?

What biome has less than 10 inches of rain, very long summer days and temperatures as high as 50° F?

Describe the soil of grasslands

What is the name of the ecosystem that is composed of mostly shrubs, dry summers and found around Mediterranean?

Which type of meat requires the least amount of calories to produce per pound?

Which marine ecosystem has the greatest diversity of species?

What is the top reason species are going extinct today?

What is the tallest mountain in the Klamath-Siskiyou?

Which of the following is the hottest region of planet Earth?