

Ralph Abele

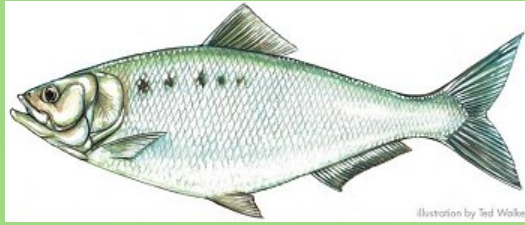
“Do your duty and fear no one.”

— Ralph Abele



<p>Growing up in Western Pennsylvania Born August 13, 1921, Ralph grew up on a farm just outside of Pittsburgh where his parents fostered his love of hunting, fishing, and just being outdoors. He grew up during a period of increasing industrialization around Pittsburgh, watching natural areas he cared about become developed and streams becoming increasingly polluted.</p> <p>Military Service World War II was underway when Ralph graduated college in 1942; he then entered the Army. He served in armored units throughout Europe, becoming a decorated Army commander. His experience of very hard fighting taught him leadership skills and how to handle tough situations, which he drew upon in his later work positions.</p> <p>Post-military life in Western Pennsylvania After his military service he began his career in Pittsburgh in the food brokerage business, but it was just a job for him to support his family. He followed his outdoor passion by volunteering as a Boy Scout leader, involving tens of thousands of boys in conservation work throughout western and northcentral Pennsylvania. Ralph made the decision in his 30s that he wanted to leave the food business and pursue a career in protecting and restoring the environment.</p> <p>First job in state government In 1969, in response to the national growing environmental movement, the Pennsylvania State Assembly created the “Joint Legislative Air and Water Pollution Control and Conservation Committee,” and hired</p>	<p>Ralph to be the Committee’s first director. He exhibited great consensus-building skills as he brought together state senators and representatives from both parties to support a dozen pieces of legislation aimed at cleaning up and protecting Pennsylvania’s environment.</p> <p>Pennsylvania’s Environmental Rights Amendment Legislation is passed regularly in the State Assembly, but a state constitutional amendment is rare as it takes a tremendous amount of statewide support from a broad representation of citizens and legislators. Once Ralph’s Joint Legislative Committee had proposed a “Conservation Amendment,” Ralph took it upon himself to build the needed support to get it passed. Working with Senator Franklin Kury and Department of Forests and Waters Secretary Maurice Goddard his tireless efforts resulted in Article 1, Section 27 getting passed by both the House and Senate and approved as a voter referendum. Once on the ballot, Ralph’s efforts to garner public support paid off with a tremendous majority of voters approving it.</p> <p>Executive Director of the PA Fish Commission* * The Fish Commission added “Boat” to their name in 1991 after Ralph had retired. Ralph took over the helm of the Pennsylvania Fish Commission in February of 1972. He became known as a very strong advocate of fisheries and all aquatic life, promoting the philosophy of “Resource First” when weighing decisions that would impact the environment. The “Don’t Tread on Me” flag was his symbol of standing up for what is right against those who would further harm</p>	<p>Pennsylvania’s environment. He worked hard to expand the outreach work of the Commission to better educate all citizens. His dream was to have an educated public with a conservation conscience that would advocate for strong environmental laws, protecting the valued natural resources of the Commonwealth.</p> <p>Leading with Science Ralph wanted science to lead the agency’s decision-making, and used data and facts to stand behind the rulings of the agency that were often unpopular with industries looking to use aquatic resources for economic gain. He fought to restore damages that had occurred in the decades prior to his tenure with the Commission, such as working to restore shad to the Upper Susquehanna by constructing fish ladders and elevators on the four hydroelectric dams along the lower Susquehanna River. He fought for national policy changes, such as his suing the federal government to uphold the Federal Water Power Act and protect migratory fish passage.</p> <p>Straight Talk The executive director’s monthly column in Pennsylvania Angler Magazine gave Ralph a public forum to speak his mind directly on issues of concern to him. He used the column to focus a spotlight on problems that needed to be addressed, or bad behavior regarding the state’s waterways that needed to be changed. His directness about issues led to the column being titled “Straight Talk” in 1982, as it continues today.</p>
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Bringing Back the Shad



Ralph's Legacy

In his final "Straight Talk" column in May of 1987, Ralph was emphatic that "All the greed and shortsightedness of the exploiters and developers—and that includes people in state and federal governments—will not prevail" if people with a strong conservation ethic stand up for what they believe and say "Why should we put up with this?"

Ralph turned the commission into a full-bodied conservation agency that continues to lead the fight to restore and reclaim the environment. He served as a mentor for many conservation professionals and other people he touched throughout his life who today practice the "Resource First" philosophy, who are fighting to protect and restore the environment and passing that ethic along to the next generation.

Like all anadromous fish, shad spend most of their life in the ocean and return to freshwater to spawn. On the Susquehanna River, shad penetrated well into New York on the North Branch and into the West Branch and Juniata rivers as well. In 1881, there were some 40 permanent seine fisheries in the North Branch alone. Each commonly took 300 shad per haul and up to 10,000 shad per day. These fisheries were an integral part of the growing economy of central Pennsylvania.

In 1830, construction of canal dams began cutting off shad runs to the upper portion of the river. However, in years of high water or when ice breached the dams, shad still migrated to upstream spawning areas. The final blow to the Susquehanna shad fisheries was the construction of the four large hydro-dams (York Haven, Safe Harbor and Holtwood in Pennsylvania, and Conowingo in Maryland) between 1904 and 1932. Two early fish ladders, built at Holtwood Dam, failed to pass shad. As a result, the other hydro-dams were not required to build fish passage devices, and shad were completely cut off from their ancestral spawning grounds.

The initial effort in shad restoration began in 1866 with the formation of what is today the Pennsylvania Fish and Boat Commission. In fact, shad restoration was the driving force behind the formation of the commission. The failure of early attempts to provide for fish passage at Holtwood Dam prompted the commission to accept "in lieu of" payments from the power companies until shad passage technologies could be developed. This provided for a certain amount of money to be paid

each year by the power companies to the commission in lieu of shad being able to migrate upstream.

Shad restoration efforts were renewed in the late 1950s when studies determined the feasibility of passing shad over the four largest Susquehanna River dams. Other studies demonstrated that water quality in the river was sufficient to support shad runs.

One of Ralph's greatest legacies was restoring shad to the Susquehanna by working closely with the power companies to fix the problem they created:

1970-1980. Conowingo west fish lift built and operated

1984. Settlement agreement for shad stock rebuilding

1986. Federal Water Power Act amended – each power company license must now include conditions to protect, mitigate and enhance fish and wildlife

1988-1991. Settlement reached with Philadelphia Electric Company; first permanent fish passage facility (east lift) completed at Conowingo Dam

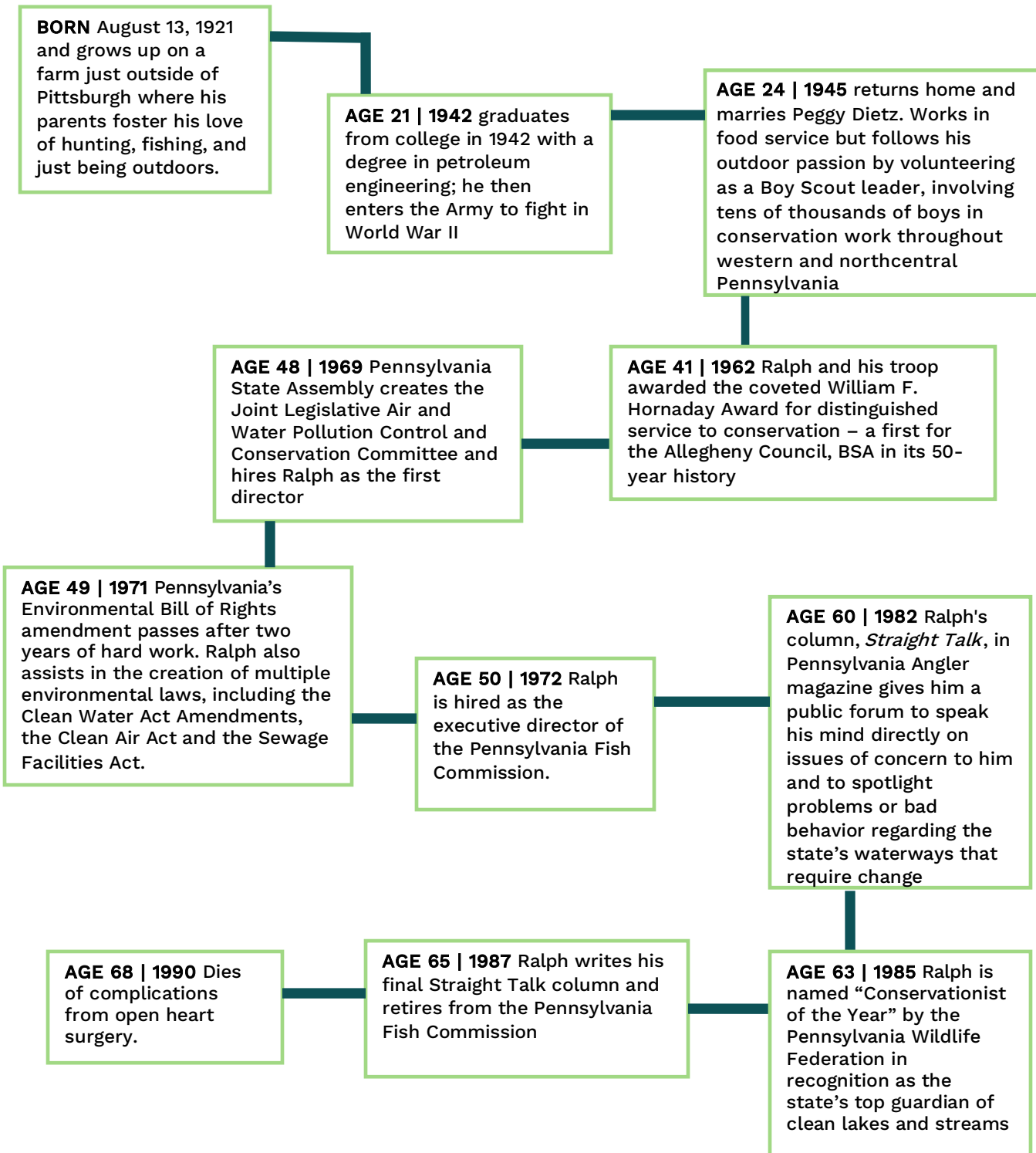
1993-1997. Settlement on fish passage reached with all upstream utility companies; fish elevators completed and placed into operation at Holtwood and Safe Harbor dams; shad return at Conowingo exceeds 100,000 fish in 1997

1999-2000. York Haven Water Power Company completes 500,000-shad fish ladder at Three Mile Island east channel dam; the Susquehanna River and its largest tributaries up to Binghamton, NY, totaling 435 miles, reopened to natural runs of shad and herring for the first time in almost 100 years.

--Source: Pennsylvania Fish and Boat Commission

Ralph Abele

FAST FACTS



Ralph Abele

GUIDING QUESTIONS



<p>These questions and answers are designed to aid discussion of two of the main ideas presented in the film, <i>Straight Talk: The Ralph Abele Story</i>.</p> <ul style="list-style-type: none"> • Pennsylvania’s Environmental Bill of Rights • Resource First <p>Open ended questions to begin discussion: Describe the important impact Ralph Abele had on your future. What do you think influenced Ralph’s passion and success in natural resource conservation? What do you think was Ralph’s boldest move in the conservation movement and why? What could have been a consequence of not having a man like Ralph working on conservation? What can we continue to do to preserve Ralph’s focus/dream? Do you believe we each have a responsibility to uphold the conservation of our Commonwealth’s natural resources?</p> <p>Pennsylvania’s Environmental Bill of Rights (2 questions)</p> <p>What is Pennsylvania’s Environmental Bill of Rights?</p> <p><i>The people have a right to clean air, pure water, and to the preservation of the natural, scenic, historic and esthetic values of the environment. Pennsylvania’s public natural resources are the common property of all the people, including generations yet to come. As trustee of these resources, the Commonwealth shall conserve and maintain them for the benefit of all the people.</i> --Constitution of the Commonwealth of Pennsylvania, Article I, Section 27</p> <p>Pennsylvania is one of only three states (including Montana and Rhode</p>	<p>Island) with an environmental bill of rights that equals our political bill of rights. At the time the amendment was introduced, we were nearing the end of a century of unregulated coal mining that had left significant scars, including thousands of miles of streams polluted by acid mine drainage, huge piles of mining refuse and large gashes in the landscape from strip mining – all of which we’re still trying to recover from today. Several disasters had such unbelievable damage that citizens finally started to realize what unregulated coal mining was doing to our state:</p> <ul style="list-style-type: none"> • 1959: Knox Coal Company dug underneath the Susquehanna River, which broke through and started pouring into the Pittston coal vein in a gigantic whirlpool. Twelve died, and it took three days of dumping everything from railroad cars to hay bales into the hole to plug it. • 1961: Glen Alden Coal Company began pumping millions of gallons of highly acidic water from its mine into the river, causing the largest fish kill in Pennsylvania history along 50 miles of the Susquehanna. • 1962: The coal seam underneath the town of Centralia caught fire, and continues to burn today. <p>Constitutional amendments are tough to get through – they must pass two successive sessions of the legislature before going to statewide vote. The environmental rights amendment first passed the House 190-0 in June 1969, less than two months after being introduced. The Senate passed it 39-0 in March 1970. It passed the House again in February 1971 with a vote of 199-0. The Senate approved it the same month with a vote of 45-0. It then was approved 4 to 1 by Pennsylvania voters and became Section 27 of Article 1, the state Constitution’s declaration of rights.</p>	<p>What was the impact of PA’s Environmental Bill of Rights? In spite of the overwhelming support that accelerated passage of the amendment, for the first 40 years, it had no teeth. Courts interpreted it to mean that the amendment only applied if there were already existing regulations in place to back it up. Its sole main impact initially was that it required developers to consider environmental impact before breaking ground.</p> <p>Finally, a decision in 2013 that upheld local government rights to control Marcellus shale drilling recognized the original intent of the amendment. The Pennsylvania Supreme Court held unconstitutional major parts of Pennsylvania’s Act 13, a 2012 oil and gas law designed to facilitate the development of natural gas from Marcellus Shale. "By any responsible account, the exploitation of the Marcellus Shale Formation will produce a detrimental effect on the environment, on the people, their children, and future generations, and potentially on the public purse, perhaps rivaling the environmental effects of coal extraction. The litigation response was not available in the nineteenth century, since there was no Environmental Rights Amendment. The response is available now." -- Supreme Court Justice Ronald Castille, 2013</p> <p>Follow-up questions:</p> <p>Why was it so important that Article 1, Section 27, was added to the Constitution in PA?</p> <p>Does the Commonwealth of Pennsylvania’s Constitution regarding natural resources still seem relevant today?</p> <p>Will this environmental Bill of Rights carry us into the next century? Why or why not?</p>
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Resource First
(3 questions)

“All the greed and shortsightedness of the exploiters and developers – and that includes people in state and federal governments – will not prevail if people with a strong conservation ethic stand up for what they believe and say ‘Why should we put up with this?’”
--Ralph Abele

What does “Resource First” mean?

“If the fish can’t survive in the water, there are serious problems for man.”
-- Ralph Abele

“Resource First” is the belief that clean water comes first and from that fish and fishing and boating activities follow. Without clean water, you can’t have the other activities. It marked a formally declared shift in the philosophy and mission of the Pennsylvania Fish Commission from recreation first to resource first and turned the commission into a conservation agency. Fish Commission staff were given important missions - go after polluters, rewrite the Fish and Boat Code, develop and implement Operation FUTURE, restore shad to the Susquehanna River and teach the younger generation what’s important. In 1987, the commission adopted it as their motto, ensuring that staff make scientifically informed decisions based on long-term conservation of aquatic resources.

Why was Ralph’s “Resource First” philosophy controversial?

“... just because we’re not smart enough to understand why some of these creatures were put here, we have no right to exterminate them.”
--Ralph Abele, 1985, defending the protection of rattlesnakes

The philosophy sometimes resulted in unpopular decisions. Ralph was especially hard on water polluters and considered it his duty to protect Pennsylvania’s lakes, streams and aquatic life from acid rain, pollution and habitat destruction. He also struck hard at other government

agencies when he thought they weren’t doing their jobs in protecting the environment

Some of the more notable controversies fought by Ralph:

- Strip mine and acid rain pollution
- Plan to raise the height of the Dock Street Dam in Harrisburg
- Restoring shad to the Susquehanna River

What are some of the significant issues facing our aquatic resources today?

Pennsylvania Fish and Boat Commission Director John Arway outlined some of the current challenges in his January/February 2016 *Straight Talk* column:

- As of 2015, 83,438 miles of streams and rivers, out of a total of 86,000 miles, have been assessed by the Pennsylvania Department of Environmental Protection staff for aquatic life use support and approximately 19 percent (15,882 miles) do not fully support healthy aquatic communities. Furthermore, some of these waters are still not fishable or swimmable.
- We have the nation’s 16th largest river, the Susquehanna River, which drains nearly half of Pennsylvania’s land area and has been identified as a major contributor to the impairment of the Chesapeake Bay.
- The Susquehanna River currently supports a smallmouth bass fishery in distress with bacteria infecting young bass producing mortality rates of 10- to 70-percent (2005–2015). Adult bass have been found with cancerous tumors, other open sores and lesions, intersex conditions (male bass with egg precursors and hormones, which should only be found in female bass), and black spots that aren’t understood (blotchy bass syndrome or melanosis).
- We also know that 15,882 miles of our streams and rivers and 37,761 acres of our lakes are not attaining their aquatic life uses because of the current and legacy impacts from agriculture and coal mining creating siltation, metals, nutrients and organic enrichment of our waters.



Additional challenges include rapidly expanding deep natural gas development across Pennsylvania and the uncertainties about fracking; the brook trout being compromised by changing climate; invasive species out-competing native species; our lakes, rivers and the Chesapeake Bay clogged with nuisance algae blooms that lower oxygen to dangerous levels for fish and other aquatic life; less people, including our legislators, fishing, boating and recreating outdoors, and...our obligation to restore American shad to the mighty Susquehanna River.

Share your projects and ideas!
#LiveLikeRalph
#PAConservationHeroes

Ralph Abele

ACTIVITIES



<h2>Pennsylvania's Environmental Bill of Rights</h2>  <p>National Constitution Center has lesson plans focused on our national constitution and Bill of Rights. constitutioncenter.org/learn/educational-resources/lesson-plans</p> <p>Key activity:</p> <ul style="list-style-type: none">• Bill of Rights	<h2>Resource First</h2>  <p>American Shad Educator Resources provide resources and lesson plans for educators relative to the restoration of American shad and other migratory fishes occurring on the Susquehanna and Delaware River basins in Pennsylvania. fishandboat.com/education/shad.htm</p> <p>Key activities:</p> <ul style="list-style-type: none">• Dam Design• Where Have All the Shad Gone? <hr/>  <p>PA Trout in the Classroom is an interdisciplinary program in which students in grades 3-12 learn about coldwater conservation while raising brook trout from eggs to fingerlings in a classroom aquarium. Contact the PA Trout in the Classroom coordinator for information. patROUTintheCLASSROOM.org/</p>	 <p>Rain to Drain - Slow the Flow is an innovative, fun, and hands-on stormwater education curriculum with experiment style activities to understand the movement of stormwater in natural and developed communities. It's also a great introduction to green infrastructure and stormwater best management practices. extension.psu.edu/natural-resources/water/youth/rain-to-drain</p> <p>Key activities:</p> <ul style="list-style-type: none">• Moving Water on Earth/Changing the Water Movement (two parts to one experiment)
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The following sites require that you attend training to obtain their lesson plan materials:



[Project Wild Aquatic](#) uses the simple, successful format of Project WILD activities and professional training workshops but with an emphasis on aquatic wildlife and aquatic ecology. projectwild.org/aquatic/

Key activities:

- Living Research: Aquatic Heroes and Heroines
- Something's Fishy Here!
- To Dam or Not to Dam
- Water Safari

Contact the [Aquatic Wild Coordinator](#) (bit.ly/1TbKSIk) at the PA Fish and Boat Commission for workshop information, or check the [PFBC Calendar of Events](#) (bit.ly/1XV5A2X) for upcoming teacher workshops.



[Project WET](#) gives K-12 educators tools to integrate water education into every school subject, with field-tested activities and assessment strategies. projectwet.org

Key activities:

- Common Water
- My Water Footprint
- Poison Pump
- Seeing Watersheds
- Water Quality: Ask the Bugs

Contact the [Project WET Coordinator](#) (bit.ly/1PN1s5X) for workshop information, or check the [DCNR Calendar of Events](#) (bit.ly/21eBRE9) for upcoming teacher workshops.



[Watershed Education](#) (WE) is an inquiry-based, interdisciplinary curriculum for students in grades 6 - 12 offered in many state parks. It blends hands-on classroom and field investigations, data collection and analysis, community networking and partnerships, stewardship and service learning activities. dcnr.state.pa.us/stateparks/watershed/

Key activities:

- Biosurvey Sampling/Freshwater Stream Habitat
- Watershed Delineation

Contact the [Watershed Education Coordinator](#) (bit.ly/28Wr9ML) for workshop information, or check the [DCNR Calendar of Events](#) (bit.ly/21eBRE9) for upcoming teacher workshops.



[Project Wild](#) offers hands-on K-12 activities designed to support state and national academic standards. projectwild.org

Key activities:

- [Planning for People and Wildlife](#)
- [To Dam or Not to Dam](#)
- [Wild Bill's Fate](#)

Project WILD | Science and Civics: Sustaining Wildlife serves as a guide for involving students in grades 9-12 in environmental action projects that benefit local wildlife.



Check the [DCNR Calendar of Events](#) (bit.ly/21eBRE9) for upcoming teacher workshops.

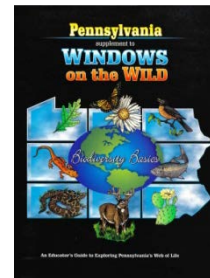


Pennsylvania Songbirds

Key activities:

- The Lorax

Check the [DCNR Calendar of Events](#) (bit.ly/21eBRE9) for upcoming teacher workshops.



Pennsylvania Supplement to Windows on the Wild (PA WOW) is an educator's guide to exploring Pennsylvania's biodiversity.

Key activity:

- Freshwater Investigations

Suggested Activities

Create a timeline for another conservationist (or for yourself!) on what things in their lifetime influenced their conservation ethic or leadership.

Ralph Abele

LINKS



Links	References	Film
<p>ExplorePAHistory.com explorepahistory.com</p> <p>Joint Legislative Air and Water Pollution Control and Conservation Committee (JCC) jcc.legis.state.pa.us</p> <p>Pennsylvania Bar Association pabar.org/public/lre/civicsandresources.asp</p> <p>Pennsylvania Conservation Heritage Project paconservationheritage.org</p> <p>Pennsylvania Department of Conservation and Natural Resources dcnr.state.pa.us</p> <p>Pennsylvania Environmental Defense Foundation pedf.org/</p> <p>Pennsylvania Fish and Boat Commission fishandboat.com</p> <p>Pennsylvania Historical and Museum Commission phmc.pa.gov</p> <p>Pennsylvania Land Trust Association conservationadvocate.org/</p> <p>Pennsylvania Parks and Forests Foundation ppff.org</p> <p>PLAY: Jump Into Shad Fishing fishandboat.com/anglerboater/play/2011play/02spring2011play.htm</p> <p>WITF witf.org</p>	<p>Ralph Abele <i>The Legacy of Ralph W. Abele</i>, Linda Steiner. Pennsylvania Angler & Boater magazine, May/June 2011, pp. 44-48. bit.ly/28Wsnrl</p> <p><i>Ralph W. Abele Biography</i> by Cheryl K. Riley. Fish and Boat Commission <i>Straight Talk</i> (March 1972 to May 1987) – Ralph Abele’s monthly column in <i>Pennsylvania Angler</i> magazine (formally titled <i>Straight Talk</i> beginning July 1982) fishandboat.com/PaAnglerLegacyIssues.htm.</p> <p>Ralph W. Abele Conservation Heritage Award -- information and a list of past recipients (bit.ly/28YQzK6)</p> <p>Fish and Boat Commission chronology of significant events (bit.ly/2933iAw) in the history of the Commission from 1866 to present.</p> <p>Dedication of Ralph W. Abele Pennsylvania Historical Marker, July 17, 2012. Includes video of remarks (bit.ly/291wUx4) by: John Arway, Fish & Boat Commission; Franklin Kury, former Senator and Representative; Larry Schweiger, (then) National Wildlife Federation; Dennis Guise, Ralph W. Abele Conservation Scholarship Fund; Frederick Powell, PA Historical & Museum Commission; Cindy Dunn, DCNR; Ralph Abele Jr, on behalf of the family.</p> <p>Migratory Fish Restoration and Passage on the Susquehanna River, 2004. Pennsylvania Fish and Boat Commission. Web. 7 Mar. 2016. bit.ly/28Z5F3h</p>	<p>Film</p> <p></p> <p>Straight Talk: The Ralph Abele Story video.witf.org/video/2365606730/</p> <p>Environmental Bill of Rights Arway, John A. "Straight Talk." Pennsylvania Angler (2014). <i>Pennsylvania Fish and Boat Commission</i>. Web. bit.ly/1nDH9KA</p> <p>Arway, John. "Straight Talk: Sesquicentennial (150th) Anniversary 1688-2015." Pennsylvania Angler & Boater (2016). Pennsylvania Fish and Boat Commission. Web. bit.ly/1RVw2aO</p> <p>The Constitution of Pennsylvania bit.ly/226Xzy4</p> <p>Gilliland, Donald. "Environmental Rights: 5 Facts about the Pennsylvania Constitution." PennLive.com, 03 Apr. 2014. Web. bit.ly/1QKHBRH</p> <p>Gilliland, Donald. "A Green Ruling: Franklin Kury and the 40-year Fight for Clean Air and Water in Pennsylvania." PennLive.com, 03 Apr. 2014. Web. 07 Mar. 2016. pennlive.com/projects/2014/franklin-kury.</p> <p>Kury, Franklin L. <i>Clean Politics, Clean Streams: A Legislative Autobiography and Reflections</i>. Bethlehem: Lehigh UP, 2011. Print.</p> <p>A Citizen’s Guide To Article I, § 27 of the Pennsylvania Constitution (prior to 2013 decision) bit.ly/1Xj8X3d</p>
<p>If you liked this video, others are available at Pennsylvania Conservation Heritage Project paconservationheritage.org</p>		



ACADEMIC STANDARDS

Key Activities Matched to Pennsylvania State Education Standards

Activity/ Source	Grade	Major Content	Environment/ Ecology (SAS)	Environment/ Ecology State Board of Education	Civics and Government (draft)	Additional
Bill of Rights <i>National Constitution Center</i>	3-8	Individual Rights Role of Government Bill of Rights		4.9.7.A	5.1.3.D 5.1.4.D 5.1.5.D 5.1.6.D 5.1.7.D 5.1.8.D 5.1.5.E 5.1.6.E 5.2.3.A 5.2.5.A	
Biosurvey Sampling / Freshwater Stream Habitats <i>Watershed Education</i>	6-12	Habitat Evaluation Stream Analysis Human Impact	4.2.5.C 4.2.6.C 4.2.7.C 4.3.10.C 4.5.5.C 4.5.10.C	4.1.7.B 4.1.10.B 4.1.7.C 4.1.10.C 4.1.12.C		Geography 7.2.5.A 7.2.6.A 7.2.7.A 7.2.U.A 7..2.W.A 7.2.12.A Mathematics CC.2.4.HS.B.5
Common Water <i>Project WET</i>	5-10	Water Quality Human Impact Conservation	4.1.5.F 4.1.10.F 4.2.5.C 4.2.6.C 4.5.5.C 4.5.7.C	4.1.7.B 4.1.10.B 4.3.7.B 4.3.10.B 4.8.7.B		
Dam Design <i>Aquatic WILD American Shad Educator Resources</i>	6-12	Habitat Limiting Factor Human Impact Management	4.1.10.A 4.1.12.A 4.1.10.B 4.1.12.B 4.1.6.D 4.1.10.D 4.1.12.D 4.3.7.B 4.5.6.A 4.5.8.A 4.5.12.A 4.5.7.C	4.6.7.A 4.6.10.A 4.6.12.C 4.7.10.A 4.7.7.B 4.7.10.B 4.7.7.C 4.7.10C 4.8.10.C	5.3.7.G 5.3.8.G 5.4.8.C	English/ Language Arts CC.1.5.7.A CC.1.5.8.S CC.1.5.9-10.A CC.1.4.7.B CC.1.4.5.V Geography 7.4.U.A
Freshwater Investigations <i>PA Biodiversity</i>	5-10	Habitat Evaluation Stream Analysis Human Impact	4.2.5.C 4.2.6.C 4.2.7.C 4.2.10.C 4.5.5.C 4.5.10.C	4.1.7.B 4.1.10.B 4.1.7.C 4.1.10.C 4.1.12.C		Geography 7.2.5.A 7.2.6.A 7.2.7.A 7.2.U.A 7..2.W.A 7.2.12.A Mathematics CC.2.4.HS.B.5
Living Research: Aquatic Heroes and Heroines <i>Aquatic WILD</i>	7-12	Human Impact Taking Action	4.5.6.C 4.5.7.C	4.8.7.C 4.8.10.C		English/ Language Arts CC1.5.6.D CC.1.5.7.D CC.1.5.8.D CC.1.5.9-10.D CC.1.5.11-12.D

Activity/ Source	Grade	Major Content	Environment/ Ecology (SAS)	Environment/ Ecology State Board of Education	Civics and Government (draft)	Additional
Moving Water on Earth/ Changing the Water Movement <i>Rain to Drain</i>	4-9	Water Cycle Human Impact Management	4.2.5.A 4.2.7.A 4.2.10.A 4.2.4.F 4.2.6C 4.2.6.F 4.2.8.F 4.5.8.A	4.1.7.A 4.1.7.B 4.1.10.B		Mathematics CC.2.4.3.A.1 CC.2.4.3.A.2 Geography 7.4.3.B 7.4.4.B 7.4.5.B 7.4.6.B 7.4.7.B 7.4.8.B
My Water Footprint <i>Project WET</i>	4-9	Natural Resource Conservation Resource use	4.3.10.A 4.3.7.B	4.2.4.A 4.2.7.B 4.2.10.B 4.8.4.A 4.8.7.A 4.8.10.A 4.8.7.B 4.8.10.C		Mathematics CC.2.4.3.A.4 CC.2.4.4.A.1 CC.2.4.5.A.1 CC.2.4.4.A.2 CC.2.4.5.A.2
Ralph Abele <i>Video/ Discussion</i>	3-12	One individual can influence change Human Impact Conservation	4.5.10.A 4.5.6.C 4.5.7.C 4.5.4.E 4.5.7E	4.8.4.A 4.8.7.A 4.8.10.A 4.8.4.C 4.8.7.C 4.8.10.C	5.1.7.A 5.1.8.A 5.1.7.D 5.1.5.E 5.1.6.E 5.3.5.C 5.3.7.G 5.3.8.G	English// Language Arts CC.1.5.7A CC.1.5.8.A CC1.5.9-10A CC1.5.12A CC.1.5.6.C
Planning for People and Wildlife <i>Project WILD</i>	5-8	Human Impact Conservation Land Use	4.1.7.E 4.1.10.E 4.3.7.B 4.5.7.A 4.5.8.A	4.2.7.B 4.2.10.B 4.3.7.B 4.3.10.B 4.7.4.C 4.8.7.C	5.2.5.A 5.2.6.A 5.2.7.A	Geography 7.3.5.A 7.3.6.A 7.3.7.A 7.4.5.B 7.4.6.B 7.4.7.B
Poison Pump <i>Project WET</i>	5-10	Pollution Human Impact Health and the Environment	4.2.7.A 4.2.8.A 4.2.6.C 4.5.6.C 4.5.7.C 4.5.7.E	4.3.7.A 4.3.10.A 4.3.7.B 4.3.10.B 4.8.7.C 4.8.10.C		Geography 7.1.6.B 7.1.7.B 7.4.6.A 7.4.7.A 7.4.8.A 7.4.6.B 7.4.8.B 7.4.W.A 7.4.W.B
Seeing Watersheds <i>Project WET</i>	5-9	Watershed Delineation Human Impact	4.2.6.A 4.2.7.A 4.2.10.A	4.1.10.A 4.1.7.B 4.1.10.B 4.1.10.E		Geography 7.1.6.A 7.1.7.A 7.1.8.A
Something's Fishy Here <i>Aquatic WILD</i>	5-9	Pollution Human Impact Management Taking Action	4.2.8.A 4.2.5.C 4.2.6.C 4.5.7.C 4.5.8.C	4.3.4.A 4.3.7.A 4.3.10.A 4.3.7.B 4.3.10.B 4.8.7.C 4.8.10.C		English/ Language Arts CC.1.4.5.V CC.1.5.5.A CC.1.5.6.A CC.1.5.7.A CC.1.5.8.A CC.1.5.5.D
Taking Action/ Defining Action <i>Project Wild: Science and Civics: Sustaining Wildlife</i>	9-12	Human Impact Taking Action	4.1.12B 4.1.12E 4.5.7.C	4.6.10A 4.7.10.C 4.8.7.C 4.6810.C	5.2.7.A 5.3.8.G 5.4.8.C	Geography 7.1.C.A 7.1.12.A 7.2.U.A 7.2.12.A 7.4.W.B

Activity/ Source	Grade	Major Content	Environment/ Ecology (SAS)	Environment/ Ecology State Board of Education	Civics and Government (draft)	Additional
The Lorax <i>PA Songbirds</i>	4-10 based on dis- cussion	Habitat Basic needs Human Impact Natural Resources Conservation	4.3.10.B 4.1.4.A 4.1.10.A	4.2.7.B 4.2.10.B 4.6.4.A 4.6.7.A 4.6.10.A 4.7.7.C 4.8.7.B 4.8.10.B 4.8.7.C 4.8.10.C 4.8.7.D 4.8.10.D 4.9.7.A	5.2.5.A 5.2.6.A 5.2.7.A	English// Language Arts CC.1.5.4.A CC.1.5.7A CC.1.5.8.A CC1.5.10.A
To Dam or Not To Dam <i>Aquatic WILD</i>	5-9	Human Impact Management Decision-making	4.3.7.A 4.3.8.A 4.3.10.A 4.3.7.B	4.2.7.A 4.2.10.A 4.2.10.B 4.2.7.C 4.2.10.C 4.6.7.A 4.6.10.A 4.8.7.A 4.8.10.A 4.8.7.C 4.8.10.C		English/ Language Arts CC.1.5.5.A CC.1.5.6.A CC.1.5.7.A CC.1.5.8.A CC.1.5.9-10.A CC.1.5.6.D CC.1.5.7.D CC.1.5.8.C CC.1.5.9-10.D Geography 7.4.9.B 7.4.U.A
Trout in the Classroom <i>PA Fish and Boat Commission</i>	3-12	Habitat Life Cycles Water Quality Management	4.1.4.A 4.7.A 4.1.10.A 4.1.12.A 4.2.7.A 4.2.5.C 4.2.6.C 4.2.7.C 4.3.7.B	4.1.4.C 4.1.7.C 4.2.10.B 4.2.7.C 4.6.4.A 4.6.7.A 4.6.10.A 4.8.7.A 4.8.10.A 4.8.7.B 4.8.10.B 4.8.7.D 4.8.10.D 4.9.7.A		Mathematics CC.2.4.3.A.1 CC.2.4.5.A.2 CC.2.4.HS.B.5
Watershed Delineation <i>Watershed Education</i>	6-12	Watershed Delineation Human Impact	4.2.6.A 4.2.7.A 4.2.10.A	4.1.10.A 4.1.12.A 4.1.7.B 4.1.10.B		Geography 7.1.7.A 7.1.8.A 7.1.U.A 7.1.C.A 7.1.12.A
Water Quality: Ask the Bugs <i>Project WET</i>	6-12	Habitat Evaluation Water Quality Stream Analysis Human Impact	4.2.5.C 4.2.6.C 4.2.7.C 4.3.10.C 4.5.5.C 4.5.10.C	4.1.7.B 4.1.10.B 4.1.7.C 4.1.10.C 4.1.12.C		Geography 7.2.5.A 7.2.6.A 7.2.7.A 7.2.U.A 7.2.W.A 7.2.12.A 7.2.5.B Mathematics CC.2.4.HS.B.5
Water Safari <i>Aquatic WILD</i>	K-4	Habitat Basic Needs	4.1.4.A 4.1.3.D 4.1.4.D 4.1.4.F	4.6.4A 4.8.4D		Geography 7.2.3.A 7.2.4.A

Activity/ Source	Grade	Major Content	Environment/ Ecology (SAS)	Environment/ Ecology State Board of Education	Civics and Government (draft)	Additional
Where Have All the Shad Gone? <i>American Shad</i> <i>Educator Resources</i>	6-12	Natural Resource Conservation Human Impact	4.1.10.A 4.1.10.B 4.1.6.D 4.1.10.D 4.3.10A 4.3.12.B 4.5.6.A 4.5.7.A	4.2.10.B 4.2.12.B 4.2.10.C 4.6.7.A 4.6.10.A 4.6.12.A 4.6.10.C 4.6.12.C 4.7.7.C 4.7.10.C 4.8.4.C	5.3.6.G 5.3.7.G	Geography 7.4.7.B 7.4.8.B 7.4.U.A 7.4.U.B
Wild Bill's Fate <i>Project WILD</i> <i>Science and Civics:</i> <i>Sustaining Wildlife</i>	9-12	Fact vs Opinion Environmental Laws Government	4.2.12.A 4.5.10.A	4.9.10.A 4.9.12.A	5.1.C.A 5.1.12.A 5.3.C.A 5.3.C.B	English/ Language Arts CC.1.4.9-10.X CC.1.4.11-12.X

Academic Standards

Environment and Ecology (Dept of Ed.) on SAS		Environment and Ecology (State Board of Education, aligned to STEE Anchors)
4.1 Ecology	made factors that affect water quality.	4.1 Watersheds and Wetlands
4.1.4.A Explain how living things are dependent upon other living and non-living things.	4.2.7.C Use appropriate tools and techniques to analyze a freshwater environment.	4.1.4.A Identify various types of water environments.
4.1.7.A Describe relationships between biotic and abiotic components of an ecosystem.	4.2.10.C Explain the relationship between water quality and the diversity of life in a freshwater ecosystem.	4.1.7.A Describe the role of the water cycle within a watershed.
4.1.10.A Evaluate factors affecting the use of natural resources.	4.2.4.F-4.2.10F Scientific Inquiry.	4.1.10.A Describe changes that occur from a stream’s origin to its final outflow.
4.1.12.A Analyze the significance of biological diversity in an ecosystem.	4.3 Natural Resources	4.1.12.A Categorize stream order in a watershed.
4.1.10.B Explain the consequences of interrupting natural cycles.	4.3.4.A Identify ways humans depend on natural resources for survival.	4.1.7.B Understand the role of the watershed- explain factors that affect water quality.
4.1.12.B Research solutions to problems caused by interrupting natural cycle.	4.3.7.A Explain how products are derived from natural resources.	4.1.10.B Explain the relationship among landforms, vegetation and the amount and speed of water- Define factors that affect the quality of water
4.1.3.D Identify organisms that are dependent on one another in a given ecosystem.	4.3.8.A Compare and contrast alternative sources of energy.	4.1.4.C Identify living things found in water environments.
4.1.4.D Explain how specific adaptations can help organisms survive in their environment.	4.3.10.A Evaluate factors affecting the use of natural resources.	4.1.7.C Explain the effects of water on the life of organisms in a watershed.
4.1.6.D Identify reasons why organism become threatened, endangered and extinct.	4.3.4.B Identify the geographic origins of various natural resources.	4.1.10.C Describe the physical characteristics of a stream and determine the types of organisms found in aquatic environments.
4.1.10. D Research practices that impact biodiversity in specific ecosystems.	4.3.7.B Explain the distribution and management of natural resources.	4.1.12.C Analyze the parameters of a watershed- interpret physical, chemical and biological data as a means of assessing the environmental quality of a watershed.
4.1.12.D Analyze the effects of new and emerging technologies on biodiversity in specific ecosystem.	4.3.10.B Analyze how humans manage and distribute natural resources.	4.1.10.E Identify and describe natural and human events on watersheds and wetlands.
4.1.4.E Explain that ecosystems change over time due to natural and/or human influences.	4.3.12.B Analyze factors that influence the local, regional, national and global availability of natural resources.	4.2 Renewable and Nonrenewable Resources
4.1.7.E Identify factors that contribute to changes in anatural and human-made ecosystems.	4.5 Humans and the Environment	4.2.4.A Identify the needs of people.
4.1.10.E Analyze how humans influence the pattern of natural changes.	4.5.6.A Examine how historical events have shaped the sustainable use of natural resources.	4.2.7.A Know that raw materials come from natural resources
4.1.12.E Research solutions addressing human impacts on ecosystems over time.	4.5.7.A Describe how the development of civilization affects the use of natural resources.	4.2.10.A Explain that renewable and nonrenewable resources supply energy and materials.
4.1.4.F-4.1.10.F Scientific Inquiry.	4.5.8.A Explain how Best Management Practices can be used to mitigate environmental problems.	4.2.7.B Examine the renewability of resources
4.2 Watersheds and Wetlands	4.5.10.A Explain how public policy encourages or discourages the sustainable use of natural resources.	4.2.10.B Evaluate factors affecting the availability of natural resources.
4.2.5.A Explain the water cycle	4.5.12.A Research how technology influences the sustainable us of natural resources.	4.2.12.B Analyze factors affecting the availability of renewable and nonrenewable resources
4.2.6.A Identify the five major watersheds of Pennsylvania.	4.5.5.C Explain the difference between point and non-point source pollution.	4.2.7.C Explain natural resource distribution
4.2.7.A Explain how water enters, moves through, and leaves a watershed.	4.5.6.C Identify key people and events that shaped the environmental history in the United States	4.2.10.C Analyze how man-made systems have impacted the management and distribution of natural resources.
4.2.8.A Describe factors that affect the quality of ground and surface waters.	4.5.7.C Explain how human actions affect the health of the environment.	4.3 Environmental Health
4.2.10.A Examine interactions between abiotic and biotic factors within a watershed.	4.5.8.C Describe how humans can reduce pollution.	4.3.4.A Know that plants, animals and humans are dependent on air and water.
4.2.12.A Examine environmental laws related to land use management and its impact on the water quality and flow within a watershed.	4.5.10.C Analyze real world data; explain how point and non-point source pollution can be detected.	4.3.7.A Identify environmental health issues.
4.2.5.C Identify physical, chemical and biological factors that affect water quality.	4.5.4.E Identify different ways human health can be affected by pollution.	4.3.10.A Describe environmental health issues.
4.2.6.C Identify natural and human-	4.5.7.E Describe how length and degree of exposure to pollutants may affect human health.	



<p>4.3.7.B Describe how human actions affect the health of the environment.</p> <p>4.3.10.B Explain how multiple variables determine the effects of pollution on environmental health, natural processes and human practices.</p> <p>4.3.10.D Explain biological diversity as an indicator of a healthy environment.</p> <p>4.6 Ecosystems and their Interactions</p> <p>4.6.4.A Understand that living things are dependent on nonliving things in the environment for survival.</p> <p>4.6.7.A Explain the flows of energy and matter from organism to organism within an ecosystem demonstrate the dependency of living components in the ecosystem on the nonliving components.</p> <p>4.6.10.A Explain the biotic and abiotic components of an ecosystem and their interactions.</p> <p>4.6.12.A Analyze the interdependence of an ecosystem.</p> <p>4.6.10.B Explain how cycles affect the balance in an ecosystem.</p> <p>4.6.10.C Analyze how ecosystems change over time.</p> <p>4.6.12.C Analyze how human action and natural changes affect the balance within an ecosystem.</p> <p>4.7 Threatened, Endangered and Extinct Species</p> <p>4.7.7.B Explain how species of living organisms adapt to their environment.</p> <p>4.7.10.B Explain how structure, function and behavior of plants and animals affect their ability to survive.</p> <p>4.7.4.C Define and understand extinction.</p> <p>4.7.7.C Explain natural or human actions in relation to the loss of species- explain how a habitat management practice affects a population.</p> <p>4.7.10.C Identify and explain why adaptations can lead to specialization- explain how management practices may influence the success of a specific species.</p> <p>4.8 Humans and the Environment</p> <p>4.8.4.A Identify the biological requirements of humans.</p> <p>4.8.7.A Describe how the development of civilization relates to the environment.</p> <p>4.8.10.A Analyze how society’s needs relate to the sustainability of natural resources.</p> <p>4.8.4.B Know that environmental conditions influence where and how people live.</p> <p>4.8.7.B Explain how people use natural resources.</p>	<p>4.8.10.B Analyze the relationship between the use of natural resources and sustaining our society.</p> <p>4.8.12.B Analyze technology’s role on natural resource sustainability.</p> <p>4.8.4.C Explain how human activities may change the environment.</p> <p>4.8.7.C Explain how human activities may affect local, regional and national environments.</p> <p>4.8.10.C Analyze how human activities may cause changes in an ecosystem.</p> <p>4.8.4.D Know the importance of natural resources in daily life.</p> <p>4.8.7.D Explain the importance of maintaining the natural resources at the local, state and national levels.</p> <p>4.8.10.D Explain how the concept of supply and demand affects the environment.</p> <p>4.9 Environmental Laws and Regulations</p> <p>4.9.7.A Explain the role of environmental laws and regulations.- explain the role of local and state agencies in enforcing environmental laws and regulations.</p> <p>4.9.10.A Explain why environmental laws and regulations are developed and enacted</p> <p>4.9.12.A Analyze environmental laws and regulations as they relate to environmental issues.</p> <p><u>Civics and Government -Draft (on SAS)</u></p> <p>5.1. Principles and Documents of Government</p> <p>5.1.7.A Cite functional examples of how the rule of law protects property rights, individual rights and the common good.</p> <p>5.1.8.A Identify the sources of the rule of law.</p> <p>5.1.C.A Analyze the sources, purposes, functions of law, and how the rule of law protects individual rights and promotes the common good.</p> <p>5.1.12.A Analyze the sources, purposes, functions of law, and how the rule of law protects individual rights and promotes the common good.</p> <p>5.1.3.D Identify key ideas about government found in significant documents.</p> <p>5.1.4.D Identify key ideas about government found in significant documents.</p> <p>5.1.5.D Interpret key ideas about government found in significant documents.</p> <p>5.1.6.D Explain the basic principles and ideas within documents and roles played by the framers as found in significant documents.</p>	<p>5.1.7.D Summarize the basic principles and ideals within documents and the roles played by the framers as found in significant documents.</p> <p>5.1.8.D Summarize the basic principles and ideals within documents and roles played y the framers as found in significant documents.</p> <p>5.1.5.E Identify the individual rights guaranteed by the PA Constitution and the U.S. Constitution.</p> <p>5.1.6.E Summarize individual rights guaranteed by the PA Constitution and the U.S. Constitution</p> <p>5.2. Rights and Responsibilities of Citizenship</p> <p>5.2.3.A Identify personal rights and responsibilities.</p> <p>5.2.4.A Identify individual rights and needs and the rights and needs of others in the classroom, school and community.</p> <p>5.2.5.A Identify individual rights and needs and the rights and needs of others in the classroom school, community state and nation.</p> <p>5.2.6.A Compare and contrast rights and responsibilities of citizenship in the community, state, and nation.</p> <p>5.2.7.A Compare and contrast rights and responsibilities of citizenship in the community, state and nation.</p> <p>5.3. How Government Works</p> <p>5.3.4.C Identify the services performed by local and state governments</p> <p>5.3.5.C Describe the role of local and state government officials.</p> <p>5.3.6.G Identify individual interest groups and how they impact government.</p> <p>5.3.7.G Explain the role of interest groups in local and Pennsylvania governments.</p> <p>5.3.8.G Explain the role of interest groups in federal government process.</p> <p>5.3.C.A Examine the process of checks and balances among the three branches of government including the creation of law.</p> <p>5.3.C.B Analyze the roles of local, state and national governments in policy-making.</p> <p>5.4. How International Relationships Function</p> <p>5.4.8.C Explain how common problems are addressed by organizations and governments.</p> <p>Geography</p> <p>7.1. Basic Geographic Literacy</p> <p>7.1.6.A Describe how common geographic tools are used to organize and interpret information about people, places</p>
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<p>and environments.</p> <p>7.1.7.A Explain how common geographic tools are used to organize and interpret information about people, places and environments.</p> <p>7.1.8.A Explain how common geographic tools are used to organize and interpret information about people, places and environments.</p> <p>7.1.C.A Use geographic tools to analyze information about the interactions between people, places and the environment.</p> <p>7.1.U.A Use geographic tools to analyze information about the interaction between people, places, and the environment.</p> <p>7.1.12.A Use geographic tools to analyze information about the interactions between people, places and the environment.</p> <p>7.1.6.B Describe and locate places and regions as defined by physical and human features.</p> <p>7.1.7.B Explain and locate places and regions as defined by physical and human features.</p> <p>7.1.8.B Explain and locate places and regions as defined by physical and human features.</p> <p>7.1.U.B Analyze the effects of human activity on the physical systems.</p>	<p>and regions.</p> <p>7.3. Human Characteristics of Places and Regions</p> <p>7.3.5.A Identify the human characteristics of places and regions using the given criteria.</p> <p>7.3.6.A Describe the human characteristics of places and regions using the given criteria.</p> <p>7.3.7.A Describe the human characteristics of places and regions using the given criteria.</p> <p>7.3.8.A Describe the human characteristics of places and regions using the given criteria.</p> <p>7.3.C.A Analyze the human characteristics of laces ad regions using the given criteria.</p> <p>7.3.12.A Analyze the human characteristics of laces ad regions using the given criteria.</p> <p>7.4. Interactions Between People and the Environment</p> <p>7.4.6.A Describe and explain the effects of the physical systems on peoples within regions.</p> <p>7.4.7.A Describe and explain the effects of the physical systems on peoples within regions.</p> <p>7.4.8.A Illustrate the effects of the physical systems on people within regions.</p> <p>7.4.3.B Identify the effect of people on the physical systems within a community.</p> <p>7.4.4.B Identify the effect of people on the physical systems within a community.</p> <p>7.4.5.B Identify the effect of people on the physical systems within a community.</p> <p>7.4.6.B Describe and explain the effects of people on the physical systems within regions.</p> <p>7.4.7.B Describe and explain the effects of people on the physical systems within regions.</p> <p>7.4.8.B Interpret the effects of people on the physical systems within regions.</p> <p>7.4.9.B Compare and contrast the effect of people on the physical region across regions of the United States.</p> <p>7.4.U.A Analyze the effects of changes in the physical systems.</p> <p>7.4.W.A Analyze the effects of changes in the physical systems.</p> <p>7.4.U.B Analyze the effects of human activity on the physical systems.</p> <p>7.4.W.B Analyze the effects of human activity on the physical systems.</p>	<p>audiences.</p> <p>CC.1.4.9-10.X Write routinely over extended tie frames and shorter time frames for a audiences.</p> <p>CC.1.4.11-12.X Write routinely over extended time frames and shorter time frames for a range of discipline specific tasks, purposes, and audiences.</p> <p>CC.1.4.5.V Conduct short research projects that use several sources to build knowledge though investigation of different aspects of a topic.</p> <p>1.5. Speaking and Listening</p> <p>CC.1.5.4.A Engage effectively in a range of collaborative discussions, on grade-level topics, texts and issues, building on other’s ideas and expressing their own clearly.</p> <p>CC.1.5.5.A Engage effectively in a range of collaborative discussions, on grade-level topics, texts and issues, building on other’s ideas and expressing their own clearly.</p> <p>CC.1.5.6.A Engage effectively in a range of collaborative discussions, on grade-level topics, texts, and issues, building on others’ ideas and expressing their own clearly.</p> <p>CC.1.5.7.A Engage effectively in a range of collaborative discussions, on grade-level topics, texts and issues, building on other’s ideas and expressing their own clearly.</p> <p>CC.1.5.8.A Engage effectively in a range of collaborative discussions, on grade-level topics, texts and issues, building on other’s ideas and expressing their own clearly.</p> <p>CC.1.5.9-10.A Initiate and participate effectively in a range of collaborative discussions on grade level topics, texts, and issues, building on other’s ideas and expressing their own clearly and persuasively.</p> <p>CC.1.5.12.A Initiate and participate effectively in a range of collaborative discussions on grade level topics, texts, and issues, building on other’s ideas and expressing their own clearly and persuasively.</p> <p>CC.1.5.7.B Delineate a speaker’s argument and specific</p>
<p>7.2. Physical Characteristics of Places and Regions</p> <p>7.2.3.A Identify the physical characteristics of places and regions.</p> <p>7.2.4.A Identify the physical characteristics of places and regions.</p> <p>7.2.5.A Describe the physical characteristics of places and regions.</p> <p>7.2.6.A Describe the physical characteristics of places and regions.</p> <p>7.2.7.A Explain the characteristics of places and regions.</p> <p>7.2.8.A Explain the characteristics of places and regions.</p> <p>7.2.U.A Analyze the physical characteristics of places and regions, including the interrelationships among the components of Earth’s physical systems.</p> <p>7.2.W.A Analyze the physical characteristics of places and regions, including the interrelationships aong the components of Earth’s physical systems.</p> <p>7.2.12A Analyze the physical characteristics of places and regions.</p> <p>7.2.5.B Identify the basic physical processes that affect the physical characteristics of places</p>	<p>English- Language Arts</p> <p>1.4 Writing</p> <p>CC.1.4.7.X Write routinely over extended time frames and shorter time frames for a range of discipline specific tasks, purposes, and</p>	



<p>CC.1.5.8.B</p> <p>CC.1.5.10.B</p> <p>CC.1.5.12B</p> <p>CC.1.5.6.C</p> <p>CC.1.5.7.C</p> <p>CC.1.5.5.D</p> <p>CC.1.5.6.D</p> <p>CC.1.5.7.D</p> <p>CC.1.5.8.D</p>	<p>claims, evaluating the soundness of the reasoning and the relevance and sufficiency of the evidence. Delineate a speaker’s argument and specific claims, evaluating the soundness of the reasoning and the relevance and sufficiency of the evidence.</p> <p>Evaluate a speaker’s perspective, reasoning, and use of evidence and rhetoric, identifying any fallacious reasoning or exaggerated or distorted evidence.</p> <p>Evaluate how the speaker’s perspective, reasoning and use of evidence and rhetoric affect the credibility of an argument through the author’s stance, premises, links among ideas, word choice, points of emphasis and tone.</p> <p>Interpret information presented to diverse media and formats and explain how it contributes to a topic, text or issue under study.</p> <p>Analyze the main ideas and supporting details presented in diverse media formats and explain how the ideas clarify a topic, text or issue under study.</p> <p>Report on a topic or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes, speak clearly with adequate volume, appropriate packing and clear pronunciation.</p> <p>Present claims and findings, sequencing ideas logically and using pertinent descriptions, facts, and details to accentuate main ideas or themes; use appropriate eye contact, adequate volume, and clear pronunciations.</p> <p>Present claims and findings, sequencing ideas logically and using pertinent descriptions, facts, and</p>	<p>details to accentuate main ideas or themes; use appropriate eye contact, adequate volume, and clear pronunciations.</p> <p>CC.1.5.9-10.D Present information, findings and supporting evidence clearly, concisely and logically such that listeners can follow the line of reasoning, ensure that the presentation is appropriate to purpose, audience and task.</p> <p>CC.1.5.11-12.D Present information, findings and supporting evidence clearly, concisely and logically such that listeners can follow the line of reasoning, ensure that the presentation is appropriate to purpose, audience and task.</p> <p>Mathematics 2.4 Measurement, Data and Probability</p> <p>CC.2.4.3.A.1 Solve problems involving measurement and estimation of temperature, liquid, volumes, mass and length.</p> <p>CC.2.4.4.A.1 Solve problems involving measurement and conversions from larger unit to a smaller unit</p> <p>CC.2.4.5.A.1 Solve problems using conversions within a given measurement system.</p> <p>CC.2.4.3.A.2 Tell and write time in the nearest minute and solve problems by calculating time intervals.</p> <p>CC.2.4.4.A.2 Translate information from one type of data display to another.</p> <p>CC.2.4.5.A.2 Represent and interpret data using appropriate scale.</p> <p>CC.2.4.3.A.4 Represent and interpret data using tally charts, tables, pictographs, line plots and bar graphs.</p> <p>CC.2.4.HS.B.5 Make inferences and justify conclusions based on sample survey, experiments and observational studies.</p>	
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