

National Standards Addressed: Online Resources

No Boundaries to the Boundary Waters National Standards Alignment				
Course Name	Description	NGSS Standards	CC ELA Anchor Standards	CC Math Standards
Climate Change in the Boundary Waters: Moose Investigation	Climate change is a big topic, and is affecting many species in our state. The Boundary Waters is especially vulnerable to climate change as it lies in the Boreal Forest, our northernmost ecosystem and full of iconic Minnesota species such as the moose. In this interactive investigation, students will gather evidence on current trends in the Boundary Waters moose population, and investigate how these changes are tied to emissions predictions for the future. Following the investigation, students will create a Climate Action Plan to brainstorm changes they can make to influence our emissions future!	MS-LS2-4, MS-LS2-5, MS-LS2-2, MS-LS2-5, MS-LS1-5, MS-ESS3-5, HS-LS2-1, HS-LS2-2, HS-LS2-6, HS-LS2-7., HS-ESS2-4, HS-ESS2-5 HS-ESS3-5, HS-ESS3-6, HS-ETS1-1, HS-ETS1-3	CCSS.ELA-Literacy.CCRA.R.1, CCSS.ELA-Literacy.CCRA.R.7, CCSS.ELA-Literacy.CCRA.W.1, CCSS.ELA-Literacy.CCRA.W.4, CCSS.ELA-Literacy.CCRA.W.7,C CSS.ELA-Literacy.CCRA.SL.1, CCSS.ELA-Literacy.CCRA.SL.2, CCSS.ELA-Literacy.CCRA.SL.4, CCSS.ELA-Literacy.CCRA.L.6	CCSS.Math.Content.6.SP.A.2, CCSS.Math.Content.6.SP.B.5, CCSS.Math.Content.7.SP.B.4, CCSS.Math.Content.HSS.ID.A.2, CCSS.Math.Content.HSS.ID.A.3, CCSS.Math.Content.HSS.IC.B.6
Water Quality in the BWCA: Mini Investigation	Water Quality can be measured using biological and chemical metrics, but often these are hard to understand. In this mini-investigation, students explore data from Boundary Waters lakes in order to draw conclusions about various factors that can affect water health. Students look at chemical tests, as well as site descriptions to engage in a data discussion.	MS-LS2-4, HS-ESS2-5, HS-LS2-7 HS-ESS2-5	CCSS.ELA-Literacy.CCRA.R.7, CCSS.ELA-Literacy.CCRA.W.1, CCSS.ELA-Literacy.CCRA.W.7, CCSS.ELA-Literacy.CCRA.SL.1, CCSS.ELA-Literacy.CCRA.SL.2, CCSS.ELA-Literacy.CCRA.SL.4, CCSS.ELA-Literacy.CCRA.L.6	CCSS.Math.Content.7.SP.B.4, CCSS.Math.Content.HSS.ID.B.5, CCSS.Math.Content.HSS.IC.B.6
A Voice for the Wild: Film and Reflection Questions	Join Emily Ford and sled dog Diggins as they attempt to cross the Boundary Waters during winter to raise awareness about copper mining threat. This short 20 minute film includes reflections questions to help generate student conversation around wilderness conservation and connection.	5-ESS3-1, MS-ESS3-4	CCSS.ELA-Literacy.CCRA.R.7, CCSS.ELA-Literacy.CCRA.W.3, CCSS.ELA-Literacy.CCRA.W.4, CCSS.ELA-Literacy.CCRA.SL.1, CCSS.ELA-Literacy.CCRA.SL.2, CCSS.ELA-Literacy.CCRA.SL.3	
Nature Scavenger Hunt	Take your learning outside with this resource. Students can engage in a journal or photo challenge in order to hone their observation skills, explore leave no trace philosophies, and connect to their local ecosystems.	5-ESS3-1	CCSS.ELA-Literacy.CCRA.W.3, CCSS.ELA-Literacy.CCRA.W.7, CCSS.ELA-Literacy.CCRA.W.10, CCSS.ELA-Literacy.CCRA.SL.1, CCSS.ELA-Literacy.CCRA.SL.2	
Getting your Feet Wet: An Introduction to the Boundary Waters	Take your first steps into the Boundary Waters as you explore through a series of videos and digital interactives. Through a self-guided interactive: students make observations about the Boundary Waters, learn about the Wilderness Act and the preservation of the BWCA, practice Leave No Trace principles, and gather knowledge about the Indigenous people who call this area home.	5-ESS3-1, MS-ESS3-3,, HS-LS2-7, MS-ESS3-4	CCSS.ELA-Literacy.CCRA.R.7, CCSS.ELA-Literacy.CCRA.SL.2, CCSS.ELA-Literacy.CCRA.L.6	
Skull Investigation	Dive into the world of animal adaptations through up-close observations of animal artifacts! Students learn about adaptations, explore 3D models of skulls, compare and contrast carnivores, herbivores, and omnivores, and put their skills into action through this digital science investigation.	MS-LS2-2, MS-LS4-2	CCSS.ELA-Literacy.CCRA.R.7, CCSS.ELA-Literacy.CCRA.W.1, CCSS.ELA-Literacy.CCRA.SL.2, CCSS.ELA-Literacy.CCRA.SL.4, CCSS.ELA-Literacy.CCRA.L.6	

<p>Biomes and the Boreal Forest</p>	<p>Explore Northern Minnesota's unique boreal forest, home to the Boundary Waters. In this investigation, students will discover what a biome is, conduct a local investigation, and use observation skills to compare and contrast their home biomes to those of Northern Minnesota. Students practice tree identification skills and engage with climate data in this interactive digital investigation.</p>	<p>HS-LS2-6, HS-LS4-5, HS-LS2-2</p>	<p>CCSS.ELA-Literacy.CCRA.R.7, CCSS.ELA-Literacy.CCRA.W.1, CCSS.ELA-Literacy.CCRA.SL.2, CCSS.ELA-Literacy.CCRA.SL.4, CCSS.ELA-Literacy.CCRA.L.6</p>	<p>CCSS.Math.Content.HSS.IC.B.6</p>
<p>Ojibwe Knowledge of the Northwoods: Sugar Bush</p>	<p>Listen and learn about Iskigamizigan (sugar bush) practices from Ojibwe speakers. In this activity, students learn the steps of harvesting maple syrup before listening to excerpts from the Anishinaabe gikendamawa Panel Discussion. Listen and reflect on the discussion led by Ojibwe elders, traditional ecological knowledge keepers, scientists, and youth as they explore the impacts of climate, and historic and contemporary life of the Anishinaabe in our ever-changing world.</p>	<p>5-ESS3-1, MS-LS2-2, HS-LS2-7, HS-ESS2-2</p>	<p>CCSS.ELA-Literacy.CCRA.R.4, CCSS.ELA-Literacy.CCRA.R.7, CCSS.ELA-Literacy.CCRA.W.3, CCSS.ELA-Literacy.CCRA.W.4, CCSS.ELA-Literacy.CCRA.SL.1, CCSS.ELA-Literacy.CCRA.SL.2, CCSS.ELA-Literacy.CCRA.SL.3, CCSS.ELA-Literacy.CCRA.L.6</p>	
<p>Ojibwe Knowledge of the Northwoods: Wild Rice</p>	<p>Listen and learn about Manoomin (wild rice) from Indigenous leaders. In this activity, students learn about wild rice before listening to excerpts from the Anishinaabe gikendamawa Panel Discussion. Listen and reflect on the discussion led by Ojibwe elders, traditional ecological knowledge keepers, scientists, and youth as they explore the impacts of climate, and historic and contemporary life of the Anishinaabe in our ever-changing world.</p>	<p>5-ESS3-1, MS-ESS3-3, MS-ESS3-4, HS-LS2-6</p>	<p>CCSS.ELA-Literacy.CCRA.R.4, CCSS.ELA-Literacy.CCRA.R.7, CCSS.ELA-Literacy.CCRA.W.3, CCSS.ELA-Literacy.CCRA.W.4, CCSS.ELA-Literacy.CCRA.SL.1, CCSS.ELA-Literacy.CCRA.SL.2, CCSS.ELA-Literacy.CCRA.SL.3, CCSS.ELA-Literacy.CCRA.L.6</p>	
<p>Ojibwe Knowledge of the Northwoods: Storytelling</p>	<p>Learn about Aadizookaan (sacred stories) from indigenous leaders. In this activity, students learn about the tradition of storytelling from Ojibwe Elders. Listen and reflect on a panel discussion led by elders, traditional ecological knowledge keepers, scientists, and youth as they discuss the role of storytelling in Anishinaabe life.</p>	<p>5-ESS3-1</p>	<p>CCSS.ELA-Literacy.CCRA.R.4, CCSS.ELA-Literacy.CCRA.R.7, CCSS.ELA-Literacy.CCRA.W.3, CCSS.ELA-Literacy.CCRA.W.4, CCSS.ELA-Literacy.CCRA.SL.1, CCSS.ELA-Literacy.CCRA.SL.2, CCSS.ELA-Literacy.CCRA.SL.3, CCSS.ELA-Literacy.CCRA.L.6</p>	
<p>Ojibwe Knowledge of the Northwoods: Hunting and Gathering</p>	<p>Listen and learn about hunting and gathering practices from Indigenous leaders. In this activity, students learn about the role of hunting and gathering in Anishinaabe survival and how those practices have evolved today. Students listen to excerpts from the Anishinaabe gikendamawa Panel Discussion. Students reflect on the discussion led by Ojibwe elders, traditional ecological knowledge keepers, scientists, and youth as they explore the impacts of climate, and historic and contemporary life of the Anishinaabe in our ever-changing world.</p>	<p>5-ESS3-1, MS-LS2-5, MS-ESS3-3, MS-ESS3-4, HS-LS2-6</p>	<p>CCSS.ELA-Literacy.CCRA.R.4, CCSS.ELA-Literacy.CCRA.R.7, CCSS.ELA-Literacy.CCRA.W.3, CCSS.ELA-Literacy.CCRA.W.4, CCSS.ELA-Literacy.CCRA.SL.1, CCSS.ELA-Literacy.CCRA.SL.2, CCSS.ELA-Literacy.CCRA.SL.3, CCSS.ELA-Literacy.CCRA.L.6</p>	

MN Standards Addressed: Online Resources

No Boundaries to the Boundary Waters Minnesota State Standards Allignment					
Course Name	Description	Science Standards	ELA Standards	Math Standards	Social Studies Standards
Climate Change in the Boundary Waters: Moose Investigation	Climate change is a big topic, and is affecting many species in our state. The Boundary Waters is especially vulnerable to climate change as it lies in the Boreal Forest, our northernmost ecosystem and full of iconic Minnesota species such as the moose. In this interactive investigation, students will gather evidence on current trends in the Boundary Waters moose population, and investigate how these changes are tied to emissions predictions for the future. Following the investigation, students will create a Climate Action Plan to brainstorm changes they can make to influence our emissions future!	6E.1.1.1.3, 6E.3.2.1.3, 7L.2.1.1.1, 7L.4.1.2.1, 9E.2.1.1.2, 9E.2.1.1.3, 9E.3.2.2.1, 9E.4.2.2.1, 9L.2.2.1.1, 9L.4.1.1.3	6.1.2.1, 6.1.4.1, 6.1.5.3, 6.1.6.1, 6.1.9.1, 6.2.4.1, 6.2.7.2, 6.3.1.2, 6.3.3.1, 7.1.4.4, 7.1.5.3, 7.1.7.1, 7.1.7.1, 7.2.2.1, 7.2.2.2, 7.3.1.2, 8.1.5.3, 8.1.7.1, 8.2.5.1, 8.3.3.1, 9.1.2.2, 9.1.9.1, 9.2.4.1, 9.2.2.1, 9.2.5.1, 10.2.2.1, 10.2.4.1, 10.2.5.1, 11.1.9.1, 11.2.2.1, 11.2.4.1	6.1.1.3, 6.1.1.4, 6.1.1.5, 6.2.3.3, 7.1.1.5, 7.1.1.6, 8.1.1.5, 8.1.1.6, 9.1.1.2, 9.1.1.12	6.3.16.1, 6.5.24.1, 8.3.16.1, 9.3.16.3
Water Quality in the BWCA: Mini Investigation	Water Quality can be measured using biological and chemical metrics, but often these are hard to understand. In this mini-investigation, students explore data from Boundary Waters lakes in order to draw conclusions about various factors that can affect water health. Students look at chemical tests, as well as site descriptions to engage in a data discussion.	6E.3.2.1.3, 7L.4.1.2.1, 9E.4.2.1.1, 9C.2.1.1.1	6.1.5.3, 6.1.9.1, 6.2.7.1, 6.3.1.2, 6.3.3.1, 7.1.5.3, 7.1.7.1, 7.2.2.1, 7.3.1.2, 8.1.5.3, 8.2.2.1, 8.2.5.1, 9.2.4.1, 10.2.2.1, 10.2.4.1, 10.2.5.1, 11.2.2.1, 11.2.4.1	6.1.1.3, 6.1.1.5, 7.1.1.6, 8.1.1.6, 9.1.1.2, 9.1.1.12, 9.1.1.14	
A Voice for the Wild: Film and Reflection Questions	Join Emily Ford and sled dog Diggins as they attempt to cross the Boundary Waters during winter to raise awareness about copper mining threat. This short 20 minute film includes reflections questions to help generate student conversation around wilderness conservation and connection.		6.1.2.1, 6.1.5.3, 6.1.9.1, 6.2.7.1, 6.3.1.1, 6.3.1.2, 7.1.7.1, 7.2.2.1, 7.2.2.2, 8.2.2.1, 8.2.2.2, 9.2.2.1, 10.2.2.1, 11.2.2.1		6.5.24.1
Nature Scavenger Hunt	Take your learning outside with this resource. Students can engage in a journal or photo challenge in order to hone their observation skills, explore leave no trace philosophies, and connect to their local ecosystems.	6E.3.2.1.3	6.2.1.3, 6.2.2.1, 6.2.7.1, 6.3.1.1, 6.3.1.2, 7.1.7.1, 7.2.2.1, 7.3.1.2, 8.2.2.1, 8.2.7.1, 9.2.2.1, 9.2.7.1, 10.2.2.1, 10.2.7.1, 11.2.7.1		
Getting your Feet Wet: An Introduction to the Boundary Waters	Take your first steps into the Boundary Waters as you explore through a series of videos and digital interactives. Through a self-guided interactive: students make observations about the Boundary Waters, learn about the Wilderness Act and the preservation of the BWCA, practice Leave No Trace principles, and gather knowledge about the Indigenous people who call this area home.	6E.3.2.1.3, 9E.3.2.2.1	6.1.2.1, 6.1.5.3, 6.1.9.1, 6.3.1.2, 7.1.7.1, 7.2.2.1, 7.3.1.2, 8.2.2.1, 9.1.9.1, 9.2.2.1, 9.2.7.1, 10.2.2.1, 11.2.2.1		
Skull Investigation	Dive into the world of animal adaptations through up-close observations of animal artifacts! Students	5L.4.1.2.1, 7L.3.2.1.1, 7L.4.1.1.2, 7L.4.1.2.1,	6.1.2.1, 6.1.5.3, 6.1.9.1, 6.3.1.2, 6.3.3.1, 7.1.5.3, 7.2.2.1, 7.2.2.2,	6.2.3.3, 6.2.3.4, 8.1.1.6	

	learn about adaptations, explore 3D models of skulls, compare and contrast carnivores, herbivores, and omnivores, and put their skills into action through this digital science investigation.	7L.3.2.1.1, 9L.3.2.1.5	7.3.1.2, 7.3.3.1, 8.2.2.1, 8.2.5.1, 8.3.3.1, 9.2.4.1, 9.2.2.1, 10.2.2.1, 10.2.4.1, 10.2.5.1, 11.2.2.1, 11.2.4.1		
Biomes and the Boreal Forest	Explore Northern Minnesota's unique boreal forest, home to the Boundary Waters. In this investigation, students will discover what a biome is, conduct a local investigation, and use observation skills to compare and contrast their home biomes to those of Northern Minnesota. Students practice tree identification skills and engage with climate data in this interactive digital investigation.	7L.2.1.1.1, 7L.4.1.2.1, 9E.2.1.1.2, 9E.3.2.2.1, 9L.2.2.1.1, 9L.4.1.1.3	6.1.2.1, 6.1.5.3, 6.1.9.1, 6.3.1.2, 6.3.3.1, 7.1.5.3, 7.1.7.1, 7.1.7.1, 7.2.2.1, 7.3.1.2, 7.3.3.1, 8.1.5.3, 8.2.2.1, 8.2.5.1, 8.3.3.1, 9.2.4.1, 9.2.2.1, 10.2.2.1, 10.2.4.1, 10.2.5.1, 11.2.2.1, 11.2.4.1	6.1.1.4, 6.2.3.3, 7.1.1.5, 7.1.1.6, 8.1.1.5, 8.1.1.6, 9.1.1.12	
Ojibwe Knowledge of the Northwoods: Sugar Bush	Listen and learn about Iskigamizigan (sugar bush) practices from Ojibwe speakers. In this activity, students learn the steps of harvesting maple syrup before listening to excerpts from the Anishinaabe gikendamawa Panel Discussion. Listen and reflect on the discussion led by Ojibwe elders, traditional ecological knowledge keepers, scientists, and youth as they explore the impacts of climate, and historic and contemporary life of the Anishinaabe in our ever-changing world.	7L.4.2.2.1, 9E.4.2.2.1, 9L.4.2.2.1	6.1.2.1, 6.1.5.3, 6.1.6.1, 6.1.9.1, 6.3.1.1, 6.3.1.2, 7.1.4.4, 7.1.6.1, 7.1.7.1, 7.2.2.1, 8.1.6.1, 8.2.2.1, 8.2.2.2, 8.3.1.1, 9.1.3.1, 9.1.9.1, 9.2.2.1, 9.3.1.1, 10.1.3.1, 10.2.2.1, 10.3.1.1, 10.3.1.2, 11.2.2.1		6.1.6.1, 6.3.15.1, 6.4.19.1, 7.2.9.1, 7.5.25.1, 9.1.6.1, 9.4.19.7
Ojibwe Knowledge of the Northwoods: Wild Rice	Listen and learn about Manoomin (wild rice) from Indigenous leaders. In this activity, students learn about wild rice before listening to excerpts from the Anishinaabe gikendamawa Panel Discussion. Listen and reflect on the discussion led by Ojibwe elders, traditional ecological knowledge keepers, scientists, and youth as they explore the impacts of climate, and historic and contemporary life of the Anishinaabe in our ever-changing world.	7L.4.2.2.1, 9E.4.2.2.1, 9L.4.2.2.1, 9C.4.2.2.1	6.1.2.1, 6.1.5.3, 6.1.6.1, 6.1.9.1, 6.3.1.1, 6.3.1.2, 7.1.4.4, 7.1.6.1, 7.1.7.1, 7.2.2.1, 8.1.6.1, 8.2.2.1, 8.2.2.2, 8.3.1.1, 9.1.3.1, 9.1.9.1, 9.2.2.1, 9.3.1.1, 10.1.3.1, 10.2.2.1, 10.3.1.1, 10.3.1.2, 11.2.2.1		6.1.6.1, 6.3.15.1, 6.4.19.1, 7.1.6.1, 7.2.9.1, 7.5.25.1, 9.1.6.1, 9.4.19.7
Ojibwe Knowledge of the Northwoods: Storytelling	Learn about Aadizookaan (sacred stories) from indigenous leaders. In this activity, students learn about the tradition of storytelling from Ojibwe Elders. Listen and reflect on a panel discussion led by elders, traditional ecological knowledge keepers, scientists, and youth as they discuss the role of storytelling in Anishinaabe life.	6E.4.2.2.1, 7L.3.2.1.1	6.1.2.1, 6.1.5.3, 6.1.6.1, 6.1.9.1, 6.3.1.1, 6.3.1.2, 7.1.4.4, 7.1.6.1, 7.1.6.2, 7.1.7.1, 7.2.2.1, 7.3.1.1, 8.1.6.1, 8.2.2.1, 8.2.2.2, 8.3.1.1, 9.1.3.1, 9.1.9.1, 9.2.2.1, 9.3.1.1, 10.1.3.1, 10.2.2.1, 10.3.1.1, 10.3.1.2, 11.2.2.1		6.1.6.1, 6.3.15.1, 6.4.18.1, 6.4.18.2, 6.4.19.1, 7.5.25.1, 9.4.18.8, 9.4.22.7
Ojibwe Knowledge of the Northwoods: Hunting and Gathering	Listen and learn about hunting and gathering practices from Indigenous leaders. In this activity, students learn about the role of hunting and gathering in Anishinaabe survival and how those practices have evolved today. Students listen to excerpts from the Anishinaabe gikendamawa Panel Discussion. Students reflect on the discussion led by Ojibwe elders, traditional ecological knowledge keepers, scientists, and youth as they explore the impacts of climate, and historic and contemporary life of the Anishinaabe in our ever-changing world.	7L.4.2.2.1, 9L.4.2.2.1, 9C.4.2.2.1	6.1.2.1, 6.1.5.3, 6.1.6.1, 6.1.9.1, 6.3.1.1, 6.3.1.2, 7.1.4.4, 7.1.6.1, 7.1.7.1, 7.2.2.1, 8.1.6.1, 8.2.2.1, 8.2.2.2, 8.3.1.1, 9.1.3.1, 9.1.9.1, 9.2.2.1, 9.3.1.1, 10.1.3.1, 10.2.2.1, 10.3.1.1, 10.3.1.2, 11.2.2.1		6.1.6.1, 6.3.15.1, 6.4.19.1, 6.4.19.2, 7.1.6.1, 7.5.25.1, 9.1.6.1, 9.4.19.7

6	Understand the concept of ratio and its relationship to fractions and to the multiplication and division of whole numbers. Use ratios to solve real-world and mathematical problems.	1.2.1	x		x					x	x		
6	Multiply and divide decimals, fractions and mixed numbers; solve real-world and mathematical problems using arithmetic with positive rational numbers.	1.3.1	x		x					x	x		
7	Use reasoning with proportions and ratios to determine measurements, justify formulas and solve real-world and mathematical problems involving circles and related geometric figures.	3.1.1			x					x	x		
7	Use mean, median and range to draw conclusions about data and make predictions.	4.1.1		x			x			x	x		
9-11	Know and apply properties of geometric figures to solve real-world and mathematical problems and to logically justify results in geometry.	3.3.3			x	x				x		x	