

Table 7, Flathead Delphi Survey Round Two Ranked Statements

Round II: Knowledge							
Statement Number	Statement	Likert Scale Response					Mean Score
		1	2	3	4	5	
K33	Students need to know the basic premise of a watershed, that it is where they hunt and fish and recreate, and work, and live, and eat and grow food and consume food, and that as a result; they are also influencing the watershed with all their everyday actions.	0	0	1	4	17	4.52
K1	Students should be aware why the watershed is important to the species of fish and wildlife that utilize the watershed.	1	0	0	8	14	4.48
K43	Students should know the effects on the watershed of our actions; examples are: when we flush, put things down the drain, fertilize our lawns, have oil leaks.	0	0	1	5	16	4.48
K2	Students should be knowledgeable about the plants and animals of the watershed, including invasive species and their impact on the watershed.	0	1	1	8	13	4.43
K39	Students need to have an understanding of the human impact, both positive and negative on the watershed.	0	0	0	8	14	4.43
K47	It is important for students to engage in fieldwork because it is more effective in building enthusiasm, helping with future career choices and fostering stewardship.	0	0	0	8	14	4.43
K48	How the watershed impacts their lives and why they should care about it is essential information for students.	0	0	0	8	14	4.43
K54	It is important for students to understand that we all live in a watershed and cannot separate ourselves from it, and that our actions can have effects on downstream users, water quality, and aquatic ecosystems.	0	0	0	8	14	4.43
K4	Students should be aware that a major threat to the Flathead watershed is water quality degradation, predominantly nutrient and sediment additions caused by human activities.	0	0	0	9	13	4.39
K55	Students should understand the characteristics of a healthy watershed.	0	0	0	9	13	4.39
K52	It is important for students to know how humans impact the watershed.	0	0	0	10	12	4.35

Round II: Knowledge							
Statement Number	Statement	Likert Scale Response					Mean Score
		1	2	3	4	5	
K14	Students should learn that the underground aspects of the watershed are important and that the underground reaches of the Flathead River can be more than a mile from its banks with water flowing in the underground soils and gravels, therefore pollutants entering the watershed in the upper reaches will potentially make their way into the underground river as well.	0	0	1	9	12	4.30
K56	Understanding what a watershed is and what bodies of water contribute to our watershed is essential knowledge for students.	0	0	1	10	11	4.26
K44	Students should be aware of the aspects of water Q water cycle, bioregions, watersheds, water bodies (headwaters, streams, rivers, tributaries, marshes, sloughs, lakes, oceans), alluvium, surface water, ground water, downstream, upstream, water pollution (point source, nonpoint source) nutrient load.	0	0	3	8	11	4.17
K15	Students should be knowledgeable about the cycles in a watershed.	0	1	2	8	11	4.13
K23	It is important that students study the relationship of water quality and economic vitality in the Flathead.	0	0	3	9	10	4.13
K42	Where the water comes from when the faucet is turned on and how it is treated to be drinkable is important information for students.	0	1	2	8	11	4.13
K21	Students should be aware of the stormwater conveyance system and that storm drains flow directly into our water bodies without treatment.	1	1	0	9	11	4.09
K24	Students should be exposed to the biology and chemistry that relate to the Flathead Watershed, specifically water quality, organisms, ecosystems and diversity within the watershed.	0	0	3	10	9	4.09
K13	Students should learn about "indicator" species such as bull trout and about its health and continued persistence as indicators of the health of the watershed.	0	0	3	11	8	4.04
K45	It is important for students to recognize the difference between "belief systems" and "facts".	0	1	3	8	10	4.04

Round II: Knowledge							
Statement Number	Statement	Likert Scale Response					Mean Score
		1	2	3	4	5	
K40	Students should be aware of the international aspects of the Flathead Watershed and its reach into Canada, including human impacts, since a watershed does not recognize international borders.	0	0	4	10	8	4.00
K49	Knowledge gained through what is referred to as "STEM" (science, technology, engineering and math) courses is important to being able to make informed decisions about our watershed ecology and water quality.	0	0	3	12	7	4.00
K51	The history of the Flathead Watershed is important information for students.	0	0	2	14	6	4.00
K18	Fire is an essential topic for students.	0	0	6	7	9	3.96
K34	Knowledge of resources, natural, historical, cultural, land and water use (agriculture, mining, and roads, residential, commercial), recreation, conservation, dams, and irrigation is essential information for students.	0	0	2	10	9	3.96
K38	Learning about the influences of man through building communities, agriculture, recreation, and industry is relevant knowledge.	0	0	3	13	6	3.96
K3	Nonnative species (mostly introduced intentionally by managers) are major threats that are important for students to learn about in the Flathead Watershed.	2	0	0	12	8	3.91
K9	It is important to teach about natural environmental change in general.	0	1	3	11	7	3.91
K17	Understanding the needs of competing users of water in the Flathead Watershed is relevant information, especially with the challenges of climate change in the future.	0	1	5	7	9	3.91
K16	It is important that students learn that a river system affects the whole watershed not only by flowing partially below the surface, but also by how wildlife transfers nutrients from the stream to the upland.	0	0	6	9	7	3.87

Round II: Knowledge							
Statement Number	Statement	Likert Scale Response					Mean
		1	2	3	4	5	
K35	Management of the watershed for ecological, social, and economic values is important information for students to be aware of.	0	2	2	11	7	3.87
K6	Mitigation and restoration methods are important information for students to learn and know.	0	2	1	14	5	3.83
K10	A key concept for students would be an understanding of the nature and need for biodiversity.	1	0	3	7	10	3.83
K12	The four C's (clear, connected, complex and cold) are an essential concept for understanding of the Flathead watershed, particularly for animals such as the bull trout, an essential animal of the Flathead Watershed.	1	0	2	14	5	3.83
K29	Learning, how has this watershed changed over time, geologic, historic, present, is important information for students to be informed about.	0	0	3	11	7	3.83
K31	Students should understand that the stream system is the lifeblood of the watershed; it feeds it and is fed by it.	0	0	5	12	5	3.83
K36	Students should be aware of the storm water conveyance system and that storm drains flow directly into our water bodies without treatment.	1	1	1	8	10	3.83
K37	Students should be aware that there is a finite supply of clean water.	2	0	4	6	10	3.83
K46	Students should understand how systems function, including biotic and abiotic subsystems and how they are inextricably linked.	0	0	5	12	5	3.83
K53	The concept of international cooperation in protecting a watershed is an important piece for students to learn.	0	1	4	11	6	3.83
K57	Students should know the unique natural and cultural features of the Flathead Watershed.	0	0	3	11	7	3.83
K20	Learning to test water quality by testing turbidity, temperature and dissolved oxygen at sites along water bodies throughout the watershed is relevant knowledge for students.	0	0	6	11	5	3.78

Round II: Knowledge							
Statement Number	Statement	Likert Scale Response					Mean Score
		1	2	3	4	5	
K28	The concept that there is one environment, not a "human environment" and a "natural environment".	0	2	5	7	8	3.78
K50	It is important that students know about watershed communities.	0	0	7	9	6	3.78
K7	An essential concept for students to know is how water was used to establish the Flathead basin.	1	0	3	14	4	3.74
K19	Indian Education for All is knowledge that students should have.	1	1	6	5	9	3.74
K25	Understanding the history of how water has been managed is important.	0	2	3	12	5	3.74
K41	Have students know the names and location of key rivers and lakes, where the headwaters are, the location of the shallow aquifer, and other unique features within the watershed.	0	1	5	11	5	3.74
K32	Students should know the species composition of the watershed.	0	1	3	12	5	3.65
K5	Knowledge of the agencies and groups that are there to help and nurture the watershed is important information for students to know.	0	1	9	8	4	3.52
K22	Water is a natural connector, both physically and conceptually.	0	4	7	4	6	3.26
K30	Students should understand that essential concepts and issues in the Flathead watershed would start with the essential concepts.	0	1	11	5	4	3.26
K8	Politics is not important to include in the education guide.	3	3	7	4	4	2.87
K11	It is important to teach about water quality, organisms, ecosystems and diversity within the watershed without discussing the issue of climate change.	5	1	6	4	5	2.87

Round II: Skills							
Statement Number	Statement	Likert Scale Response					Mean Score
		1	2	3	4	5	
S20	Basic scientific inquiry and critical thinking are important skills for students.	0	0	0	5	15	4.75
S28	Listening and observing is an important skill.	0	0	0	6	14	4.7
S16	Critical thinking is important. Students should be taught how to ask the tough questions and then learn how to look for answers through research.	0	0	0	7	13	4.65
S26	Students, when looking to the Internet for information, need to always evaluate the source of information.	0	0	1	5	14	4.65
S21	Students should be able to make observations, identify problems, formulate relevant questions, use appropriate tools and technology to collect and analyze data, make inferences, draw conclusions, communicate and defend findings.	0	0	0	8	12	4.6
S10	A student should be able to interpret data and graphs.	0	0	1	7	12	4.55
S25	It is important to teach students to look beyond the rhetoric/popular opinion and ask their own questions, as well as how to search for their own answers or solutions provides a	0	0	1	8	11	4.5
S27	Imagination is important to encourage as students think of possible solutions.	0	0	1	10	9	4.4
S22	The ability to create tables, picture graphs, bar graphs and picture maps to record and organize information and to be able to read, interpret, and use tables and graphs to identify patterns and trends, draw conclusions, and make predictions are important skills for students to have.	0	1	0	10	9	4.35
S8	A student should be able to create, read, and interpret a map, from the schoolyard map to the watershed.	0	0	3	10	7	4.2
S7	Field studies are great.	0	0	2	13	5	4.15
S23	Describing and explaining how biodiversity in animal and plant life affects a watershed.	0	0	3	11	6	4.15

Round II: Skills							
Statement Number	Statement	Likert Scale Response					Mean Score
		1	2	3	4	5	
S24	Recognize and propose explanations for patterns of change in a watershed over time, including but not limited to changes in climate, animal and plant life, human activities and interactions.	0	2	3	5	10	4.15
S29	Learning skills such as how to fish, hunt, hike, raft, etc. takes you to places that gives you a real appreciation for the area, and helps people to come to their own conclusions about the importance of conservation of our resources.	0	1	3	9	7	4.1
S35	Observation skills are essential so that students can sit quietly and observe the world around them.	0	0	4	10	6	4.1
S33	Students should be able to read maps and landmarks and know the reservation watersheds.	0	0	6	7	7	4.05
S37	Practicing observation skills through participation in a variety of observation exercises using a variety of senses can start in the classroom, then move to the school yard, and finally students can implement their newly developed skills out in the field in the in the Flathead Watershed.	0	0	4	11	5	4.05
S1	Scientific investigations involving developing questions, collecting data, analyzing data, and comparing data are skills students should have.	3	1	0	5	11	4
S19	Teach students skills to help them explore new places, like how to use a GPS.	0	0	6	8	6	4
S40	Students should begin to conduct "research".	0	1	4	9	6	4
S17	Learning how to use a compass is an important and engaging outdoor skill.	0	1	3	12	4	3.95
S18	Students can learn about and appreciate the Flathead Watershed through skills such as canoeing, rafting, kayaking, swimming, fishing, bird watching, boating etc.	0	1	4	10	5	3.95

Round II: Skills							
Statement Number	Statement	Likert Scale Response					Mean Score
		1	2	3	4	5	
S39	Students should be able to know how to delineate a watershed; this means being able to read a map and decide where the ridges are and where the valleys are, and where a droplet of water would flow were it to drop at any point on that map.	0	1	5	8	6	3.95
S9	A student should be able to read literature related to the landscape/ecology and write about where they live.	0	2	3	10	5	3.9
S3	Conducting stream surveys, including water quality tests, stream flow, water depth, and sampling for macro invertebrates, is an essential skill.	0	0	7	9	4	3.85
S30	Format the curriculum to make information available, but do not build perceptions.	0	0	8	7	5	3.85
S34	Create homework assignments that require students to investigate their environment.	0	0	9	6	5	3.8
S38	Nature journaling" or "field journaling" gives young students the tools they need to quietly observe what is going on around them.	0	1	7	9	3	3.7
S6	Nature journaling, poetry, art, and similar activities help with connection to caring for the watersheds we live in.	1	0	6	11	2	3.65
S21	Identification skills using keys are important.	1	0	8	8	3	3.6
S31	Students should learn technical skills; analyzing aerial imagery, utilizing information resources such as USGS flow data websites and getting in the field to take measurements at sites such as a gaging station and a snowtel site, so the data is understood.	0	2	6	10	2	3.6
S4	Activities that are important in watershed education are planting trees, digging up invasive weeds, soil sampling, native and non-native id, restoration projects, bird watching, and tracking.	1	1	4	14	0	3.55
S15	Take a picture of nature and then describe it to friends using words.	0	3	8	7	2	3.4
S36	Skills should include mapping an area, knowing the lentic and lotic habitats in the region and collecting data about species diversity.	0	3	9	5	3	3.4

Round II: Skills							
Statement Number	Statement	Likert Scale Response					Mean Score
		1	2	3	4	5	
S14	Diverse learners can be engaged through learning visually and then communicating what they have learned in more than one format, such as through art and photography.	0	5	6	6	3	3.35
S12	A student should be able to take a picture of nature and share it with friends.	1	3	9	3	4	3.3
S11	Students should be able to understand and apply mathematical algorithms to tasks such as calculating sediment load.	0	7	4	6	3	3.25
S32	Having students go through the permitting process at least in a conceptual manner.	1	5	8	5	1	3
S13	A student should be able to express their relationship with the watershed through art.	2	3	9	6	0	2.95
S5	Designing filters for cleaning water is an important skill.	1	6	11	1	1	2.75

Round II: Dispositions							
Statement Number	Statement	Likert Scale Response					Mean Score
		1	2	3	4	5	
D23	It is important for students to know what they can do to help protect our local watersheds.	0	0	0	6	13	4.68
D25	Raising student awareness of watershed issues will hopefully influence their future actions in addressing the issues as adults.	0	0	1	8	10	4.47
D27	It is important that students in the Flathead Watershed understand that this ecosystem is one of the most intact, with exceptional water quality, and that rivers, floodplains, and aquatic habitats are well connected and functional; and that many similar ecosystems in the lower 48 have been degraded.	0	0	2	8	9	4.37
D15	It is important to understand the balance between using the land and abusing the land.	0	0	1	11	7	4.32
D26	Learning about the local ecosystem will create a sense of stewardship.	0	0	1	11	7	4.32
D32	It is important that teachers be committed to getting kids outside, for several reasons; first, the lesson takes on life. Second, being at that place establishes a relationship between the student and that site.	0	0	2	9	8	4.32
D16	Nurturing a balance of use and protection within the watershed, of providing for our needs while caring for the watershed's health, is valuable to instill and develop in students.	0	1	2	7	9	4.26
D30	Teaching students about multiple perspectives is necessary; there are issues such as management of lake trout in Flathead Lake in which not all the stakeholders agree with the tribal point of view.	0	0	3	8	8	4.26
D33	Creating the next generation of "stewards" is a priceless goal that can be reached through establishing a relationship between the student and the outdoors when students are on the land and by the water.	0	0	4	6	9	4.26
D4	An appreciation for the natural and cultural history of the Flathead Watershed is an essential attribution for students.	0	0	3	9	7	4.21

Round II: Dispositions							
Statement Number	Statement	Likert Scale Response					Mean Score
		1	2	3	4	5	
D9	Explicitly create learning opportunities that develop real awareness of this remarkable place so that the Flathead environment is not taken for granted.	1	0	1	9	8	4.21
D11	Students should understand indigenous perspectives, but also understand more recent ties to the land, including early homesteaders, farmers, loggers, and industrial.	0	0	5	5	9	4.21
D22	The major issues affecting watersheds today, such as water rights, toxic spills from rail or truck, toxic cleanup, industrial pollution, are important issues for students to learn about.	0	1	3	6	9	4.21
D3	It is important that students engage in life styles (choices and decisions) that protect and sustain a healthy Flathead Watershed.	0	0	4	8	7	4.16
D5	For students to develop a strong 'sense of place', they should understand the unique social and environmental history of the Flathead Valley.	0	0	4	8	7	4.16
D20	History is important to learn about because it shows what human influence has done to the watershed and how it left it today.	0	0	5	6	8	4.16
D24	Learning about amounts and types of water consumption is relevant for students.	0	0	3	10	6	4.16
D28	Students should realize that all points of view should be treated with equal respect and value, using careful listening skills and asking questions.	0	1	4	5	9	4.16
D2	Show students how the watershed impacts their lives and how they impact the watershed to create and share a proper attitude of caring.	1	0	1	11	6	4.11
D6	Students should see and feel the need to protect and sustain a healthy Flathead Watershed.	0	1	3	8	7	4.11
D8	For students, developing a sense of appreciation for the Flathead Watershed is paramount to instilling a desire to take care of their environment	0	1	3	8	7	4.11

Round II: Dispositions							
Statement Number	Statement	Likert Scale Response					Mean Score
		1	2	3	4	5	
D1	It is important that students understand the profound wisdom and far reaching implications of the statement: "Whatever happens to the water happens to the people."	0	1	4	7	7	4.05
D12	It is important that students develop the concept of conservation and understand the difference between conservation and preservation.	0	1	4	8	6	4.00
D17	It is important to create a value for stewardship to leave a lasting legacy and a history of protective use, but not abuse.	0	0	3	8	7	4.00
D18	It is valuable to know the Native American perspectives and to understand how the ecosystem has changed; such knowing could lead to a greater appreciation for the Flathead	0	0	5	9	5	4.00
D21	Legacy is a great concept to teach and discuss; let students define what they want their legacy of stewardship to be.	0	1	5	6	7	4.00
D14	Learning from the pioneers who are still living in the Flathead Valley is important, as they are able to provide historical perspective.	0	0	6	8	5	3.95
D29	Students need to learn to recognize and appreciate their own and other people's values about the same things, like the Flathead watershed; for instance, the values of Native/Indigenous people who have lived here for 12,000 years, families who have live here for generations, and people who have moved here last week.	0	2	5	4	8	3.95
D34	Salish, Kootenai and Pend d'Oreille history and cultural resources, such as films and books, have a tribal perspective and are important sources of information on science, history and contemporary information, including topics such as Indian Water Rights and native place names, which should be used in classrooms in the Flathead Watershed.	1	1	5	6	6	3.79

Round II: Dispositions							
Statement Number	Statement	Likert Scale Response					Mean Score
		1	2	3	4	5	
D31	Students should recognize their own and all people's relationship to place and should be helped to share the feelings, attitudes, values and beliefs that have developed because of their relationships to their environment.	0	1	6	9	3	3.74
D19	Flathead Watershed students have a significant opportunity to learn about Native opinions and actions, historical and current day, because native peoples have lived there continuously.	0	1	5	8	4	3.63
D13	Understanding the history of wise use in the Flathead Valley, especially in the past 120 years, is an essential understanding for students.	1	0	7	10	1	3.53
D10	Appreciation for the environment is a hard thing to develop in a young person when the land they have grown up in is all they have ever known, but it is worth trying.	2	0	7	4	5	3.37
D7	Students should advocate for and support organizations, programs and initiatives that protect and sustain a healthy Flathead Watershed.	3	0	7	6	3	3.32

Round II: Teaching Methods							
Statement Number	Statement	Likert Scale Response					Mean Score
		1	2	3	4	5	
T11	Bringing resource people in as guest speakers is a way to get students interested and engaged.	0	0	1	11	8	4.35
T6	It would be a science learning experience as well as fun for students to tour the players in our watershed, such as the Forest Service, wastewater treatment plants, storm water programs (the City of Kalispell has such a program), the County Landfill, etc.	0	1	1	9	9	4.3
T3	A project based approach would be a way to get students involved in learning the connections between the past and the present.	0	0	2	13	5	4.15
T1	A great Socratic Seminar topic for students could be the statement: "Whatever happens to the water happens to the people."	0	1	4	7	8	4.1
T8	Appropriate guides should be used for students to learn about the plants and animals in the Flathead watershed, instead of memorizing.	0	1	3	10	6	4.05
T9	Reading about nonfiction topics is a good way to learn about animals and the watershed and satisfy common core standards requirements for young students.	0	1	5	8	6	3.95
T10	It is possible to address climate change in a neutral way through water and the interconnected nature of surface and groundwater. Precipitation decreases can affect surface flows and groundwater recharge/discharge. If temperature changes the storage of water through decreased snowpack, that to can affect groundwater availability as well as surface water flows.	0	1	5	10	4	3.85
T4	Teaching about diversity can be accomplished through expression in subject matter teaching. An example is the multiple ways water quality can be introduced: explaining what scientists look for in their work, explaining the cultural importance of native fish and their waterways to indigenous people, or discussing various approaches to resource management of the same water body and why each manager might choose this approach.	0	1	4	13	2	3.8

Round II: Teaching Methods							
Statement Number	Statement	Likert Scale Response					Mean Score
		1	2	3	4	5	
T12	Resource education events can and should be conducted outside on the lawns of schools or in neighborhood parks that may be in walking distance.	0	0	7	11	2	3.75
T2	Integration of some of the traditional ecological knowledge that has been passed down through generations of native people might best be incorporated into any learning process by directly engaging the native people in the development of educational and informational programs.	0	1	7	9	3	3.7
T7	Students can discover 'snow towers' and the progression of snow melt through field trips and via visual presentations.	0	1	6	11	2	3.7
T5	Teaching the 'crumple a watershed' activity is a good way to communicate the watershed concept and develop vocabulary.	0	0	15	3	2	3.35