

Water Education

Survey Flow

Standard: Block 1 (3 Questions)
Standard: Education (7 Questions)
Standard: Water Use (2 Questions)
Standard: water management (4 Questions)
Standard: Weather experiences (8 Questions)
Standard: Demographics (6 Questions)

Page Break

Q1



Q2 PARTICIPANT CONSENT FORM

What follows is a brief overview of the research we are completing with your assistance. The total time for participation is approximately 10-15 minutes. **PROJECT TITLE:** Preservice teachers' understandings of water **PRIMARY RESEARCHERS:** Lisa Watson, Ph.D., Faculty of Business Administration, University of Regina lisa.watson@uregina.ca or (306) 337-2389

Alison Sammel, School of Education and Professional Studies, Griffith

Universitya.sammel@griffith.edu.au or (07) 5552 9792

INVITATION TO PARTICIPATE: You are invited to participate in this study as a preservice science teacher. Researchers at Griffith University and University of Regina are conducting the study. To be eligible to participate, you must be 18 years of age or older.

PURPOSE OF THE STUDY: Formal education plays a key role in shaping how individuals and communities make sense of freshwater, its accessibility, management, consumption and hazards. The current research asks participants to consider your own water-related education, current water-related curricula, and what you believe water-related education should entail. **PROCEDURES:** Should you agree to participate, you will be invited to complete a series of short questionnaires. The expected maximum time to complete the study is 10-15 minutes.

POTENTIAL RISKS: Some participants may experience mild discomfort responding to questions that ask you about recollections related to droughts or floods. Beyond that, there are no foreseen risks to participation.

POTENTIAL BENEFITS: Students will be given the opportunity to learn through an introspective in-class survey about science education. Participants may also benefit indirectly from knowing they have advanced our understanding of water education.

CONFIDENTIALITY: While the researchers will know who was recruited to participate in the survey, all responses will be completely anonymous.

STORAGE OF DATA: Original electronic data will be initially stored online on secure servers protected with SSL technology. It will be regularly downloaded and deleted from online servers, and stored in encrypted password-protected files on computers in the locked offices of the researchers. Only the primary researchers will have access to the original electronic data. The data will be stored for a period of no less than 7 years after collection.

RIGHT TO WITHDRAW: Participation is entirely voluntary. If you decide to participate you are free to discontinue participation or skip questions at any time without question or penalty. Information collected from you cannot be discarded; however, because your responses are anonymous, they will be not tied to you in any

way. **QUESTIONS OR CONCERNS:** If you have any questions, please feel free to ask a member of the research team. Any specific questions regarding the study can be answered by contacting the researchers using the contact information at the top of this form. The current research project was approved by the University of Regina Research Ethics Board. The researchers will announce when and where published results are available through the same channels that were used to recruit. **UNDERSTANDING:** The Research Ethics Board at the University of Regina has approved this project. If a participant has any questions or concerns about their rights or treatment as a research participant, they may contact the Chair of the Ethics Board at 1-306-585-4775 (out of town participants may call collect) or by e-mail: research.ethics@uregina.ca. Participants also understand that in the event they require assistance related in any way to their participation in this investigation, they can contact any member of the research team and thereafter be provided, or guided to a provider of, the assistance they require.

We encourage you to retain a copy of this consent.

Q3

☐ I understand and agree to participate (1)

End of Block: Block 1

Start of Block: Education

Q4 What top THREE things do you remember learning about water in school?

Q5 What is your understanding of the water cycle? Please do your best to briefly describe it in your own words.

001 002 003 004 005 006 007 008 009 010 011 012 013 014 015 016 017 018 019 020 021 022 023 024 025 026 027 028 029 030 031 032 033 034 035 036 037 038 039 040 041 042 043 044 045 046 047 048 049 050 051 052 053 054 055 056 057 058 059 060 061 062 063 064 065 066 067 068 069 070 071 072 073 074 075 076 077 078 079 080 081 082 083 084 085 086 087 088 089 090 091 092 093 094 095 096 097 098 099 100

Q6 As a future science educator, to what extent do you agree that WATER RELATED CURRICULUM ADEQUATELY DEALS WITH each of the following?

	Strongly disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly agree (5)
the science concepts of water (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
the water cycle (15)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
human related influences on the water cycle (16)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
human related impacts of water (17)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
the social implications of water (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
the political implications of water (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
the economic implications of water (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
the natural environment implications of water (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Indigenous ways of knowing about water (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
sustainability issues with water use (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
community issues with water use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(10)					
government plans/uses with water use (11)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
flood/drought planning (12)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
flood/drought emergency warning systems (13)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q7 As a future science educator, to what extent do you agree that YOU FEEL ADEQUATELY PREPARED TO TEACH each of the following?

	Strongly disagree (1)	Disagree (2)	Neither agree nor disagree (3)	Agree (4)	Strongly agree (5)
the science concepts of water (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
the water cycle (15)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
human related influences on the water cycle (16)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
human related impacts of water (17)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
the social implications of water (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
the political implications of water (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
the economic implications of water (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
the natural environment implications of water (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Indigenous ways of knowing about water (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
sustainability issues with water use (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
community issues with water use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(10)					
government plans/uses with water use (11)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
flood/drought planning (12)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
flood/drought emergency warning systems (13)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q8 How significant do you think each of the following sources has been to your overall understanding of water?

	extremely insignificant (1)	insignificant (2)	neither significant nor insignificant (3)	significant (4)	extremely significant (5)
grade school science classes (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
other grade school classes (please specify) (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
high school science classes (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
other high school classes (please specify) (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
university science classes (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
other university classes (please specify) (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
government water conservation campaigns (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
on the news (mass media) (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other sources (please specify) (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q9 If you wanted to learn more about water, where would you go? (check all that apply)

- ☐ google search (1)
- ☐ science textbooks (2)
- ☐ education textbooks (3)
- ☐ government reports (4)
- ☐ scientific research articles (5)
- ☐ education research articles (6)
- ☐ mass media sources (8)
- ☐ other (please specify) (7) _____

Q10 What do you believe are the THREE most important concepts to teach children about water?

End of Block: Education

Start of Block: Water Use

Q11 As a consumer of water, to what degree to you agree with each of the following statements?

	Strongly disagree (1)	Disagree (2)	Neither agree nor disagree (3)	Agree (4)	Strongly agree (5)
I am satisfied with the quality of my local water supply (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I prefer to drink bottled water over tap water (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe that there is a threat of a water shortage in the area where I live (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I make use of water saving devices in my home (e.g., low flow faucets, rain water catchment) (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I make use of devices to improve water quality in my home (e.g., water softener) (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I practice water conserving behaviours in my home (e.g., timed showers) (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I am satisfied
with my water
consumption
habits (7)

☐☐☐☐☐

I feel well
informed
about my
personal
water
consumption
(8)

☐☐☐☐☐

Q12 As a water consumer, to what extent do you agree with the following statements?

	Strongly disagree (1)	Disagree (2)	Neither agree nor disagree (3)	Agree (4)	Strongly agree (5)
I am more knowledgeable about water related topics than the average consumer (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am well informed about the state of fresh water where I currently live (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel well informed about water management in my local community (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe that water management policies in the area where I currently live are adequate (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe that water security is an issue of concern where I currently live (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is important for individual citizens to understand how decisions are made about the management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

of their local
fresh water (6)

It is important
for individual
citizens to
participate in
decisions and
actions made
around the
management
of their local
fresh water (7)



End of Block: Water Use

Start of Block: water management

Q13 What geographic location do you believe your current tap water comes from?

Q14 Who do you believe is primarily in charge of managing your tap water? (check as many as apply)

☐

municipal government (1)

☐

state government (2)

☐

federal government (3)

☐

private business (4)

☐

Other (please specify) (5) _____

Q15 I am confident that I know how much a liter of water costs where I currently live.

- ☐ Strongly disagree (1)
- ☐ Disagree (2)
- ☐ Neither agree nor disagree (3)
- ☐ Agree (4)
- ☐ Strongly agree (5)

Q16 Without checking, please estimate how much you think a liter of water costs where you currently live per kilolitre (Qld) or per square metre (SK) in dollars and cents (e.g., 0.01 or 1.00).

- ☐ \$ (1) _____

End of Block: water management

Start of Block: Weather experiences

Q17 To the best of your knowledge, have you ever experienced living through drought conditions?

- ☐ Yes (1)
- ☐ No (2)

Display This Question:

If To the best of your knowledge, have you ever experienced living through drought conditions? =
Yes

Q18 How many droughts do you remember living through?

▼ 1 (1) ... 4 or more (4)

Display This Question:

If To the best of your knowledge, have you ever experienced living through drought conditions? = Yes

Q19 Do you remember any water related restrictions being put in place during those drought conditions?

- ☐ none at all (1)
- ☐ extremely light (2)
- ☐ light (3)
- ☐ moderate (4)
- ☐ heavy (5)
- ☐ extremely heavy (6)

Display This Question:

If To the best of your knowledge, have you ever experienced living through drought conditions? = Yes

Q20 To what extent do you believe the droughts you've experienced were

- ☐ entirely naturally caused (1)
 - ☐ mostly naturally caused (2)
 - ☐ somewhat more naturally caused (3)
 - ☐ equally nature and human caused (4)
 - ☐ somewhat more human caused (5)
 - ☐ mostly human caused (6)
 - ☐ entirely human caused (7)
-

Q21 To the best of your knowledge, have you ever experienced living through flood conditions?

- ☐ Yes (1)
- ☐ No (2)

Display This Question:

If To the best of your knowledge, have you ever experienced living through flood conditions? = Yes

Q22 How many floods do you remember living through?

▼ 1 (1) ... 4 or more (4)

Display This Question:

If To the best of your knowledge, have you ever experienced living through flood conditions? = Yes

Q23 Do you remember any water related restrictions being put in place during those flood conditions?

- ☐ none at all (1)
- ☐ extremely light (2)
- ☐ light (3)
- ☐ moderate (4)
- ☐ heavy (5)
- ☐ extremely heavy (6)

Display This Question:

If To the best of your knowledge, have you ever experienced living through flood conditions? = Yes

Q24 To what extent do you believe the floods you've experienced were

- ☐ entirely naturally caused (1)
- ☐ mostly naturally caused (2)
- ☐ somewhat more naturally caused (3)
- ☐ equally nature and human caused (4)
- ☐ somewhat more human caused (5)
- ☐ mostly human caused (6)
- ☐ entirely human caused (7)

End of Block: Weather experiences

Start of Block: Demographics

Q25 At which university are you responding to this survey?

- ☐ Griffith University (1)
 - ☐ University of Regina (2)
 - ☐ University of Saskatchewan (3)
-

Q30 What level of science education are you training to teach?

- ☐ grade school level (up to approximately year 8) (1)
 - ☐ high school level (approximately year 9 and up) (2)
-

Q26 With what gender do you most identify?

- ☐ Male (1)
- ☐ Female (2)
- ☐ Other (3)



Q27 In what year were you born?

▼ 2000 (1) ... 1900 (101)

Q28 How many people live in your current household?

- ☐ 1 (1)
- ☐ 2 (2)
- ☐ 3 (3)
- ☐ 4 (4)
- ☐ 5 (5)
- ☐ 6 (6)
- ☐ More than 6 (7)



Q29 Which country do you think of as being your home?

▼ Afghanistan (1358) ... Zimbabwe (1357)

End of Block: Demographics
