

EDUC671

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Course Summary

Course : EDUC671 **Title :** Integrated Elementary Mathematics and Sciences

Length of Course : 8

Prerequisites : EDUC503 **Credit Hours :** 3

Description

Course Description: This course is intended to allow the educator to examine the objectives, methods, instructional emphasis, and integration of elementary school mathematics and science. Educators are given the opportunity to examine research related to elementary school mathematics and science instruction with an emphasis on innovative programs. The course also includes an analysis of teaching mathematics and science to elementary school children with emphasis on current educational trends, curricular materials, and techniques. The use of instructional technology and resources as an enhancement to understanding the teaching of math and science will also be explored.

Course Scope:

This course focuses on giving the teacher candidate skills to interpret children's math and science experiences and guide their development of math and science concepts. Best teaching practices will be investigated, observed, and applied. Objectives, methods, and content in elementary school math and science instruction will be explored, and candidates will create curricular materials for classroom use. A field experience within an elementary school classroom is required.

Candidates will explore opportunities and experiences that facilitate continued professional development beyond course work in math and science as an avenue of life-long learning. The modeling of inquiry teaching and fieldwork experience gives candidates opportunities to observe and experience appropriate ways to facilitate the construction of knowledge in a variety of settings and populations within the context of benchmarks and standards.

Objectives

This course will be centered on the attainment of the course objectives listed below. These objectives are understood to be reflective of the following standards: National Science Teachers Association (NSTA), National Council for Teachers of Mathematics (NCTM), and the National Board for Professional Teaching Standards. As a result of participation in this course, students will be able to:

- Develop an understanding of the national education standards for mathematics and science (NCTM 6,8)(NSTA 1a,6a,6b)(NBPTS 2,4)

- Identify ways math and science standards impact teaching and learning (NCTM 6,8)(NSTA 1a,6a,6b)(NBPTS 2,4)
- Examine the use of standards within their own classroom (NCTM 6,8)(NSTA 1a,6a,6b)(NBPTS 2,4)
- Develop an understanding of recent trends in mathematics and science education (NCTM 1,6,7,8)(NSTA 1b,2a,4a,6a,6b,6c)(NBPTS 1,3,4)
- Assess the value of teaching using an inquiry approach (NCTM 1,6,7,8)(NSTA 1b,2a,3a,5a)(NBPTS 1,2,3,4)
- Identify the basic processes involved in inquiry based learning (NCTM 2,4)(NSTA 1b,2a,3a,5a)(NBPTS 2,3,4)
- Develop an understanding of the impact of misconceptions in the classroom (NCTM 4,5,6)(NSTA 1b,2a,4a,5a,6c)(NBPTS 3,4)
- Examine ways to identify misconceptions in the classroom (NCTM 5,6)(NSTA 2a,4a,5a,6c)(NBPTS 3,4)
- Identify possible means of misconceptions and increased awareness for diverse students (NCTM 4,5,6)(NSTA 2b,4a,5a,6c)(NBPTS 1,3,4)
- Define how technology can be used to enhance curriculum (NCTM 3,6,8)(NSTA 1b,4a,5b,6a)(NBPTS 2,4)
- Critically examine various technological websites for integration into the curriculum (NCTM 3,6,8)(NSTA 1b,4a,5b,6a)(NBPTS 2,4)
- Critically examine software for integration into the curriculum (NCTM 3,6,8)(NSTA 1b,4a,5b,6a)(NBPTS 2,4)
- Understand the need for systematic approaches to teaching (NCTM 2,4,7,8)(NSTA 1b,2a,2b,6c)(NBPTS 1,2,3,4)
- Explain age related difficulties that may arise with math and science concepts (NCTM 2,4,7,8)(NSTA 2b,5a,2a,6c)(NBPTS 1,2,3,4)
- Identify characteristics of effective teaching in the areas of science and mathematics (NCTM 5,6)(NSTA 1b,2b,6c)(NBPTS 1,2,3,4)
- Describe the methods for ascertaining prior knowledge (NCTM 5,6)(NSTA 2a,5a,6c)(NBPTS 2,3,4)
- Evaluate strategies for developing effective questioning (NCTM 5,6)(NSTA 2b,5a)(NBPTS 2,3,4,5)
- Explain the role of questioning in teaching math and science (NCTM 5,6)(NSTA 1b,2b,3a,3b,5a)(NBPTS 2,3,4,5)
- Explain the various needs students may exhibit in the inclusive classroom (NCTM 4,6)(NSTA 2b,5a,6c)(NBPTS 1,2,3,4)
- Evaluate lesson plan and classroom modifications that may be required to accommodate all learners (NCTM 1,4,6)(NSTA 2b,5a,6c)(NBPTS 1,2,3,4)
- Create lesson plans with accommodations/modifications (NCTM 1,4,6)(NSTA 2b,3a,3b,5a,6c)(NBPTS 1,2,3,5)
- Explain the purposes of assessment (NCTM 1,3,5,6,7,8)(NSTA 1b,5a)(NBPTS 3)
- Describe appropriate ways to accommodate learners in assessments (NCTM 1,4,6)(NSTA 2b,5a,6c)(NBPTS 1,2,3,4)
- Create lesson plans containing quality assessments (NCTM 1,3,5,6,7,8)(NSTA 2b,3a,3b,5a)(NBPTS 1,3)

Outline

Week 1: Content Standards Introduction to STEM and STEAM

Learning Objective(s)

- Develop an understanding of the national education standards for mathematics and science
- Identify ways math and science standards impact teaching and learning
- Examine the use of standards within your classroom
- Describe the basic tenets of STEM and STEAM

Reading(s)

Bybee, R. W. (2013). The Next Generation Science Standards and the life sciences. *Science and Children*, 50(6), 7-14.

Common Core State Standards Initiative. (n.d.). Common Core Standards for Mathematics. Retrieved from http://www.corestandards.org/wpcontent/uploads/Math_Standards.pdf.

Gillman, J. (2013). Straw rockets are out of this world. STEM activities for upper elementary students. *Science and Children*, 51(2), 44-49.

The Next Generation Science Standards. (n.d.) Retrieved from <http://www.nextgenscience.org/next-generation-science-standards>

Willard, T., Pratt, H., & Workosky. (2012). Exploring the new standards: How to form a study group to examine the Next Generation Science Standards, second public draft. *Science and Children*, 50(2), 13-17.

Wysession, M.E. (2013). The Next Generation Science Standards and the earth and space sciences. *Science and Children*, 50(8), 17-23.

Californians Dedicated to Education Foundation. (2014) INNOVATE: A Blueprint for Science, Technology, Engineering, and Mathematics in California Public Education - A report by State Superintendent of Public Instruction Tom Torlakson's STEM Task Force. Retrieved from <http://www.cde.ca.gov/pd/ca/sc/documents/innovate.pdf>
(Just read p. 1-17 this week)

Assignment(s)

Review all Course Information including Syllabus and Course Assignments
Create a pacing plan to work on assignments

Introductions Forum

Forum 1

Week 2: Inquiry STEM STEAM

Learning Objective(s)

- Develop an understanding of recent trends in mathematics and science education
- Assess the value of teaching using an inquiry approach
- Identify the basic processes involved in inquiry based learning
- Analyze basic tenets of STEM/STEAM

Reading(s)

Dalimonte, C. (2013). Global STEM navigators; Developing project-based learning experiences helps students direct their learning. *Science and Children*, 51(2), 56-62.

Californians Dedicated to Education Foundation. (2014) INNOVATE: A Blueprint for Science, Technology, Engineering, and Mathematics in California Public Education - A report by State Superintendent of Public Instruction Tom Torlakson's STEM Task Force. Retrieved from <http://www.cde.ca.gov/pd/ca/sc/documents/innovate.pdf>
(Just read p. 18-23 this week)

National Governors Association. (2011). Building a Better Science, Technology, Engineering, and Math Education Agenda: An Update of State Actions. Retrieved from <http://www.ncscience.org/wp-content/uploads/2012/06/National-Gov-Assoc-Building-a-STEM-Education-Agenda-1-2012.pdf>.

National Research Council. (2011). Successful K-12 STEM Education Identifying Effective Approaches in Science, Technology, Engineering, and Mathematics. Retrieved from

http://www.stemreports.com/wpcontent/uploads/2011/06/NRC_STEM_2.pdf.

NSTA (2004). NSTA Position Statement: Scientific Inquiry. Retrieved from <http://www.nsta.org/about/positions/inquiry.aspx>

Schwartz, K. (2014). Math and inquiry: The importance of letting students stumble. Retrieved from <http://blogs.kqed.org/mindshift/2014/02/math-and-inquiry-the-importance-of-letting-students-stumble/>

NCTM text, p. 1-28

Sousa & Pilecki, Chapter 2

Assignment(s)

Forum 2

Position Paper

Week 3: Misconceptions, Integrating Arts into STEM

Learning Objective(s)

- Develop an understanding of the impact of misconceptions in the classroom
- Examine ways to identify misconceptions in the classroom
- Identify possible means of misconceptions and increased awareness for diverse students

Reading(s)

Online Text: [Adding it up: Helping children learn mathematics](#)

-Chapter 5: The Mathematical Knowledge Children Bring to School <http://www.nap.edu/openbook.php?isbn=0309069955>

Hispanic and Anglo Students' Misconceptions in Mathematics
<http://www.ericdigests.org/pre-9213/hispanic.htm>

Science Misconceptions Research and Some Implications for the Teaching of Science to Elementary School Students
<http://www.ericdigests.org/pre-925/science.htm>

"Science Myths" in K-6 Textbooks and Popular culture
<http://amasci.com/miscon/miscon.html>

Williams, J., McCauley, & Grumble, M. (2013). A performance of the heart: A musical rap strengthens students' academic understanding of the circulatory system. *Science and Children*, 50(8), 68-72.

Wynn, T., & Harris, J. (2012). Toward a STEM + Arts curriculum: Creating the teacher team. *Art Education*, 65(5), 42-47.

NCTM text, p. 24-34

Sousa & Pilecki, Chapter 3

Assignment(s)

Forum 3

Week 4: Technology

Learning Objective(s)

- Define how technology can be used to enhance curriculum
- Critically examine various technological websites for integration into the curriculum
- Critically examine software for integration into the curriculum

Reading(s)

Deaton, C., & Hardin, C. (2014). Exploring nature through a new lens. *Science and Children*, 51(7), 38-44.

NCTM. (2011). *Technology in Teaching and Learning in Mathematics*. Retrieved from <http://www.nctm.org/about/content.aspx?id=31734>

Office of the President-President's Council of Advisors on Science and Technology. (2010). *Report to the President – Prepare and Inspire: K-12 Education in Science, Technology, Engineering, and Math (STEM) for America's Future*. Retrieved from <http://www.whitehouse.gov/issues/education/k-12/educate-innovate>

Sabarre, A., & Gullino, J. (2013). Wacky weather: An integrative science unit combines science content on severe weather with the engineering design practice. *Science and Children*, 51(2), 37-43.

Assignment(s)

Forum 4

Week 5: Understanding How Children Learn

Learning Objective(s)

- Understand the need for systematic approaches to teaching
- Explain age related difficulties that may arise with math and science concepts
- Identify characteristics of effective teaching in the areas of science and mathematics

Reading(s)

Coleman, J., & McTighe, E. (2013). Unlocking the power of visual communication: Interactive read-alouds help students decode science diagrams and other visual information. *Science and Children*, 50(5), 73-77.

Lott, K., Wallin, M., Rohaar, D., & Price, T. (2013). Catch me if you can! A STEM activity for kindergartners is integrated into the curriculum. *Science and Children*, 51(4), 65-69.

Mayberry, S. (2014). Gather 'round: Exploring the wonders of science through read-alouds. *Science and Children*, 51(8), 63-67.

NSTA. (2014). *NSTA position statement: Early childhood science education*. *Science and Children*, 51, (7), 10-12.

Roy, K. (2013). Safety: The elementary mission. *Science and Children*, 51(2), 86-87.

Vardell, S. M., & Wong, J. S., (2014). Observe, explain, connect. *Science and Children*, 51(8), 31-35.

Sousa & Pilecki, Revisit Chapter 2 as needed and read either Chapter 4 or 5, depending on your grade level area

Assignment(s)

Forum 5

Week 6: Questioning Strategies for Inquiry Based Teaching and Learning

Learning Objective(s)

- Describe the methods for ascertaining prior knowledge
- Evaluate strategies for developing effective questioning
- Explain the role of questioning in teaching math and science

Reading(s)

Questioning Strategies <http://www.ascd.org/ascd-express/vol4/418-toc.aspx>

Using Questioning Strategies to Stimulate Student Learning
<http://www.ascd.org/ascd-express/vol4/418-van-hof.aspx>

Answers About Questions
<http://www.ascd.org/ascd-express/vol4/418-rubin.aspx>

Thinking About Questions
<http://www.ascd.org/ascd-express/vol4/418-richetti-abstract.aspx>

What was the Question? Rethinking questioning
<http://www.ascd.org/ascd-express/vol4/418-newvoices.aspx>

Purzer, S. Duncan-Wiles, D., & Strobel, J. (2013). Teaching fourth and fifth graders about engineering optimization and trade-offs. *Science and Children*, 50(5), 34-39.

NCTM text, p. 35-58
Sousa & Pilecki, Chapter 7

Assignment(s)

Forum 6

Curriculum Survey Project

Week 7: Diversity in the Math/Science Classroom, Families

Learning Objective(s)

- Explain the various needs students may exhibit in the inclusive classroom
- Evaluate lesson plan and classroom modifications that may be required to accommodate all learners
- Create lesson plans with accommodations/modifications
- Examine connections to families through math and science

Reading(s)

-Critical Issue: Remembering the Child: On Equity and Inclusion in Mathematics and Science Classrooms
<http://www.ncrel.org/sdrs/areas/issues/content/contareas/math/ma800.htm>

-NSTA Position Statement: Multicultural Science Education
<http://www.nsta.org/about/positions/multicultural.aspx>

-Initiative to Leave No Child Behind Leaves Out Gifted
http://online.wsj.com/public/resources/documents/Polk_Gifted.htm

-Basic educational options for gifted students in schools
http://www.davidsongifted.org/db/Articles_id_10270.aspx

Californians Dedicated to Education Foundation. (2014) INNOVATE: A Blueprint for Science, Technology, Engineering, and Mathematics in California Public Education - A report by State Superintendent of Public Instruction Tom Torlakson's STEM Task Force. Retrieved from <http://www.cde.ca.gov/pd/ca/sc/documents/innovate.pdf>
(Just read p.26-34 this week)

Hurley, S. J., Murray, A. L., & Cormas, P. (2014). Friction in different languages. *Science and Children*, 51(8), 36-40.

Kehl, W. (2013). Closing the STEM gender gap in K-12 education: How teachers can help. Retrieved from <http://gettingsmart.com/2013/03/closing-the-stem-gender-gap-in-k-12-education-how-teachers-can-help/>

McCubbins, S. , Thomas, B., & Vetere, M. (2014). Family science day. *Science and Children*, 51(9), 41-47.

Wentworth, S. (2014). Putting the "her" in science hero. *Science and Children*, 51(8), 41-45.

NCTM text, p. 59-69
Sousa & Pilecki, Chapter 8

Assignment(s)

Forum 7

Week 8: Assessment

Learning Objective(s)

- Explain the purposes of assessment
- Describe appropriate ways to accommodate learners in assessments
- Create lesson plans containing quality assessments

Reading(s)

Keeley, P. (2014). Habitat change: Formative assessment of a cautionary word. *Science and Children*, 51(7), 26-27.

Schleigh, S. (2014). Assessments in the arguments. *Science and Children*, 51(8), 46-53.

Zissman, T. (2013). Measuring success: Second graders design, build, test, and improve tools to map a waterway. *Science and Children*, 51(2), 68-74.

Californians Dedicated to Education Foundation. (2014) INNOVATE: A Blueprint for Science, Technology, Engineering, and Mathematics in California Public Education - A report by State Superintendent of Public Instruction Tom Torlakson's STEM Task Force. Retrieved from <http://www.cde.ca.gov/pd/ca/sc/documents/innovate.pdf>
(Just read p. 23-25 this week)

Sousa & Pilecki, Chapter 9

Assignment(s)

Forum 8

Mini Integrated Unit

Evaluation

Grading:

Name	Grade %
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Materials

Book Title: Course materials will change for November and beyond. Please email booklist@apus.edu for the updated list.

Author:

Publication Info: Open Web Sources

ISBN: APUPOT4

Book Title: Principles to Actions: Ensuring Mathematical Success for All

Author: NCTM

Publication Info: NCTM (National Council of Teachers of Mathematics)

ISBN: 9780873537742

Book Title: From STEM to STEAM: Using Brain-Compatible Strategies to Integrate the Arts

Author: Sousa, D. and Pilecki, T.

Publication Info: Corwin/Sage

ISBN: 9781452258331

Required Course Textbooks

NCTM. (2014). *Principles to Actions: Ensuring Mathematical Success for All*. Reston, VA:

National Council of Teachers of Mathematics.

Sousa, D. A., & Pilecki, T. (2013). *From STEM to STEAM: Using brain-compatible*

strategies to integrate the arts. Thousand Oaks, CA: Corwin

Required Course Readings

Bybee, R. W. (2013). The Next Generation Science Standards and the life sciences. *Science*

and Children, 50(6), 7-14 <http://ezproxy.apus.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=ehh&AN=85163902&site=ehost-live&scope=site>

Californians Dedicated to Education Foundation. (2014) *INNOVATE: A Blueprint for*

Science, Technology, Engineering, and Mathematics in California Public Education - A report by State Superintendent of Public Instruction Tom Torlakson's STEM Task Force. Retrieved from <http://www.cde.ca.gov/pd/ca/sc/documents/innovate.pdf>

Coleman, J., & McTighe, E. (2013). Unlocking the power of visual communication:

Interactive read-alouds help students decode science diagrams and other visual information. *Science*

and *Children*, 50(5), 73-77.

<http://ezproxy.apus.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=ehh&AN=84633896&site=ehost-live&scope=site>

Common Core State Standards Initiative. (n.d.). *Common Core Standards for Mathematics*.

Retrieved from http://www.corestandards.org/wp-content/uploads/Math_Standards.pdf.

Dalimonte, C. (2013). Global STEM navigators; Developing project-based learning experiences helps students direct their learning. *Science and Children*, 51(2), 56-62.

<http://ezproxy.apus.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=ehh&AN=93727892&site=ehost-live&scope=site>

Deaton, C., & Hardin, C. (2014). Exploring nature through a new lens. *Science and Children*, 51(7), 38-44.

<http://ezproxy.apus.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=ehh&AN=94621500&site=ehost-live&scope=site>

Gillman, J. (2013). Straw rockets are out of this world. STEM activities for upper elementary students. *Science and Children*, 51(2), 44-49.

<http://ezproxy.apus.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=ehh&AN=93727890&site=ehost-live&scope=site>

Hurley, S. J., Murray, A. L., & Cormas, P. (2014). Friction in different languages. *Science and Children*, 51(8), 36-40.

<http://ezproxy.apus.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=ehh&AN=95408163&site=ehost-live&scope=site>

Keeley, P. (2014). Habitat change: Formative assessment of a cautionary word. *Science and Children*, 51(7), 26-27.

<http://ezproxy.apus.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=ehh&AN=94621498&site=ehost-live&scope=site>

Kehl, W. (2013). *Closing the STEM gender gap in K-12 education: How teachers can help*.

Retrieved from <http://gettingsmart.com/2013/03/closing-the-stem-gender-gap-in-k-12-education-how-teachers-can-help/>

Lott, K., Wallin, M., Rohaar, D., & Price, T. (2013). Catch me if you can! A STEM activity for kindergartners is integrated into the curriculum. *Science and Children*, 51(4), 65-69.

<http://ezproxy.apus.edu/login?url=http://search.proquest.com/docview/1467533421?accountid=8289>

Mayberry, S. (2014). Gather 'round: Exploring the wonders of science through read-alouds. *Science and Children*, 51(8), 63-67.

<http://ezproxy.apus.edu/login?url=http://search.proquest.com/docview/1518522222?accountid=8289>

McCubbins, S. , Thomas, B., & Vetere, M. (2014). Family science day. *Science and Children*, 51(9), 41-47.

<http://ezproxy.apus.edu/login?url=http://search.proquest.com/docview/1540457331?accountid=8289>

National Governors Association. (2011). *Building a Better Science, Technology, Engineering, and Math*

Education Agenda: An Update of State Actions. Retrieved from <http://www.ncscience.org/wp-content/uploads/2012/06/National-Gov-Assoc-Building-a-STEM-Education-Agenda-1-2012.pdf>.

National Research Council. (2011). *Successful K-12 STEM Education Identifying Effective Approaches*

in Science, Technology, Engineering, and Mathematics. Retrieved from http://www.stemreports.com/wp-content/uploads/2011/06/NRC_STEM_2.pdf.

NCTM. (2011). *Technology in Teaching and Learning in Mathematics*. Retrieved from

<http://www.nctm.org/about/content.aspx?id=31734>

The Next Generation Science Standards. (n.d.) Retrieved from

<http://www.nextgenscience.org/next-generation-science-standards> **You will just need to constantly access the standards at this site for lesson planning, information, etc.**

NSTA. (2014). NSTA position statement: Early childhood science education. *Science and Children*, 51, (7), 10-12.

<http://ezproxy.apus.edu/login?url=http://search.proquest.com/docview/1506150150?accountid=8289>

Office of the President-President's Council of Advisors on Science and Technology. (2010). *Report to*

the President – Prepare and Inspire: K-12 Education in Science, Technology, Engineering, and Math (STEM) for America's Future. Retrieved from <http://www.whitehouse.gov/issues/education/k-12/educate-innovate>

Purzer, S. Duncan-Wiles, D., & Strobel, J. (2013). Teaching fourth and fifth graders about engineering optimization and trade-offs. *Science and Children*, 50(5), 34-39.

<http://ezproxy.apus.edu/login?url=http://search.proquest.com/docview/1314905112?accountid=8289>

Roy, K. (2013). Safety: The elementary mission. *Science and Children*, 51(2), 86-87.

<http://ezproxy.apus.edu/login?url=http://search.proquest.com/docview/1460567596?accountid=8289>

Sabarre, A., & Gullino, J. (2013). Wacky weather: An integrative science unit combines science content on severe weather with the engineering design practice. *Science and Children*, 51(2), 37-43.

<http://ezproxy.apus.edu/login?url=http://search.proquest.com/docview/1460567400?accountid=8289>

Schleigh, S. (2014). Assessments in the arguments. *Science and Children*, 51(8), 46-53.

<http://ezproxy.apus.edu/login?url=http://search.proquest.com/docview/1518522182?accountid=8289>

Vardell, S. M., & Wong, J. S., (2014). Observe, explain, connect. *Science and Children*, 51(8), 31-35.

<http://ezproxy.apus.edu/login?url=http://search.proquest.com/docview/1518522271?accountid=8289>

Wentworth, S. (2014). Putting the “her” in science hero. *Science and Children*, 51(8), 41-45.

<http://ezproxy.apus.edu/login?url=http://search.proquest.com/docview/1518522262?accountid=8289>

Willard, T., Pratt, H., & Workosky. (2012). Exploring the new standards: How to form a study group to examine the Next Generation Science Standards, second public draft. *Science and Children*, 50(2), 13-17.

<http://ezproxy.apus.edu/login?url=http://search.proquest.com/docview/1093892934?accountid=8289>

Williams, J., McCauley, & Grumble, M. (2013). A performance of the heart: A musical rap strengthens students’ academic understanding of the circulatory system. *Science and Children*, 50(8), 68-72.

<http://ezproxy.apus.edu/login?url=http://search.proquest.com/docview/1349385081?accountid=8289>

Wynn, T., & Harris, J. (2012). Toward a STEM + Arts curriculum: Creating the teacher team. *Art Education*, 65(5), 42-47.

<http://ezproxy.apus.edu/login?url=http://search.proquest.com/docview/1076740050?accountid=8289>

Wysession, M.E. (2013). The Next Generation Science Standards and the earth and space sciences. *Science and Children*, 50(8), 17-23.

<http://ezproxy.apus.edu/login?url=http://search.proquest.com/docview/1349392369?accountid=8289>

Zissman, T. (2013). Measuring success: Second graders design, build, test, and improve tools to map a waterway. *Science and Children*, 51(2), 68-74.

<http://ezproxy.apus.edu/login?url=http://search.proquest.com/docview/1460567091?accountid=8289>

Course Guidelines

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