

Student Teaching at Millbury Memorial Junior/Senior
High School

<http://wpi.digication.com/sarah-fleck-teaching-practicum>

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WORCESTER POLYTECHNIC INSTITUTE
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Abstract

In the spring semester of 2020, I had the opportunity to student teach at Millbury Memorial Junior/Senior High School. I taught three classes: Geometry Honors, Algebra II College Prep, and Math Foundations. During the first eight weeks, I taught classes as normal and tried to test different strategies in person to understand which worked well for my students and which did not. I had built up a rapport with my students and was finally coming into my own as an educator. However, the COVID-19 pandemic forced the last eight weeks of my practicum to go online unexpectedly. I now had to try and figure out ways to teach online and ensure I was still reaching all of my students without being able to actually be with them in person. I had the unique opportunity to witness firsthand all of the strategies teachers, schools, and districts were trying to implement in order to ensure their students' successes. Through doing this practicum, I have gotten familiar with numerous online resources and solidified my teaching pedagogy through real-time in class experience. Through my e-portfolio, I will demonstrate my competency as an educator, justify how I met the requirements of the six CAP elements, and display artifacts from my student teaching experience (including student work, teaching materials, tests, quizzes, etc.). Upon my completion of the Teaching Preparation Program's capstone, I hope to be licensed as an educator in the state of Massachusetts.

Acknowledgments

I want to thank a few very important people who allowed me to be successful throughout this experience. Thank you to Kim Pine (my mentor teacher), Jacklyn Bonneau (my program supervisor), and Shari Weaver (my seminar instructor and advisor). Kim set such a fantastic example of how a great classroom is run and how you should connect with your students as a teacher. She was always there to help me and give me advice when I needed it. I am forever grateful for her input and advice and I can say confidently that I would not have been as successful if it were not for Kim and the fantastic example she set for me. Jackie was always there to give me her input and advice whenever she popped in for observation, and she made herself available if I ever had any questions. I appreciated all of the feedback I received and the constant support she provided for me. Shari was always so supportive of me and all of the other student teachers in WPI's Teaching Preparations Program. If we ever had a question, needed advice, or were struggling in any way, she went out of her way to make sure that we had the help and support that we needed to be successful. I am so thankful to have had these three amazing women and educators helping me through this entire experience.

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a. A page describing what I have learned through the student teaching process and what I hope to eventually bring into the classroom.	
2. Education in MA	
a. An overview of different education reform acts that have impacted public education in Massachusetts.	
3. Millbury	
a. An overview of the district that I was teaching in, Millbury, MA, including information about the student demographics, post-graduation plans, and MCAS scores.	
4. CAP	
a. An overview of CAP and the six CAP elements, along with evidence from my teaching practicum in support of each element.	
5. My WPI Education	
a. An outline of the relevant courses I have taken so far in my career at Worcester Polytechnic Institute along with some relevant experiences.	
6. My Classes	
a. A summary of the classes I had the opportunity to teach during my time at Millbury Memorial Junior/Senior High School including challenges I overcame in each class, what each class was like, etc.	
7. Sample Material	
a. Material from the classes I taught including lesson plans, tests, student work, student feedback, etc.	
8. References	

References

Goulet, J. (n.d.). Overview of the Massachusetts Education Reform Act of 1993. Retrieved February 17, 2020, from <https://view.officeapps.live.com/op/view.aspx?src=>

[http://users.wpi.edu/~goulet/teacher_prep/Overview of the Massachusetts Education Reform Act of 1993.doc](http://users.wpi.edu/~goulet/teacher_prep/Overview_of_the_Massachusetts_Education_Reform_Act_of_1993.doc)

Massachusetts DOE. (2016, June). Guidelines for the Candidate Assessment of Performance.

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Massachusetts DOE. (2018). Massachusetts School and District Profiles. Retrieved February 17, 2020, from

<http://profiles.doe.mass.edu/general/general.aspx?topNavID=1&leftNavId=100&orgcode=01860505&orgtypecode=6>

Additional Attachments

Link to e-portfolio: <http://wpi.digication.com/sarah-fleck-teaching-practicum>

A sample lesson plan with all accompanying instructional materials:

Lesson Plan Title: Polynomial Division Scavenger Hunt

Teacher's Name: Sarah Fleck

Subject/Course: Algebra 2 CP

Unit: Polynomials

Grade Level: 11

Overview of and Motivation for Lesson:

This activity is meant to try and get the students more engaged with the material they have been working with. It is important that students have a good understanding of arithmetic involving polynomials as it will be important in future mathematics courses they may need to take. The kinesthetic aspect of the activity should allow them to work out any built-up energy so they are able to focus on the problems in front of them.

Stage 1-Desired Results	
<p>Standard(s):</p> <ul style="list-style-type: none"> All.A-APR.A.1: Understand that polynomials form a system analogous to the integers, namely, they are closed under certain operations. All.A-APR.A.1.a: Perform operations on polynomial expressions (addition, subtraction, multiplication, and division), and compare the system of polynomials to the system of integers when performing operations. 	
<p>Aim/Essential Question:</p> <ul style="list-style-type: none"> How can you use the factors of a cubic polynomial to solve a division problem involving the polynomial? 	
<p>Understanding(s):</p> <p><i>Students will understand that . . .</i></p> <ul style="list-style-type: none"> There are a variety of division techniques including long division and synthetic division. The relationship between synthetic division, evaluating polynomials, and determining appropriate factors 	
<p>Content Objectives:</p> <p><i>Students will be able to . . .</i></p> <ul style="list-style-type: none"> Divide polynomials using long or synthetic division. Determine if a given binomial is a factor of a polynomial. 	<p>Language Objectives:</p> <p>ELD Level 3 <i>Students will be able to . . . in English</i></p> <ul style="list-style-type: none"> Explain the process they used in order to solve the problem to their

	<p>group, using words such as “First,” “Then,” and “Next.”</p> <p>ELD Level 4. <i>Students will be able to . . . in English</i></p> <ul style="list-style-type: none"> Justify their solutions to their group throughout the activity using words such as “because.”
<p>Key Vocabulary</p> <ul style="list-style-type: none"> Polynomials Coefficients Long division Synthetic Division 	
<p>Stage 2-Assessment Evidence</p>	
<p>Performance Task or Key Evidence</p> <ul style="list-style-type: none"> Group scavenger hunt activity. 	
<p>Key Criteria to measure Performance Task or Key Evidence</p> <ul style="list-style-type: none"> All the correct solutions with their corresponding letters written down on their sheet along with the necessary work shown. 	
<p>Stage 3- Learning Plan</p>	
<p>Learning Activities:</p> <p>Do Now/Bell Ringer/Opener: A quick example requiring synthetic division.</p> <p>Learning Activity 1: Group Scavenger Hunt</p> <p>Learning Activity 2: n/a</p> <p>Application n/a</p>	

<p>Summary/Closing</p> <p>n/a</p> <p>Multiple Intelligences Addressed:</p> <p><input checked="" type="checkbox"/> Linguistic <input checked="" type="checkbox"/> Logical-Mathematical <input type="checkbox"/> Musical <input checked="" type="checkbox"/> Bodily-kinesthetic</p> <p><input type="checkbox"/> Spatial <input checked="" type="checkbox"/> Interpersonal <input type="checkbox"/> Intrapersonal <input type="checkbox"/> Naturalistic</p> <p>Student Grouping</p> <p><input type="checkbox"/> Whole Class <input checked="" type="checkbox"/> Small Group <input type="checkbox"/> Pairs <input type="checkbox"/> Individual</p> <p>Instructional Delivery Methods</p> <p><input type="checkbox"/> Teacher Modeling/Demonstration <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Discussion</p> <p><input checked="" type="checkbox"/> Cooperative Learning <input type="checkbox"/> Centers <input checked="" type="checkbox"/> Problem Solving</p> <p><input type="checkbox"/> Independent Projects</p>	
Accommodations	Modifications
<p>Homework/Extension Activities:</p> <p>Worksheet with both long division and synthetic division problems.</p> <p>Quiz next class on both methods for polynomial division.</p>	
<p>Materials and Equipment Needed:</p> <ul style="list-style-type: none"> • Pre-prepared cut-out slips of paper for each group and solutions throughout the room 	

Adapted from Grant Wiggins and Jay McTighe-*Understanding by Design*



Name: _____ Date: _____

Dividing Polynomials Scavenger Hunt

Use either synthetic or long division to solve the problem in front of you (keep in mind both methods are required for your quiz). Once your group finishes that problem, go find the corresponding solution. Once you find the solution, open it up and write down the letter. The problem below the letter is what you're working on next. Continue until you have found all of the solutions and their letters.

Problem & Work



Letter of Answer: _____

Letter of Answer: _____

Letter of Answer: _____

Letter of Answer: _____

Problems & Work

Letter of Answer: _____

Letter of Answer: _____

Letter of Answer: _____

Letter of Answer: _____

Dividing Polynomials Scavenger Hunt



SOLUTIONS

$$x^4 + 4x^3 - 49x^2 + 27x - 37 \div (x - 5)$$

$$x^3 + 9x^2 - 4x + 7 - \frac{2}{x-5}$$

Letter of Answer: M

$$x^2 - 5x - 3 \div (x - 7)$$

$$x + 2 + \frac{11}{x-7}$$

Letter of Answer: B

$$x^4 + 24x^3 + 138x^2 - 64x + 88 \div (x + 12)$$

$$x^3 + 12x^2 - 6x + 8 - \frac{8}{x+12}$$

Letter of Answer: R

$$x^3 - 10x^2 - 17x + 14 \div (x + 2)$$

$$x^2 - 12x + 7$$

Letter of Answer: F

$$x^3 - 3x^2 - 10x - 7 \div (x - 1)$$

$$x^2 - 2x - 12 - \frac{19}{x-1}$$

Letter of Answer: Q

$$x^3 + 12x^2 + 24x + 40 \div (x + 10)$$

$$x^2 + 2x + 14$$

Letter of Answer: J

$$x^4 + 13x^3 + 24x^2 - 115x - 73 \div (x + 9)$$

$$x^3 + 4x^2 - 12x - 7 - \frac{10}{x+9}$$

Letter of Answer: Z

$$x^2 + 9x - 10 \div (x + 10)$$

$$x - 1$$

Letter of Answer: H

Directions: Fold answer/ problem sheets (p. 7 – 14) so only answers show and post around classroom. Cut out and give one problem to each group. This will be the problem they start with. Once they solve it they have to look around the room and find the letter of the answer. Once they find the answer they can open up the sheet and find the next problem to solve.

$$x^4 + 4x^3 - 49x^2 + 27x - 37 \\ \div (x - 5)$$

$$x^2 - 5x - 3 \\ \div (x - 7)$$

$$x^4 + 24x^3 + 138x^2 - 64x + 88 \\ \div (x + 12)$$

$$x^3 - 10x^2 - 17x + 14$$
$$\div (x + 2)$$

$$x^3 - 3x^2 - 10x - 7$$
$$\div (x - 1)$$

$$x^3 + 12x^2 + 24x + 40$$
$$\div (x + 10)$$

$$x^4 + 13x^3 + 24x^2 - 115x - 73$$
$$\div (x + 9)$$

$$x^2 + 9x - 10$$
$$\div (x + 10)$$

H

$$x^4 + 4x^3 - 49x^2 + 27x - 37 \\ \div (x - 5)$$

$$x - 1$$

M

$$\begin{aligned} &x^2 - 5x - 3 \\ &\div (x - 7) \end{aligned}$$

$$x^3 + 9x^2 - 4x + 7 - \frac{2}{x-5}$$

B

$$x^4 + 24x^3 + 138x^2 - 64x + 88 \\ \div (x + 12)$$

$$x + 2 + \frac{11}{x-7}$$

\mathcal{R}

$$\begin{aligned} &x^3 - 10x^2 - 17x + 14 \\ &\div (x + 2) \end{aligned}$$

$$x^3 + 12x^2 - 6x + 8 - \frac{8}{x+12}$$

F

$$\begin{aligned} &X^3 - 3X^2 - 10X - 7 \\ &\div (X - 1) \end{aligned}$$

$$X^2 - 12X + 7$$

Q

$$x^3 + 12x^2 + 24x + 40 \\ \div (x + 10)$$

$$x^2 - 2x - 12 - \frac{19}{x-1}$$

J

$$x^4 + 13x^3 + 24x^2 - 115x - 73 \\ \div (x + 9)$$

$$x^2 + 2x + 14$$

z

$$x^2 + 9x - 10$$

$$\div (x + 10)$$

$$x^3 + 4x^2 - 12x - 7 - \frac{10}{x+9}$$