**Lesson Plan**

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| **Name:** | 308 |  | **Course:** | Algebra 2 |  | **Grade:** | 10-12 |
| **Unit:** | Polynomial Functions |
| **Big Idea:** | Factoring polynomial equations allows us to find the zeros (or solutions) of a polynomial equation very easily and allows us to create an idea of what the polynomial equation looks like when it is graphed. |
| **Subconcept:** | To graph quadratic equations first factor it, then plot the x-intercepts, find the vertex, and finish point plotting. |
| **Literacy Strategy(s):** | Group Discussions |
| **Lesson:** | Graphing Polynomial Equations |  | **Date Taught:** | 02/23-02/25 |
| **Learning Objective(s):** |
|  |  Students will be able to | Plot the x-intercepts. |
|  | Students will be able to | Point plot.  |
| **Idaho Standards (or National Standards if no Idaho Standards exist):** |
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**Detailed Description of Lesson:**

1. Students were given the lecture/discussion worksheet.
2. Students were asked what they knew so far, and, as class, I made sure that everyone was aware of the tools they could work with. (How to find the zeros, how many times it should cross the x-axis, how to multiple out the linear factors, and how to point plot.)
3. Students worked on the first two pages in small groups.
4. In these small groups they reviewed number 9, then, as a class, we reviewed it.
5. As a class we reviewed 10-12.
6. I reviewed the tools they knew how to use (listed above).
7. Students then took home 13-18 to complete.
8. The next day, we reviewed their work. Students were given an independent practice worksheet.

**Handouts:**

 See attached copies.

**Student Work:**

 See attached copies.

**LIMSST Project Literacy Lesson Reflection Form**

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| --- | --- | --- | --- | --- |
| **Name:** | 308 |  | **Date lesson was taught:** | 02/23-02/25 |
| **Lesson Title/Topic Areas:** |
| **Graphing Polynomial Functions** |

**Literacy Strategies Used:**

(Please discuss what literacy strategies you embedded in this lesson. What were your goals in using these strategies? Be specific and use as much detail as possible.)

My goal was to build on what they already knew. My students are intimidated by unfamiliar equations. Using concepts we had already spent a great deal of time developing, they realized they already had the skills necessary to graph a polynomial. I emphasized looking for patterns in the discussion components. Algebra is about finding patterns, and I want my students to become better at recognizing these patterns.

**Student Response to the Lesson:**

(Was the strategy effective? Were students able to read/write as needed in this lesson? What attitudes were displayed? How did specific

 students and/or the class do? How did the literacy strategy aid in developing student understanding of the topic? Cite specific evidence from the samples of student work)

Students responded quite well to this exercise. They were positive, and, as a whole, did very well. The writing-to-learn component brought to light how much students gathered from the discussion. For example the high sample shows meticulous organization of the information shared during the discussion, as well as a summary, or set of rules to consider. The middle sample shows information gathered from the discussion, a summary that may be hard to follow, but an overall grasping of the information. This student would benefit from more development of the idea. The low sample student was absent from class during that part of the activity. It showed very little grasp of a pattern in the work done the day before. This student would benefit from being able to participate in the activity as well as more development.

Their understanding of graphing was also evident in their group work. The high sample was, again, meticulously done, careful, and precise. The middle sample was less precise, showed some mistakes (that were later fixed), and occasionally showed not point plotting at all. The low sample student’s work was missing arrows on the end of the continuous functions, did not utilize point plotting (though this student should have), and showed no work on the take home problems.

I was greatly impressed with the students work during this activity. While there were low samples, these students were already struggling with point plotting in general and have not yet mastered this skill.

Students did not do well on the more complicated equation on their independent practice because they did not recognize to factor. Factoring and recognizing when to do it are still a struggle for most students.

**Lesson Reflection:**

(What worked well with this lesson? What challenges did you encounter in this lesson? Would you change certain aspects of the lesson or the questions that you asked? How does this influence future lesson planning?)

The problems were not difficult; making them this simple kept students from feeling intimidated. Next time I would choose to use more than just the number one. The most challenging part of this lesson was the time it took. But, if I were to teach again, I would be emphasizing point plotting much earlier in the year. If I were to change anything it would be in the way I handled the challenge question. I led the discussion, but I also found myself contributing a fair amount.

I liked the format. I intend to keep using it in this class.

The independent practice format was more difficult for them, and I intend to provide opportunities for them to continue their progression of mastering the skill of factoring and recognizing when to do it.

**Relationship to Previous Instruction:**

(Have you taught this lesson/topic prior to the LIMSST project? If so, how did your teaching of this lesson differ from what you taught before? How did students’ reactions to this lesson differ?)

I have not taught this lesson/topic prior to the LIMSST project.