

<b>MATH 9 LESSON PLAN</b>	
DATE: November 18, 2013 PERIOD: 1 TOPIC: 3.3 Adding Polynomials	
	<b>NOTES</b>
<b>Learning Objectives:</b> <ul style="list-style-type: none"> <li>Add polynomial expressions using algebra tiles.</li> </ul>	
<b>Outcomes &amp; Indicators:</b> P9.4 Demonstrate understanding of polynomials (limited to polynomials of degree less than or equal to 2) including: <ul style="list-style-type: none"> <li>modeling</li> <li>generalizing strategies for addition, subtraction, multiplication, and division</li> <li>analyzing</li> <li>relating to context</li> <li>comparing for equivalency. <b>[C, CN, R, V]</b> <ul style="list-style-type: none"> <li>A. Model (concretely or pictorially) and describe the relationship between <math>x</math> and <math>x^2</math>.</li> <li>J. Generalize, from concrete and pictorial models, and apply strategies for adding and subtracting polynomials symbolically.</li> </ul> </li> </ul>	
<b>Knowledge/Skills:</b> <i>Students will understand.../Students will be able to...</i> <ul style="list-style-type: none"> <li>Students will be able to model polynomial expressions with algebra tiles.</li> <li>Students will be able to add polynomial expressions using algebra tiles.</li> <li>Students will understand the concept of zero pairs (instead of the term "cancel")</li> </ul>	
<b>Materials &amp; Resources</b> <ul style="list-style-type: none"> <li>Algebra tiles for each pair (either iPad or concrete algebra tiles)</li> <li>Handout for each student</li> <li>Algebra tiles app on projector</li> <li>Sticky tack to hang algebra tiles on whiteboard</li> </ul>	

**Learning Plan:**Set (15 minutes):

- Quick reminder of algebra tiles (colors and size of each  $x^2$ ,  $x$  and unit tiles) for both iPad and concrete algebra tiles-write this on board for students to reference during activity.
  - iPad: put iPad up on projector and ask for students input on which colors are positive/negative
  - Tiles: Put tiles up on whiteboard and ask students for input on which colors are positive/negative
- Review the concept of zero pairs with students
- Go through two recall examples on iPad with students. Have two expressions modeled on the iPad and have students state the symbolic equation by raising their hands  
Ex:  $3x^2+2x-4$  and  $2x+6$

Development (30 minutes):

## Adding Polynomial Activity

- Have students get into pairs.
- One partner get an algebra tiles package or an iPad for the algebra tile app
- The other partner comes to get two worksheets.
- Students will work on the activity sheet.

Closure (10 minutes)

- Hand out recipe cards
- Have students answer the following questions on the exit slip.
  - EQ1:** How are “like terms” combined?
  - EQ2:** Can you describe the “like terms” in the set of algebra tiles?
  - EQ3:** What happens when you combine the large square with a small square?
  - EQ4:** How might you add polynomials without the use of algebra tiles?
- Discuss these questions after all have answered them.
- Have students hand exit slip in

**Set:** Review of concept to enhance their understanding of adding polynomials. The students have seen algebra tiles, have modeled with algebra tiles and have seen zero pairs before.

**Development:** if students are not working well with iPads and not working together, ask them to use the concrete algebra tiles

**Closure:** if time is running short-take in the exit slips and do not do a large class discussion. Instead, take the exit slips and use the ideas from them to discuss during the next class

<p><b>Assessment:</b> <i>Formative/Summative</i></p> <ul style="list-style-type: none"><li>• Pictures up on blog marked /10</li><li>• Exit Slip on cardstock</li></ul>	<p>*on the spot informal assessment while students are working on the activity</p>
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