

Re-purposing Technology Lesson Plan Template
TE 831: Teaching School Subject Matter with Technology

Summary Box

Lesson title: Expressions and Equations

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Subject area: Mathematics: Pre-Algebra – expressions and equations

Technology integrated: Lino – online sticky notes

Length of lesson: 1 – 2 weeks (one chapter of study)

Suggested grade level: Middle School 7th/8th Grade Pre-Algebra

Lesson Abstract:

This lesson includes a summative understanding of a Pre-Algebra chapter of study on expressions and equations. Students will learn to use Line and online sticky note program. They will post information that they are learning about the topics relating to expressions and equations. The canvas that is created will be used as a way for the teacher to evaluate the review of the material from this chapter of study. Students will then be able to use this as review for the test on the main points of emphasis.

Lesson Objectives:

- Students will be able to demonstrate the important topics of the chapter
- Students will be able to formulate explanations for each concept in the chapter.
- Students will be able to successfully create a canvas showing their understanding of the material in a verbal explanation.

Student NETS Standards Alignment:

- Student NETS 1b - Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology. Students create original works as a means of personal or group expression.
- Student NETS 5b - Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior. Students exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity.
- Student NETS 6a - Students demonstrate a sound understanding of technology concepts, systems, and operations. Students understand and use technology systems.
- Student NETS 6b - Students demonstrate a sound understanding of technology concepts, systems, and operations. Students select and use applications effectively and productively.

- Student NETS 6d - Students demonstrate a sound understanding of technology concepts, systems, and operations. Students transfer current knowledge to learning of new technologies.

Materials:

<http://en.linoit.com/>

Carter, Cuevas, Day, Malloy, Molix-Bailey, Price, Willard. (2010). Pre-Algebra. Columbus: The McGraw-Hill Companies.

Important Information Worksheet (Appendix A)

Detailed Lesson Procedure:

- ❖ Teacher will inform students that we are beginning a study of a new chapter of mathematics material: Expressions and Equations.
- ❖ Teacher will remind students that they have heard of both expressions and equations before and will ask students to recall the information about these terms that they remember.
- ❖ Teacher will have students take out their textbooks and open to the chapter to look through the different lessons and topics that they will be studying learning for the next 1 – 2 weeks.
- ❖ Students identify the 4 different major topics that we are going to be studying and fill them in on their important information sheet.
 - Distributive Property
 - Simplifying Algebraic Expressions
 - Solving Equations (using +, -, x, ÷)
 - Writing Equations
- ❖ Teacher will explain that the Important Information Sheet (app. A) will be their tool for completing their online canvas that will be submitted at the end of the chapter. The online canvas will be a collection of sticky notes and pictures representing and explaining the knowledge of these 4 major topics that students have developed.
- ❖ Bring students to the computer lab or use the mobile lab for each student to have their own computer.
- ❖ Teacher instructs students to turn on/ log in to the computers and go to <http://en.linoit.com> Then proceed to Sign Up which can be found in the upper left hand corner. Students then create a username and password and enter their e-mail address in order to sign up for lino. Students will be brought to their homepage and will see an option to click on two different canvases (main or someday).
- ❖ Teacher will inform students that we will all be using their main canvas to create our information for this chapter.
- ❖ Teacher will explain to students that this is an assignment so I need to be able to be a group member of their canvas. Teacher will explain that this allows me to see the students progress throughout the chapter and makes notes on any information that I might find necessary to comment on.
- ❖ Teacher will have students click on *My Groups* and then *Create New Group*. Instruct students to name their canvas, write a brief description including their name and upload an image if they would like an image with their canvas. Then instruct students

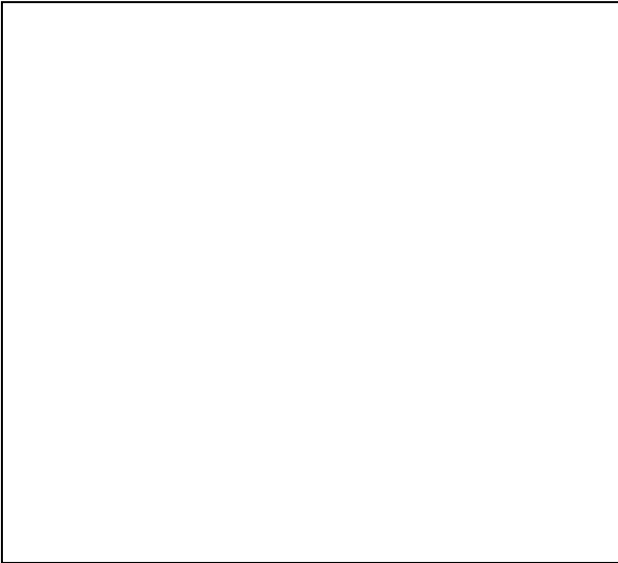
to click membership by invitation only for their group. Next click on create group. This will bring students to a members invite screen. Instruct students to either put teacher's user name into the invitees' box. This will allow the teacher access to all canvases without students being able to change their classmate's canvases. Lastly students must click invite.

- ❖ Teacher will instruct students to return to their group canvases page and click on the blank canvas. Once on the canvas teacher will demonstrate to students how to peel off the explanation sticky notes by using the check button on the bottom right of all the sticky notes. This will allow each student to see how to delete a sticky and also have them start their project with a clean canvas.
- ❖ Teacher will demonstrate how to create a new sticky note by clicking on the four different options on the right side. Then will demonstrate how to edit the sticky. Students will work with the teacher at this point to create their title for their canvas as it relates to the chapter. Show students how to drag and move sticky notes and that hovering over the right corner of the sticky note allows you to tilt the sticky.
- ❖ Teacher will just mention the photo icon for importing photos that students may want to include. Allow students some time to play with their canvas and add the 4 important topics that were written on their information sheet at the beginning of the class period.
- ❖ Teacher will explain that this is an ongoing canvas that students can add information too as it is studied in class. They should not wait and try to include all the important information at the end of the chapter. For example, after learning about the distributive property I would complete the section of my canvas relating to this topic. The information is the freshest in your mind at this point that you will not be as likely to forget something.
- ❖ Teacher will instruct students to go back to their home page. There is no need to save any work done, the work is automatically saved. Show students the link to apps for Ipad and Iphone if students would like to explore the app store, otherwise they can sign on to this website from any computer and update their canvas throughout the chapter.
- ❖ Teacher will explain that this is creatively their own work and they are free to demonstrate their knowledge of the mathematical material in any way that is useful for their understanding and will help prepare them for the test.
- ❖ Teacher will have students write down their password and login information in a safe place in case they forget it. Then have students log out of line and shut down the computers.
- ❖ Teacher will assign a due date before the test for Expressions and Equations for student canvases to be completed. Teacher will grade each canvas. Grade can be added to the canvas using a sticky note from the teacher.
- ❖ Teacher will remind students to write important information on the worksheet throughout the lessons in class so that it can be used on their canvas
- ❖ Teacher may show example canvas to the class to show the variety of different ways this material could be presented.
- ❖ Teacher will assess the canvas based on inclusion of all 4 main topics and concepts that should fall under each category.

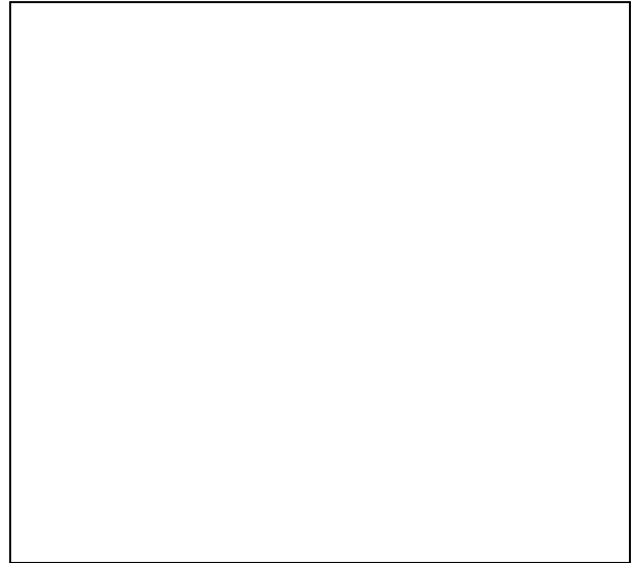
Appendix A

Important Information Chapter 4: Expressions and Equations

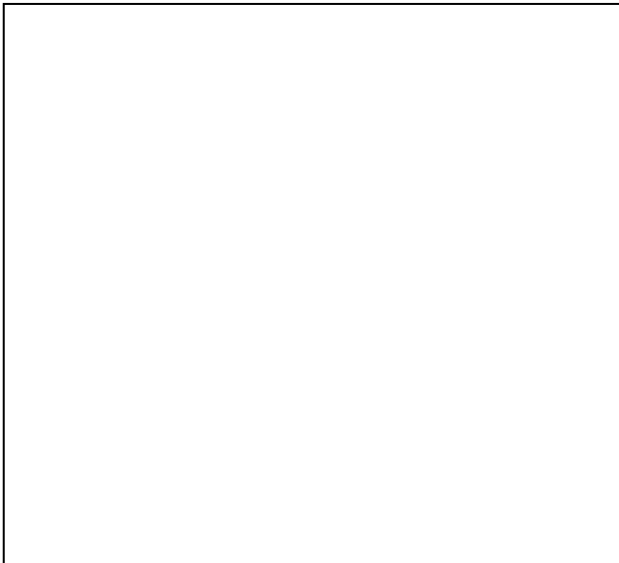
Distributive Property (4.1)



Simplifying Expressions (4.2)



Solving Equations (4.3 – 4.5)



Writing Equations (4.6)

