# Factoring Trinomials

## Background Information

Class: Algebra I  
Subject: Factoring  
Lesson Title: Factoring Trinomials  
Grade Level: 9th  
Lesson Length: 2 days (180 minutes)

## Purpose

The purpose of this lesson is: to have students become familiar with the rules of factoring and then to solve problems that require students to use their factoring techniques. This activity will lead students to solving quadratics by factoring and determining their number and type of roots.

## Objectives

**Content:**

Given worked examples using both the graphing calculator and overhead, students will be able to factor polynomials of degree 2 independently. Students will be able to work in groups to assist each other with their factoring techniques.

1. ELLs will become familiar with factoring  
2. ELLs will investigate the different type of polynomials they will have to factor  
3. ELLs will create a user friendly system for factoring

**Language Objectives:**

Students will be able to explain the steps they used in order to factor a given polynomial. They will do so by assisting the teacher through a problem as well as in small groups.

1. ELLs will read others work as well as native speakers work  
2. ELLs will discuss the techniques with both native speakers and non-native speakers  
3. ELLs will rewrite the factoring methods in their own format once discussing them with members of their group.
Culture Objectives:

Students will create a factoring method that is user friendly for all students in class. We will post their techniques in class.

1. ELLs will pair with native speakers and non-native speakers to discuss the differences in their methods for factoring polynomials.

State Standards

NCSCOS 1.01 (Algebra I) – Students will be able solve problems by factoring.

Materials

- overhead
- textbook
- graphing calculator
- teacher overhead calculator
- paper
- pencils

Activities

Using graphing calculator graph several polynomials and determine where the graph touches the x-axis. Explain that these are the points that are important for us to use when we factor. Have students add and multiply these two numbers to foreshadow how we will use these numbers later when we factor. (ELL student has a native speaking partner in class to assist with this. Have both students graph and identify the points where graph crosses x-axis)

Model how to factor polynomials. Given sample problems in a teacher led discussion, demonstrate how to factor a polynomial. Explain all the special cases that are involved and what to look for in each. Call on students to identify factors of middle and constant terms. (ELLs will identify constant and middle terms, and discuss what the results are when these factors are multiplied and/or added)
Separate students into 5 groups and give two polynomials to factor. Have the group identify factors of the constant and middle terms. Next, have groups switch papers. This time, have students identify the signs and what signs the factors will have. Have the groups switch again. Now, the groups will build both factors. Have the students switch again. This time have students multiply out the two factors that the previous group found. Last time, original group should get back their paper. They need to check that their two problems have been factored correctly. (ELLs will be paired with native speakers to help with factoring and commenting on others work)

Post the groups two problems around the room. Have students in a gallery walk format, look at each groups problems. Verify that they are correct. Identify problems that are not correct. Groups should comment on the problems that are not correct. Once all corrections are made students should return to their groups.

After the gallery walk, have student’s factor two problems. Identify all techniques and check for understanding. Review all factoring techniques and summarize how to factor different types of polynomials. (ELLs should summarize in their own words how to factor polynomials.)

Assign problems of each type to factor and turn in. Also, assign the factoring section on Study Island for students that finish early to complete. If they do not finish in class, they should finish at home.

Technology Used

- Graphing Calculator (1,8)
- Computer program – Study Island (6,8)

Author Information

Author: Stephen C. Parker
School: Statesville High School
Signature: (name is my signature)
Permission to Publish: Yes