

# Teaching factoring while utalizing the four families of teaching models assignmen...

[Education](#)



One of the major topics covered in any Algebra class is that of factoring. Most mathematics educators have experienced numerous problems associated with this particular concept. Students rarely completely understand the ideas presented during this section of Algebra. However, it is a concept that cannot be removed from the course. Any reputable Algebra course must require its students to attempt to master this important topic.

Therefore, I have decided to use this topic for my discussion of the four models of families of teaching. I will be covering this concept in the near future and am anxious to utilize something from each of the four families of teaching models in my classroom instruction. Upon my initial introduction of the topic of factoring, I will employ the model of advanced instructional organizers from the information-processing family of models. The book company that we currently use at Prattville High School is Glencoe. This company provides us with a series of workbooks to enhance the textbook.

One of the workbook sets supplies advanced organizers for lectures and examples associated with each topic covered in the textbook. Using the information-processing model, I will give the students pages from this workbook that correlate to the material being covered in the textbook. I will present a lecture which involves examples and classroom discussion. During this class time the students will be responsible for completing the missing parts of the appropriate pages in the workbooks. This will be the first time that I have worked with the notables workbooks in my classroom.

Until now, I have followed the advice of other instructors who have not seen much success when using these workbooks. Hopefully, my experience will be

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different from theirs. Once the initial instruction of the topic of factoring has been discussed, I will begin to employ the social family of teaching models. The students will be divided into groups of three. I will use test scores from the previous chapter to determine the grouping. These scores should be a good representation of the student's understanding of the material covered up to the point of factoring and therefore an indicator of their ability to comprehend the current topic.

I will pick one student with a high score on the test to be grouped with a student who scored low and a student who scored at a mid-level. The groups will work together to complete several factoring problems. At this point I will re-introduce the algebra tiles to the class. (Algebra tiles were used in the previous discussion of multiplying polynomials. ) Each group will have a set of algebra tiles and will be responsible for factoring a set of problems using the tiles. The groups will be instructed to number themselves from 1 - 3.

For the first 3 problems the number 1's will be the recorders for the groups. Their primary task will be to write down the problems and answers the group determine. The number 2's will be responsible for picking the appropriate number and size of algebra tiles to represent the respective polynomial. The number 3's will be the students that actually factor the polynomial. They will accomplish this by using the algebra tiles provided by the number 2's. After the initial 3 problems have been completed, the groups will shift the responsibilities of each person.

This shift of responsibility will occur again after 3 more problems have been completed. This method will ensure that each member of the group is

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exposed to each position of responsibility. Class will end with each member of the group completing an anonymous assessment of the members of the group and their individual contributions as well as the group contributions. As noted in our textbook, I will focus on the use of the personal family of models by using them to flavor a learning environment designed around other models.

I believe that the cooperative groups used as part of the social family of models will help the students to become more aware of their individual differences. As this begins to unfold, I will work within the classroom and groups to help all students develop a broader understanding of the differences in learning ability and styles represented in our classroom. While working in their groups, students will be completing various tasks as assigned by the group and myself. In completing these tasks, each student should be able to find an area where they excel.

The resulting boost in self-confidence will be a secondary outcome. Also, with students working in groups I will be able to communicate with each student on a more personal level. This activity will help me to connect with each student and allow for more exchange of personal feelings than happens during the traditional whole class lecture. Finally, I will return to the traditional teaching method of direct instruction for completion of our factoring section. Students will be returned to their assigned seats in a row format.

I will discuss the aspects of factoring polynomials and relate the current topic to the previous topic of multiplying polynomials. This method is the way that

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I have traditionally conducted my classes. After some lecture and questioning I will demonstrate a few select examples for the students. The students will then be given an assignment on factoring polynomials. For the structured practice, I will work two or three of the assigned problems on the overhead. Students will be questioned about the process of factoring polynomials during this time.

Those students who seem to be having difficulty grasping the concept will be instructed to copy each of the problems worked on the overhead into their notebooks. We should have about 20 minutes of class time left. During this time, students will be involved in guided practice on the assigned problems. I will walk around the room checking individual progress and answering questions. Finally, students should have five problems that they are not able to complete in class. These problems will be taken home for completion, representing the independent practice phase of direct instruction.

Utilizing the four families of models of teaching will require some additional effort on my part as I do not currently attempt to incorporate each of these on a daily basis. However, based on the textbook for this course, my students should benefit from this experience. The students should develop a deeper understanding of the concept of factoring which will serve them well for future mathematics classes. Also, once I have designed the initial unit of instruction with the four models of teaching, I will be able to return to using all of them with greater depth, understanding, and effectiveness.