

Introduction



We, as educational professionals, have all seen it before. It stops us dead in our tracks and we find ourselves captivated by our students. Every ounce of our soul is screaming with excitement! All we can do is watch and listen the situation play out in front of us. It doesn't matter if the students are right or wrong at first, all you know is that they are talking about the subject and actually listening intently to each other! What am I talking about?

Starting Point

In the past, I have explored, and consistently practiced, predominantly one technique of cooperative learning, based on ability. I had 4 different groups, with about 3-4 members. I had one group of lower achievers, 2 middle levels and a high level. Each group was assigned different problems that were specific to their ability. For example, I gave my lowest group straight forward problems. Each group was then assigned a "teacher," whom was given the responsibility to teach, assess, manage and grade each member of their group. I selected the "teachers" from the students who I knew could handle the job with

I'm talking about the thrill a teacher gets when his/her students sit and talk to each other about what they learn in class. They are truly motivated to share what they know or ideas on what they don't yet understand, with each other. If you give students the opportunity to talk to each other, and the responsibility to work cooperatively with each other, the classroom environment completely changes. No longer do you have students who are day-dreaming because they don't understand it! Instead, you have students who have not spoke up once in class, excited to learn the material so that they too can help a fellow classmate understand the material. So

maturity and academically. The "teachers" really enjoyed being able to manage a group by themselves and the "students" really enjoyed being able to get help right away, whenever they needed it.

This method was great for this class, but did not work nearly as effective in any of my other classes. This class happened to be the class that contained four academically gifted students. Was the method successful, only because of the student population of this core, or where there key components in the structure of the cooperative learning groups that were

where exactly can you buy this magical fairy dust that you spread in your room before the students walk in? There's no dust, potions, magic beans, etc... It's much more complicated than that! It's called Cooperative Learning!

In this article, I will explore cooperative learning activities, how to get students to work effectively in them, and how to create these magical lessons. Diving into these complex strategies takes careful preparation and structure. If planned, supervised and conducted just right, students, no matter what their current ability level, will succeed.

not designed well enough for the activity to work well in all classes? Was the environment different from class to class? Did the students just not know how to work together?

There is no reason why these activities should not work, in some form or another, in all classes. I enjoy allowing students the opportunity to discuss problem solving with each other, but would like to find different strategies of cooperative learning activities. What are the best ways to teach students work together in a group, since this is not second nature? How should you design lessons to reach all students?

Christen VanNewkirk

DESIGNING EFFECTIVE LESSONS:

- ◆ Communication Skills
- ◆ Individual and Group Feedback
- ◆ Design higher-level lessons

(For more information, see page 3)

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“COOPERATIVE AND COLLABORATIVE LEARNING ARE RECOGNIZED AS VALUABLE COMPONENTS OF CLASSROOM LEARNING. HOWEVER, MANY QUESTIONS REMAIN REGARDING HOW TEACHERS MIGHT STRUCTURE AND GUIDE CHILDREN’S GROUP-LEARNING EXPERIENCE.” (MUELLER & FLEMING, 2001)



In the simplest form, cooperative learning involves students working together to meet a certain objective, without immediate feedback from the teacher. The design could range from one student teaching the other group members content (routine learning), to the entire group working together to solve a problem that no member has seen before (conceptual learning). “For

more routine learning, students should help each other to understand what the teacher or the textbook is saying and should offer each other substantive and procedural information. For conceptual learning, the interaction desired is more of a mutual exchange process in which ideas, hypotheses, strategies and speculation are shared.” (Cohen, 1992) Every component of the

way in which these activities are designed, depends on the objective of the project. Creating successful cooperative learning activities involves a great deal of planning, structuring and reflecting, but most importantly, having a clear viewpoint and understanding of what is expected of the students, academically and socially, once the activity is over.

What is Cooperative Learning?

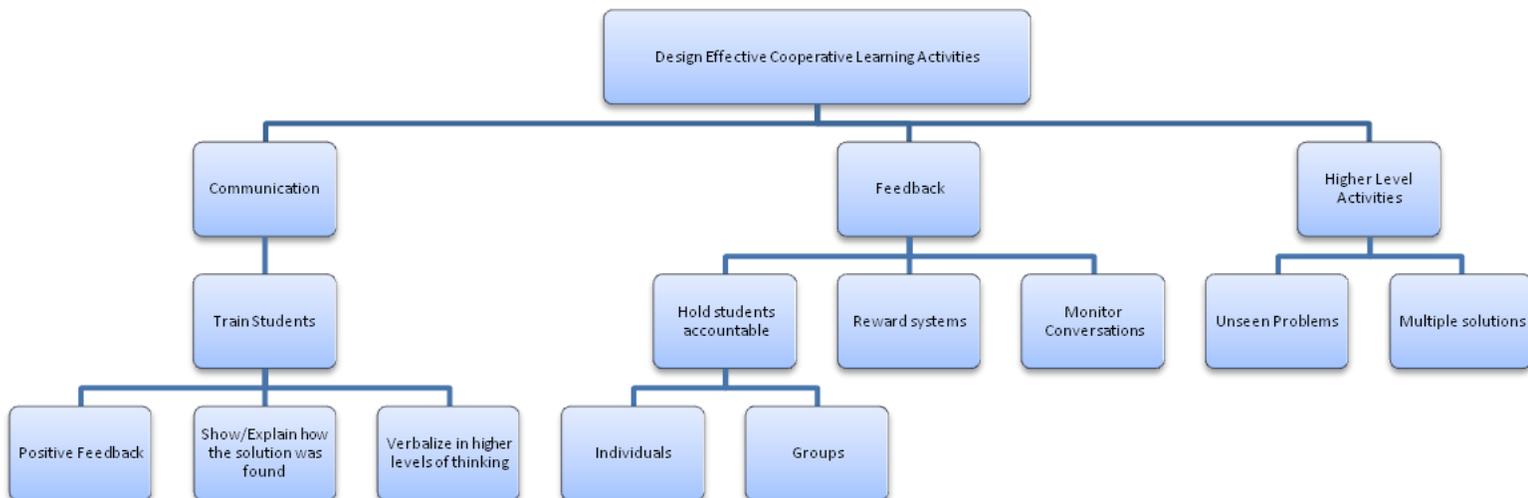
Cooperative Learning Takes Many Forms

According to the Research into Practice Series, *Classroom Instruction that Works*, there are three main ways to group students for cooperative learning activities-informal, formal and base-groups. It is suggested that all three groups be used frequently in order to “provide students with opportunities to learn about different perspec-

tives and gain appreciation for the variety of talents in the room.” (McREL, 2005) Informal groups are techniques like “pair-share” or “turn-to-your-neighbor.” These are often spur of the moment and quick sessions where students briefly check other students understanding. Formal groups tend to be longer and more

meticulously designed to ensure that all students have the opportunity to meet the objectives. Finally, base-groups are used to form some sort of a team feeling among students. These base-groups could meet for any reason from checking for understanding of the content, to making sure all homework is completed for the

FIGURE 1: DESIGNING EFFECTIVE COOPERATIVE LEARNING LESSONS





Designing Cooperative Learning Lessons

In researching how to design effective cooperative learning lessons, there are three main components upon which a teacher needs to reflect: communication, feedback and higher level activities. First, it is necessary to train students how to work together. One can not expect students to know exactly what is expected of them, since most of the time, students will not have a great deal of practice with these activities. Expectations are different with every teacher, and in every subject, so it is important to be clear on communication, and hold students and the group accountable for it. Finally, the activities need to require higher-ordered thinking skills. Each of these three play an important role in ensuring the success of the group-work. (see Figure 1: Designing Effective Cooperative Learning Lessons)



Communication

No matter the type of learning that should be achieved, it is vital to the success of these activities to train students what is expected from them, at all times. It is not second nature for students to communicate with each other, in an academic setting. For example, Grant V. Harrison (1976) studied the importance of training students to communicate with each other. He found that students who were not trained “punished, extensively over-cued, did not give verbal praise, did not engage in friendly non-instructional conversation, provided feedback before the child made the appropriate response, and made no effort to clarify the task.” If students do not understand how to give positive feedback or understand how to show others how to complete math, versus tell them the answer, the successfulness of the activity will be decreased dramatically. In math, in particular, it is important for students to understand that when they communicate with each other, when solving problems, it is not

the answer that is important. Rather it is the process that was used to obtain that answer. Training in one vital component of ensuring that students know what how you expect them to communicate with each other, and conduct themselves in the group. Role playing is a great way to show students appropriate and inappropriate ways to socialize in these cooperative learning groups. In *Restructuring the Classroom:*

Conditions for Productive Small Groups, Elizabeth Cohen agrees that training also affects the level of the conversations. “If students are not taught differently, they will tend to operate at the most concrete level. If teachers want high-level operation, particularly verbal, the students will require specific development of skills for discourse, either in advance of cooperative learning or through direct assistance when the groups are in operation.” (Cohen, 1992)

Feedback

Monitoring the conversations does not necessarily require a teacher to micromanage the process that a group needs to go through. The flexibility of the conversation truly depends on the activity. For example, if the content is straight-forward, and needs to be repeated in the same fashion each time, a teacher may want to thoroughly explain the exact conversations that should take place. Additionally, if a group needs to work through a problem on solving linear equations, it is necessary that the process remains the same each time. Therefore, the teacher may want to explain the vocabulary, questions and reasoning that is necessary for all members to understand the concept. On the other hand, Cohen notes “As the tasks become more sophisticated, requiring higher order thinking for more creative outcomes, we hypothesize that the interactions must be less constrained by the teacher.” (Cohen, 1992) Keep in mind, it is still necessary to train the students

on how to communicate, but allow students to have a little more freedom in the process they use to find the solution. The task of managing interaction between students can be “accomplished by building student’s skills in discourse by assigning well-chosen tasks for the groups, and by holding students accountable as individuals and as groups.” (Cohen, 1992) Grading the group, merely as a whole gives students the opportunity to rely heavily on each other, without taking responsibility for themselves, and their own work ethic.

Higher Level Activities

The final component of designing effective cooperative learning lesson, involves the actual design of the lesson. When designing these lessons, it is important that all members hold a piece of knowledge to contribute to the activity. If one person knows the process, that person will be the main contributor. “Some of the groups where interaction was not beneficial involved straightforward math exercises which did not require collective action.” (Cohen, 1992) It is necessary to understand that collaborative learning does not work well with all lessons. Students must have the necessity to find out information that they do not already know, from each other. Next, students need to depend on each other to find the solution. If one person is not contributing, it will affect the entire results. This kind of reliability helps alleviate some issues of students who do not participate. I hypothesize that if you allow students to solve problems with multiple possibilities, it allows students to be more confident in trying new things. If students know there is going to be a right and a wrong answer, students who tend to struggle may not try as much.

In conclusion, these three components-communication, feedback and higher level activities, will play important roles in the academic and social success of all students involved in the process. In the future, I will explore these components through my action-research.



Literature Review

Cooperative learning is one of the oldest strategies used in the education system. One room school houses relied on cooperative learning to meet the needs of an incredible range of students' academic needs. Just imagine a room full of students from first grade through eighth grade! How could that teacher survive? The key to the success was to ensure that cooperative learning activities were soundly structured. In

Restructuring the Classroom: Conditions for Productive Small Groups, Elizabeth Cohen explores how to structure cooperative learning activities in order for them to be a productive as possible, for all members. A great deal of my action research is based off of her strategies, being that they have been validated through other research. First, it is vital for students to be "trained" on how to communicate with each other. Placing students into a group is not as effective for some students, if they are not shown what is expected of them. Second, it is important to hold students accountable as individuals, and entire groups.

To prove the absolute necessity of training students on communication skills, Noreen M. Webb and Sydney Farivar conducted research on six 7th grade math classrooms, of two different teachers. Each teacher taught three classes; two "experimental groups (classes)" and one control group (class). To prove or disprove the effectiveness of training students how to communicate, Webb and Farivar reviewed transcripts from group members (along with reviewing pre- and post-assessment scores). From the transcripts, the frequency of students receiving elaboration, giving elaborations, receiving the answer and giving the answer were computed.

Prior to the cooperative learning activities, both the experimental classes and the control class completed activities that allowed students to get comfortable with each other. They introduced themselves,

learned about each other's interests and hobbies, etc... Both groups also discussed appropriate group behavior to enforce procedures like equal participation from all mem-

bers, positive comments towards each other, using appropriate noise levels when talking to each other, etc... The only difference is that the two experimental classes explored ways to communicate with each other and give each other directions. The purpose was to help

students understand the importance of discussing how to find solutions versus just telling the answers.

The results proved how important it is to incorporate training into your cooperative learning activities. "Minority students [Latino/African American] gave and received more elaboration in the experimental condition than in the comparison condition, and received answers more frequently in the comparison condition than in the experimental condition." (Webb and Farivar, 1994). In terms of achievement, post-test scores also proved to be higher in minority students from the experimental conditions. However, there were not significant interaction or achievement differences between white students from the two groups.

Another key successor of cooperative learning activities is to hold both individuals and entire groups accountable. In *Cooperative Learning*, Slavin delves into these reward systems and the different forms that they may take. Holding only the group accountable is not effective. "A group member can have an off day and still be successful because his or her groupmates cover for the individual; a group member may work especially hard and still fail because the rest of the group does not match his or her efforts." (Slavin, 1980) If you use a reward system that involves both individuals and groups accountable, the structure of the group now begins to transform into members working together to receive that reward.

"When individuals in cooperative contingency want to be rewarded, they have two primary means of increasing their chances. First, they can work hard themselves. But, second, they can try to influence or help their groupmates to do their best." (Slavin, 1980) Keep in mind however, that these rewards vary dramatically, depending on the activity.

The reward system that Webb and Farivar used in their research is most likely the reward system I will mirror in my own research. It is well-planned and predominantly holds the individual accountable (80%), while still offering group standards (20%). Individual grades were scored from homework, class work and quizzes. If students submitted the work, they received credit. To hold the entire group accountable, the teacher used a spinner or a die to receive a random number. Before the group work was assigned, each individual was given a number. Whatever number was received from the spinner or die would be the work that was collected for the group grade. Everyone in the group would receive that score. This was scored on accuracy, not strictly submitting the work. Therefore, students had to communicate with each other, to ensure that everyone was accurate in their work. Webb and Farivar gave students the opportunity for individuals to push their own thinking, while still ensuring that groups were working together to ensure that all students were comfortable with the content.

In conclusion, training students how to communicate with each other, and elaborate their explanations, coupled with holding students and groups accountable, through research, have proven to be academically successful for most, if not all students involved. These methods will be incorporated into my own personal research, in order to provide the most productive learning environment for my students. This research has not only enabled me to reflect on my own research methods, but also the strategies that I plan to use to assess the successfulness of the activity and the student's academic achievements.



ONE-ROOM SCHOOL HOUSE
KANSASHERITAGE.ORG

Going Forward

So what have I learned from the research thus far? If I use the research and techniques suggested to create successful cooperative learning techniques, to try to hypothesize what went wrong with my group-work last year, I immediately realize two things: (1) students were not provided effective training on how to communicate with each other and (2) I designed an activity where one student held the knowledge.

Students were not trained effec-

tively. I merely gave the students directions on how students need to be sure that their conversations are on-task. I did not show them examples on good and “bad” conversations, role play or even hold students accountable for their conversations.

The next error that was made was the design of the group-work. I relied heavily on one student transferring knowledge to other students. The “group-work” was more or less tutoring.

ing is effective in some cases, but showed to not be effective in all. Instead I need to make all group-members “information holders” of some sort, in the project. The group must rely on each person to obtain information.

With these changes to be made, I expect a more structured activity where the majority of the students are active participants .

Assessing Progress



QUALITATIVE AND QUANTITATIVE DATA WILL BE USED TO MONITOR THE SUCCESSFULNESS OF THE ACTIVITY

Assessing how successful a cooperative learning activity was, can be very difficult. Not only do you have to assess the group as a whole, but also each individual. Monitoring conversations can be very subjective, so students need to

be prepared in knowing exactly what is expected of them. It is also important to have a clear idea of what a “successful” lesson looks like to you. To each teacher, that can look very different. I define a lesson as being successful if students are communicating effectively (positive feedback, respectful, on-task at all times), working together and discussing all possible solutions, and making academic progress. Qualitative and quantitative assessments will be used to prove/disprove the successfulness of the cooperative lessons.

In terms of qualitative assessment, rubrics can be used in showing students, in an organized manner, the way they will be assessed. In this research

project, I will allow students to assess themselves, and their group as a whole (not other group members as individuals). Self assessments allow students to take a step back and reflect what kind of involvement they had in class. They will monitor their communication with each other (positive feedback, respectful of others opinions, etc...), how well they explained solutions to others and whether or not they were using higher level thinking skills. Therefore, each student will complete two rubrics: a rubric for themselves, and for the group as a whole. While monitoring during the class, I will also use a very similar rubric, to make notes of what level they are working in. I will make notes of specific students progress and/or lack of progress at that point also. (To view the individual rubric, group rubric and teacher rubric, see Appendix)

Quantitative assessments will also be used to determine the academic success of the activity. I will use pre- and post-assessments to show the growth that each student made, or did not make. With the scores, I will graph a line plot for all students in my Algebra I classes. One line will represent the scores from the pre-test, and the second line will represent the scores from the post-test. I

will be able to quickly determine who improved, and who dropped academically. The pre- and post-assessments will include standard solving problems, but will also include an open-ended section. This will include a writing activity in which students need to explain the process they used to find the solution. This will determine whether or not students are more comfortable explaining their reasoning, in solving a problem. I would expect that some students would not be confident in doing this on the pre-assessment. However, I anticipate that after a number of cooperative learning activities, they will begin to be more comfortable with this expectation.

Therefore, with coupling qualitative, with quantitative assessments, I will be able to determine if the cooperative learning activity was successful. Through the qualitative assessments, I will determine if communicational progress has been made. At the same time, through quantitative assessments, I will collect hard data to determine whether academic progress was made.

“NOT ONLY DO YOU HAVE TO ASSESS THE GROUP AS A WHOLE, BUT ALSO EACH INDIVIDUAL.”



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Appendix

Research Question: How do monitoring communication, providing feedback and incorporation of higher level cooperative learning groups promote academic and social success of students?

Instrument	Purpose	Description of the Instrument	Schedule for Collecting Data
<i>Individual Rubric (social)</i>	Allows students to reflect on their <u>communication</u> skills. It also allows them to receive self- <u>feedback</u> .	Each student will assess how well they, as an individual, worked. They will assess the feedback they personally gave others, their explanation of answers, and whether or not they were using higher level thinking.	Directly following the Cooperative Learning Activity
<i>Group Rubric (social)</i>	Allows students to reflect on the <u>communication</u> among a group. It forces them to think about what group-work should look and sound like. It allows them to receive immediate self- <u>feedback</u> .	Each student will assess how well the group worked together as a whole. They will assess the feedback they gave each other, the explanation of answers, and whether or not they were using higher level thinking.	Directly following the Cooperative Learning Activity
<i>Teacher Rubric (social)</i>	Allows me to give students constant <u>feedback</u> during the cooperative learning activity. I will use this rubric to explain to students where they stand in terms of communication with each other.	The rubric will allow me to constantly assess and monitor the conversations among students. I will be giving students immediate feedback on how well they are doing with their communication, and higher level thinking skills. I will also monitor on-task conversations, and math vocabulary used.	During the Cooperative Learning Activity
<i>Pre-Assessment (academic)</i>	Pre-assessments will be used as a base point to determine how students think about certain concepts in math. <u>Higher level thinking</u> problems, like open-ended questions, that require students to explain how to find solutions, will be used to articulate how well students verbalize their reasoning.	Assessment will test whether or not students understand key concepts from the objectives at hand. The assessment will include an open-ended section (higher level thinking), which will require students to explain their reasoning, when solving the problems.	Before (no more than a week) Cooperative Learning Activity
<i>Post-Assessment (academic)</i>	Post-assessments will be used as a comparison to pre-assessment scores, to determine whether or not progress was made. <u>Higher level thinking</u> problems, like open-ended questions, that require students to explain how to find solutions, will be used to determine any changes in how well students verbalize their reasoning after cooperative learning activities.	Assessment will test whether or not students understand key concepts from the objectives at hand. The assessment will include an open-ended section (higher level thinking), which will require students to explain their reasoning, when solving the problems.	After (no more than a week) Cooperative Learning Activity

**Individual Rubric**

You will score yourself only with this rubric. Be honest, and if you feel as though you need to explain yourself and/or your score, do so in the first column, next to the words "Notes to Mrs. VanNewkirk."

<p>Positive Feedback Notes to Mrs. Van- Newkirk:</p>	 <p>I worked very well with others in my group. I gave positive feedback like, good job, nice try, let's try again, all of the time. I never got frustrated or angry with another student who did not agree with me.</p>	 <p>I worked well with others. I gave positive feedback like, good job, nice try, let's try again, most of the time. I hardly ever got frustrated or angry with another student who did not agree with me.</p>	 <p>I worked okay with others. I gave some positive and negative feedback when working with my group. I sometimes got frustrated and angry with students who did not agree with me.</p>	 <p>I did not work well with other students. I gave mostly negative feedback almost all of the time, like "no, that's not right", "what were you thinking?" or "you're wrong." I was frustrated or angry the entire time.</p>
<p>Explanations of Answers Notes to Mrs. Van- Newkirk:</p>	 <p>I always explained how to find the solution, and never just told another student the answer, without explaining it. I used the math vocabulary all of the time.</p>	 <p>I explained how to find the solution most of the time, but sometimes told other students the answer, without explaining it. I used the math vocabulary most of the time.</p>	 <p>I sometimes explained how to find the solution, and told other students the answer, without explaining it most of the time. I used the math vocabulary some of the time.</p>	 <p>I never explained how to find the solution and always told students the answer without explaining it. I never used the math vocabulary.</p>
<p>Higher Level Thinking Notes to Mrs. Van- Newkirk:</p>	 <p>I always discussed how I thought we should find the solution, even if someone does not ask me to share my ideas.</p>	 <p>I usually discussed how I thought we should find the solution, when someone asks.</p>	 <p>I sometimes discussed how I thought we should find the solution, but only as long as someone asked.</p>	 <p>I never discussed how I thought we should find the solution, even if someone asked.</p>
<p>Overall Scoring Notes to Mrs. Van- Newkirk:</p>	 <p>I actively help the group work together. I join group activities without being asked. I say what I think in a way that respects what others feel and know. I stayed on-task the entire time.</p>	 <p>I join group activities when someone asks. I say what I think in a way that respects what others feel and know. I stayed on-task most of the time.</p>	 <p>I only join group activities when someone asks. Sometimes I say what I think in a way that hurts others' feelings. I stayed on-task some of the time.</p>	 <p>I do not join group activities, even when someone asks me to. Or, I say what I think in a way that hurts others' feelings. I was never on-task.</p>



Group Rubric

You will score your group, as a whole, with this rubric. Be honest, and if you feel as though you need to explain yourself and/or your score, do so in the first column, next to the words "Notes to Mrs. VanNewkirk."

<p>Positive Feedback Notes to Mrs. Van-Newkirk:</p>	 <p>My group worked very well with each other. Everyone gave positive feedback like, good job, nice try, let's try again, all of the time. We never got frustrated or angry with another.</p>	 <p>My group worked well with each other. We gave positive feedback like, good job, nice try, let's try again, most of the time. We hardly ever got frustrated or angry with another.</p>	 <p>My group worked okay with others. Some members gave positive and some members gave negative feedback when working with each other. We sometimes got frustrated and angry with each other.</p>	 <p>We did not work well with each other. We gave mostly negative feedback almost all of the time, like "no, that's not right", "what were you thinking?" or "you're wrong." We were frustrated all the time.</p>
<p>Explanations of Answers Notes to Mrs. Van-Newkirk:</p>	 <p>We always explained how to find the solution, and never just told another student the answer, without explaining it. We used the math vocabulary all of the time.</p>	 <p>We explained how to find the solution most of the time, but sometimes told other students the answer, without explaining it. We used the math vocabulary most of the time.</p>	 <p>We sometimes explained how to find the solution, and told other students the answer, without explaining it most of the time. We used the math vocabulary some of the time.</p>	 <p>We never explained how to find the solution and always told students the answer without explaining it. We never used the math vocabulary.</p>
<p>Higher Level Thinking Notes to Mrs. Van-Newkirk:</p>	 <p>We always discussed multiple ways to find the solution, even if not everyone believed it was the best way to solve the problem.</p>	 <p>We usually discussed multiple ways to find the solution, and almost everyone shared their opinion.</p>	 <p>We sometimes discussed multiple ways find the solution, but only one or two members shared their opinions.</p>	 <p>We never discussed multiple ways to find the solution. One person thought of one way, and we all followed, even if we had a different opinion.</p>
<p>Overall Scoring Notes to Mrs. Van-Newkirk:</p>	 <p>All members actively help the group work together. Everyone joined group activities without being asked. We all said what we thought in a way that respects what others feel and know. The entire group stayed on-task the entire time.</p>	 <p>Almost all members joined group activities, as long as someone asked. We said what we thought in a way that respects what others feel and know. The group stayed on-task most of the time.</p>	 <p>Some members only joined group activities when someone asks. Sometimes members said what they thought, in a way that hurt others' feelings. The group stayed on-task some of the time.</p>	 <p>Almost all members do not join group activities, even when someone asked them to. Or, almost all members said what they thought in ways that hurt others' feelings. We were never on-task.</p>



Teacher Rubric

I will monitor conversations among students and record how many times I see students in the following categories. Each time they are scored, I will explain what category they are in as a group, and if there are any issues with individual students, I will address them at that time. I will constantly monitor groups and individuals throughout the activity. The circles on the bottom of each square records how many times the group was observed in that level.

Positive Feedback	<p style="text-align: center;">4</p> <p>Group is working very well with each other. Everyone is giving positive feedback. No one is frustrated or angry.</p> <p style="text-align: center;">(1) (2) (3) (4)</p>	<p style="text-align: center;">3</p> <p>Group is working well with each other. Most students are giving positive feedback like, good job, nice try, let's try again. No one is hardly frustrated or angry.</p> <p style="text-align: center;">(1) (2) (3) (4)</p>	<p style="text-align: center;">2</p> <p>Group is working okay with each other. Some members are giving positive and some members are giving negative feedback. Some are frustrated and angry.</p> <p style="text-align: center;">(1) (2) (3) (4)</p>	<p style="text-align: center;">1</p> <p>Group is not working well with each other. Members are mostly giving negative feedback almost all of the time. Members are frustrated or angry with each other.</p> <p style="text-align: center;">(1) (2) (3) (4)</p>
Explanations of Answers	<p style="text-align: center;">4</p> <p>Members are explaining how to find the solution, step-by-step, making sure that everyone understands the process. Members are using the math vocabulary.</p> <p style="text-align: center;">(1) (2) (3) (4)</p>	<p style="text-align: center;">3</p> <p>Members are explain how to find the solution, but one student does not understand the process. Members are using the math vocabulary.</p> <p style="text-align: center;">(1) (2) (3) (4)</p>	<p style="text-align: center;">2</p> <p>Members are telling the other students the answer, with very little explanation. Members are using minimal math vocabulary.</p> <p style="text-align: center;">(1) (2) (3) (4)</p>	<p style="text-align: center;">1</p> <p>Members are telling other students the answer without explaining it. Members are not using the math vocabulary.</p> <p style="text-align: center;">(1) (2) (3) (4)</p>
Higher Level Thinking	<p style="text-align: center;">4</p> <p>Members are discussing multiple ways to find the solution, even if not everyone believed it was the best way to solve the problem.</p> <p style="text-align: center;">(1) (2) (3) (4)</p>	<p style="text-align: center;">3</p> <p>Members are/ or have already discussed multiple ways to find the solution, and almost everyone shared their opinion.</p> <p style="text-align: center;">(1) (2) (3) (4)</p>	<p style="text-align: center;">2</p> <p>Members are somewhat discussing multiple ways find the solution, but only one or two members are sharing their opinions.</p> <p style="text-align: center;">(1) (2) (3) (4)</p>	<p style="text-align: center;">1</p> <p>Members are not discussing multiple ways to find the solution. One person thought of one way, and all other students are following, even if others had a different opinion.</p> <p style="text-align: center;">(1) (2) (3) (4)</p>
Overall Scoring	<p style="text-align: center;">4</p> <p>All members are actively helping the group work together. Everyone joins group activity without being asked. Everyone is expressing their thoughts in a way that respects what others feel and know. The entire group is on-task.</p> <p style="text-align: center;">(1) (2) (3) (4)</p>	<p style="text-align: center;">3</p> <p>Almost all members are joining group activity. All members say what they are thinking in a way that respects what others feel and know. The group is on-task most of the time.</p> <p style="text-align: center;">(1) (2) (3) (4)</p>	<p style="text-align: center;">2</p> <p>Some members are joining group activities, only when someone asks. Members are saying what they think, in a way that hurt others' feelings. The group is somewhat on-task.</p> <p style="text-align: center;">(1) (2) (3) (4)</p>	<p style="text-align: center;">1</p> <p>Almost all members are not joining group activity, even when someone asked them to. Or, almost all members said what they think in ways that hurt others' feelings. The group is not on-task.</p> <p style="text-align: center;">(1) (2) (3) (4)</p>