

Peer Teaching

In Secondary Math Classrooms

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U.S. Department of Education • Teacher to Teacher Initiative • Supporting Success



Outcomes for Session

- Define peer teaching
- Discuss research related to the use of peer teaching as an instructional strategy.
- Participate in peer teaching activities for use in math classes
- Reflect on concepts explored and considerations for classroom implementation



Teachers Sharing

How has the knowledge and understanding you've gained from interactions with other teachers contributed to your professional development?



Student Profile Elements

- At-risk youths primarily due to socioeconomic and cultural factors
- 40% receive free or reduced lunch
- 80% are members of a cultural minority group



Research Says

“Low-socioeconomic status adolescents become more peer oriented ... because of their need for security”

“The peer group replaces the family as the adolescent’s primary reference group”

Rice & Dolgin, 2002



What does the research say?

- Students are highly motivated when teaching other students
- The availability of peer support leads to ***higher levels of participation*** in the learning process
- Student ***self esteem is increased***
- Accountability ***expectations raises achievement***

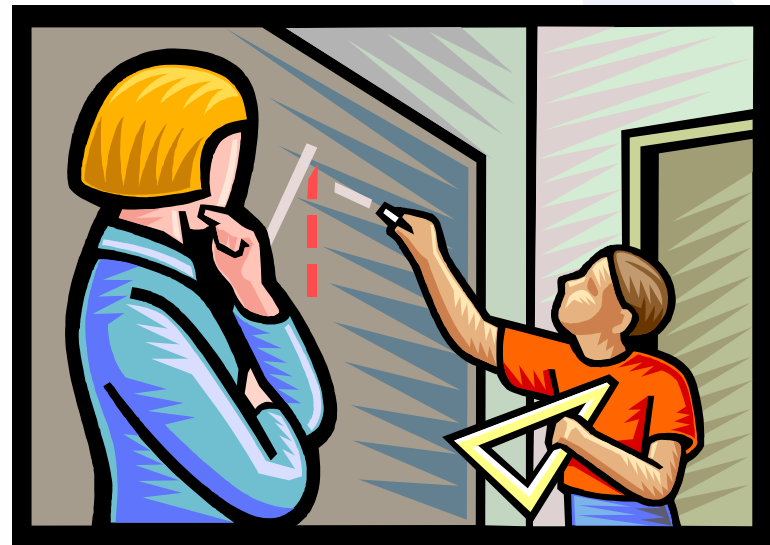


(adapted from Slavin, 1996)

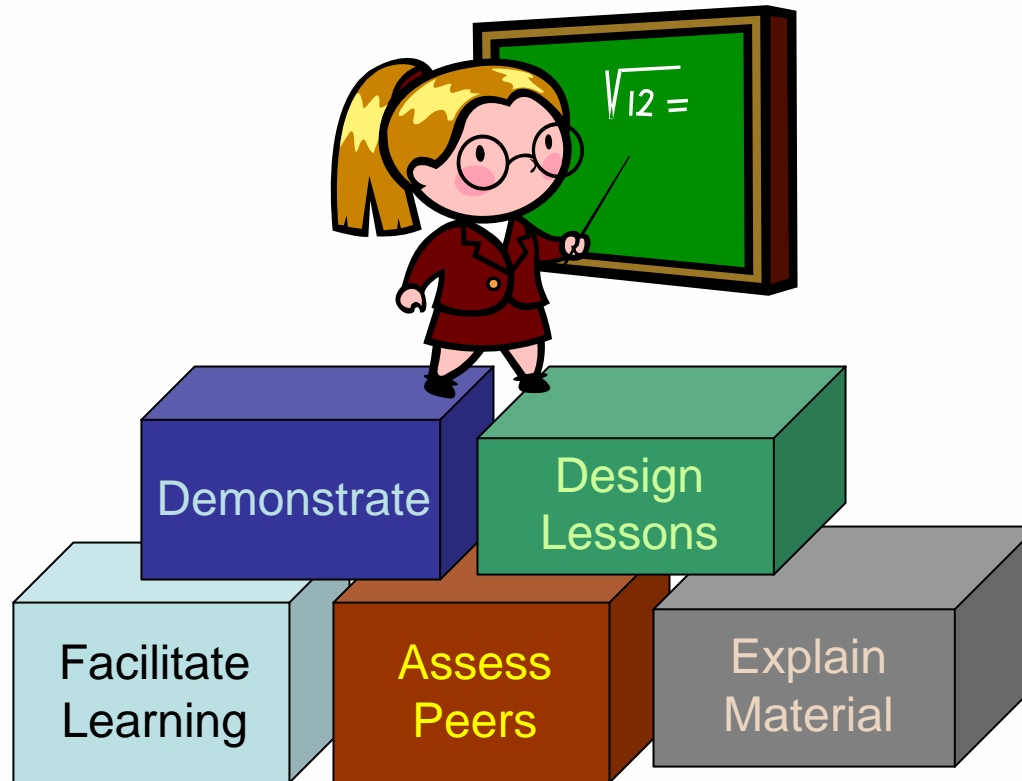
Peer Teaching Defined

“any activity carried out by a student or students that involves students taking on a teaching role in the school setting “

(Puchner, 2003)



Students in the Teacher Role



(adapted from Puchner, 2003)



Some Peer Teaching Strategies

Reciprocal
Teaching

Reading
Content

Cooperative
Learning

Practice
&
Mastery

Peer
Tutoring

Concept
Mastery



Reciprocal Teaching

- An active reading skills development strategy
- Consists of 4 Components
 - Prediction
 - Questioning
 - Clarifying
 - Summarizing



Reciprocal Teaching

Group
Activity

- This activity utilizes reciprocal teaching as a tool to enhance student ability to actively engage in *reading* of their *math textbooks*



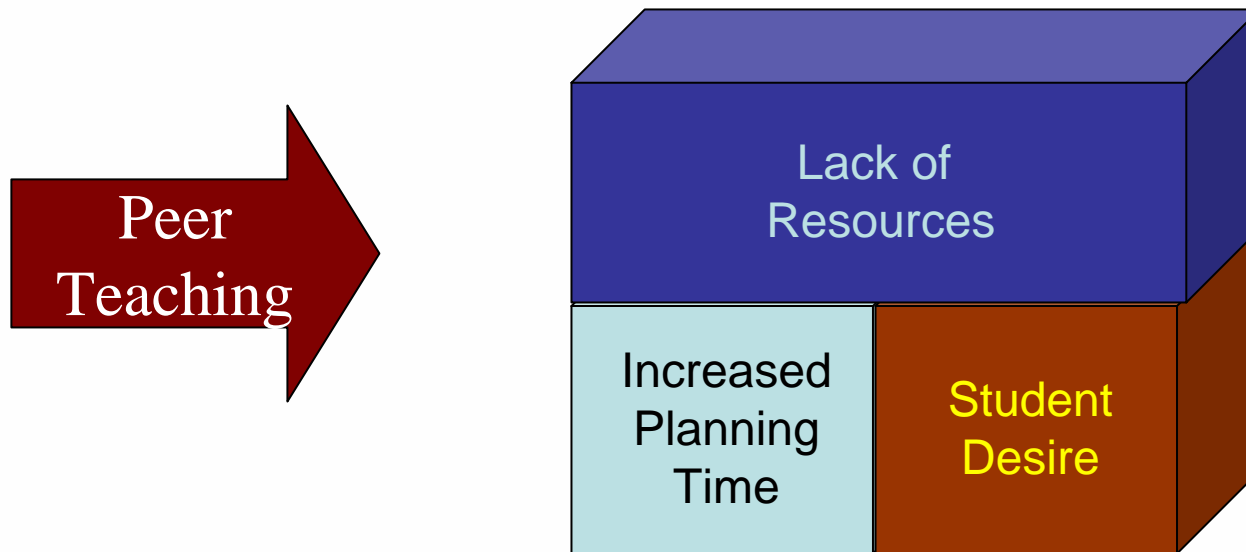
Line Graph

There are all kinds of charts and graphs, some are easy to understand while others can be pretty tricky. There are many different types because each one has a fairly specific use. **Line graphs** can be used to show how something changes over time. They have an **x-axis** (horizontal) and a **y-axis** (vertical). Usually, the x-axis has numbers for the time period, and the y-axis has numbers for what is being measured. Line graphs can be used when you're plotting data that has **peaks** (ups) and **valleys** (downs), or that was collected in a short time period.

This Reading Excerpt taken from :
Create a Graph Classic
US Department of Education
<http://nces.ed.gov/nceskids/graphing/classic/line.asp>



What are some barriers ?



Cooperative Learning

Group
Activity

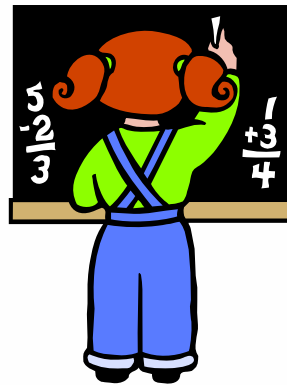
- This activity utilizes a group paper folding and writing activity to practice solving linear equations



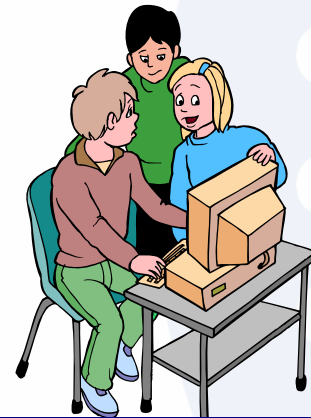
Why use Peer Teaching in Math Classrooms ?



Student exposure in their own context to math topics



Students opportunity to facilitate their own learning



A change to the routine educational experience



Some Peer Tutoring Research

- Findings of 65 independent evaluations of school tutoring programs showed that tutored students:
 - *outperformed* many students *on examinations*
 - developed *positive attitudes* toward the subject matter
 - gained a *better understanding* of the subject matter covered in the tutorial program



(adapted from Cohen et al, 1982)

Peer Tutoring

Group
Activity

- This activity utilizes a reciprocal peer tutoring strategy to guide students through the linear equation graphing process.



Ways to increase Peer Tutoring Effectiveness

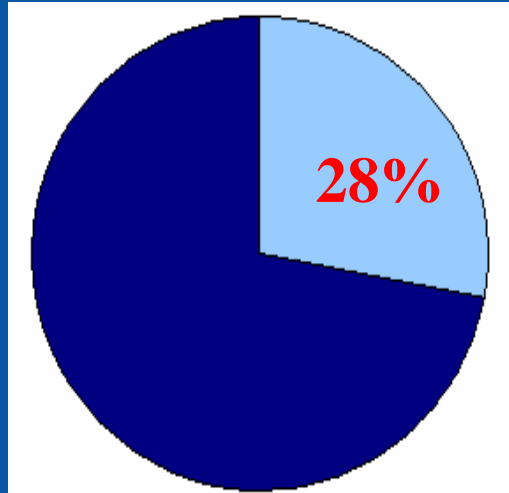
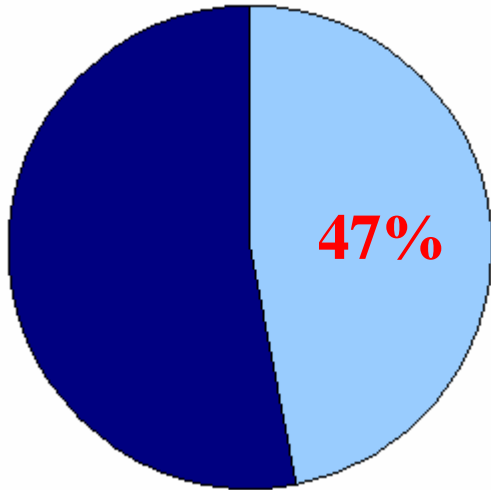


Relevant Classroom Data

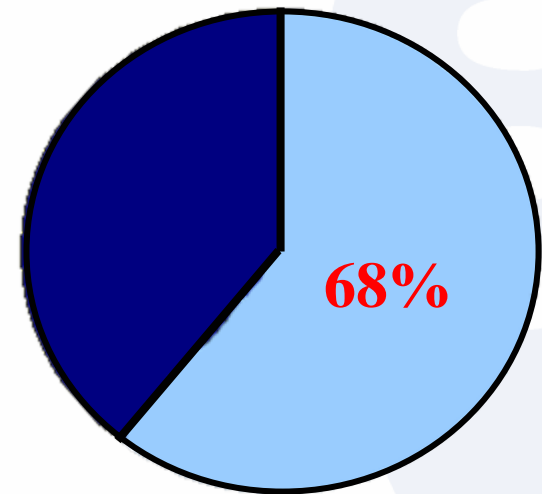
My Classroom

1st Marking Period

3rd Marking Period



3rd Marking Period
Comparable classrooms



 Students with grade point averages of D or less



Student Work Quality Increase

- Student work quality pre-peer teaching strategies

III Brief Constructed Response

25. Part A:

$$\frac{10}{2} = \frac{10}{28}$$

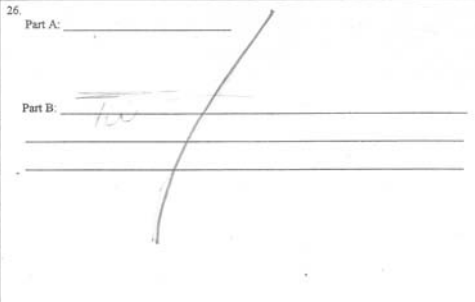
$$\frac{2}{10} = \frac{2}{28}$$

Part B: First I set up a proportion table. Then I got my answer by comparing which one he chose. He chose $\frac{2}{28}$.

+2

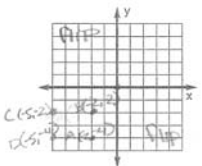
26. Part A:

Part B: too



- Student work quality after peer teaching implemented

16. Part A: $A(-2,-4), B(-2,-2), C(-5,-2), D(-5,-4)$

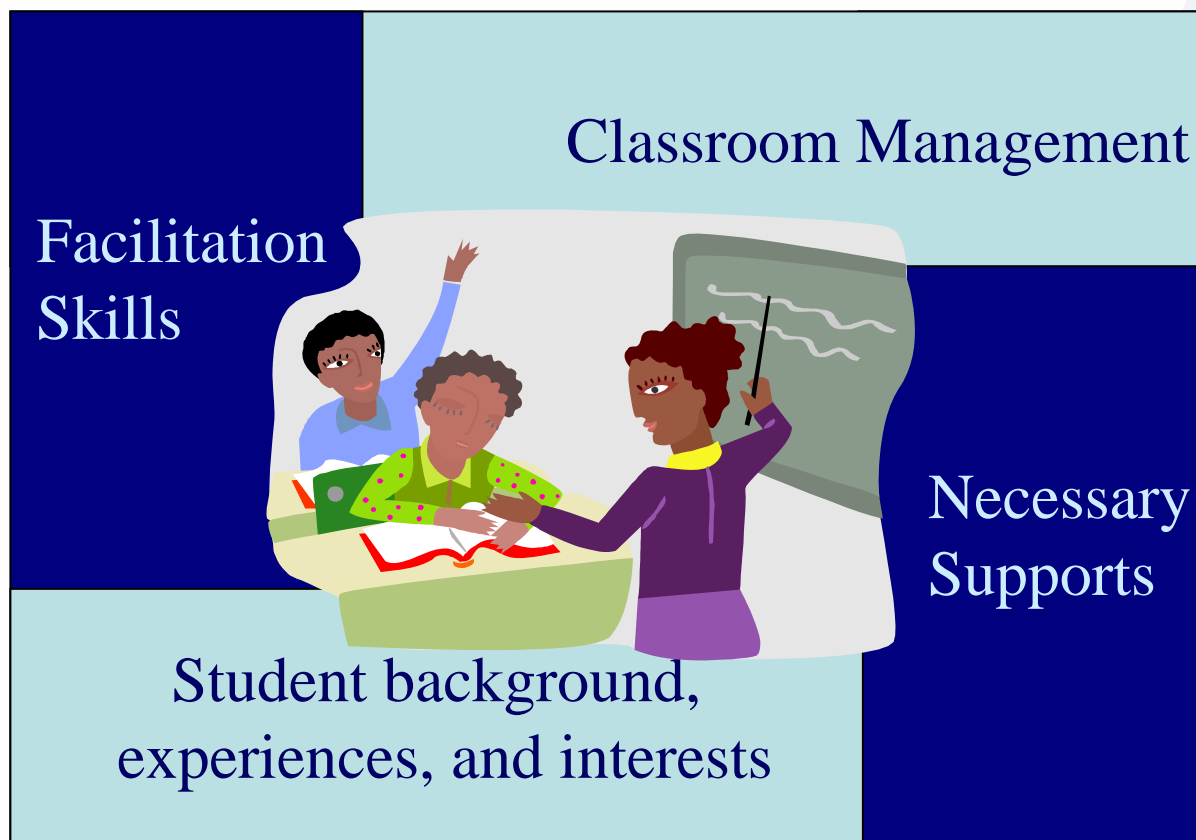


+3

Part B: first I labeled the 3rd quadrant and the 4th quadrant just in case. But when I labeled the 4th quadrant I stopped in quadrant #3. All the points would be negative, negative. Then I ordered them to be $A(-2,-4), B(-2,-2), C(-5,-2),$ and $D(-5,-4)$.

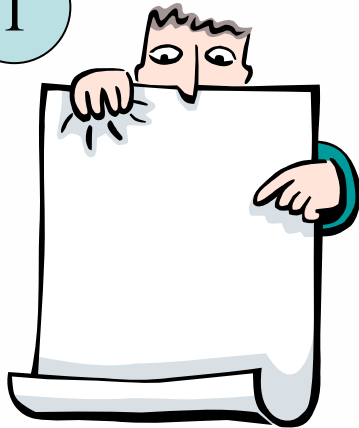


Classroom Implementation Considerations



Peer Learning in Your Classroom

1



List a math topic consideration for peer learning

2



Pass your paper around to other group members to obtain written peer feedback regarding instructional issues encountered when teaching the concept

3



Review peer feedback and reflect how peer learning might enhance instruction



Contacts

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