Math Tic-Tac-Toe or Bingo

A Special Education Experience
For struggling learners

Creating instructional unit resource guides based on principles of universal design and differentiated instruction.

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AUTHOR’S NOTE

Welcome to Math Tic-Tac-Toe or Bingo, a special education experience for struggling learners. I am a new teacher who is trying to make learning fun and creative for my students. But I am trying to create a unit that is versatile for all grades to use. The teacher implementing this unit has been a teacher since 2002, but this is her first year as a contracted teacher. She has been teaching and working with students privately and professionally since 1996.

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STANDARDS
WHAT STANDARDS WILL BE MET THROUGH THIS UNIT?

Keeping aligned with Indiana State Standards for Standard 2-Computation.

K.2.1 Model addition by joining sets of objects (for any two sets with fewer than 10 objects when joined).
   Example: Put together 3 pencils and 2 pencils. Count the total number of pencils.

K.2.2 Model subtraction by removing objects from sets (for numbers less than 10).
   Example: From a pile of 9 crayons, take away 6 crayons. Count the number of crayons left in the pile.

K.2.3 Describe addition and subtraction situations (for numbers less than 10).
   Example: In the last example, explain what operation you were using when you took away crayons from the pile.

1.2.1 Show the meaning of addition (putting together, increasing) using objects.
   Example: Put together 3 pencils and 5 pencils. Tell how many pencils you have and explain what you are doing.

1.2.2 Show the meaning of subtraction (taking away, comparing, finding the difference) using objects. Example: Take away 6 blocks from a group of 10. Tell how many blocks are left and explain what you are doing.

1.2.3 Show equivalent forms of the same number (up to 20) using objects, diagrams, and numbers.
   Example: Write 15 as 8 + 7, 5 + 5 + 5, 10 + 5, 15 + 0, 17 – 2, etc.

1.2.4 Demonstrate mastery of the addition facts (for totals up to 20) and the corresponding subtraction facts.
   Example: Add 11 + 8, subtract 16 – 9 add 4 + 7.

1.2.5 Understand the meaning of the symbols +, –, and =.
   Example: Use symbols to write the number sentence “one added to three equals four.”

1.2.6 Understand the role of zero in addition and subtraction.
   Example: You start with 6 eggs and then give away 0 eggs. How many eggs do you have now?

1.2.7 Understand and use the inverse relationship between addition and subtraction facts (such as 4 + 2 = 6, 6 – 2 = 4, etc.) to solve simple problems.
Example: List three other facts using addition or subtraction that are related to $3 + 5 = 8$.

2.2.1 Model addition of numbers less than 100 with objects and pictures.
Example: Use blocks to find the sum of 26 and 15.

2.2.2 Add two whole numbers less than 100 with and without regrouping.
Example: $36 + 45 = ?$

2.2.3 Subtract two whole numbers less than 100 without regrouping.
Example: $86 - 55 = ?$

2.2.4 Understand and use the inverse relationship between addition and subtraction.
Example: Understand that $89 - 17 = 72$ means that $72 + 17 = 89$.

2.2.5 Use estimation to decide whether answers are reasonable in addition problems.
Example: Your friend says that $13 + 24 = 57$. Without solving, explain why you think the answer is wrong.

2.2.6 Use mental arithmetic to add or subtract 0, 1, 2, 3, 4, 5, or 10 with numbers less than 100.
Example: In a game, Mia and Noah are making addition problems. They make two two-digit numbers out of the four given numbers 1, 2, 3, and 4. Each number is used exactly once. The winner is the one who makes two numbers whose sum is the largest. Mia had 24 and 31; Noah had 21 and 43. Who won the game? How do you know? Show a way to beat both of them.

3.2.1 Add and subtract whole numbers up to 1,000 with or without regrouping, using relevant properties of the number system.
Example: $854 - 427 = ?$ Explain your method.

3.2.2 Represent the concept of multiplication as repeated addition.
Example: Lynn made 3 baskets each week for 4 weeks. Draw a picture to show how many baskets she made.

3.2.3 Represent the concept of division as repeated subtraction, equal sharing, and forming equal groups.
Example: Bob shared 10 cookies among 5 friends. Draw a picture to show how many cookies each friend got.

3.2.4 Know and use the inverse relationship between multiplication and division facts, such as $6 \times 7 = 42$, $42 \div 7 = 6$, $7 \times 6 = 42$, $42 \div 6 = 7$.
Example: Find other facts related to $8 \times 3 = 24$.

3.2.5 Show mastery of multiplication facts for 2, 5, and 10.
Example: Know the answer to $6 \times 5$.

3.2.6 Add and subtract simple fractions with the same denominator.
Example: Add $\frac{3}{8}$ and $\frac{1}{8}$. Explain your answer.
3.2.7 Use estimation to decide whether answers are reasonable in addition and subtraction problems.
Example: Your friend says that $79 - 22 = 27$. Without solving, explain why you think the answer is wrong.

3.2.8 Use mental arithmetic to add or subtract with numbers less than 100.
Example: Subtract 35 from 86 without using pencil and paper.

HELP!
RESOURCES FOR LOCATING STATE STANDARDS:

Indiana Learning Standards: http://www.doe.in.gov/standards/
ISTE: http://www.cnets.iste.org
Developing Educational Standards:
http://www.edStandards.org/Standards.html
MCREL: http://www.mcrel.org/standards.
PLANNING PYRAMID
What should students know?

Some students will know:
They will be able to demonstrate the simple concepts of multiplication and division from addition and subtraction and basic multiplication and division facts.

Most students will know:
Add and subtract whole numbers

All students will know:
Recognize numbers to 100.
http://www.abcteach.com/directory/basics/math/

This site is dedicated to making several resources available at once to teachers. It provides links to various topics for the working classroom. You can also download worksheets and manipulative resources.
http://www.kiddyhouse.com/Worksheets/
This site is great for teachers and offers worksheets that are interactive. They also have a message board for teachers to share advice and ask questions.
http://www.algebrahelp.com/index.jsp
This website offers everything from basic math to algebra. Great for the 3rd grade teacher and upper grade levels.
LEARNER ACTIVITIES

http://www.funbrain.com/
This website is great for the student who learns via games. This site is setup for grades k-8. This is a very kid friendly site.
http://www.funschool.com/
This site is also kid friendly and offers educational games, via the computer. This site also offers downloads so the teacher can print items and use them in his/her classroom.

HELP! For locating instructional materials.

Google:  http://www.google.com

Yahooligans!  http://yahooligans.yahoo.com/

http://www.math.com/

http://mathforum.org/dr.math/

http://www.aplusmath.com/
ASSESSMENT

http://rubistar.4teachers.org/index.php
This site offers rubrics that are ready to use, but also allows the teacher create their own rubric. They also include links to lesson plans, downloads, and links to other websites to assist the teacher within the classroom.

Links to other assessment materials:

http://school.discovery.com/schrockguide/assess.html
http://www.rubrics.com/
http://www.siec.k12.in.us/~west/online/eval.htm
http://www.brainchild.com/
http://www.quizlab.com/
## MODIFICATIONS

### Planning for Academic Diversity

<table>
<thead>
<tr>
<th>Learning Barrier</th>
<th>Possible Solutions</th>
<th>Web Link Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student cannot read at grade level</td>
<td>Para-professional to assist. Offer flashcards or manipulative to assist.</td>
<td><a href="http://www.edhelper.com">www.edhelper.com</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td><a href="http://www.funbrain.com">www.funbrain.com</a></td>
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<td></td>
<td></td>
<td><a href="http://www.brainpop.cm">www.brainpop.cm</a></td>
</tr>
<tr>
<td>Student has difficulty comprehending the material</td>
<td>Para-professional to assist. Give more basic and clear direction. Picture clues.</td>
<td><a href="http://www.kidspiration.com">www.kidspiration.com</a></td>
</tr>
<tr>
<td>Student has difficulty mastering the vocabulary of the unit.</td>
<td>Para-professional to assist. Picture cards.</td>
<td><a href="http://www.sheppardsoftware.com/web_games_menu.htm">http://www.sheppardsoftware.com/web_games_menu.htm</a></td>
</tr>
<tr>
<td>Student needs the instructional material in a language other than English.</td>
<td>Non-applicable</td>
<td>Non-applicable.</td>
</tr>
<tr>
<td>Student has difficulty with handwriting (speed or accuracy).</td>
<td>Non-applicable</td>
<td>Non-applicable</td>
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<tr>
<td>Student needs additional challenge.</td>
<td>Non-applicable</td>
<td>Non-applicable</td>
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<tr>
<td>Student needs help with conducting research.</td>
<td>Non-applicable</td>
<td>Non-applicable</td>
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</tbody>
</table>