

Reaching Struggling Students through Unusual Activities

By EduCalc Learning
Exceptional Children, Extraordinary Teachers
North Mississippi Education Consortium

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*Research shows
that art, music,
projects, and
explorative
activities work!*

Using unusual activities...

- ... increases engagement,
- ... helps form memories,
- ... increases metacognition, and
- helps students at all levels, with and without learning disabilities.

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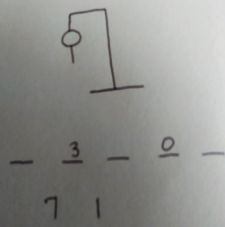
Numeracy Games

Number Hangman

Operation!

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Number Hangman



- Choose 3 to 5 numbers (0 to 9).
- Write down your sequence!
- Have students guess the numbers.
- Track the sequences used and the incorrect guesses.

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Using Number Hangman:

- For lower grades, do not repeat numbers.
- 6th grade and up can repeat numbers.
- Save sequences and use for class or homework
 - Write sequences in order G to L;
 - Use one sequence and make all possible combinations;
 - Use one sequence and add, subtract, multiply, divide.

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Using Number Hangman:

- Works great as a center or small group activity.
- Fills time around fire drills, assemblies, or end of a lesson.
- Let students run the game!

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Operation!

- Put students into teams or with partners.
- Choose up to 5 numbers for adding/subtracting games, 3 for multiplying/ dividing games.
- Use dice, cards, online spinners, or have students say random numbers (use numbers less than 20).

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Operation!

- Team 1 will somehow combine the numbers (either by adding, subtracting, multiplying, or dividing).
- Team 1 gives *just the answer* to Team 2.
- Team 2 decides which operation was performed to get that answer!

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Using Operation!

- This game is complex– give students time to solve problems.
- The game is more difficult with extra numbers or changing signs.
- Subtraction and division is more difficult, because order matters.

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Art Projects

Sierpinski's Triangle

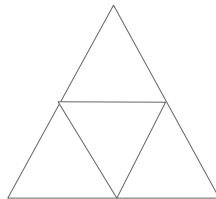
Pascal's Triangle

Mondrian Art

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Sierpinski's Triangle

1. Draw an equilateral triangle with one vertex pointed to the top of your paper.
2. Mark the midpoint of each side.
3. Draw a downward-pointing triangle.
4. Continue making triangles in the blank spaces.



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Using Sierpinski's Triangle:

- Works great as a whole class or small group activity.
- Triangles can be colored or shaded.
- Display everyone's work!

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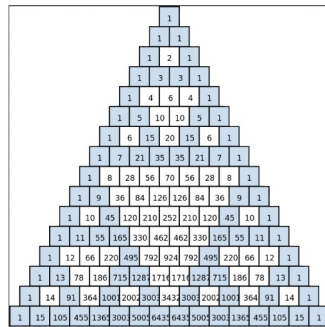
Using Sierpinski's Triangle:

- Have students draw free hand or with a ruler.
- Older students can use the midpoint formula.
- Discuss patterns, fractals, and increasing smaller amounts.
- Work with your art teacher!

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Pascal's Triangle:

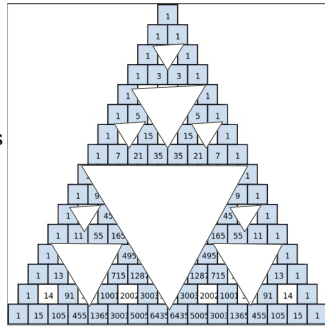
This shows Binomial Expansion, An important Concept in Higher level math.



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Pascal's Triangle:

Covering the Even numbers Creates the Same pattern.



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Using Pascal's Triangle:

Tying together math and art helps struggling students find access to success.

It expands the conversation from numeracy to universal applications of mathematical thinking.

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Mondrian-inspired Art

1. Draw 4 horizontal lines.
2. Draw 3-5 vertical lines.
3. Draw 3 diagonal lines.
4. Draw 4 circles.
5. Color!

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Let the work be messy! Struggling students need to see that they can be right, be included, and be successful, without being perfect.

High-achieving students need to see this also.

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Movement
Activities

Back It Up
To the Left
Who Can...

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Back It Up!

Take ten steps forward and ten steps back:

Start at 0.

Add 2 every time you step forward.

After ten steps, stop!

Back it up: Subtract 2 every time you step back.

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Using Back It Up!

- Say the alphabet (in either direction!) while walking backward.
- Tell a story backward.
- Describe a recipe backward.

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Engineers call this type of problem solving
“reverse engineering”.

It is a college course that requires deep content knowledge!

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*Card games
increase number
sense, illustrate
inequalities, and
support
probability.*

Take 3 playing cards.

Listen for instructions.

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To the Left

Odd numbers to the left, even to the right.

Prime numbers to the left, composite to the right
(the Ace should stay in the middle!).

Less than 3 to the left, greater than 3 to the right
(3 should stay in the middle!).

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Using To the Left

- Students can see if they are right or wrong.
- Students can change groups quickly.
- Removes embarrassment of being wrong.
- Stores memory in multiple places.

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Who Can....

Who can add to 12?

Who can subtract to a number less than 8?

Who can multiply to a number greater than 15?

Who can add to a prime number?

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Using Who Can....

- Students work together.
- They practice being right *and being wrong*.
- Removes embarrassment of being wrong.
- Stores memory in multiple places.

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Using Unique Activities:

Using one activity in multiple ways is a true real-world experience for students.

Using activities where everyone can win gives struggling students space to succeed!

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Let's continue the conversation...

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