



# Bridging the Gap



*Strategies and interventions to help students with learning disabilities, AD/HD and emotional disorders meet the Standards in regular ed classrooms*

This site has been created by Special Education teacher Anne Sepe  
with a mini-grant from the Rural Education Advisory Committee

## Math:

*This section focuses on strategies and interventions to help students with learning disabilities, AD/HD and ED experience greater success in learning and applying math facts and concepts*

### Teaching math facts:

For all operations (+, -, x, ÷):

- Use a step-by-step approach. Divide basic facts into small sets. Make sure student has mastered preceding set before teaching next set
- Reteach, review, drill, rehearse mastered facts daily
- Increase retention of math facts by having students use a variety of sensory modalities
  - 1) Visual: Have student look at numbers, pictures, symbols demonstrating math fact set, use flash cards, math fact charts, number lines
  - 2) Auditory: Have student say, sing, whisper, shout math facts in set
  - 3) Tactile: Have student use finger to write math facts on sandpaper, window screen, shaving cream, pudding, etc.
  - 4) Kinesthetic: Have student:
    - (a) Write math facts
    - (b) Use finger to count on number line
    - (c) Practice math fact problems on calculator
    - (d) Move objects (blocks, m & ms, etc) to represent math facts
    - (e) Write math fact numbers in air, using broad sweeping motions
    - (f) March around room stamping feet, clapping, etc. while saying math facts

### Adding and subtracting:

- Use concrete objects to teach addition and subtraction facts. Have students combine or take away groups of tangible objects (*blocks, beads, candies, etc.*).
- Teach student to use fingers to add and subtract (*hold up fingers and add or subtract other fingers*)
- To teach carrying or borrowing, have students move base ten blocks, bundled sets of objects or other manipulatives between columns to correspond to a number sentence requiring carrying or borrowing
- Teach student that addition and subtraction are linked (*if  $5 + 7 = 12$ , then  $12 - 7 = 5$  and  $12 - 5 = 7$* ). Have students rehearse linked addition and subtraction fact sets together

### Multiplying and dividing:

- Teach the student that multiplying is a fast way of adding groups of the same number together ( *$8 \times 4 = 32$  is a faster way of saying  $8 + 8 + 8 + 8 = 32$* )
- Have the student manipulate objects into groups to represent multiplication facts (*Make 6 piles of jelly beans with 4 beans in each pile; What is the math sentence for what you just did  $\{6 \times 4 = 24\}$* )
- Teach student the relationship between skip counting and multiplication (*The number bunnies skip up the number line, and each one hops a different number of spaces. Have the student move the 2-bunny 2 spaces on the number line with each hop, saying the number as s/he lands on 2, 4, 6, etc. Have the student say that when the 2-bunny makes 2 hops, he'll be on the number 4, so  $2 \times 2 = 4$ . Do the same with the 3-bunny, who hops 3 spaces, landing on 3, 6, 9. Have the number bunny go through each group of multiplication facts.*)
- Teach the student that dividing is a fast way of breaking big numbers into equal groups (*If you have 24 chocolate kisses to share equally with 6 friends, how many kisses does each friend get? If 10 of you work together and you get paid \$50 to share equally, how much would each person get?*)
- Have the student divide objects into groups to represent division facts (*There are 42 paper clips. Divide them into 6 even piles. How many clips in each pile? What is the math sentence for what you just did  $\{42 \div 6 = 7\}$* )
- Teach student that multiplying and dividing are linked (*if  $9 \times 5 = 45$ , then  $45 \div 5 = 9$  and  $45 \div 9 = 5$* ). Have students rehearse linked fact sets together.
- Use a variety of techniques including rote, calculators, flash cards, games, etc. to reinforce learning multiplication and division facts.

### Using concrete examples to teach abstract concepts

- Teach money concepts by using real money
- Use real clock faces and move hands to teach time
- Teach liquid measuring by having students pour liquid into containers
- Teach cup fractions by having students measure dry ingredients (*beans, macaroni, etc.*)
- Teach linear measurement by having student measure objects in the classroom, height of windows, length of hallway, etc.
- Teach concept of area by drawing shapes (*squares, rectangles, triangles, etc.*) on graph paper. Have students count boxes in shape. Demonstrate how multiplying the number of squares in the long edge times the number of squares in the short edge always equals the number of units in shape, hence the formula  $\text{Area} = b \times h$ . Next, show students how every rectangle can be divided into 2 equal triangles. Since a triangle is half of a rectangle, a fast way to compute the number of units (*area*) of a triangle is to use the formula  $b \times h \div 2 = \text{area of a triangle}$ .
- Use tangible objects to teach concept of volume. Have students make squares and rectangles out of blocks, then count how many blocks make up each shape. Show how multiplying the number of blocks along the base by the number of blocks high times the number of blocks wide equals the total number of blocks in the shape, hence the formula  $V(\text{rectangle}) = b \times h \times w$
- To teach concept of  $\pi$  (3.1417), give student a circle and string. Have them lay string across the center of the circle (*diameter*) and cut string so it reaches from edge to edge of the circle. Next, have students measure how many times cut string goes around outside edge of circle until it comes to its starting point. They will always find the measure to be 3 plus a little bit (*3.1417 if they've been accurate*). Teach that this number, called  $\pi$ , is used to figure many mathematical relationships (*circumference of circle =  $\pi \times D$ , area of circle =  $\pi \times r \times r$ , etc.*)

© Copyright Anne Sepe

This information may be used and shared by educational practitioners to enhance instruction but may not be reproduced for commercial purposes