



Tens-frame Puzzle

Teacher's Notes

Recommended for Prep-Grade 2

Dot arrays in a tens-frame encourage children to subitise - to see a visual pattern for the numbers from 1 to 10 and automatically recall the number without counting. These Five-wise and Pair-wise dot arrangement pieces can be used by children to combine and partition small numbers. This involves working first with the numbers from 1 to 10 to develop automatic recall of the 10s facts and the part-part-whole relationship of the numbers from 1 to 10, and then, working with the numbers from 11 to 20. *The Numbers to Ten* and *Numbers to Twenty* charts included can be used with the dot pieces to encourage children to develop effective strategies. A4 master copies can be downloaded from www.knowledgebuilder.com and enlarged to A3.

Level One

Use the dot pieces to develop students' knowledge of numbers to 10 by:

- giving students one piece and asking them to count the dots and write the numeral in the matching colour
- giving students one piece and asking them to write the number and draw that many objects
- using the complete set of dot pieces and asking students to order the pieces from the smallest number to the largest number of dots

Use the dot arrangement pieces to explore the part-part-whole relationships:

- eg number 4
2 dots and 2 dots are the same size as the 4-dot piece
1 dot and 3 dots are the same as the 4-dot piece

Use the dot arrangement pieces to explore simple addition facts to 10:

- students can choose any 2 pieces and practice the "count all" strategy to find the total.

Use the dot arrangement pieces to explore simple subtraction facts about 10:

- students can cover the full tens-frame piece (10 pink dots) with another piece and count the number of pink dots showing to get the answer

Level Two

- Use the dot arrangement pieces as flash cards to encourage children to subitise: recognize the number visually and recall it automatically.

- Give each student in the class a dot arrangement piece and ask them to find their partner to form a 10s fact. Write the 10s facts on the board. Look for the patterns.
- Using the full tens-frame (10 pink dots) as a baseboard, cover part of it with one of the dot arrangement pieces. Students can then see the part that remains of the full tens-frame and write the 10s fact.
- Give students a Numbers to Ten Chart and have them match the dot arrangement pieces to make all the 10s facts. Write the facts below each tens-frame on the Chart using a dry erase marker.
- Working in pairs or a small group, turn all the dot pieces face down. Students choose two shapes and turn them over to make a 10s fact. Keep the pieces if they match. Winner is the person with the most pieces. (You may choose to use more than one set for this activity depending on the size of the group.)
- Use a 10-sided dice with the pieces. Roll the dice and choose the dot arrangement piece that combines with the number to make a 10s fact.
- Extend students' knowledge of number facts to 20 using the Numbers to Twenty Chart. Encourage children to use their knowledge of partitioning of numbers to ten.
- Use the dot arrangement pieces to investigate doubles facts to 20 using the Numbers to Twenty Chart.

