

Lesson Plan for KNP Activity

M 4449.3: Bead Arrays (Partial)

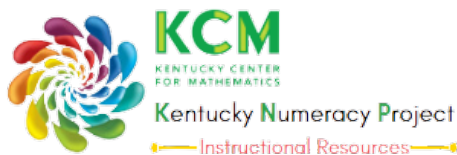
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| Teacher Planning Notes: | |
| Task Group Number: 4449 | Task Group Name: Bead Arrays |
| Strand: Multiplication and Division | Activity Level and Color: 3 Green |
| KNP Activity Link with access to Printables and Student Instructions: /knp/activity.php?id=4449.3&prefix=M | |
| Numeracy Target: Count items arranged in equal groups with only group markers visible (items with groups are not visible) Numeracy Targets Chart | |
| Fluency Benchmark: KY.3.OA.7 Fluently multiply and divide within 100. | |
| Kentucky Academic Standard(s): KY.3.OA.1 , KY.3.OA.7 | |
| Student-Friendly Learning Target: I am learning to determine the number of beads in an array without seeing all of the beads and write a matching multiplication equation. | |
| Suggested Student Grouping(s): pairs/small group | |
| Materials: 100 bead rack (10 rows of 10) per player, 1 cube with labels {2 rows of, 3 rows of, 4 rows of, 5 rows of, 6 rows of, 7 rows of} and another cube with labels {2, 3, 4, 4, 5, 5}, writing space or 1 recording sheet per person | |

Activity Description: Students use a 100 beadrack (10 rows of 10) to partially create arrays when given the number of rows and number of beads in each row. In the game version, on a player's turn the player rolls a cube to determine the number of rows. The student moves over 1 bead in each row to create a "group marker" reference. The student rolls the second cube to determine the number of beads in each row. The student "imagines" the array and determines the total number of beads that would be in the array. The student with the largest array (i.e. most beads) wins the round and earns a point. In case of a tie, both (or all) players get points. An optional recording sheet is included with a place to record the cube amounts, the addition and/or multiplication sentence and points earned. If students are struggling to imagine the array, they may instead make the full array but then use an index card to cover all but the first bead in each row. As an alternative to the game, the teacher may choose make an array and then use a screen to cover all but the first bead in each row. The teacher shows the screened array, tells the students how many are in each row and asks students to determine the number of total beads. The teacher then facilitates discussion exploring different ways to count the total number of beads in the array.

Teacher Notes: The amounts on the dice may vary, with amounts up to 10. Attend to how each student counts or determines the total. Is the student counting by ones? If so, how does the student keep track of the correct number of counts for each row? Does the student skip count? Does the student use previously counted arrays or known arrays as a reference? Does the student use other "chunking" strategies? For example, a student might solve 6 rows of 4 by thinking - 3 rows of 4 is 12, so there are 2 groups of 12 which is 24. Does the student use the commutative property (i.e. counting a 5 rows of 2 array by thinking of it as 2 groups of 5)?

Evidence of Learning (Diagnostic Assessment of Progress): Show student a 100 beadrack with a partial array that shows 5 rows of 6 (or other amounts), but with only the first bead showing on each row. Ask student to determine the number of beads and say the total number of beads in the array.

KNP ID #M 4449.3



www.kymath.org
kcm@nku.edu