National Center and State Collaborative

NCSC Math Activities with Scripted Systematic Instruction (MASSI): Elementary Ratio and Proportion Progress Monitoring and Skills Test

National Center and State Collaborative

The National Center and State Collaborative (NCSC) is applying the lessons learned from the past decade of research on alternate assessments based on alternate achievement standards (AA-AAS) to develop a multi-state comprehensive assessment system for students with significant cognitive disabilities. The project draws on a strong research base to develop an AA-AAS that is built from the ground up on powerful validity arguments linked to clear learning outcomes and defensible assessment results, to complement the work of the Race to the Top Common State Assessment Program (RTTA) consortia.

Our long-term goal is to ensure that students with significant cognitive disabilities achieve increasingly higher academic outcomes and leave high school ready for post-secondary options. A well-designed summative assessment alone is insufficient to achieve that goal. Thus, NCSC is developing a full system intended to support educators, which includes formative assessment tools and strategies, professional development on appropriate interim uses of data for progress monitoring, and management systems to ease the burdens of administration and documentation. All partners share a commitment to the research-to-practice focus of the project and the development of a comprehensive model of curriculum, instruction, assessment, and supportive professional development. These supports will improve the alignment of the entire system and strengthen the validity of inferences of the system of assessments.

IDEAs that Work
U.S. Office of Special Education Programs

The contents of this document were developed as part of the National Center and State Collaborative by Julie Thompson, Alicia Saunders, and Diane Browder at University of North Carolina at Charlotte and verified by Amy Lehew, math content expert, under a grant from the Department of Education (PR/Award #: H373X100002, Project Officer, Susan.Weigert@Ed.gov). However, the contents do not necessarily represent the policy of the U.S. Department of Education and no assumption of endorsement by the Federal government should be made.

These materials and documents were developed under the National Center and State Collaborative (NCSC) General Supervision Enhancement Grant and are consistent with its goals and foundations. Any changes to these materials are to be consistent with their intended purpose and use as defined by NCSC.

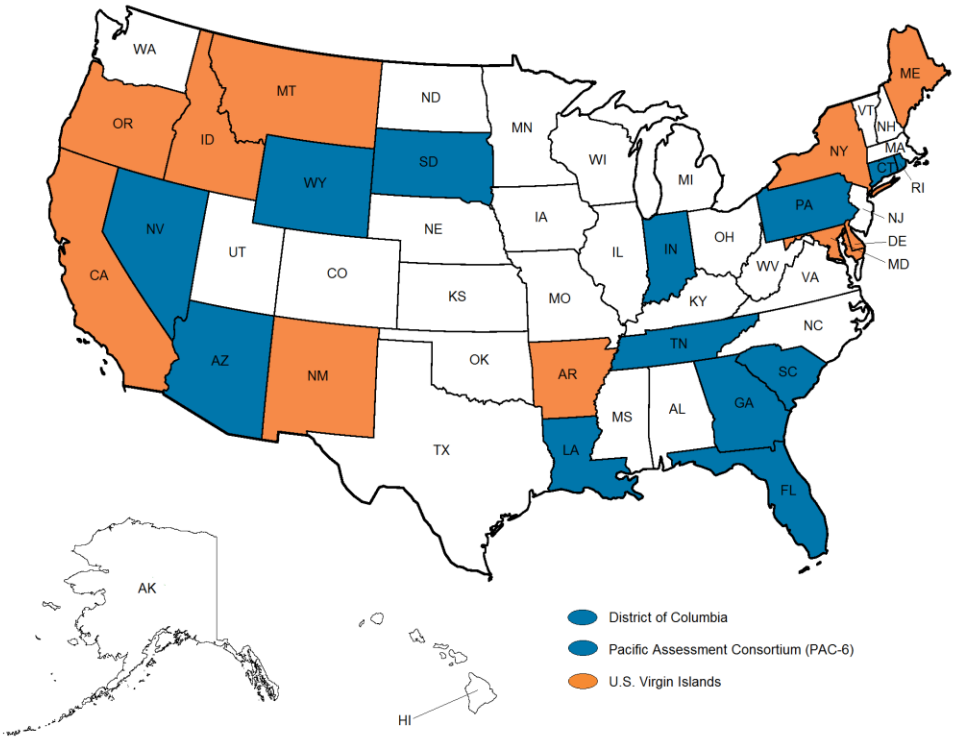
This document is available in alternative formats upon request.

National Center and State Collaborative

NCSC is a collaborative of 15 states and five organizations.

The states include (shown in blue on map): Arizona, Connecticut, District of Columbia, Florida, Georgia, Indiana, Louisiana, Nevada, Pacific Assessment Consortium (PAC-6)[1], Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, and Wyoming.

Tier II states are partners in curriculum, instruction, and professional development implementation but are not part of the assessment development work. They are (shown in orange on map): Arkansas, California, Delaware, Idaho, Maine, Maryland, Montana, New Mexico, New York, Oregon, and U.S. Virgin Islands.



*Core partner states are blue in color and Tier II states are orange in color.

[1] The Pacific Assessment Consortium (including the entities of American Samoa, Commonwealth of the Northern Mariana Islands, Federated States of Micronesia, Guam, Republic of Palau, and Republic of the Marshall Islands) partner with NCSC as one state, led by the University of Guam Center for Excellence in Developmental Disabilities Education, Research, and Service (CEDDERS).

National Center and State Collaborative

The five partner organizations include: The National Center on Educational Outcomes (NCEO) at the University of Minnesota, The National Center for the Improvement of Educational Assessment (Center for Assessment), The University of North Carolina at Charlotte, The University of Kentucky, and edCount, LLC.

150 Pillsbury Drive SE
207 Pattee Hall
Minneapolis, MN 55455
Phone: 612-708-6960
Fax: 612-624-0879
www.ncscpartners.org

National Center and State Collaborative

NCSC Math Activities with Scripted Systematic Instruction (MASSI): Elementary Ratio and Proportion Progress Monitoring and Skills Test

Julie Thompson
Alicia Saunders
Diane Browder
Amy Lehew

July 2013

Student Name: _____

MASSI: Elementary Ratio and Proportion

Options for Progress Monitoring/ Formative Assessment

1. Elementary Ratio and Proportion Progress Monitoring (pg. 6-10): record student responses made during instruction on data sheet provided; teacher records each step correct during the lesson.

2. Elementary Ratio and Proportion Skills Test (pg. 11-18): a brief on demand performance assessment; could be given weekly to see if student has mastered this lesson; also helps student practice responding in a test format.

    a. NOTE: The Skill Test can be used as a baseline assessment to check for any skills the student may already have prior to beginning the MASSI.

    b. NOTE: The Skill Test can also be readministered to check for maintenance throughout the year.

Student Name: _____

Elementary Ratio and Proportion Progress Monitoring

Directions: Score each step during instruction or as soon as the lesson is complete. Score the step as unprompted correct with a "+." Use a system to code level of prompting required for incorrect responses (e.g., V = verbal prompt, G = gesture, P = physical). Graph the number of unprompted correct responses to monitor progress.

BUILDING ESSENTIAL UNDERSTANDING: CONCEPT AND SYMBOLS: Create an array by making equal groups, combine sets with concrete objects, identify what to do with set when given key word

Materials and Directions for Teacher	*Instructional Cue*	*Student Expected Response* Date:						
1. 5 Grouping mats and several counters. (Make sure you provide more counters than are needed.)	Point to first group. **"Put three counters in each group."**	Student places three counters on first group mat.						
2. As above.	Wait three seconds. If student does not continue then prompt. **"What's next?"**	Student places three counters on next group mat.						
3. As above.	Wait three seconds. If student does not continue then prompt. **"What's next?"**	Student places three counters on next group mat.						
4. As above.	Wait three seconds. If student does not continue then prompt. **"What's next?"**	Student places three counters on next group mat.						
5. As above.	Wait three seconds. If student does not continue then prompt. **"What's next?"**	Student places three counters on last group mat.						
6. "All together" mat and an array with 3 groups of 5 counters each. (Change the array each time you teach this section.)	Wait three seconds. If student does not begin then prompt. **"Move the counters onto the top of the all together mat."**	Student moves counters onto mat.						
7. As above.	Wait three seconds. If student does not begin then prompt, **"Count."**	Student counts all counters ***Note: Student does not have to slide counters across line to receive correct for this step. If they are able to count without losing their place allow them to do so. If not, then prompt them to consistently slide the counters across the line when counting.						
8. As above.	**"How many all together?"**	Student states/identifies total number of counters.						
9. Asha word problem, "groups of" picture and unrelated picture card (e.g., pencil)	Display "groups of" picture and unrelated picture card (e.g., pencil). **Point to the picture that shows what you do to solve the word problem.**	Student points to the "groups of" picture.						

Student Name: _____

10. Noah word problem, "in each" picture and unrelated picture card (e.g., car).	Display "in each" picture and unrelated picture card (e.g., car). **Point to the picture that shows what you do to solve it.**	Student points to "in each" picture.						
11. Miles word problem, "in each", "groups of", and unrelated picture.	Display word problem. **Miles had 6 groups of 3 crayons to pass out to the class. How many crayons did he have total?** Display "in each", "groups of", and unrelated picture and say, **Point to the picture that shows what you do to solve it.**	Student points to the "groups of" picture.						
12. Shilah word problem, "in each", "groups of", and unrelated picture.	**Shilah collected 16 Pokeman cards. He put his cards into four plastic sleeves to protect them. How many cards were in each sleeve?** Display "in each", "groups of", and unrelated picture and say, **Point to the picture that shows what you do to solve it.**	Student points to "in each" picture.						
13. Habiba word problem, "in each", "groups of", and unrelated picture.	**Habiba has 12 porcelain dolls. She keeps them in 3 display cases. How many dolls are in each display case?** Display "in each", "groups of", and unrelated picture and say, **Point to the picture that shows what you do to solve it.**	Student points to "in each" picture.						
14. Paula word problem, "in each", "groups of", and unrelated picture.	**Paula stacked her books into 4 groups of 5 on her bookshelf. How many books does she have in all?** Display "in each", "groups of", and unrelated picture and say, **Point to the picture that shows what you do to solve it.**	Student points to the "groups of" picture.						
		NUMBER CORRECT:						
3rd BUILD A GRADE ALIGNED COMPONENT: Given number of groups and total number of students calculate number of students in each group. Check work by multiplying groups times number of students. 4th and 5th GRADE BUILD ESSENTIAL UNDERSTANDING: Build fluency with counting and review single digit multiplication								
15. Mrs. Thomas word problem, more counters than are needed, the all-together mat, and grouping mats.	Wait three seconds. If student does not begin then prompt, **"Count out 12 children."**	Student counts out 12 counters.						
16. As above.	Wait three seconds. If student does not begin then prompt, **"Count out 3 groups."**	Student counts out 3 groups.						

Student Name: _____

17. As above.	Wait three seconds. If student does not begin then prompt, **"Put counters one at a time into each group"**	Student divides counters evenly into each group.						
18. As above.	**How many are in each group?**	Student says, "4".						
19. Mr. Wen word problem, more counters than are needed, the all-together mat, and grouping mats.	Wait three seconds. If student does not begin then prompt, **"Count out 16 children."**	Student counts out 16 counters.						
20. As above.	Wait three seconds. If student does not begin then prompt, **"Count out 4 groups."**	Student counts out 4 groups.						
21. As above.	Wait three seconds. If student does not begin then prompt, **"Put counters one at a time into each group"**	Student divides counters evenly into each group.						
22. As above.	**How many are in each group?**	Student says, "4".						
		NUMBER CORRECT:						
4th BUILD A GRADE ALIGNED COMPONENT: Given number of activity buses and total number of students, decide how many students go in each bus. **5th BUILD ESSENTIAL UNDERSTANDING: Build fluency counting by fives and tens and using manipulatives to count.**								
23. Mr. Burton word problem, counters, bus, and "count by" graphic organizers	Wait three seconds. If student does not begin then prompt, **"Find the groups of ten"**	Selects groups of ten.						
24. As above.	Wait three seconds. If student does not begin then prompt, **"Count out 3 groups"**	Counts out three groups of ten						
25. As above.	Wait three seconds. If student does not begin then prompt, **"Count by 10 to find the answer"**	Counts by tens to 30.						
26. As above.	**How many students in all rode the bus?**	Says or indicates 30.						
27. Collingswood word problem, counters, bus, and "count by" graphic organizers	Wait three seconds. If student does not begin then prompt, **"Find the groups of five"**	Selects groups of five.						
28. As above.	Wait three seconds. If student does not begin then prompt, **"Count out 6 groups"**	Counts out 6 groups of five						
29. As above.	Wait three seconds. If student does not begin then prompt, **"Count by 10 to find the answer"**	Counts by 5 to 30.						
30. As above.	**How many students in all rode the bus?**	Says or indicates 30.						
		NUMBER CORRECT:						

Student Name: _____

5th BUILD A GRADE ALIGNED COMPONENT: Creating a Line Graph									
31. 6 groups of 4 word problem, "groups of" equation graphic organizer and calculator	Wait three seconds. If student does not begin then point to number in equation and say, "**Write 6.**"	Writes/Indicates first number on equation.							
32. As above.	Wait three seconds. If student does not begin then point to number in equation and say, **"Write 4."**	Writes/Indicates second number on equation.							
33. As above.	Wait three seconds. If student does not begin then point to 6 on calculator and say, **"Press 6."**	Pushes/indicates first number on calculator.							
34. As above.	Wait three seconds. If student does not begin then point to "x" on calculator and say, **"Press times."**	Pushes/indicates "x" on calculator.							
35. As above.	Wait three seconds. If student does not begin then point to 4 on calculator and say, "**Press 4."**	Pushes/indicates second number on calculator.							
36. As above.	Wait three seconds. If student does not begin then point to equals or enter on calculator and say, **"Press equals (enter)."**	Pushes/indicates equals (enter) on calculator.							
37. As above.	Wait three seconds. If student does not begin then point to 24 in window on calculator and say, **"Write 24."**	Writes/indicates answer.							
38. Mrs. Donovan word problem, "groups of" equation graphic organizer and calculator	Wait three seconds. If student does not begin then point to number in equation and say, "**The bigger number is 18. Write 18."**	Writes/Indicates bigger number in first blank on equation.							
39. As above.	Wait three seconds. If student does not begin then point to number in equation and say, **"The smaller number is 6. Write 6."**	Writes/Indicates smaller number in second blank on equation.							
40. As above.	Wait three seconds. If student does not begin then point to 1 then 8 on calculator and say, **"Press 1 then press 8."**	Pushes/indicates bigger number on calculator.							
41. As above.	Wait three seconds. If student does not begin then point to "÷" on calculator and say, **"Press divided by."**	Pushes/indicates "÷" on calculator.							
42. As above.	Wait three seconds. If student does not begin then point to 6 on calculator and say, "**Press 6."**	Pushes/indicates smaller number on calculator.							

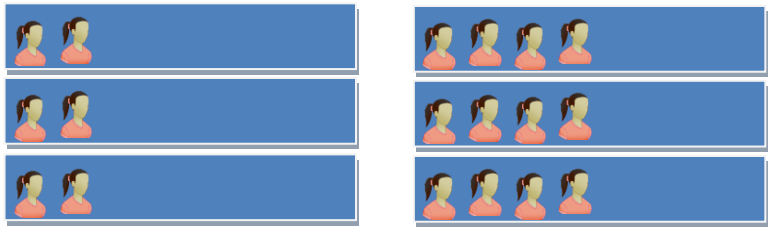
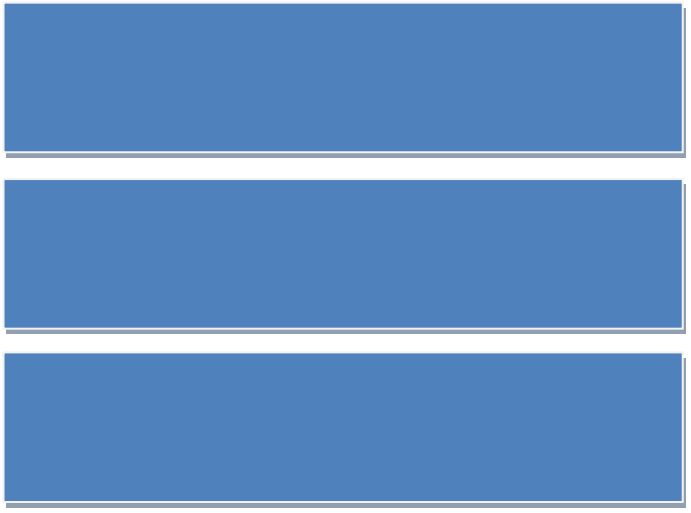
Student Name: _____

43. As above.	Wait three seconds. If student does not begin then point to equals or enter on calculator and say, **"Press equals (enter)."**	Pushes/indicates equals (enter) on calculator.						
44. As above.	Wait three seconds. If student does not begin then point to 24 in window on calculator and say, **"Write 3."**	Writes/indicates answer.						
		NUMBER CORRECT:						

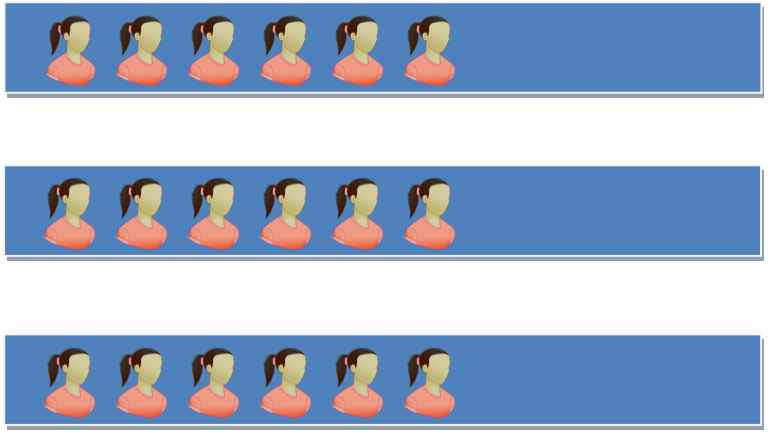
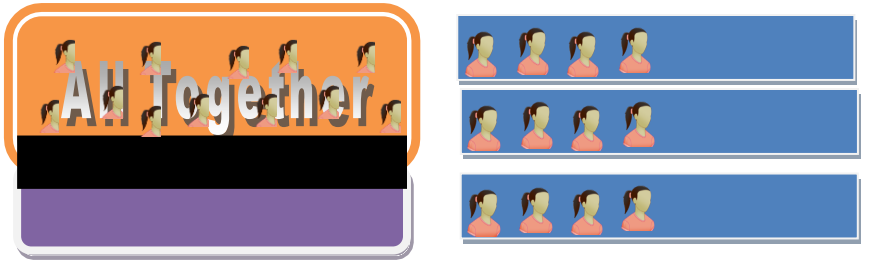
Student Name: _____

Ratio and Proportion SKILL TEST 1: Essential Understandings

Record "+" for an independent correct response or "-" for incorrect response beside number in blank.

1. Below are two sets of counters. Both have 3 groups. Circle the set that has 2 in each group. 	2. Below are 3 groups. Draw 6 circles (or glue 6 counters) in each group. 

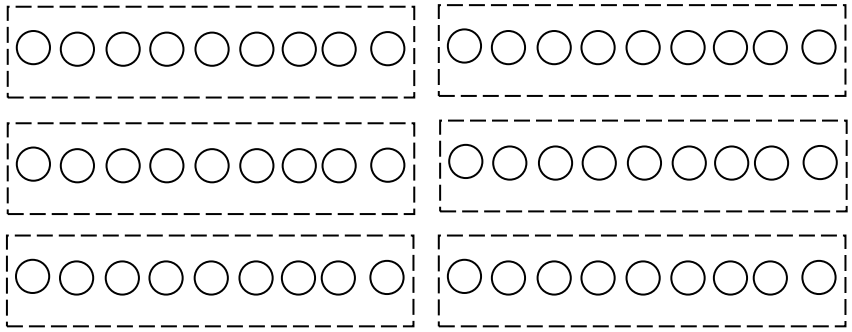
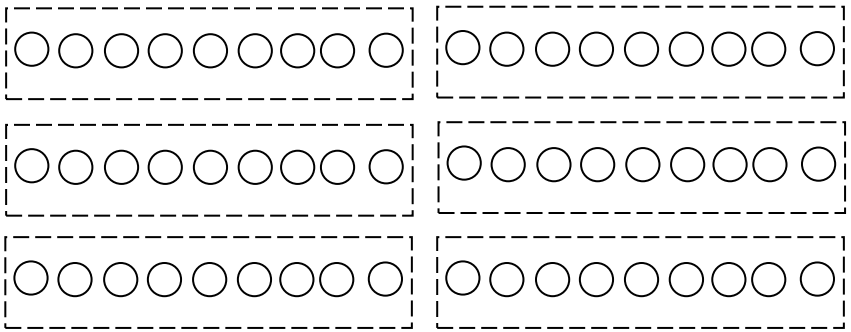
Student Name: _____

3. Below are 3 sets of 6. How many in all? (You may use manipulatives if needed to solve this problem.) 	4. Circle the picture that tells how to solve this problem: Mrs. Shawl had 4 groups of students and 12 students all together. How many students were in each group? 

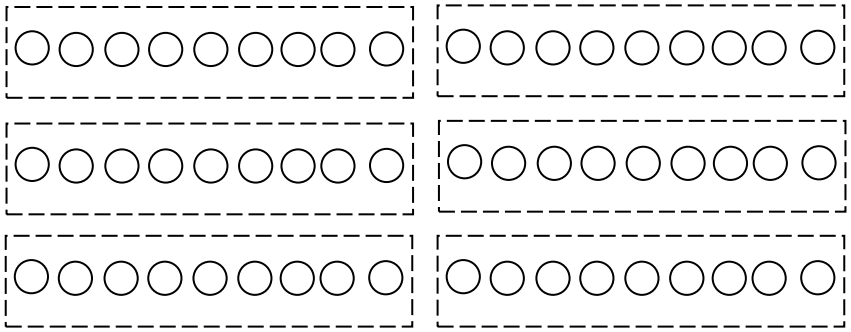
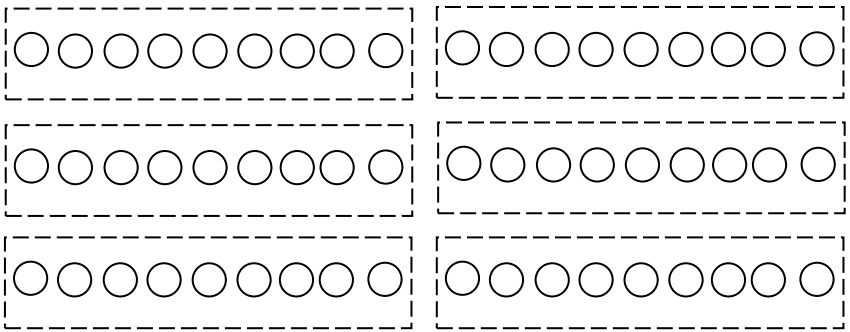
Student Name: _____

Ratio and Proportion SKILLS TEST 2: 3rd Grade Aligned

For each problem, trace the correct number of groups. Divide total number evenly by coloring in the dots one at a time into each group. Then circle correct answer.

Mrs. Rivera had 20 students. She divided the students into 4 groups. How many students were in each group?  Answer 5 2 12	Mr. Nguyen has 9 students. He put the students into 3 groups. How many students are in each group?  Answer 3 6 9

Student Name: _____

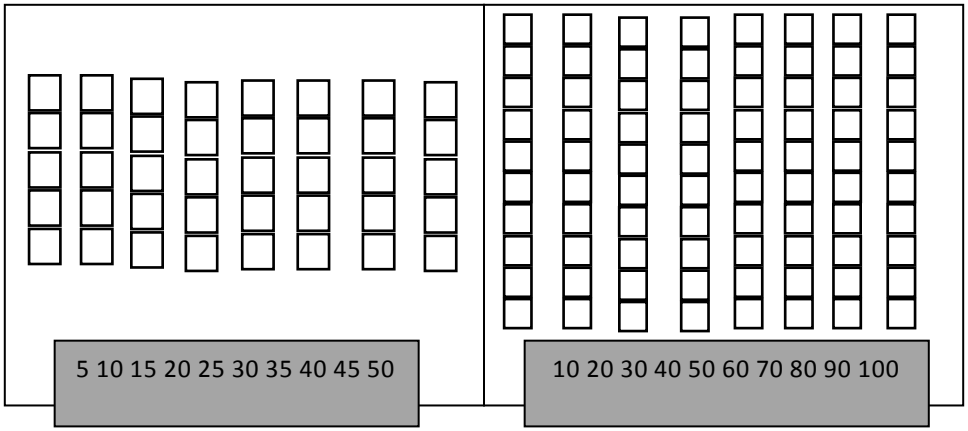
Mrs. Goldman put her students into 6 groups. She has 24 students. How many students were in each group?  Answer 9 3 4	Mrs. Akshan divided the students into 4 groups. She has 16 students in all. How many students did she put in each group?  Answer 9 4 8

Student Name: _____

Ratio and Proportion SKILL TEST 3: 4th grade aligned

For each problem choose the correct size groups and color the number of groups. Then circle the answer.

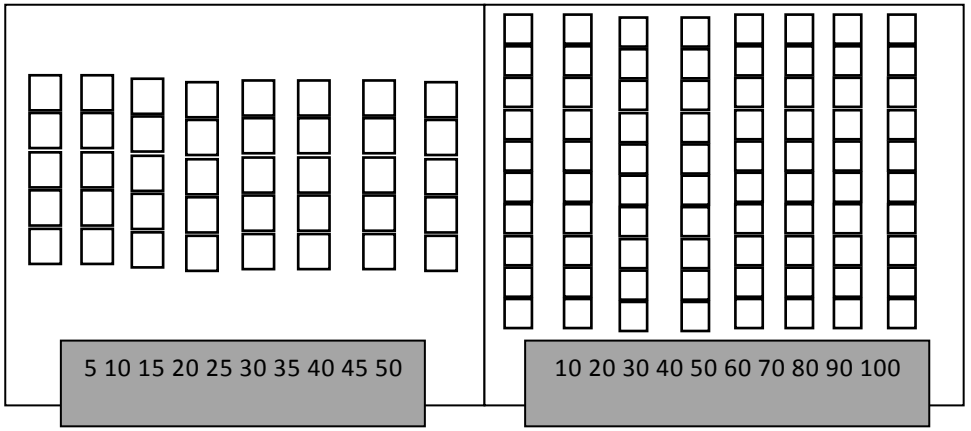
7 groups of 10 students got on the bus. How many in all are on the bus?



Answer

65 70 75

2 groups of 5 students rode the bus. How many in all rode the bus?

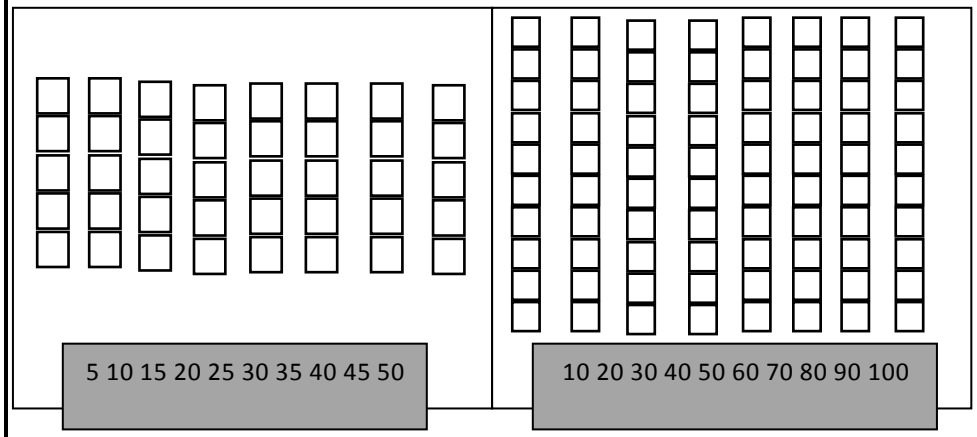


Answer

10 15 20

Student Name: _____

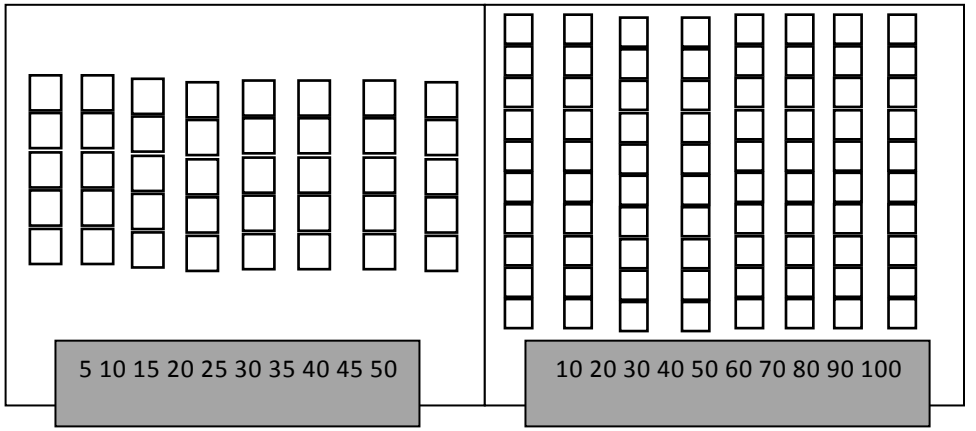
7 groups of 5 went to the zoo. How many went all together?



Answer

25 30 35

5 groups of 5 walked to the supermarket. How many walked in all?



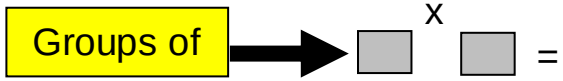
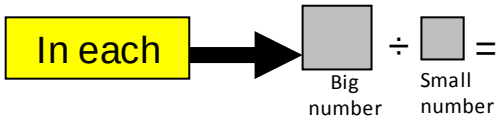
Answer

20 25 30

Student Name: _____

DATA ANALYSIS SKILL TEST 4: 5th grade aligned

Use the equation graphic organizers and a calculator to help you solve the problems.

	
1. There were 6 groups of 8 children visiting the fire station. How many students visited in all?	2. Mrs. Shapiro had 35 students. She divided them into 5 groups. How many students were in each group?

Student Name: _____

3. 42 students went to the civil war museum. They were in seven groups. How many students were in each group?	4. 8 groups of 7 saw a play at the community theatre. How many total saw the play?