National Center and State Collaborative

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

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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.

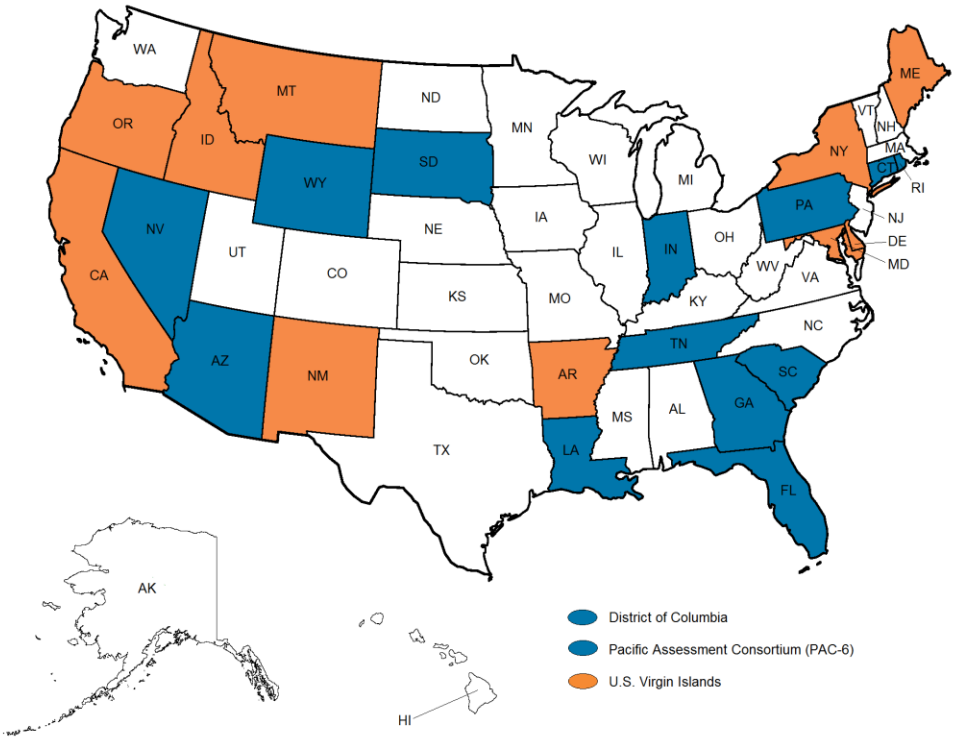
This document is available in alternative formats upon request.

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.

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

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July 2013

Student Name: _____

MASSI: Middle School Ratio and Proportion

Options for Progress Monitoring/ Formative Assessment

1. Middle school Ratio and Proportion Progress Monitoring (6-8): responses made during instruction; teacher records each step correct during or just after the lesson.

2. Middle school Ratio and Proportion Skills Test (9-12): 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 also be readministered to check for maintenance throughout the year.

Student Name: _____

Middle School 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: Given picture or graph of two sets, select the set that has more.

Materials and Directions for Teacher	*Instructional Cue*	*Student Expected Response Date:*						
1. Cinema ticket counters	Separate counters into two groups with one more than the other. **Show me more.**	Student points to or indicates the set that has more.						
2. As above.	Separate counters into two groups with one more than the other. **Show me more.**	Student points to or indicates the set that has more.						
3. As above.	Separate counters into two groups with one more than the other. **Show me more.**	Student points to or indicates the set that has more.						
4. As above.	Separate counters into two groups with one more than the other. **Show me more.**	Student points to or indicates the set that has more.						
5. As above.	Separate counters into two groups with one more than the other. **Show me more.**	Student points to or indicates the set that has more.						
6. 2:4 ticket/popcorn card	**Show me more.**	Student points to or indicates the popcorn set.						
7. 4:2 ticket/popcorn card	**Show me more.**	Student points to or indicates the ticket set.						
8. 6:3 ticket/popcorn card	**Show me more.**	Student points to or indicates the ticket set.						
9. 4:1 ticket/popcorn card	**Show me more.**	Student points to or indicates the ticket set.						
10. 2:5 ticket/popcorn card	**Show me more.**	Student points to or indicates the popcorn set.						
11. Wood Theater problem and two ratio ticket/popcorn answer choices	**At Wood Theater if you buy some tickets you get some free popcorn. Find the ratio of popcorn to movie tickets.**	Selects ratio 4:1.						
12. Anderson Theater problem and two ratio ticket/popcorn answer choices	**At Anderson theater if you buy some tickets you get some free popcorn. Find the ratio of popcorn to movie tickets.**	Selects ratio 8:3.						
13. "Rachael" card, video game and donut cards	**This says if you buy 4 manicures you get one free. The ratio is 4:1. Point to the card that has the same ratio. 4:1.**	Points to/Indicates "donut" card.						
14. "Julie" card, "backpack" and "Nadia" cards	**This says if you buy 2 books you get one free. The ratio is 2:1. Point to the card that has the same ratio. 2:1.**	Points to/indicates "backpack" card.						

Student Name: _____

		NUMBER CORRECT:						
6th BUILD A GRADE ALIGNED COMPONENT: Write a ratio that matches a pictured ratio relationship. 7th & 8th SYMBOL USE: Fluency counting and review using standard notation for writing ratios								
15. "Studious School supplies" flyer	Point to the notebooks/highlighter section. **Write the ratio for this deal.**	Student writes/indicates 5:5						
16. As above.	Point to the pencil/eraser section. **Write the ratio for this deal.**	Student writes/indicates 7:3.						
17. As above.	Point to the stapler/staples section. **Write the ratio for this deal.**	Student writes/indicates 1:2.						
18. As above.	Point to the notebooks/calculator section. **Write the ratio for this deal.**	Student writes/indicates 6:1.						
		NUMBER CORRECT:						
7th BUILD A GRADE ALIGNED COMPONENT: Given chart, calculate the proportional relationship between two items. 8th SYMBOL USE: Review using calculator to divide to determine proportional relationship								
19. Proportional relationship graphic organizer, sub chart, calculator	Wait three seconds then say, **Write the bigger number here.**	Writes bigger number in blue square.						
20. As above.	Wait three seconds then say, **Write the smaller number here.**	Writes smaller number in green squares.						
21. As above.	Wait three seconds then say, **Use your calculator to divide.**	Uses calculator to divide bigger number by smaller number.						
22. As above.	Wait three seconds then say, **Write the answer on your calculator here.**	Writes solution in white box.						
23. As above.	**What is the proportional relationship?**	Indicates answer.						
24. Proportional relationship graphic organizer, sub chart, calculator	Wait three seconds then say, **Write the bigger number here.**	Writes bigger number in blue square.						
25. As above.	Wait three seconds then say, **Write the smaller number here.**	Writes smaller number in green squares.						
26. As above.	Wait three seconds then say, **Use your calculator to divide.**	Uses calculator to divide bigger number by smaller number.						
27. As above.	Wait three seconds then say, **Write the answer on your calculator here.**	Writes solution in white box.						
28. As above.	**What is the proportional relationship?**	Indicates answer.						
		NUMBER CORRECT:						

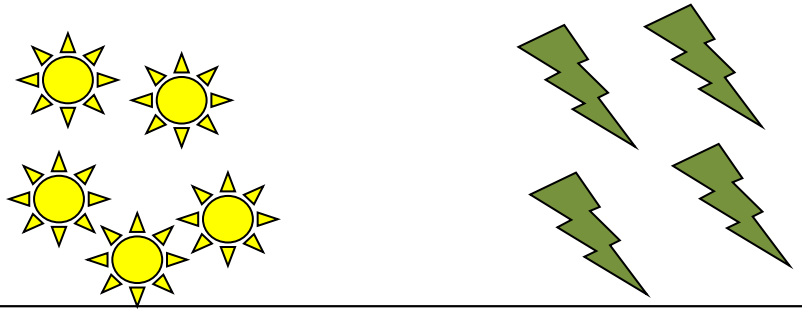
Student Name: _____

8th BUILD A GRADE ALIGNED COMPONENT: Use graph to determine proportional relationship of X and Y value when X equals 1.								
29. "Acme New Management" graph	Wait three seconds then say, **Put your finger on the 1 on the Better Bucks line.**	Puts finger on 1 on x-axis.						
30. As above.	Wait three seconds then say, **Move your finger up and stop at the blue line.**	Slides finger up until reaches blue line.						
31. As above.	Wait three seconds then say, **Slide your finger over to the ticket line.**	Slides finger over to y-axis.						
32. As above.	Wait three seconds then say, **What number did you stop at?**	Indicates 3.						
33. As above.	**What is the ratio of bucks to tickets?**	Indicates 3:1						
34. "Acme New Management" chart, better bucks graphic organizer, ticket counters, stop sign, all together mat	Wait three seconds then point to the four beside the keychain. **It says you need 4 bucks, put the stop sign under the fourth buck on your chart.**	Puts stop sign below 4th buck on GO.						
35. As above.	Wait three seconds then say, **Put three tickets beside each buck. Stop when you get to the fourth buck.**	Puts three tickets beside each buck.						
36. As above.	Wait three seconds then say, **Slide the tickets onto the all together mat.**	Slides tickets onto all together mat.						
37. As above.	Wait three seconds then say, **Count the tickets.**	Counts out the tickets.						
38. As above.	**How many tickets do you need to buy the keychain?**	Answers 12.						
		NUMBER CORRECT:						

Student Name: _____

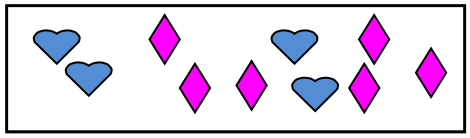
Ratio and Proportion SKILL TEST 1: Essential Understandings

1. Circle the set that has more.



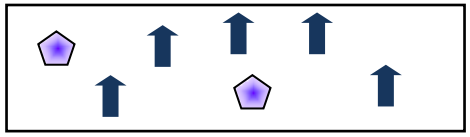
2. Circle the set that has more.

3. Circle the ratio that matches the picture.



4: 5 or 3: 1

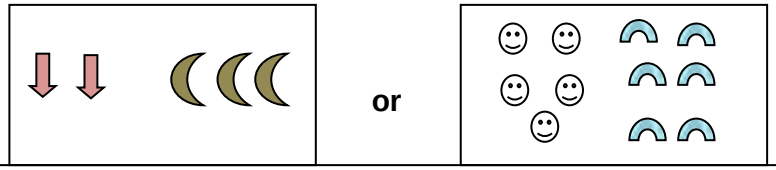
4. Circle the ratio that matches the picture.



2: 5 or 4: 2

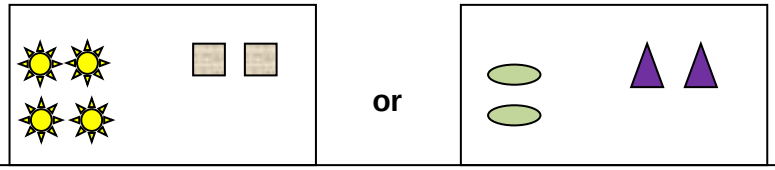
5. Circle the picture with the same ratio.

5: 6



6. Circle the picture with the same ratio.

2: 2

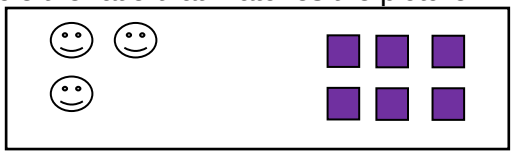


Student Name: _____

Ratio and Proportion SKILLS TEST 2: 6th Grade Aligned Component

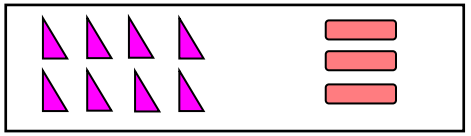
Record "+" for an independent correct response or "-" for incorrect response beside each number.

1. Circle the ratio that matches the picture.



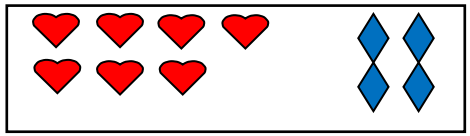
3: 6 **or** 8: 1

2. Circle the ratio that matches the picture.



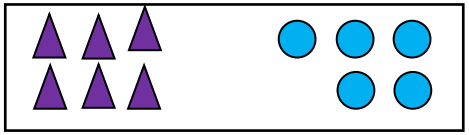
8: 3 **or** 6: 9

3. Write the ratio to match this picture.

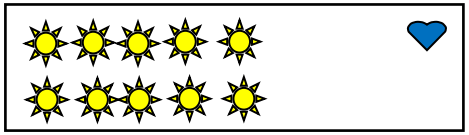


4. Write the ratio to match this picture.

5. Write the ratio to match this picture.



6. Write the ratio to match this picture.

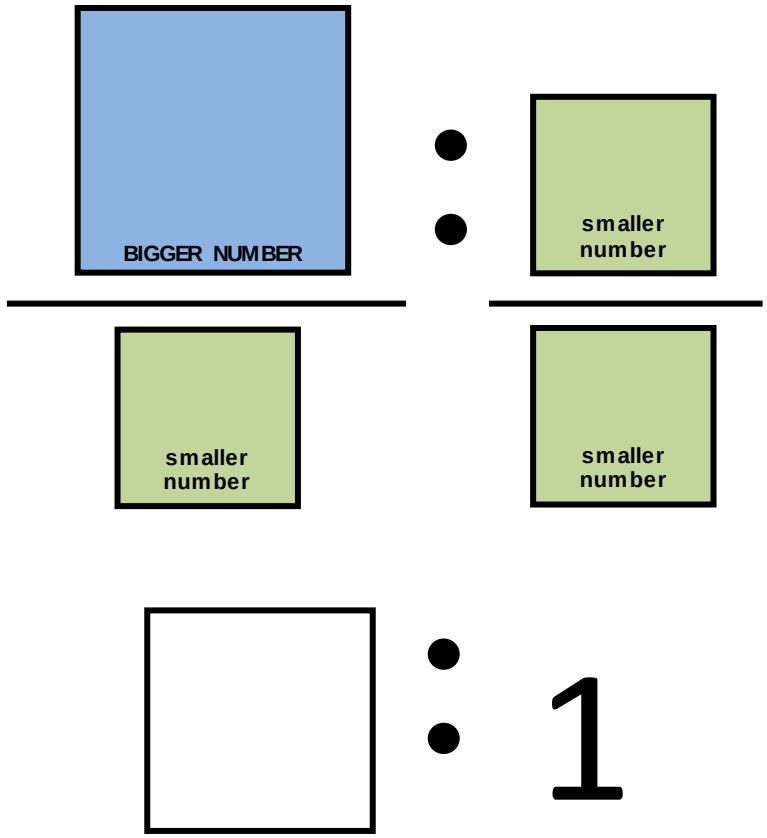


Student Name: _____

Ratio and Proportion SKILL TEST 3: 7th Grade Aligned Component

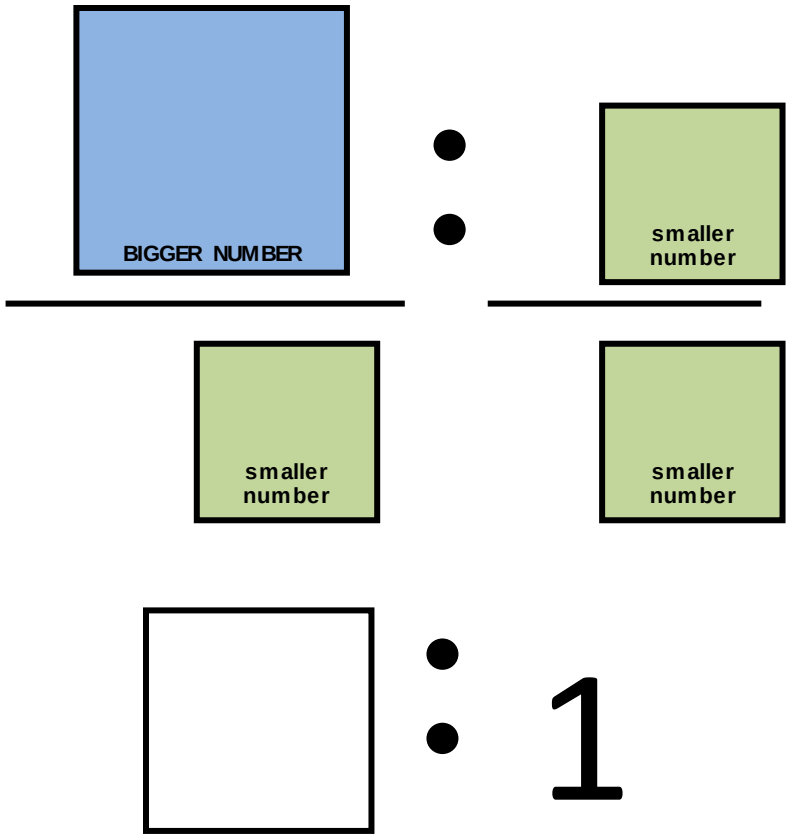
Hero Comics		
	Money Spent	Free Comic Books
Seamus	$22	2

What is the proportional relationship between money spent and free comic books?



Super Subs		
	Sub Sandwiches	Free Cookie
Samantha	9	3

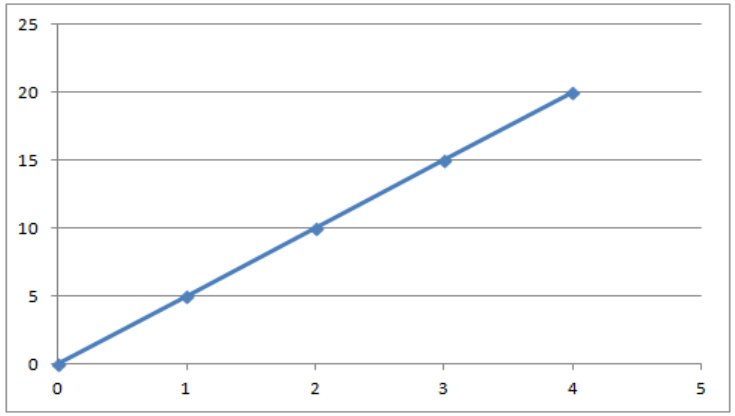
What is the proportional relationship between sub sandwiches and free cookies?



Student Name: _____

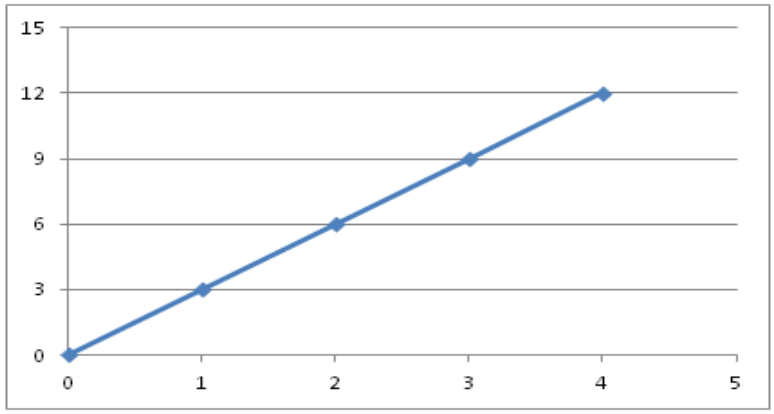
Ratio and Proportion SKILL TEST 4: 8th grade aligned

What is the proportional relationship shown on this graph? Circle the ratio.



1:5 **3:10** **25:5**

What is the proportional relationship shown on this graph? Circle the ratio.



0:12 **1:3** **5:15**

5 tickets = 1 better buck
6 better bucks = back scratcher
How many tickets to buy a back scratcher?
Draw or use manipulatives to solve. Circle your answer.

6 tickets **30 tickets** **11 tickets**

3 tickets = 1 better buck
4 better bucks = flying monkey
How many tickets to buy a flying monkey?
Draw or use manipulatives to solve. Circle your answer.

12 tickets **7 tickets** **8 tickets**