



# Components of Number Sense Overview Unit 4



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## What's the "Big Idea"?



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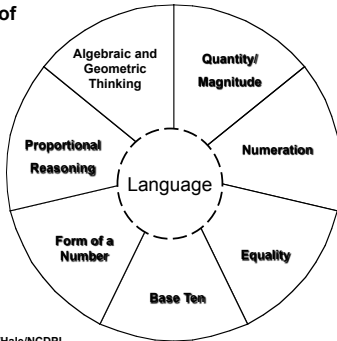
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### The Components of Number Sense



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## Language and Math Language

- Is math-language language?
- How can we use some of what we do in reading instruction to improve our mathematics instruction?

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## We have to teach math like we teach reading!

- How is math exactly like a mystery novel?
- Do we really try to see the BIG picture?
- How does our chapter in the novel fit the whole story?

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## Two stories

- You have a dime ( $\frac{1}{10}$  of a dollar) and seven nickels ( $\frac{7}{20}$  of a dollar).
  - In fractional form show how much money you have all together.
- Two team members record their 3-point shots as  $\frac{1}{10}$  and  $\frac{7}{20}$ .
  - How did they do as a team?

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## Trashketball

The Power to Understanding Percent,  
Fractions and Decimals

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## Let's Try It!

- Agreements
  - How far will the foul line be from the basket?
  - Are backboards allowable?
  - What else?
- Demo with two players
  - How hot is their shot as a team?
  - Representing their stats



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## Trashketball Procedures

- Team members rotate shots.
- After you shoot, you record your result.
- Return to end of line for your next shot
- Team Members stay positive with team members:  
"Nice shot!" "Nice try." "You're getting better."  
"We're doing great."
- Stay humble with other teams: "Great percentage!", "Thanks".
- In teams of four, play Trashketball.



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## Trashketball Stats

Group Name \_\_\_\_\_  
Group Members: (1) \_\_\_\_\_, (2) \_\_\_\_\_, (3) \_\_\_\_\_, (4) \_\_\_\_\_

Shots taken: (Make) (Miss)

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

Total made/Total taken \_\_\_\_\_/20 Decimal \_\_\_\_\_ Percentage \_\_\_\_\_

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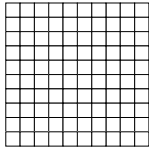
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## What was our percent?

How do we determine this ratio?



\_\_\_ / \_\_\_

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## Trashketball Stats

Group Name \_\_\_\_\_  
Team Members: (1) \_\_\_\_\_, (2) \_\_\_\_\_, (3) \_\_\_\_\_, (4) \_\_\_\_\_

1. Shots taken: Make or Miss:

1 2 3 4 5 6 7 8  
Total made/Total taken \_\_\_\_\_/8 Decimal \_\_\_\_\_ Percentage \_\_\_\_\_

2. Shots taken: Make or Miss:

1 2 3 4 5 6 7 8 9 10 11 12 13 14  
Total made/Total taken \_\_\_\_\_/14 Decimal \_\_\_\_\_ Percentage \_\_\_\_\_

3. Shots taken: Make or Miss:

1 2 3 4 5 6 7 8 9 10 11  
Total made/Total taken \_\_\_\_\_/11 Decimal \_\_\_\_\_ Percentage \_\_\_\_\_

4. Shots taken: Make or Miss:

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16  
Total made/Total taken \_\_\_\_\_/16 Decimal \_\_\_\_\_ Percentage \_\_\_\_\_

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**PICTURE IT!**

Public Schools of North Carolina

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## Bobcats Stats!

**A coach can choose any one player to shoot "technical fouls."**

**If you were the assistant coach of the Bobcats and your team had to shoot technical fouls, who would you suggest to the head coach to shoot the foul shots and why?**

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## Bobcats Stats

2005-06 Bobcats Regular Statistics

Player	Free Throws Made/Attempted	Free Throw %	3-Points Made/Attempted	3-Point %
John Bradford	164/224	.614	14/50	.280
Kevin Leonard	82/125	.656	0/0	.000
Chris Celestino	252/314	.803	3/13	.231
John Cheek	164/224	.732	0/2	.000
Craig Falta	161/222	.725	97/271	.358
J.T. Small	88/121	.727	115/335	.343
Will Smoak	55/77	.714	57/164	.348
Matt Hale	128/192	.667	0/2	.000
Karver Bollen	49/64	.766	0/5	.000
Alfonso Garzon	138/168	.821	72/185	.389
Ian Burton	106/134	.791	2/21	.095
Tucker Tharpe	33/41	.805	24/58	.414
Eric Routh	41/60	.683	1/3	.333
Pat Hammond	12/16	.750	0/0	.000
Keith Donnelly	16/17	.941	10/54	.185

Public Schools of North Carolina

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## Trashketball Stats for Story Two

Group Name \_\_\_\_\_  
Group Members: (1) \_\_\_\_\_, (2) \_\_\_\_\_, (3) \_\_\_\_\_, (4) \_\_\_\_\_

1. Shots taken (Make or Miss):

1 2 3 4 5 6 7 8 9 10  
Total made/Total taken    1/10    Decimal .10    Percentage 10%

2. Shots taken (Make or Miss):

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20  
Total made/Total taken    7/20    Decimal .35    Percentage 35%

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## Story Two

- A team has two team members
  - 3-point shots 1/10 and 7/20.
- How did the two of them perform as a team?

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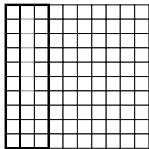
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## How Did the Team Do Altogether? Story Two

How do we determine this ratio?



  8   /  10 

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## Story One

- You have a dime ( $\frac{1}{10}$  of a dollar) and seven nickels ( $\frac{7}{20}$  of a dollar).
- In fractional form show how much money you have all together.

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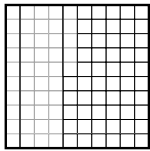
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## How Do We Represent the Money Problem Story One?

How do we determine this ratio?



  45   /  100 

1 Dime



7 Nickels



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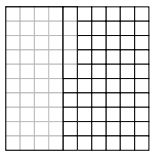
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**“Move it over two”**

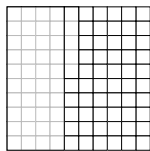
or

**Percentage and Decimal relationship using the Components of Number Sense**

45% and .45



out of 100



out of 1

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## What Do We Ask?

- Quantity/Magnitude
- Numeration
- Equality
- Base Ten
- Form of a Number
- Proportional Reasoning
- Algebraic and Geometric Thinking

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## “Arithmetic in American Mathematics Education”

1. **What are the steps for solving a mathematical problem in China?**
2. **What is the American equivalent to Lie Shi?**
3. **Using 10 sticks model a figure and then talk about the mathematical expressions that exist within the visual.**
4. **What are the key points that Ma makes in this article?**

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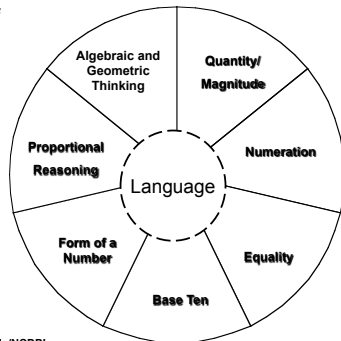
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## The Components of Number Sense



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## Assignments from Units 3 and 4

- Due Day 3
- Required Reading:
  - “Subitizing” Doug Clements
  - Continue to read Knowing and Teaching Elementary Mathematics Liping Ma



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