Activities for Learning, Inc.

RightStart™ Mathematics

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Pre-Kindergarten Lessons

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RightStart™ MATHEMATICS: OBJECTIVES FOR PRE-KINDERGARTEN

Name _____ **Year** _____

Teacher _____

	1ST QTR	2ND QTR	3RD QTR	4TH QTR
Numeration				
Can count out 31 objects and arrange in groups of tens				
Can recognize quantities 1 to 100 and represent them on abacus	N/A			
Knows even numbers to 20				
Knows odd numbers to 19	N/A			
Can count by twos to 30				
Can count by fives to 100	N/A			
Can count by tens to 100	N/A	N/A		
Money				
Knows name and value of penny, nickel, and dime	N/A			
Place Value				
Knows 10 ones is 1 ten	N/A			
Knows 10 tens is 1 hundred	N/A	N/A		
Knows, for example, 37 as 3-ten 7	N/A	N/A		
Addition				
Understands addition as combining parts to form whole				
Can partition numbers 3 to 10 into parts				
Knows number combinations equal to 10	N/A	N/A		
Knows number combinations up to 10	N/A	N/A		
Subtraction				
Understands subtraction as missing addend	N/A	N/A	N/A	
Understands subtraction as separating	N/A	N/A	N/A	
Problem Solving				
Can solve addition problems	N/A			
Can solve missing addend problems	N/A	N/A		
Can solve basic subtraction problems	N/A	N/A	N/A	
Geometry				
Knows mathematical names of triangle, rectangle, and circle				
Knows parallel and perpendicular lines				
Can continue a pattern on the geoboard	N/A			
Time				
Knows days of the week	N/A			
Knows months of the year	N/A			
Can tell time to the hour	N/A	N/A	N/A	
Can tell time to the half hour	N/A	N/A	N/A	
Measurement				
Can determine length with nonstandard measure	N/A	N/A	N/A	
Fractions				
Can divide into halves and fourths	N/A	N/A	N/A	
Knows unit fractions up to 1/16	N/A	N/A	N/A	
_____				
_____				

Table of Contents

Pre-Kindergarten (WS = Worksheet)

Lesson 3

Quantities 1 to 5 & Matching

OBJECTIVES

1. To learn finger sets and tally marks for quantities 1 to 5
2. To identify without counting 1 to 5 objects
3. To learn to find matches with a group of objects

MATERIALS

5 interesting objects and tray
Tally sticks
Various containers of 6 to 8 identical or similar in some aspect, pairs of interesting objects for matching, such as colored counters, beads, seeds, beans, washers, bolts, pictures of flowers, birds, or animals, and cards with numerals.

WARM-UP

Continue teaching the rhyme, "One, Two, Buckle my Shoe." Ask them to say it while clapping only on the numbers.

NOTE

Matching as a life skill can encourage children to look beyond the immediately obvious and to integrate other concepts. Some examples of matching include: a fruit with its seed, pairs of shoes or socks, lower case letters to capital letters, initial sounds with letters, and sports with equipment. It will be used frequently throughout the year for practicing mathematics concepts.

ACTIVITIES

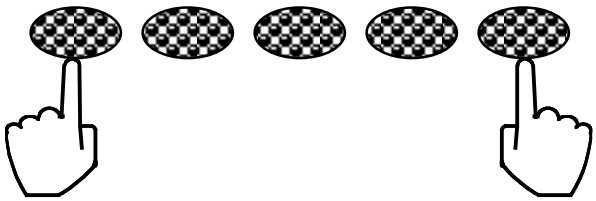
Quantities 1 to 5. Use objects and review using fingers on the *left* hand to show up to 4. With 4 objects on the tray, ask the children to watch while you add 1 more. Tell them it is 5.

Ask them to show 5 with their fingers. Ask, <u>What is special about 5 on your hand?</u> [whole hand]

Showing 5 with fingers.

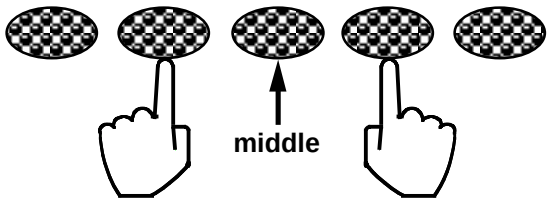
Seeing 5 as having a middle. With the 5 objects in a row, explain, <u>Five has something else special about it. It has a *middle*.</u>

Demonstrate how to find a middle. With a row of 5 objects, point to the first object with your left hand and last object with your right hand. Then simultaneously point to the second and fourth objects. The remaining object is the middle. See the figures below.



Finding the middle of 5.

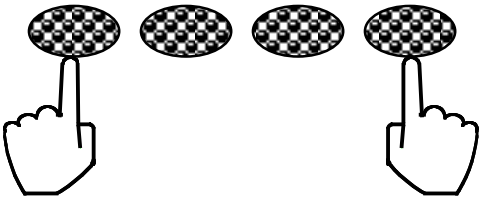
Step 1.



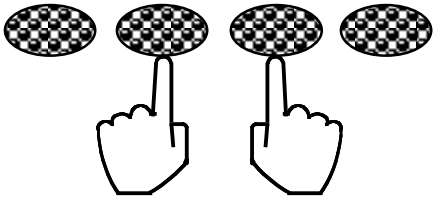
Step 2.

Ask, <u>Does your hand have a middle finger?</u> [yes]

Comparing 5 to 4. Remove 1 object and ask, Do you think 4 has a middle? [no] Repeat the same procedure to see if 4 has a middle. See the figures below. Then ask, Do your fingers have a middle when they show 4? [no]

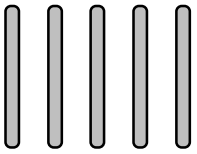


Does 4 have a middle?

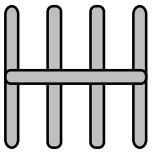


No middle.

5 with tally sticks. Ask the children to lay out 5 tally sticks. Now tell them that we do something to make the 5 special. Demonstrate picking up the last tally stick and laying it across the other four as shown. Be sure the fifth stick covers the other four sticks. The horizontal position is easier for children than the diagonal position.



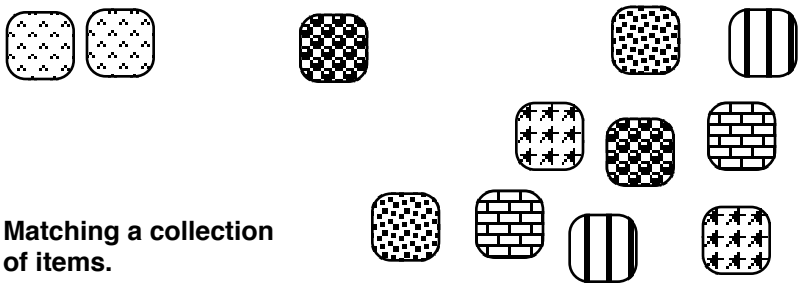
5 tally sticks.



The special way of showing 5.

Practice. Practice with the children by: (1) showing 1 to 5 objects in various configurations and asking them to show fingers and to say the number, (2) showing fingers and asking the children to name the amount, and (3) saying numbers and asking the children to show fingers.

Matching. Explain that in matching they are looking for two items that belong together. Demonstrate matching by setting all the items out so they can be seen. Then pick up one item, find its match, and set them aside. Pick up another item and find its match, and so on. The items are returned to their containers at the conclusion of the activity.



Matching a collection of items.

Lesson 28

Money & Reflections on Geoboards

OBJECTIVES

1. To learn the value of a penny and a nickel
2. To learn the term *cent*
3. To build reflections on geoboards
4. To learn the terms *symmetrical* and *reflection*

MATERIALS

Actual or replicas of 5 pennies and 2 nickels, either overhead transparencies or pictures
Abacuses
Geometry reflectors
Geoboards
Pictures of butterflies, if available

WARM-UP

Enter the previous day's date on the abacus and say, This is what yesterday's date was. How can we make it show today's date? [Add 1 more.] Ask the children to read it and show it with the place-value cards.

Emphasize the name of the current month. Tell them the name of the next month. You could count the number of days remaining in the current month. Refer to 11 as 1-ten 1 and so forth.

Play the Continue the Pattern (Lesson 27) game with spoken numbers. Say 2, 4, 6. [8, 10]

ACTIVITIES

Penny. Tell the children that today they will be working with money, pennies and nickels. Show them a penny and tell them that it is worth 1 cent. Ask them to show it with their fingers and to enter that amount on their abacuses.

Then show them 2 pennies and ask how much they think they are worth. [2 cents] (Be sure that they include the word *cents*. Ask them to show 2 cents with their fingers and to enter it on the abacus. Continue up to 5 pennies.

Nickel. Now show them a nickel and tell them that it is worth 5 cents, the same as 5 pennies. Ask them to show it with their fingers. Ask them to enter that amount on the abacus. Ask them how they can tell a penny from a nickel. Discuss the differences: nickel is larger, penny is copper colored, and the picture on the penny faces left while the picture on the nickel faces right.

Practice. Show them a penny and ask its name and what it is worth. [penny, 1 cent] Repeat for a nickel. [nickel, 5 cents] Show them 2 pennies and ask what it is worth. [2 cents] Repeat for 4 pennies [4 cents] and 5 pennies. [5 cents]

Lay out the penny and nickel and ask, Which is worth more? [nickel]

Lay out 1 nickel and 2 pennies ask how much it is worth. [7 cents] Ask them to enter it on their abacuses.

Lay out 5 pennies and 1 nickel and ask which is worth more. [neither, the same]

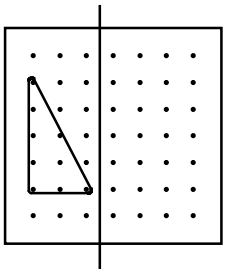
Conclude with, "What is the name of the coin that is worth 1 cent?" [penny] What is worth 5 cents? [nickel]

NOTE The concept of reflection and symmetry is best taught by examples. The definitions are not helpful to children, probably not to anyone.

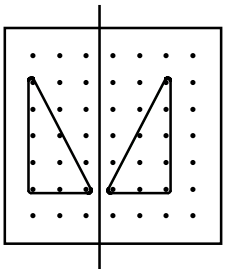
Reflections on the geoboard. Tell the children that today they will build *reflections* on geoboards. Place a strip of tape or paper or other device on the center of the geoboard from top to bottom and tell them that that will be the line of reflection.

Tell the children that you going to make a triangle on half of the geoboard. Make a triangle as shown below and show the children. Then tell them you are going to make its reflection on the other half. Make the reflection and show them.

Place the geometry reflector on the line to show the reflection.

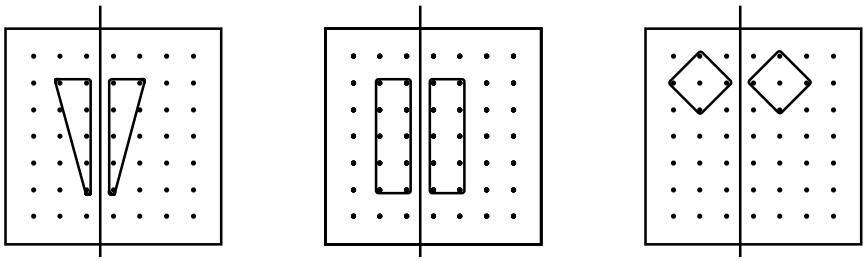


Ths original triangle.



The original triangle and the reflected triangle.

Next ask them to make different rectangles and triangles and their reflections. Some examples are shown below. Encourage a variety of responses.



Other examples of symmetrical triangles and rectangles.

Ask the children to share their work. Tell them that their work shows symmetry. Show them pictures of butterflies and discuss the symmetry. Ask them if they can find other examples of symmetry in the classroom. [their hands, feet, shoes, faces]

Drawing butterflies (optional). Ask the children to draw pictures of butterflies (or moths).

Lesson 36

Adding With Tally Marks & Writing Equations

OBJECTIVES

1. To add quantities based around 5
2. To learn the term *equals*
3. To convert tally marks to numerals
4. To write equations using numerals

MATERIALS

Abacuses
Worksheet 9, "Adding With Tally Marks"
Small beads, 10 per child in 2 colors and string (optional)

WARM-UP

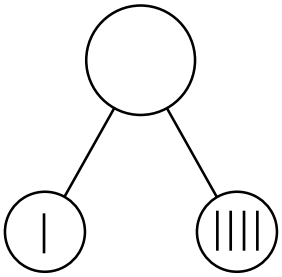
Enter the day's date on the abacus and ask the children to read it.

Ask the children to count backward from 10. If necessary use the abacus. Then play the Comes Before Game with numbers up to 10, What number comes before 2? [1] What number comes before 6? [5] and so forth.

Ask the children to count aloud together as they enter beads on their own abacuses. Stop at 3-ten.

ACTIVITIES

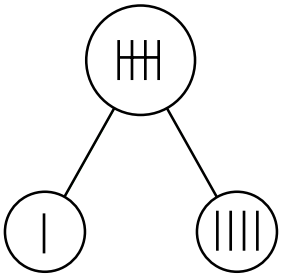
Adding 1 + 4 with tally marks. Remind the children that the last time they added using tally marks. Draw a part-whole circle set and write a tally mark for 1 in one circle and a tally mark for 4 in the other circle as shown.



Adding with tally marks in a part-whole circle set.

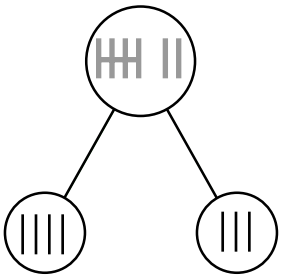
Ask the children, What is the whole if these–point to the smaller circles–are the parts? [5] Ask, How do you know? Invite a child to write the whole, using tally marks, in the larger circle.

Next ask the children, Say the equation. [One and four is the same as five.] Write the equation, using numerals. Point to the "+" sign, saying that from now on that we'll will call it *plus.* Next point to the "=" sign and tell them , We will now say *equals,* which means "is the same as." Repeat saying the equation as, Four plus one equals five.



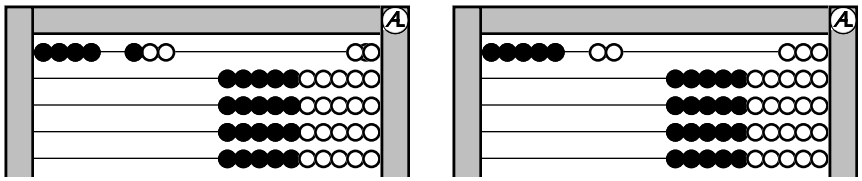
4 + 1 = 5

Adding 4 + 3. Draw another part-whole circle set and write 4 and 3 in the smaller circles. Ask, What is the whole? [7] Ask various children how they figured it out. Discuss that they could think about taking 1 from the 3 and combining it with the 4 to make 5. They then will have 5 and 2, which they know is 7.



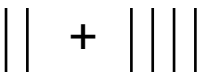
Seeing the sum of 4 + 3 as 5 + 2 by removing a stick from the 3 and combining it with the 4 to make 5 and 2.

Also demonstrate it with the abacus as shown.

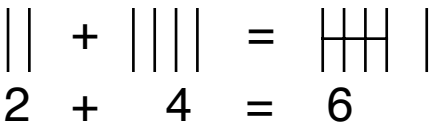


Seeing the sum of 4 + 3 as 5 + 2.

Practice. Write 2 + 4 in tally marks as follows. Ask a child to read it and complete the equation. [2 + 4 = 6] Then ask another child to write the same equation below it, using numerals.



Adding 2 + 4.



Repeat for 4 + 6, (𝍸 + 𝍸 I). Help the children visualize moving the 1 from the 6 with the 4 to make two 5s.

Repeat for 6 + 2 (𝍸 I + II). Here the children can visualize moving the 1 from the 6 to make 5 and 3.

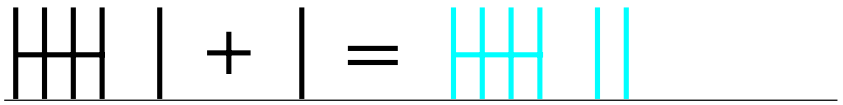
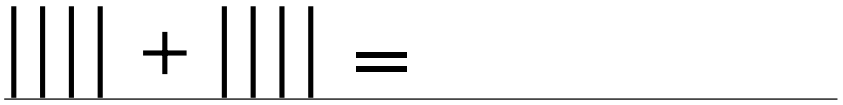
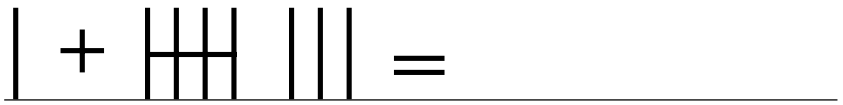
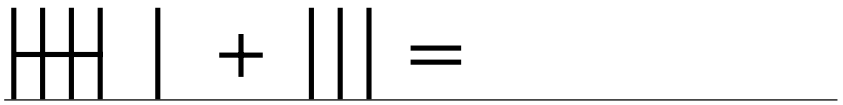
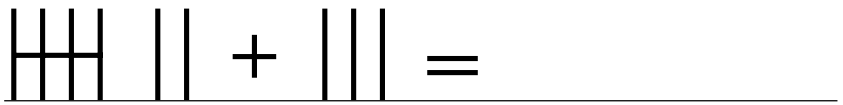
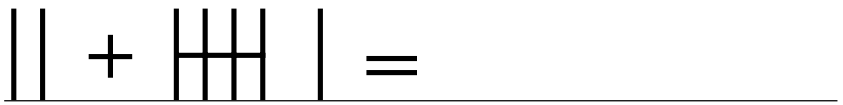
Worksheet. Give the children Worksheet 9. Ask them to check their work with tally sticks or abacuses. The problems and solutions follow:

6 + 1 = **7**	2 + 3 = **5**
2 + 5 = **7**	4 + 4 = **8**
1 + 8 = **9**	6 + 3 = **9**
7 + 3 = **10**	2 + 6 = **8**

Wrist Bracelets (optional). Provide the children with beads and string. String 5 beads of one color followed by 5 beads of a second color and tie the string around their wrists. If possible, use the colors of the abacuses.

Worksheet 9, Adding with Tally Marks

Name _____

Lesson 37

Adding With the Abacus

OBJECTIVES

1. To review the term *middle*
2. To learn to add 2 quantities on the abacus in which the larger quantity is written first

MATERIALS

About 10 objects, preferably animal or teddy bear representations
Abacuses
6 children's books, including 2 newer books, if possible
Worksheets 10-1 and 10-2, "Adding With the Abacus" (Worksheet 10-2 is an optional worksheet similar to 10-1)

WARM-UP

Enter the day's date on the abacus and ask the children to read it.

Ask the children to say the days of the week. Then play the Comes After Game with the days.

Ask the children to count backward from 10, using the abacus if desired. Then play the Comes Before Game with numbers up to 10. What number comes before 10? [9] What number comes before 5? [4]

Ask the children to count aloud together as they enter beads on their own abacuses. Stop at 4-ten.

ACTIVITIES

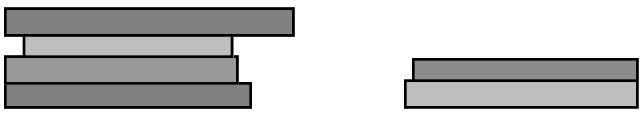
Middle. Place 5 objects in a row in front of the class. Then ask the children which one is in the *middle.* Ask them how they know. Discuss what a *middle* is, that there are the same number of objects on either side of the middle object and each end, 2, in this case.

Repeat for 7 objects. Choose the middle object and count to both ends. [3]

Now repeat for 6 objects. Does six have a middle? [no] Ask the children if they can think of another number of objects that has no middle. [any even number]

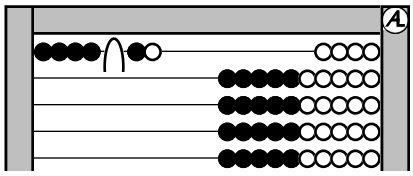
Adding problem. Tell the children that today they will use the abacus for adding. Give them the following problem. Jessie has 4 books and receives 2 more new books. How many books does Jessie have now? [6]

Reenact the problem with books. Ask a child make a stack of the 4 books and another child to make the stack of the 2 new books.



The two stacks of books for the Jessie problem.

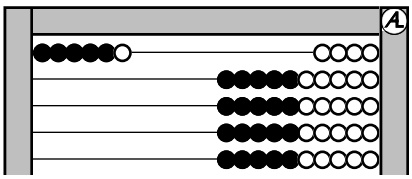
Ask a child to show on the abacus the number of books that Jessie had to start with. Now place your finger after the 4. (Using a finger to separate the addends helps the children see both quantities.) Ask a child to enter the number of new books Jessie received. See figure on next page.



The 4 books and the 2 books entered on the abacus.

Ask a child to add the books together. [stack them] Ask a child to add the beads on the abacus together. [move the beads together] See the figures below.

The two stacks of books for the Jessie problem added together.



Adding the number of books on the abacus.

Write or ask a child to write the equation [4 + 2 = 6] and ask the class to read it. [4 plus 2 equals 6]

Completing equations. Write the equation

5 + 2 =__

Explain to the children that you want to use the abacus to find out how much it is. Ask a child to enter the 5. Place your finger (or ask a child to place a finger) and ask a child to enter the 2. Explain that adding means to put them all together.

Remove your finger and say, Let's add them together. Dramatically slide over the 2 beads to the left. How much the abacus shows now? [7] Ask a child to write the 7. Then ask, So how much is 5 + 2? [7]

Repeat for 4 + 1 and 6 + 3.

Worksheet. Give the children Worksheet 10-1, where the larger addend is given first; it is to be done with abacuses. Worksheet 10-2 is similar and is optional.

The eight addition equations are as follows with the answers in boldface.

10-1	**10-2**
3 + 2 = **5**	5 + 3 = **8**
4 + 3 = **7**	4 + 2 = **6**
5 + 1 = **6**	6 + 1 = **7**
7 + 2 = **9**	3 + 3 = **6**
4 + 4 = **8**	1 + 0 = **1**
5 + 3 = **8**	7 + 3 = **10**
6 + 1 = **7**	2 + 2 = **4**
8 + 2 = **10**	7 + 2 = **9**

Name _____

3	+	2	=	____
4	+	3	=	____
5	+	1	=	____
7	+	2	=	____
4	+	4	=	____
5	+	3	=	____
6	+	1	=	____
8	+	2	=	____

Worksheet 10-1, Adding with the Abacus

Name _____

5	+	3	=	____
4	+	2	=	____
6	+	1	=	____
3	+	3	=	____
1	+	0	=	____
7	+	3	=	____
2	+	2	=	____
7	+	2	=	____

Lesson 57

Traditional Names for Tens and Ones & Partitioning 100

OBJECTIVES

1. To learn the traditional names for 10s and 1s
2. To partition 10 and 100
3. To write equations in the form 10 = 5 + 5

MATERIALS

Place-value cards 1 to 9 and 10 to 90
Worksheet 24, "Partitioning 100"

WARM-UP

Ask the children to count by 10s the "math way" and the "regular way."

Ask the children to say the even and odd numbers. Then ask them to say them backward, starting with 10 or 9

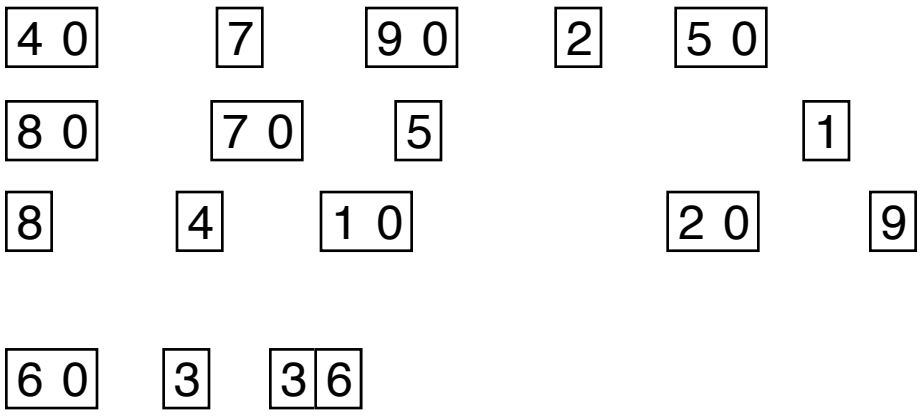
Ask the children to think of the abacus in their heads. Then ask, How much do you need with 6 to make 10? [4] How much do you need with 5 to make 10? [5] How much do you need with 7 to make 10 [3] How much do you need with 3 to make 10? [7]

ACTIVITIES

Tens and ones on the abacus. Ask the children to enter 40 on their abacuses; ask them to say the other name for it. [4-ten] Then ask them to enter 45; remind them that 45 is 40 and 5. Repeat for other quantities, such as 63, 82, 29, 37, and 58. Omit the teens.

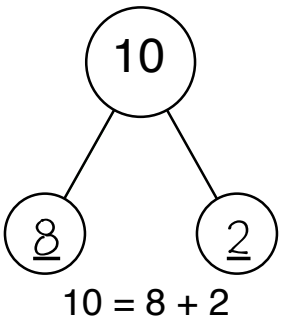
Enter 79 and ask the class to name the quantity the old way and the new way. [7-ten 9, seventy-nine] Repeat for other quantities such as 48, 29, and 37. Omit the teens.

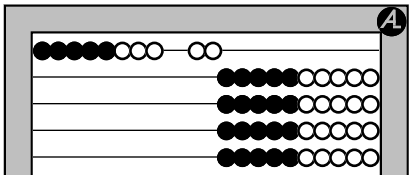
Can You Find Game (Level 4). This game, first played in Lesson 24, can now be played with traditional names to practice listening to the names and finding the correct cards. Ask the children to lay out all their cards from 1 to 9 and 10 to 90 so they can see them all. Ask for 60, 3 ones, 30 and 6, 5-ten 8, 80 and 7, 42, and so forth.



The Can You Find Game in progress.

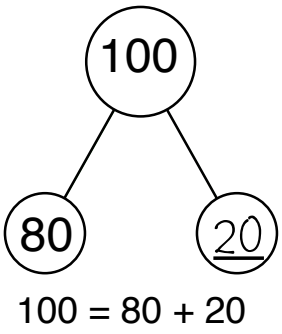
Review partitioning 10. Draw a part-whole circle set and write 10 in the whole circle. Also enter 10 on the abacus. Ask the children to name several ways that they could partition the 10 into parts. Ask them to write the parts in the parts circles and to write the equation. [10 = 8 + 2]

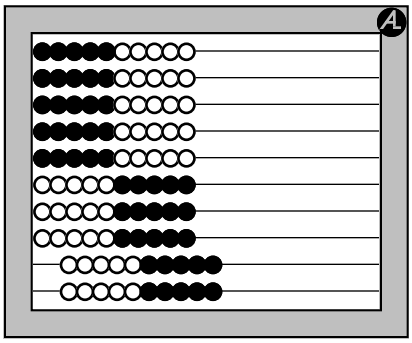




Ten partitioned, into 8 and 2.

Partitioning 100. Now ask the children if they could partition 100 into tens. Write 100 in the whole circle and 80 in the left circle. Ask a child to say and to write the equation. Do not correct a child who uses the name, 8-ten, but use the traditional names yourself. Continue until they find all the other 10s that are partitions from 100. [100 = 50 + 50, 100 = 60 + 40, and so forth.]





One hundred partitioned into 80 and 20.

ENRICHMENT Write 35 in a part circle. Ask them to find the other part [65] and to write the equation.

Worksheet. Give the children Worksheet 24. The answers follow:

100 = 70 + **30**
100 = 40 + **60**
100 = 50 + **50**
100 = 20 + **80**
100 = 90 + **10**
100 = 30 + **70**
100 = 80 + **20**
100 = 10 + **90**
100 = 60 + **40**
100 = 0 + **100**

Name _____

100	=	70	+	_____
100	=	40	+	_____
100	=	50	+	_____
100	=	20	+	_____
100	=	90	+	_____
100	=	30	+	_____
100	=	80	+	_____
100	=	10	+	_____
100	=	60	+	_____
100	=	0	+	_____

Lesson 58

Reading Numbers & Partitioning Teens

OBJECTIVES

1. To practice reading the traditional names for 10s and 1s
2. To partition the teens; for example, 14 = 10 + 4.
3. To review the term *dozen*

MATERIALS

Place-value cards 1 to 9 and 10 to 90
Worksheet 25, "Partitioning Teens"

WARM-UP

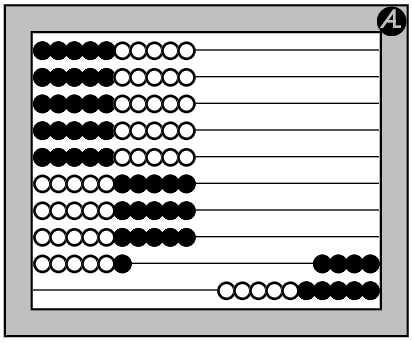
Ask the children to count by 5s the math way and the regular way.

Ask the children to think of a pattern and to continue it with one more number: 34, 35, 36 [37], with 57, 56, 55 [54], with 20, 30, 40. [50]

Ask the children to think of the abacus in their heads, then ask, How much do you need with 8 to make 10? [2] How much do you need with 5 to make 10? [5] How much do you need with 1 to make 10 [9] How much do you need with 7 to make 10? [3]

ACTIVITIES

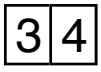
Reading tens and ones on the abacus. Enter 86 on the large abacus and ask the children to name the quantity using both names. [8-ten 6 and eighty-six] Ask a child to think of a number greater than 20 (but less than 100) and to enter it on the large abacus for the other children to name both ways. Give the other children a chance to enter numbers.



Naming the quantity on the abacus as eighty-six.

Constructing tens and ones. Say the number 59 and ask the children to construct it with their place-value cards. Then ask them to say it with its old name. [5-ten 9] Repeat for 37. Ask each child to say a number greater than 20 for the other children to construct and read the old way.

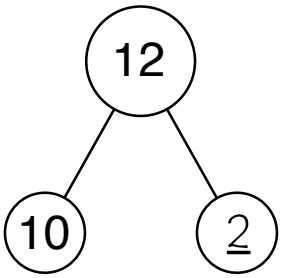
Reading tens and ones. Next construct 34 with the large place-value cards. Ask the children to read it the new way and possibly enter it on their abacuses. Give each child a chance to construct a number for the remaining children to name.

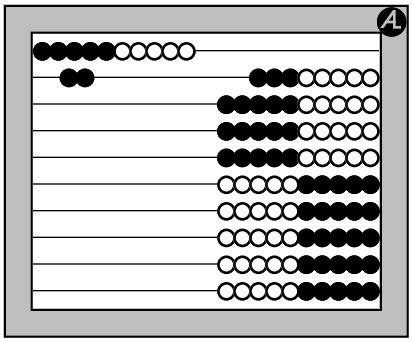


Reading the place-value cards as thirty-four.

NOTE English-speaking children usually have difficulties conceptualizing the teen numbers as 10 + another number. In other words, children tend to see 14 as 14 ones, rather than a ten and 4 ones. The following activities are designed to help them make that connection, which becomes harder when they start using the traditional names.

Partitioning the teens. Draw a part-whole circle set and write 12 in the whole and 10 in the left part. Ask the children what could they write in the other part. Ask a child to demonstrate the partitioning on the abacus and to explain it.





Partitioning 12 into 10 and 2.

Next ask the children to say and write the equation. [12 = 10 + 2]

Also ask them for the inverse; what is 10 + 2. [1-ten 2]

Repeat with 15 written in the whole circle. Continue with other teen numbers.

Practice. Ask the children what is 10 + 6 [16], 10 + 3 [13], 10 + 5 [15], and so on.

Problem. Give them the following problem. Lee hid a dozen eggs. Lee's friends found 10 of them. How many of them are still hidden. [2] Ask what the word *dozen* means. [1-ten 2]

Worksheet. Give the children Worksheet 25 for partitioning the teens into 10 and another number. The problems and solutions are as follows:

15 = 10 + **5**
19 = 10 + **9**
13 = 10 + **3**
11 = 10 + **1**
17 = 10 + **7**
16 = 10 + **6**
14 = 10 + **4**
18 = 10 + **8**

Name _____

15	=	10	+	____
19	=	10	+	____
13	=	10	+	____
11	=	10	+	____
17	=	10	+	____
16	=	10	+	____
14	=	10	+	____
18	=	10	+	____
12	=	10	+	____
20	=	10	+	____

Lesson 61

Counting by 5s and Numbers on a Clock

OBJECTIVES

1. To focus on learning to count by 5s with traditional names
2. To experience the consecutive numbering around a clock
3. To begin to learn the position of the *hour* numbers on a clock

MATERIALS

If available, bring in a clock that chimes on the hour to help the children become conscious of the hours during a day. When the clock chimes, ask the children to stop and count the number of chimes. This can also be accomplished with computer software.
A clock with 12 divisions, but no numbers (Worksheet 26)
Clock Cards (set of hour number cards 1 to 12)
Worksheet 26, "Hours on a Clock"
Scissors and glue

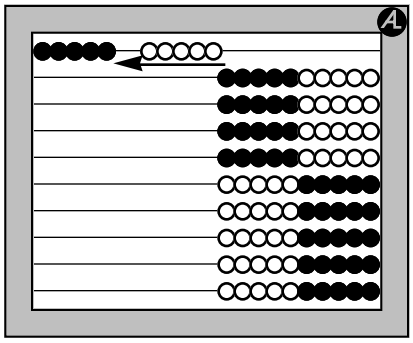
WARM-UP

Ask the children to count by 10s the math way and the regular way.

Enter various teen quantities on the abacus and ask the children to name them both ways, such as 13, 17, 15, and 12.

ACTIVITIES

Counting by 5s. Ask the children to count by 5s up to 60, using the new words. On the abacus move over 5 beads at a time as the children recite the quantity. [5] Continue moving over 5 beads at a time. [10, 15, 20, ...] Continue to 60 or so.



Counting by 5s.

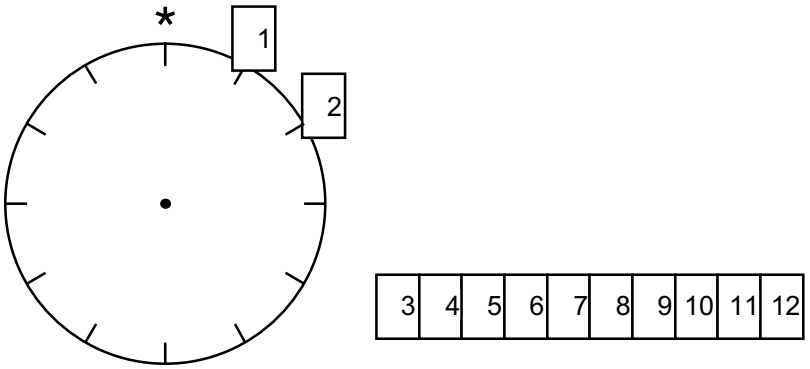
Numbers around the clock. Tell the children that today they will learn to put the numbers in the right places around a clock.

Show them the clock and the numerals. Ask the children to help you put the numbers in order in a row. Ask what number comes first. [1] Ask them what comes next. [2] Continue to 12.

1	2	3	4	5	6	7	8	9	10	11	12

Putting the hour cards in order.

Point out the star at the top of the clock. Tell the children that that is the top; the first number starts **next** to the top. Ask a child to place the number 1 on the first mark. Ask another child to put number 2 on the next mark. Continue to 12.

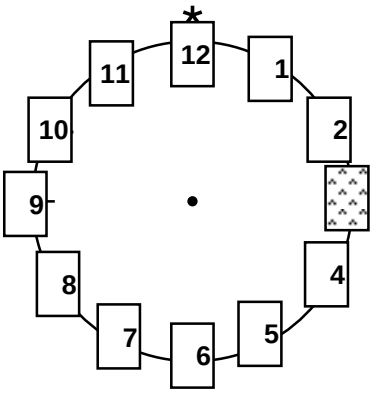


Placing the hour cards around the clock.

Repeat the activity with different children arranging the numerals in order and placing them around the clock.

Practice. Ask the children to cover their eyes while you turn a number over. Then ask the children to look and determine the missing number. The number 3 is missing in the figure below.

Give each child a turn at turning over a numeral for the rest of the class to find.



Determining the overturned hour. [3]

Worksheet. Give the children Worksheet 26. Ask them to cut out the numerals. Then ask them to put them in order and finally to place them around the clock on the worksheet as shown above.

Check the placement before asking them to glue the hours in place.