

Math 101

Lessons 1-20

Materials Needed for LightUnit 101

- Beginning in Lesson 6, you will need pennies and dimes for the money cup. Use real money, or buy a coin set. You will need as many as 30 pennies and 10 dimes.
- Keep a box of pencils, blocks, small farm toys, toothpicks, etc. for counting objects, illustrating place value, and teaching the concept of addition.
- The 1-100 Counting Chart is a laminated chart with numbers from 1 to 100 on one side and 101-200 on the other side. We recommend dry-erase markers for each student for writing on the charts. A bullet tip works best for small children. Teachers from larger schools may want to purchase a large wall chart.

Lesson 1

(Pages 1-3)

New Skills / Concepts

- Learn the concept of addition
- Count to 15
- Count with one-to-one correspondence – 1 to 5
- Identify and write *1*
- Learn *first* and *last*
- Begin memorizing $1+1=2$

Class Preparation

- 1 – 100 Counting Chart
- A flower to show what flower petals are
- ✦ New Flash Card: Move $1+1=2$ from *UNUSED FACTS* to *NEW FACTS*.
Read the instructions for using the flash-card system in the Introduction.

Meet With Students

Understanding Order and Sequence

- **God is a God of order. He likes to do things in an orderly way. He made you and me in an orderly way. He made the world in an orderly way. Suppose God would have made the fish and birds before He made land and water. Do you think the fish and birds could have lived without land and water? no Or suppose God would have made man and animals before He made the sun, moon, and stars. They would have had a hard time without light, wouldn't they? Why do you think God made plants before He made animals and man? Pause for student response. God is a God of order. He does everything in the right time. He wants first graders to be orderly as well.**

- In math we study about numbers, shapes, and how numbers work together. God made numbers in an orderly way too. In math we study about this order. When we count we must use order. We do not say, “1, 4, 7, 3, 5, 10.” We say our numbers in order, like this: “1, 2, 3, 4, 5, 6, 7, 8, 9, and 10.”

Tips for teaching counting sequences

- Use the 1-100 Counting Charts for counting exercises.
- Point to the numbers as smaller groups of students count.
- Point to the numbers as individual students count.
- Have individual students point and count.
- Have individual students count without pointing.
- Have a student point while the class counts in unison.

New

Counting from 1 to 15

Have students point to the numbers on their counting charts as you count from 1 to 10. After students are familiar with the chart, practice counting from 11 to 15.



- Count 1 to 15

Teach One-to-One Correspondence

- Place five objects on your desk. Students should point to each object as they count. Some students may skip items or numbers as they count. Or they may count one number on two objects or two numbers on one object. Monitor students to see that they count with one-to-one correspondence.

Begin LightUnit Activities

Title Bar

- Now we are ready to work in our **LightUnits**. Remember in math we learn about numbers, shapes, order, and many more things. Look through your **LightUnits** to see what you will study. Give students a few minutes to browse through their books and comment on what they like.
- Turn to page 1. Find the flower at the top of the page. Show them the flower you brought and explain what petals are. **How many petals does this flower have?** 1. Yes,

1

One

=

A straight line down,
and then you're done—
This is how to make a one.

①

② New Fact $1 + 1 =$

③

1

this flower is called a white calla lily. Other calla lilies are pink, lavender, or red. A calla lily has one petal. It grows well at sunny windows. The flowers grow on straight stalks.

I know a rhyme that will help you remember how to make a 1. Listen carefully as I say the rhyme and write a 1. Read the rhyme. Illustrate on the board how to make a 1.

**A straight line down,
And then you're done—
That is how to make a one.**

- **Let's say the rhyme together as we make 1 in the air with our fingers.**
- **Now trace the big 1 in your LightUnit with your finger as we say the rhyme. When the spider spins a web, she can go straight down just like a 1.**
- **Now, look at the flower again. How many petals does the calla lily have? 1 Write a 1 in the box beside the flower.**

New

Understanding Addition

Use pencils, erasers, or other objects to help students understand the principle of addition.

Today we learn to add. When we add we join groups. Hold up one pencil. How many pencils do I have in my hand? 1 Hold up one more pencil. Now how many pencils do I have? 2 When we have one pencil and add one more pencil, we have two pencils. We say, "one plus one equals two." Say it with me. One plus one equals two.

Do not allow students to say, "One and one equals two." Teach them to say, "One plus one equals two" or "One plus one is two."

If I have one eraser in my hand and I put a paper clip with it, how many things do I have in my hand? 2 Good! If we have one, and add one more, we have two things.

Use other manipulatives to illustrate the new fact.

1 **What number do you see on the lines? 1 That's right. You will fill this line with 1's.**

- **Look at the arrow and the dot that shows you where to start. Trace the one. Start at the top and draw a line straight down. Now finish the row. You may want to say the rhyme in unison each time students write 1.**



New Fact: $1 + 1 = 2$

Introduce the new fact.

Suggestions for Introducing New Facts

1. Recite the new fact.
2. Illustrate it using manipulatives.
3. For facts with numbers under 5, have students use their fingers to illustrate the facts.

Suggestions for Memorizing Facts

See the introduction for more suggestions.

1. Say facts before going out for recess.
2. Review the fact throughout the day. (Spacing is a key to memorization.)

2 **Trace the numbers in the first fact. In the second one, write the numbers neatly yourself.**

New

Understanding First and Last

Jesus said, “I am . . . the first and the last” (Revelation 22:13).

How can Jesus be first and last at the same time?

The verse means that Jesus was alive before the world began and He will live forever.

If your father was the first one to get up, could he also be the last?

Illustrate *first* and *last* by having students stand in a line. Point to the first person and say, “**This is the first person in this line.**” Point to the last person in the line and say, “**This is the last person in this line.**”

More examples:

- The first and last day of school
- The first and last lesson of the LightUnit
- The first and last desk in a row

- 3 Look at the chocolate chip cookies at the bottom of the page. Count them. How many did you count? 4

Listen carefully and do what I tell you:

- Underline the *first* chocolate chip cookie.
- Draw an X on the *last* chocolate chip cookie.

- 4 Turn to the next page. Do you see our new fact at the top of the page? What is it?
1 + 1 = 2. Have someone read the fact and then read it in unison.

Write the new fact.

- 5 Point to the duck. How many ducks do you see? 1 Write a 1 in the box. What is the rhyme that will help you remember how to write a 1? Let’s say it together. “A straight line down, And then you’re done— This is how to make a 1.”

We will make a mark in the next box to show how many ducks there are. There is one duck so we will make one mark. This

Lesson 1

- 4 1 + 1 =

$$\boxed{\text{I}} + \boxed{\text{I}} = \boxed{2}$$

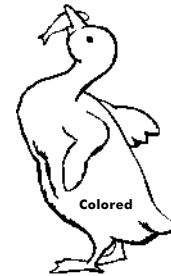
- 5 How many ducks?

|

Make a mark for each duck.

|

Color the duck.



- 6

|



All monkeys to be colored



2

Lesson 1



Just for Fun



About Me

I have nose.

I have head.

I have mouth.

I have God.

Draw a picture of yourself.

3

mark shows us how many we have counted. Illustrate on the board.

Now you may color the duck.

⑥ Look at the monkeys. How many do you see? 5

Listen carefully and follow the directions as I give them:

- Circle the *first* monkey.
- Put an *X* on the tail of the *last* monkey.
- How many monkeys are holding a banana? 1 Write the number in the box.
- Color the monkeys.

Just for Fun Activities

These activities are included in some lessons to be used as the teacher wishes. They are not required. Until students learn to read, these activities will need some teacher involvement. Later, students will be able to do them independently.

Lesson 2

(Pages 4, 5)

New Skills / Concepts

- Identify and write 2
- Learn the symbols for *plus* and *equals*
- Write facts vertically
- Answer flash cards
- Identify *top* and *bottom*
- Understand ordinal numbers – *second*
- Begin memorizing $1+2=3$

Class Preparation

- 1-100 Counting Chart (Students will need their counting charts every day. After this it will not be listed under Class Preparation.)
- Plus and equals symbols from the back of the Teacher’s Guidebook (You may prefer to introduce them by writing them on the board.)
- ✦ New Flash Card: Move $1+2=3$ from *UNUSED FACTS* to *NEW FACTS*.

Meet With Students



- 1 to 15 (Use 1-100 counting chart)

Begin LightUnit Activities

Title Bar

Follow routine as in Lesson 1.

- Flower: Crown of Thorns.
- Description: 2 petals. This flower is prickly like a cactus. It grows well in sunny windows. At first the flowers are yellow to orange. Later they turn to a bright scarlet.
- Rhyme:

**Around and back on a railroad track—
Two, two, two.**

- Count the blocks under the flower. Trace the number in the box.

- 1 Trace the 2's and write three more on the line. You may want to say the rhyme in unison as students write 2.

Review

- The concept of addition

Lay one object on your desk where all can see.


Now count out two more objects and lay them beside the object you already have.

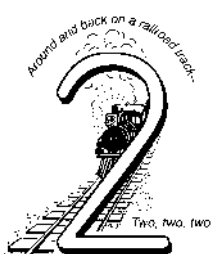
When we add something to the first group, we are joining the two groups.

How many objects do you see now? 3 When we add one object and two objects we have three objects. One plus two equals three. Say it with me, "One plus two equals three."

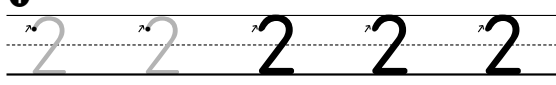
2

Two

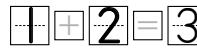


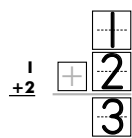


1

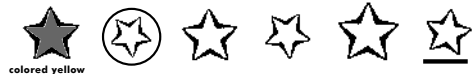


2 **New Fact** $1 + 2 =$





3



colored yellow

4

New

Introducing Symbols (+ and =)

Write the *plus* and *equals* symbols on the board or use the master in the appendix of this Teacher's Guide.

We use these symbols when we write *addition* problems. When you see this symbol (point to the plus symbol) we say *plus*. It means we are joining two groups.

When you see this symbol (point to the equals symbol) we say *equals*. That means we have just as many on this side of the equals symbol (point to the left of the equals symbol) as we have on this side of the equals symbol (point to the right side of the equals symbol).

At first students may not remember the terms *plus* and *equals*. Keep using them. Eventually they will be using them too.



New Fact: $1 + 2 = 3$

Introduce the new fact, following the procedure in Lesson 1.

New

Writing Facts in Vertical Format

There are two ways to write facts. We can write them across or we can write them up and down. Write $1+2=3$ vertically on the chalkboard as you explain. Write the first number at the top. Below the first number write the plus symbol and the 2. Under +2 draw a straight line. This straight line is the same as the equals symbol. At the bottom of the fact write the answer.

- 2 Have students write the two facts. Drill for memorization.

New

Understanding Ordinal Numbers

Place five objects on your desk.

Which object is first? Which object is second? *First* and *second* tell which. Which lesson did we do today? The second lesson. Which lesson did we do yesterday? The first lesson. Let's count the objects on my desk using *first* and *second*.

- 3 Follow these directions:

- Underline the last star.
- Color the first star yellow.
- Circle the second star.

- 4 Look at the fish at the top of the page. How many do you see? 2 Trace a mark for each fish. How many marks do you see? 2 Write a 2 on the line.

Now you may do the next fish.

- 5 Write the facts and the answers. Trace the symbols.

New

Contrasting Top and Bottom

Make sure students understand top and bottom. Have them identify the top or bottom of their desk, a book, a paper, or other items.

- 6 Look at the balls at the bottom of the page. At the bottom of each stack of balls is a number. That number tells you how many

Lesson 2

4 Trace a mark for each picture. How many marks?

5 $1+1=$

6 Color the correct number of balls. Start at the bottom.

balls to color in that stack. Starting at the bottom of each stack, color the amount it tells you to color. If the students cannot read the numbers, tell them how many balls to color.

New

Flash Cards

Show students the two flash cards from your flash-card box. **What do you think of when you say the lightning flashed or the ambulance flashed past the house? Is something moving slowly or quickly?** Quickly.

When something goes quickly we say it flashed by. That’s what flash cards are all about. Each flash card has a fact to memorize. We want to learn these facts so well that I can *flash* the cards to you.

I will hold up a flash card. Read the fact to me. You may tell me the answer when you know it.
Practice reading them in this manner several times.

Now I will *flash* the cards to you. See if you can say them as fast as an ambulance would *flash* past your house. Or as fast as a fire engine would go to a fire. Ready? Let’s try!

Practice until students can say the answers quickly.

Lesson 3

(Pages 6, 7)

New Skills / Concepts

- Count from 16 to 20
- Identify and learn to write 3
- Identify a circle
- Learn *one more than* and to add one
- Introduce the term *sum*
- Begin memorizing $2+1=3$

Class Preparation

- Circle from master in the back of this Teacher’s Guidebook (You may use the chalkboard if you prefer.)
- ✦ New Flash Card: Move $2+1=3$ from *UNUSED FACTS* to *NEW FACTS*.

Meet With Students



New

Counting From 16 to 20

Point to the numbers from 16 to 20. Today we are going to learn to count from 16 to 20. Read the numbers in unison as you point to each one.

- 1 to 20

Review

- First and last
- Top and bottom

Begin LightUnit Activities

Title Bar

Follow routine as in previous lessons.

- Flower: Snowdrop
- Description: 3 petals. These tiny little plants are the first to bloom in early spring. They have a small light green dot in the center.
- Rhyme:

**Around a tree and around a tree—
This is how to make a three.**
- Count the blocks under the snowdrop.
Write the number in the box.

- 1 Trace the 3's and write three more on the lines.

Review

- Plus and equals symbols
- Writing facts horizontally and vertically
- Concept of addition



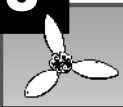
New Fact: $2+1=3$

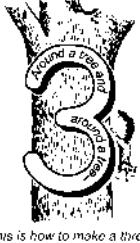
Introduce the new fact, following the procedure in Lesson 1. Use objects to illustrate.

- 2 Write the new fact. Drill for memorization.

3

Three





This is how to make a three.

1

3 3 3 3 3

2 +
New
Fact $2+1=$

$2 + 1 = 3$

$$\begin{array}{r} 2 \\ +1 \\ \hline 3 \end{array}$$

3 Write the number that is one more.

$2 \quad \underline{\quad} \quad 3$

$1 \quad \underline{\quad} \quad 2$

6

New

Introducing the Term Sum

The answer to our new fact is called the *sum*. The *sum* is the number that tells how many all together.

New

Adding One More

Lay two crayons on the corner of your desk. **How many crayons do you have?** 2 **Now count out one more crayon and lay it beside the other crayons. How many crayons do you have now?** 3
We say, “Two crayons plus one crayon equals three crayons.”

Whenever we add one to a number we can find how many we have by counting one more.

What is two and one more? 3 **Two plus one equals three.**

What is one and one more? 2 **One plus one equals two.**

What is five and one more? 6 **Five plus one equals six.**

Now let’s see if we can do a big number. What is 12 and one more? 13 **Good! Twelve plus one equals 13.**

What is 26 and one more? 27 **Twenty-six plus one equals 27.**

Give more practice as needed.

- 3** Write the number that is one more than the given number. Assist students as needed.

123...

- 4** Practice counting objects by using ordinal numbers through *third* until students are familiar with them.

Follow these directions: Count the pears.

Draw a circle around the first pear in the bottom row.

Draw an X on the last pear in the top row.

Write a 3 on the third pear in the top row.

Write a 2 on the second pear in the bottom row.

New

Identifying Circles

Display a large circle.

Discuss the characteristics of a circle.

This is a circle. It is round. Does it have any corners? No. **Can you tell where a circle begins or ends?** No

A circle is like the love of Jesus. His love has no beginning or ending. It always was and always will be.

I know a song that talks about how God’s love is like a circle. Let’s sing *God’s Love Is Like a Circle*.

God’s love is like a circle,

A circle big and round.

For when you see a circle

No ending can be found.

And so the love of Jesus

Goes on eternally.

Forever and forever

I know that He loves me.

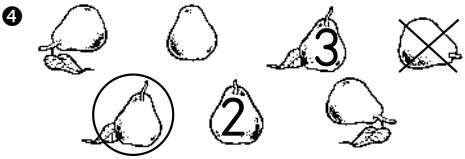
5 Count the circles and write how many.

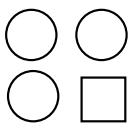
Show students the flash cards from your flash-card box. Every time we learn a new fact we will add a flash card to these flash cards. We will practice them every day so that you learn them well. Learning facts is very important. It will help you when you bake a cake or measure lumber. It will help you do many more things in school and even after you are out of school. Let's learn them the best we can.

- As I hold up a flash card, read the fact to me. Say the sum when you know it. Practice reading them in this manner several times.
- Now let's do what flash cards are made for. Let's see how fast I can flash them. Say the sums as quickly as you can.

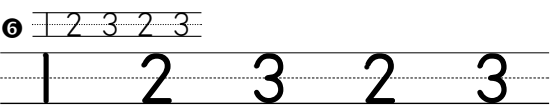
→ Drill flash cards.

Lesson 3

4 

5 How many circles? 3 

I Can Do This


6 

7 Write the sums.

$$\begin{array}{r} 2 \\ +1 \\ \hline 3 \end{array}$$

$$\begin{array}{r} 1 \\ +2 \\ \hline 3 \end{array}$$

$$\begin{array}{r} 1 \\ +1 \\ \hline 2 \end{array}$$

$$\begin{array}{r} 2 \\ +1 \\ \hline 3 \end{array}$$
 

7

New

I Can Do This

I Can Do This is a section of activities students can do independently. For several lessons you may need to explain each activity to the students. Teach them to work independently as soon as they are capable.

→ Explain and assign *I Can Do This*.

- 6** Copy the numbers in the same order as the small numbers beside No. 6.
- 7** In No. 7, you will write the sums. Who can tell me what a sum is?