Introducing *First Grade Everyday Mathematics*

Welcome to *First Grade Everyday Mathematics.* This program is a part of an elementary school mathematics curriculum developed by the University of Chicago School Mathematics Project.

Here are some features of the *First Grade Everyday Mathematics* program:

Children learn basic skills by solving problems based on everyday situations. They connect their own knowledge to their experiences both within and outside of school. Through these meaningful situations, children learn basic skills as mathematics becomes "real."

Children practice basic skills in a variety of engaging ways. They complete daily practice covering a variety of topics, find patterns on the number line, work with addition and subtraction facts, and play games that are designed to develop basic skills.

Children revisit concepts over the course of the year. To improve the development of basic skills and concepts, children regularly revisit concepts and repeatedly practice skills that have been taught earlier. The lessons are designed to build on concepts and skills throughout the year instead of treating topics in isolated sections.
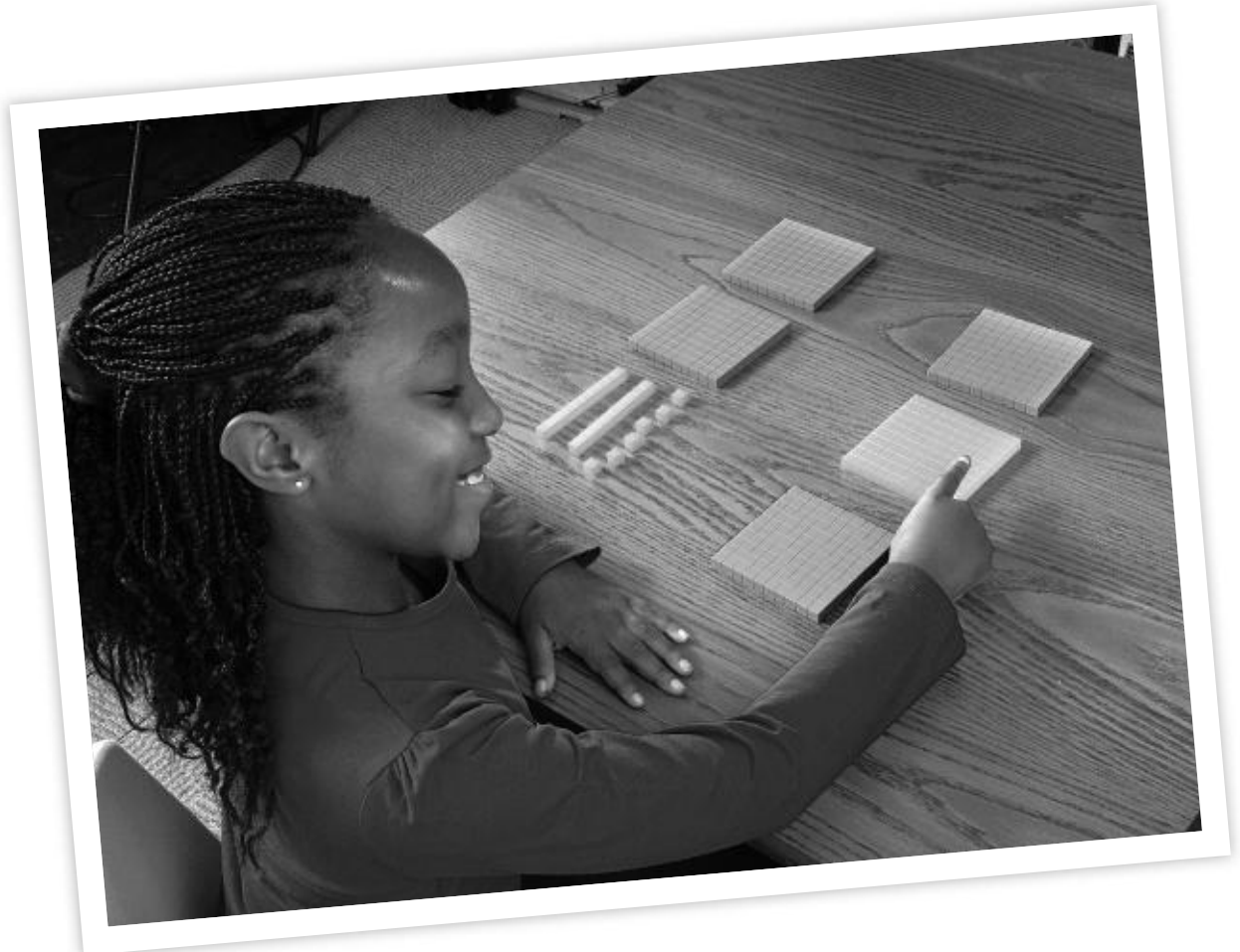
First Grade Everyday Mathematics emphasizes the following topics:

- **Operations and Algebraic Thinking**
  Representing and solving problems involving addition and subtraction; understanding and applying properties of operations and the relationship between addition and subtraction to these problems; adding and subtracting within 20; and working with addition and subtraction equations

- **Number and Operation in Base Ten**
  Extending the counting sequence; understanding place value; and using place-value understandings and properties of operations to add and subtract within 100

- **Measurement and Data**
  Measuring lengths; telling and writing time; and representing and interpreting data

- **Geometry**
  Reasoning with shapes and their features

You will be provided with many opportunities to monitor your child's progress and to participate in your child's mathematics experiences. Throughout the year, you will receive Family Letters to keep you informed of the mathematical content your child will be studying in each unit.

Enjoy seeing your child's understanding of math grow as he or she connects mathematics to everyday life.

We look forward to an exciting year!

Counting

You will receive a Family Letter before each unit begins. Each letter introduces you to the content of the next unit, in this case, counting. The letter also includes vocabulary terms, activities you can do at home, descriptions of math games, and answers to the Home Links, or homework.

Unit 1 builds on what children learned about numbers in Kindergarten. In this unit, they review and practice counting. Children practice *rote counting,* or reciting numbers in order by 1s, 5s, and 10s. Children also practice *rational counting,* or counting collections of actual objects. After some experience, they begin to associate counting "1 more" or "1 less" with addition and subtraction. Children also use their counting skills to collect and record data using tally charts.

Number stories are also introduced in Unit 1. *Number story* is another name for what is sometimes called a "story problem" or a "word problem." Throughout *Everyday Mathematics,* number stories provide opportunities for children to use a variety of strategies to solve problems. Children are encouraged to talk through solving the number stories. Not only do they have many opportunities to solve number stories throughout first grade, but they are also asked to make up their own number stories.

Unit 1 introduces some of the tools used in *Everyday Mathematics,* such as pennies, dice, the Pattern-Block Template, pattern blocks, base-10 blocks, and the geoboard. Children also learn to navigate the number grid and use it to count by 1s and 10s.

Vocabulary

These are important terms your child learns in Unit 1. Listen to your child use these terms when talking about mathematics at home.

number grid A table in which numbers are arranged in order, usually 10 columns per row. A move from one number to the next within a *row* is a change of 1; a move from one number to the next within a *column* is a change of 10.

									0
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50

number line A line with numbers that are marked in order.

1 2 3 4 5 6 7 8 9 10
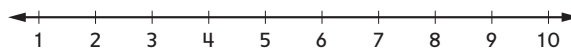
number story A story that involves numbers and one or more questions. For example, *I have 7 crayons. Carrie gave me 5 more crayons. How many crayons do I have now?*

tally chart A chart that uses tally marks to track values in a set of data.

Number of Pull-Ups	Number of Children
0	⊮ /
1	⊮
2	////
3	//

tally mark A mark used in a count. Tally marks let children represent numbers they can count and say, but may not be able to write yet.

⊮ ///

toolkit Individual bags or boxes used in the classroom; they usually contain a variety of items—such as calculators, measuring tools, and manipulatives—which help children understand mathematical ideas.

Do-Anytime Activities

To work with your child on concepts taught in this unit, try these activities:

• Discuss examples of mathematics in everyday life: TV listings, road signs, recipe measurements, time, and so on.

• Count orally by 5s and 10s when doing chores or riding in the car or on a bus. Occasionally count down, or back; for example: 90, 80, 70, 60, and so on.

• Count numbers of objects around the house and while shopping. Have your child keep track using tally marks. For example, count the number of canned goods bought at the grocery store.

Building Skills through Games

Your child will play these games and others in Unit 1:

Bunny Hop
Players roll a die to navigate on a number line to 20 and back to 0.

Monster Squeeze
The leader chooses a mystery number on a number line. Other players try to guess the number using clues from the leader.

Penny-Dice
Players take turns rolling a die and taking the number of pennies indicated on the die. The first player to get 20 pennies wins.

Rolling for 50
Players roll a die to navigate on the number grid. The first player to reach FINISH wins.

Top-It
Each player turns over a number card from a deck. Whoever has the higher number keeps both cards. Whoever has more cards when the whole deck has been used wins.

As You Help Your Child with Homework

Your child will bring home assignments called "Home Links." Home Links are suggested follow-up or enrichment activities to be done at home. They will not take much time to complete, but may involve interaction with an adult or an older child. Each Home Link activity is identified by the following symbol:

As your child brings home assignments, you may wish to go over the instructions together. The answers listed below will guide you through the Home Links for Unit 1.

Home Link 1-7

1. Your child should attach pictures of numbers as they appear in everyday life.

Home Link 1-8

1. Answers vary.

2. 1; 2; 4; 6; 8; 9

Home Link 1-9

1. Your child may mention pattern blocks, base-10 blocks, or geoboards.

2. 7

Home Link 1-10

1. Sample number story: There are 5 flowers in the garden. If I pick 1 of them to give to my teacher, how many flowers will be left? Answer: 4 flowers

NOTE: Encourage your child to come up with his or her own way to solve the problem, whether it's drawing pictures or counting on fingers. As an adult you know that $5 - 1 = 4$, but it is more natural for your child to come up with his or her own strategy than to think of the number story as $5 - 1 = 4$.

Your child should attach the picture used for the number story to the page if he or she didn't already draw it.

2. 4, 7, 11

Home Link 1-11

1. Check that your child can count by 1s to the number he or she wrote.

2. Sample answer: 50, 40, 30, 20, 10, 0

3. Sample answer: I can count squares from left to right as I count by 1s. To count by 10s, I can start at the top right corner and move down.

4. 15; 20; 25; 35; 40; 50

Open Response and Reengagement Lessons

A two-day lesson in each unit of *First Grade Everyday Mathematics* is an Open Response and Reengagement lesson. In these lessons, children solve interesting problems using their own strategies and reasoning. On Day 1, children solve an open response problem—a problem with more than one possible strategy or solution. On Day 2, the class discusses children's work from Day 1 to "reengage" with the problem and learn more about the mathematics involved. Children then revise their work based on what they learn from the discussion.

These lessons are not assessments, but opportunities for children to solve approachable problems that require persistence. Children's work on Day 1 reveals both strengths and weaknesses, allowing the second day's discussion to focus on areas that need improvement. From these discussions, children find that learning from mistakes is a natural part of mathematical problem solving. Explaining their thinking and listening to the explanations of others builds children's confidence while allowing them to see that there is more than one way to solve a problem. This promotes creative thinking about solutions later on. Having an opportunity to revise their work helps children realize that they can be successful tackling hard tasks if they think about them and keep trying.

The open response problem in this unit asks children to count a group of objects and choose strategies, such as grouping by 2s or 5s, to ensure that they count accurately and efficiently.
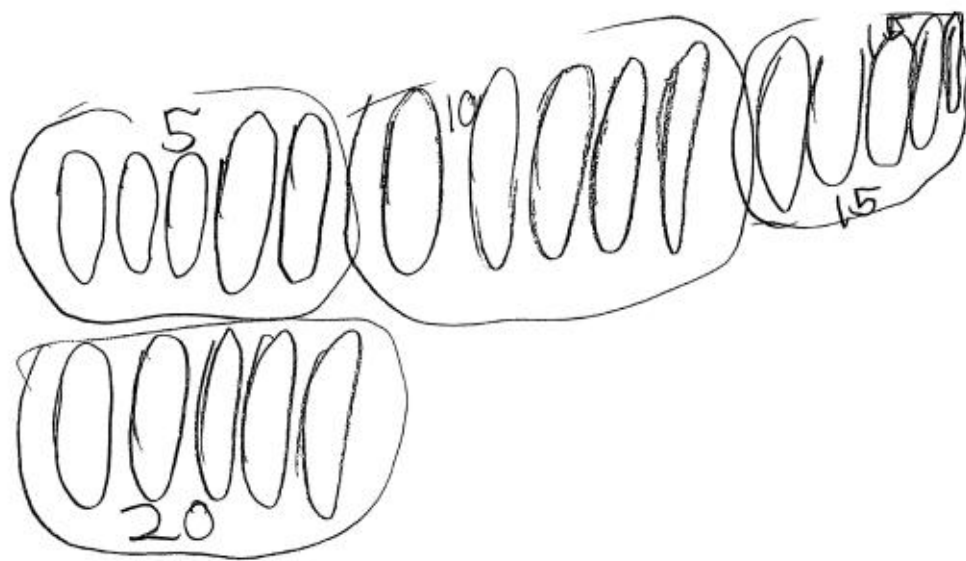
Drawing of child's strategy for counting by 5s

These lessons continue work on problem solving that is central to *Everyday Mathematics* across all the grades. Ask your child to talk to you about the problems and his or her mathematical thinking throughout the year. Enjoy seeing your child become a confident problem solver!

Numbers Are Everywhere

Family Note

As mentioned in a previous Family Letter, your child will have Home Link assignments throughout the year. This is your child's first Home Link. Home Links appear in the first-grade program for many reasons:

- The assignments encourage children to take initiative and responsibility. As you respond with encouragement and assistance, you help your child build independence and self-confidence.

- Home Links reinforce newly learned skills and concepts. They provide opportunities for your child to think and practice at his or her own pace.

- These assignments relate the mathematics your child is learning in school to the real world, which is very important in the *Everyday Mathematics* program.

- Home Links will give you a better idea of the mathematics your child is learning.

Listen and respond to your child's comments about mathematics. Point out examples of numbers (time, TV channels, page numbers, telephone numbers, bus routes, lists, and so on). Children who do math with someone learn math. For this reason, *Everyday Mathematics* provides many counting and thinking games that you and your child will have fun playing together and that will help build a strong understanding of mathematics.

For this first Home Link, your child might look for a newspaper ad for grocery items, a calendar page, or a picture of a clock. This activity helps expand your child's awareness of numbers in the world.

Please return this Home Link to school tomorrow.

Cut examples of numbers from scrap papers you find at home.

Glue some examples on the back of this page.

You can also bring examples that will not fit on this page to school.

Do not bring anything valuable!

Organizing Data with Tally Marks

Family Note

Today, your child used tally marks as the class collected data by counting. Tally marks let children represent numbers they can count and say, but may not yet be able to write, and they are useful for keeping track of data collected by counting. Remind your child that the fifth tally mark crosses the other four, like this: ⧸⧸⧸⧸ Encourage your child to first count by 5s for groups of 5 tallies and then count by 1s. For example, ⧸⧸⧸⧸ ⧸⧸⧸⧸ ⧸⧸⧸⧸ ||| should be counted as 5, 10, 15, 16, 17, 18. Developing this skill will take some practice.

Please return this Home Link to school tomorrow.

(1) Write 6 numbers. Make tally marks for each number.

Number	Tally Marks
18	⧸⧸⧸⧸ ⧸⧸⧸⧸ ⧸⧸⧸⧸ ///

Practice

(2) Count. Write the missing numbers.

−1 0 __ __ 3 __ 5 __ 7 __ __ 10 11 12 13 14 15 16 17 18 19

Exploring Math Materials

Family Note

In *First Grade Everyday Mathematics*, children regularly engage in Exploration activities. These activities provide children with hands-on experiences using classroom tools, collecting data, solving problems, and playing math games. During Exploration days, children rotate through different stations in small groups, focusing on a new activity at each station. These stations give each child the opportunity to participate in several activities during math class. Please ask your child about today's mathematics Explorations that included using base-10 blocks, pattern blocks, and geoboards.

Please return this Home Link to school tomorrow.

(1) Tell someone at home about your favorite mathematics Exploration.

Draw something you did in your Explorations today.

Practice

(2) How many dots? _____ dots
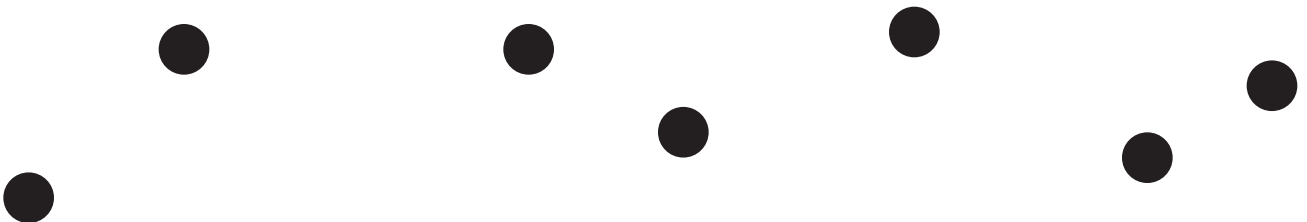
Number Stories

Family Note

Number story is another name for what is sometimes called a "story problem" or a "word problem." *Everyday Mathematics* uses *number story* to emphasize that the story must involve numbers. Help your child illustrate one below.

Please return this Home Link to school tomorrow.

① Find or draw a picture of a group of things, such as animals, people, flowers, or toys.

Tell a number story about your picture to someone at home.

Then attach your picture to this page.

Practice

② Write each number.

//// _____

//// // _____

//// //// / _____

Counting Up and Back

Family Note

Today your child used the number grid for counting larger numbers. Notice the different ways you can count on it. Move to the right within a row to count by 1s. Move down in the same column to count up 10s. Count with your child with and without the number grid. Listen as your child counts by 1s and 10s. Counting aloud for someone else provides good practice for this essential first-grade skill.

Please return this Home Link to school tomorrow.

① Count up by 1s, starting with 1. I counted to _____.

② Count back by 10s. Start with 50 or the highest number you can. I started with _____.

③ Explain to someone at home how to use the number grid to help with counting.

|									0
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100
101	102	103	104	105	106	107	108	109	110
111	112	113	114	115	116	117	118	119	120

Practice

④ Count up by 5s.

5, 10, _____, _____, _____, 30, _____, _____, 45, _____

Introducing Addition

In Unit 2, your child begins learning strategies for solving addition problems. Children create a class "Strategy Wall" that lists all the strategies they learn and practice. Strategies covered in this unit include counting on, using the turn-around rule, and using pairs of numbers that add to 10 (such as 3 and 7, or 9 and 1). Children will continue to learn strategies that help them become fluent with addition within 20 as the year progresses.

An important tool for addition is the ten frame. Ten frames are especially helpful for identifying pairs of numbers that add to 10, as well as for for illustrating other facts within 10.
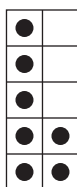
10 frames: 7 dots and 3 blanks

$7 + 3 = 10$
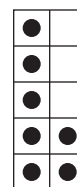
7 dots: 1 full column of 5 dots and 1 column with 2 dots

$5 + 2 = 7$

Children also begin modeling number stories using change diagrams to organize information. (*See below.*) They use numbers and symbols to write number models that represent these problems.

Vocabulary   Important terms in Unit 2:

change diagram A diagram used in *Everyday Mathematics* to model situations in which quantities are either increased or decreased. The diagram includes a starting quantity, an ending quantity, and the amount of change.

Change

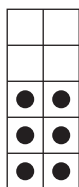| Start		End
9	+5	14
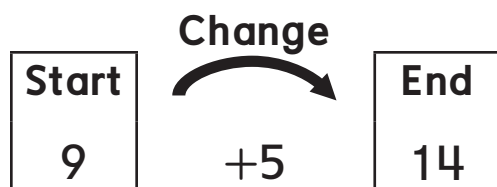
A change diagram for $9 + 5 = 14$

counting on An addition strategy that involves starting with one number being added and counting on the other number. For example, to solve $5 + 3$, start at 5 and count on.

**Math Boxes** A collection of problems to practice skills.

ten frame An array of 10 squares used to organize small numbers.

Ten frame showing 6

turn-around rule A rule for solving addition problems based on a property of addition. If you know that $6 + 8 = 14$, then, by the turn-around rule, you also know that $8 + 6 = 14$.

unit box A box displaying the unit for numbers. For example, in a problem that involves the number of children in a classroom, the unit box would show the word *children*.
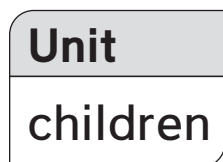
Unit
children

Do-Anytime Activities

To work with your child on concepts taught in this unit and in Unit 1, try these activities:

1. Select a number less than 10. Have your child name the other number needed to make a sum of 10. For example, if you say *7*, your child should say *3*.

2. Create number stories together and solve them using a change diagram or a number grid. For example, "Carrie had 14 stickers. She gave 3 of them to her friends. How many stickers does Carrie have now?"

−9	−8	−7	−6	−5	−4	−3	−2	−1	0
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50

Counting back from 14

3. Make up number stories and number models together for everyday events. For example, when riding in the car, count things you see and make up stories such as: "I saw 3 red cars. Then I saw 2 blue cars. How many cars did I see in all? $3 + 2 = ?$"

Building Skills through Games

Your child will play these games and others in Unit 2.

High Roller
Players roll two dice. They keep the die with the greater number (the high roll) and then reroll the other die. They count on from the high roll to get the sum of the two dice.

Penny Plate
Players begin with a specified number of pennies, usually 10. One player hides some of the pennies under the plate. The other player counts the visible pennies and guesses how many pennies are hidden using knowledge of numbers that add to 10.

Roll and Total
Players roll a pair of dice: one dot die and one labeled with the numerals 3 through 8. They find the sum and record the result.

Ten-Frame Top-It
Children compare the numbers of dots on ten-frame cards in this variation of *Top-It*.

As You Help Your Child with Homework

As your child brings assignments home, you may want to go over the instructions together, clarifying them as necessary. The answers listed below will guide you through the Home Links for this unit.

Home Link 2-1

1. 8; 8

2. Explanations will vary but should include that the numbers are being added in a different order, but the answer is the same.

3. 30; 35; 40; 50

Home Link 2-2

1. Sample answers:

Number of Pennies in One Hand	Number of Pennies in the Other Hand
5	5
8	2
7	3
1	9

2. 6

Home Link 2-3

1. Answers vary.

2. 10

Home Link 2-4

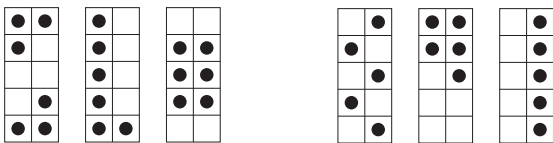**1.** 4, 6   **2.** 8, 2   **3.** 5, 5   **4.** Answers vary.

Home Link 2-5

1-2. Answers will vary but should show a total of 10 toys; some dolls and some blocks.

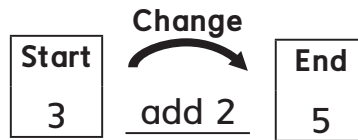**3.** 5

Home Link 2-6

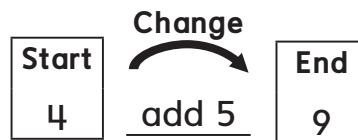**Sample answers given for 1 and 2.**

3. 40; 45; 55; 65

Home Link 2-7

1. Answers vary.   **2.** 5

Home Link 2-8

1. 5;

2. 9;

3. 20, 21, 22, 23, 24

Home Link 2-9

1.

 ; 5

2.

 ; 3

3. 11   **4.** 15   **5.** 3

Home Link 2-10

1. $4 + 4 = 8$; 8

2. $9 - 3 = 6$; 6
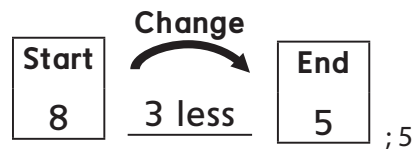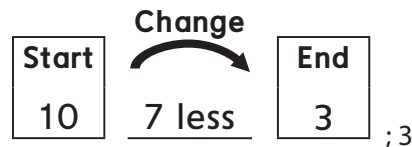
3. Answers vary.

Home Link 2-11

1. $5 + 3 = \boxed{}$; 8

2. Sample answer: Sophie had 7 crayons. She lost some crayons. She has 3 crayons left. How many crayons did Sophie lose?

3. Sample answer: 3 and 7, 7 and 3