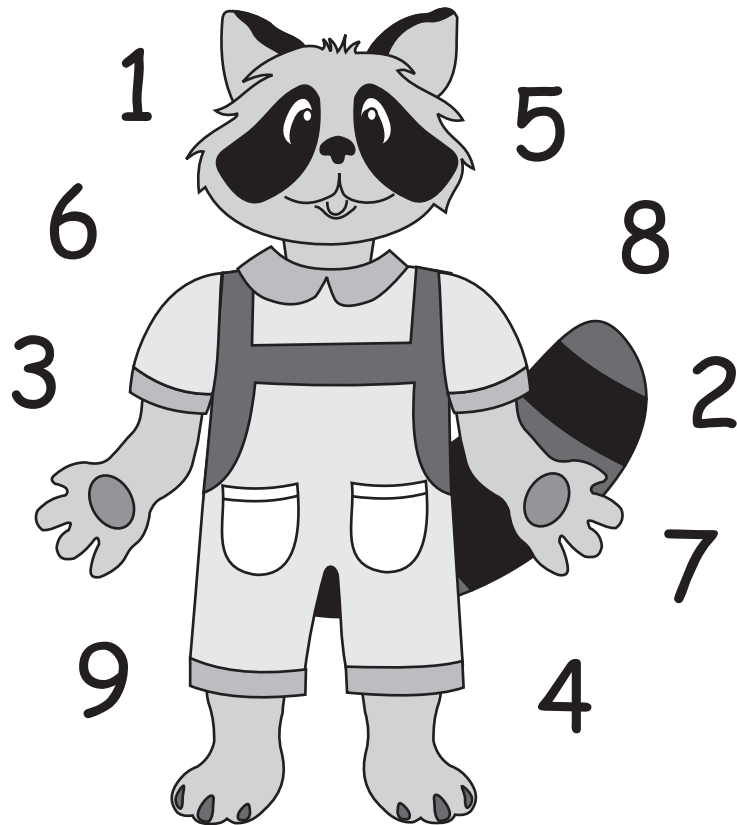


Kindermath Module



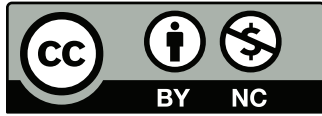


Kindermath

Open School BC



© 2008 by Open School BC



This work is licensed under the Creative Commons Attribution-NonCommercial 4.0 International License. To view a copy of this license, visit <http://creativecommons.org/licenses/by-nc/4.0/>

Course History

New, December 2008

Revised, July 2009

Project Manager: Eleanor Liddy

Planning Group Members: Janet Delisle, Lizette Pappas, Sandra Peebles, Mina Carr, Jackie Mattu, Lynn Newhouse

Writers: Janet Delisle, Pat Gerlach, Marg Audet, Lizette Pappas

Reviewer and Editors: Sandra Peebles, Chris Teskey

Production Technician: Sharon Barker

Graphics: Marta Nielsen, Stephen Evans, Christine Ramkeesoon, Sharon Barker

Kindermath Module

Table of Contents

Lesson 1: Learning about After4

Lesson 2: Learning about Before6

Lesson 3: After and Before8

Lesson 4: Backward and Forward 12

Lesson 5: What Is the Number? 14

Lesson 6: How Many Fingers? 16

Lesson 7: As Many As, More or Fewer22

Lesson 8: Patterns24

Lesson 9: Shorter or Taller26

Lesson 10: Lighter or Heavier28

Lesson 11: Bigger or Smaller30

Student Interview32

Checklist33

Appendix35

Introduction

Welcome to the Kindergarten Mathematics Module.

This module supplement introduces the student to math concepts covered by the new Prescribed Learning Outcomes as set out by the Ministry of Education 2008/2009. The activities in the module are not intended to be used as worksheets, but rather opportunities to help the student develop problem-solving skills through reasoning and talking. The oral component is very important in the new curriculum. Students need to talk about their thinking and learning in math.

Each lesson has two important sections that will ensure a well-rounded approach to learning mathematics. First, there is the **Focus for Today** section. This section refers to learning outcomes that are being delivered and correspond with PLO's (Prescribed Learning Outcomes) that are provided by the Ministry of Education:

<http://www.bced.gov.bc.ca/irp/math-k.pdf>

Second, it is very important to pay attention to the pre-activity entitled **Starting Off**, which practices the basic learning that is needed for the concept. An **Activity** follows, which has the student practicing and demonstrating the skill. Last, a **Finishing Off** activity may be suggested which provides extra practice.

The assessment section will be found at the back of the Kindermath Module. This section is to be done orally with your student and will be used by the teacher to assess your student's progress in math. Please complete the interview with the student and submit it with the Checklist.

Note:

*The **Helpful Tips for Facilitators** page provides effective questioning techniques to guide the student in mathematical thinking.

*In the module the word SAY means the Home Facilitator gives the instruction orally.

*Number Cards, Five Frame, and Dot Cards are found in the Appendix at the back of the module.

Helpful Tips for Facilitators

This module has been organized so that the left page has the Home Facilitator’s instructions and the right page has the student’s activity for most of the lessons.

It is important for the facilitator to make any activity a learning experience for the student. These are a few helpful tips:

1. Do the **Starting Off** activity and **Say**: What do you think we are learning about today?
2. Emphasize: The more we practice something the easier it becomes.
3. Plan out the activity with the student. Talk about the instructions: what comes first, second, last.
4. When you do the activity with the student make it a positive and fun learning experience. For example:
 - narrate what the student is doing.
For example: “I can see that you are counting buttons.”
 - talk about looking and listening carefully.
 - praise exactly what the student did that was correct and why it was correct.
 - tell the student when he is incorrect in a helpful, loving manner.
 - emphasize: mistakes are fixable, and that we can learn from them.
5. Help the student generalize this thinking skill:
 - Where else have you seen_____?
 - When is another time you need to_____?
6. After completing the **Finishing Off** activity, summarize with the student. Talk about what the student learned from doing this activity.

Focus for Today

To **name** the number after a given number 1 to 9.

Material Needed

- pencil

Starting Off

Say: Count out loud from 1 to 9.

Next, **say:** What comes after 3? 5? 9? etc.

The student should respond orally.

Activity

Discuss the pictures with the student.

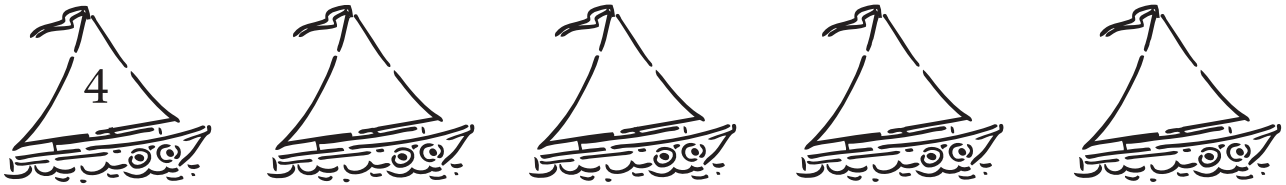
Say: Name the number that comes after the given number.

Finishing Off

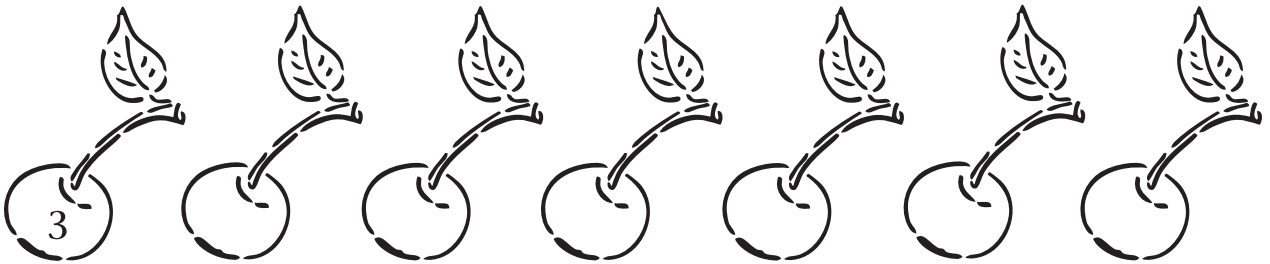
The student can print the missing numerals.

Learning about After

Name the number that comes after:



2



Focus for Today

To **name** the number before a given number 2 to 10.

Material Needed

- pencil

Starting Off

Say: Count backwards from 1 to 10.

Next, **say:** What comes before 2? 5? 9? etc.

The student should respond orally.

Activity

Discuss the pictures with the student.

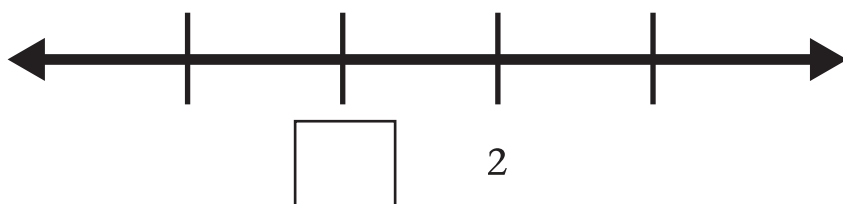
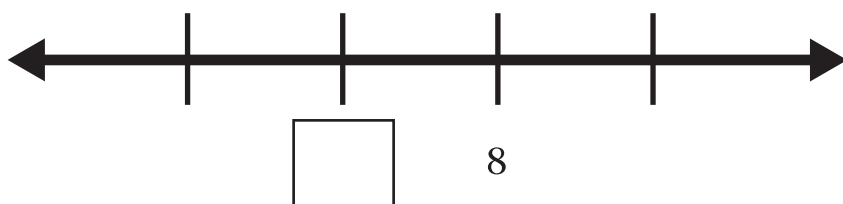
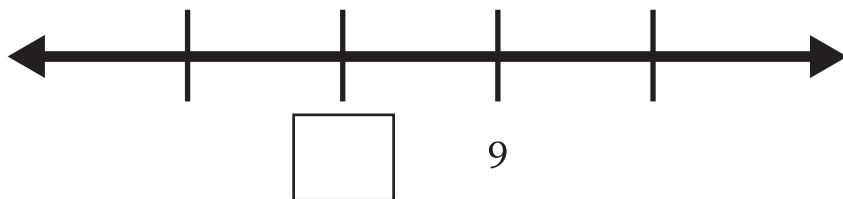
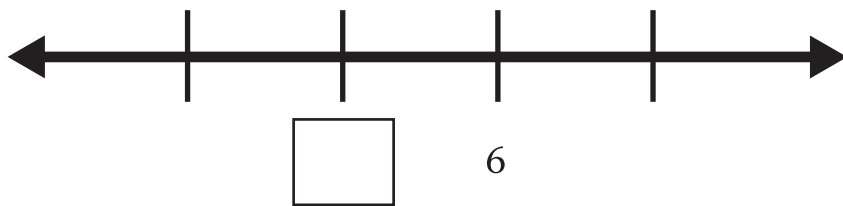
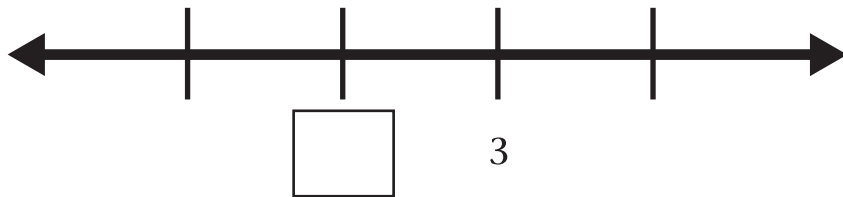
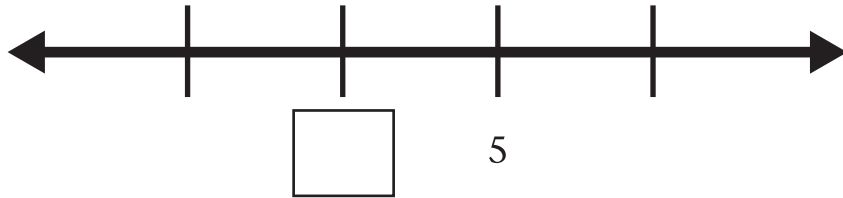
Say: Name the number that comes before the given number.

Finishing Off

The student can print the missing numerals.

Learning about Before

Name the number that comes before:



Focus for Today

To **name** the number before or after a given number 1 to 10.

*Note: this is a two part lesson which continues on page 10.

Material Needed

- pencil

Starting Off

Review numbers that come before and after a given number from 1 to 10.

Say: What comes before 3? 10? 8? etc.

Say: What comes after 6? 5? 9? etc.

Student responds orally.

Activity

Discuss the pictures with the student.

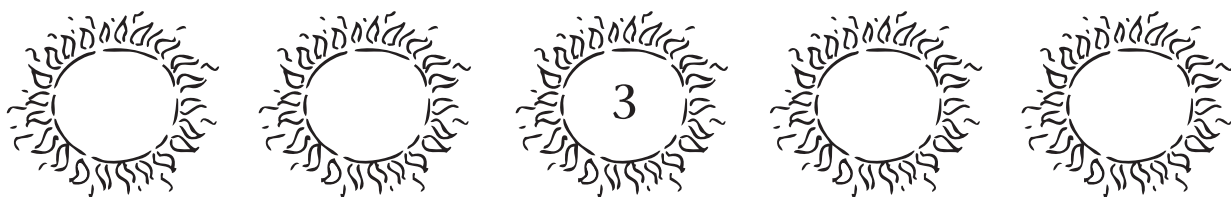
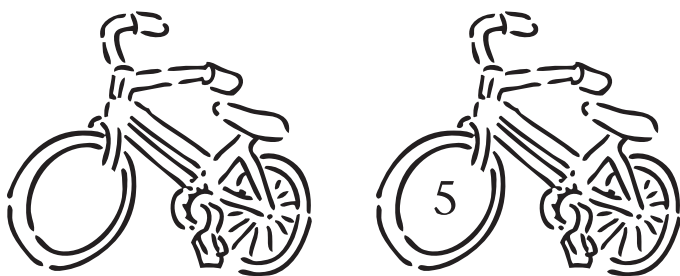
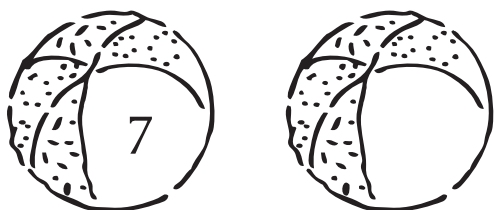
Say: Name the number that comes before or after the given number.

Finishing Off

The student can print the missing numerals.

After and Before

Name the number that comes before or after:



Focus for Today

To **name** the number after and before a given number 1 to 10.

Material Needed

- pencil

Activity

Discuss the following page with the student.

Say: What comes before 3? What comes after 3?

Repeat with 2, 5, 6, etc.

The student responds orally.

Finishing Off

The student can print the missing numerals.

After and Before

Name the number that comes after and before:

_____ 3 _____

_____ 2 _____

_____ 5 _____

_____ 6 _____

_____ 8 _____

_____ 9 _____

Focus for Today

Recite number names from a given number to a stated number (forward: one to ten, backward: ten to one) using visual aids.

Materials Needed

- pencil
- Number cards 1–10 (from Appendix 1 at the back of the module)
Cut out cards in advance.
- Counters such as beans, pennies

Starting Off

Using counters, **say**: Count forwards from 1–10.

Using the number cards, **say**: Put the numbers in order from 1 to 10.

Have the student say the numbers from 1 to 10 orally.

Next, **say**: Now point at each card and count backwards from 10 to 1.

Have the student say the numbers orally.

Practice this until the student can do it without looking at the cards.

Activity

Point to the cat at the beginning of the row.

Say: What is this number?

Point to the cat at the end and **say**: What is this number?

Next, **say**: What are the numbers that come in between?

Do this for all examples.

Finishing Off

Choose two number cards (for example 2 and 7).

Lay them down so there is a space between them.

Say: What are the numbers starting with 2 and counting forward to 7?

Say: What are the numbers starting with 7 and counting backward to 2?

Do this with a number of cards.

Backward and Forward

















Focus for Today

Identify the number represented by a given dot arrangement on a five frame.

Materials Needed

- 5 counters such as pennies or beans
- blank Honeycomb Five Frame (Appendix 2 at back of module)

Starting Off

Use the blank Honeycomb Five Frame from Appendix 2.

Home Facilitator places counters on the Five Frame. For example: Take 2 counters, and put one in each of the first two frames.

Say: Without counting, how many counters do you see? (beans, pennies, etc.)

Students then check their guesses by counting the counters.

Do this for all the numbers 1 to 5.

Activity

Look at the dots on the Five Frame and guess how many.

Say: Guess the number of dots in each Five Frame.

What Is the Number?

●				
---	--	--	--	--

●	●	●	●	
---	---	---	---	--

●	●	●	●	●
---	---	---	---	---

●	●			
---	---	--	--	--

●	●	●		
---	---	---	--	--

Focus for Today

Hold up the appropriate number of fingers for a given numeral.

*Note: this is a two part lesson which continues on page 18. There is also an optional challenge activity on page 20.

Starting Off

Have the student practice counting own fingers 1 through 10 in order.

Activity

The Home Facilitator holds up fingers 1 through ten.

Say: How many fingers am I holding up?

Hold up fingers in order 1, 2, 3, to 10.

Next hold up fingers out of order 3, 5, 6, etc., to 10.

Finishing Off

Say: Hold up the right number of fingers for 3, 5, 9, 1, 2, etc. (all of the numbers between 1 and 10).

After each **say:** How many fingers are you holding up?

The student can write the numbers shown by the hands on the following page.

How Many Fingers?



Focus for Today

Show a given number as two parts, using fingers, counters, and other objects then name the number in each part.

*Note: This is Part 2 of a two-part lesson that started on page 16.

Materials Needed

- pencil
- Counters such as beans or pennies

Starting Off

Count all your fingers out loud and **say**: Make a number with your fingers.

Say: Show me 8, 2, 5, 7, etc.

Activity

Use counters, beans, or pennies.

Make a set of 5 counters.

Say: I'm making two sets with the 5 counters. (Make a set of 2 counters and a set of 3 counters.)

Say: How many counters are in this set? (Point to the set of 2.)

Say: How many counters are in this set? (Point to the set of 3.)

Make a set of 7 counters and divide it into two sets (with 5 and 2).

Ask the student to name the number in each set.

Repeat this with sets of 4, 9, 8, etc.

Finishing Off

The student can print the missing numerals.

How Many Fingers?



_____ and _____ makes _____



_____ and _____ makes _____



_____ and _____ makes _____



_____ and _____ makes _____

Focus for Today

Identify and describe parts of five.

*Note: This is an optional challenge.

Materials Needed

- 5 counters such as beans or pennies

Starting Off

Have the student watch as you take five counters from a container.

Cup the counters in your hands and secretly divide them into two hands.

Open one hand.

Say: How many counters do you see in this hand?

Say: How many counters are hiding in my other hand?

*Note: students who know how many are hidden demonstrate a strong understanding of part and whole.

Activity

Use counters, beans, or pennies.

Take three counters and place one in each of the first three frames.

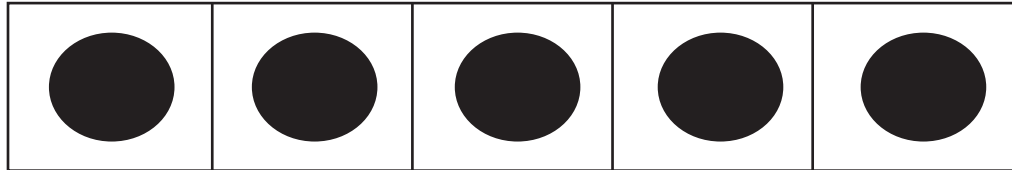
Say: How many counters do you see?

Say: How many more counters do we need to fill the Five Frame?

Repeat this with 4, 2, 1, etc.

*Note: The goal is for the student to be able to see this “at a glance” rather than counting.

In Two Hands— Optional Challenge



Focus for Today

Student will compare and identify sets that have **as many as, more or fewer.**

Materials Needed

- a set of dot cards (Appendix 3)
- counters (1–10)

Starting Off

Give the student 5–10 counters (pennies, buttons, bread tags).

Say: Give a counter to as many cats as possible.

Say: Are there as many counters as cats?

Are there more counters than cats?

Are there fewer cats than counters?

Are there more cats than counters?

What did you do with the counters to find out? (I placed a counter on each cat.)

Activity

Give the student a dot card (from Appendix 3).

Say: Use the counters and make a set that has more than the number of dots on the card.

Make a set of counters that has less.

Make a set that has as many counters as the dot card.

Repeat with different dot cards.

Finishing Off

Mix and place the dot cards face down in a pile.

Say: Turn over a card and make a set that has more, fewer, or as many as the dots on the card.

Say: How do you know if the set has more, fewer, or as many as the dot card?

As Many As, More or Fewer



Focus for Today

Student will distinguish between **repeating** and **non-repeating** patterns. (An example of a repeating pattern using color: red, black, red, black, red, black. A non-repeating pattern using color: red, black, yellow, blue, red, green, purple.)

Materials Needed

- space to move
- simple equipment (e.g., ball, skipping rope)

Starting Off

Use your hands to clap/snap/tap.

Home Facilitator should clap or tap some easy, repeating patterns for the student to copy.

After sufficient practice, the student should be able to create patterns for the Home Facilitator to reproduce.

Home Facilitator should also produce some non-repeating patterns to help the student hear and see the difference between repeating and non-repeating patterns.

The Home Facilitator helps the student identify and describe action patterns that occur when the student uses equipment or participates in movement activities: bouncing a ball (up, down), dancing (step, turn), or making shapes with body (wide, narrow).

Activity

Create and perform simple routines with **repeating** and **non-repeating patterns**.

Patterns

Finishing Off

Patterns in My World

Ask the student to look for and talk about **repeating** and **non-repeating patterns** in his/her daily activities. For example, the posts on a fence may be a repeating pattern while the colours or types of cars in the parking lot may be a non-repeating pattern. Find as many patterns as possible in nature and that are man made.

Focus for Today

Student will compare the height of two given objects using the words **shorter/taller**.

Material Needed

- mirror

Starting Off

The Home Facilitator stands beside the student in front of a mirror.

Say: Who is shorter? (Make sure that the student answers in a complete sentence using the words shorter/taller, e.g., I am shorter.)

Who is taller?

Is there anything in the room that is shorter than you (student)?

Is there anything that is taller than me (Home Facilitator)?

Activity

Look at the picture on the next page.

Say: Who is shorter, the boy or the girl?

Who is taller, the mother or girl?

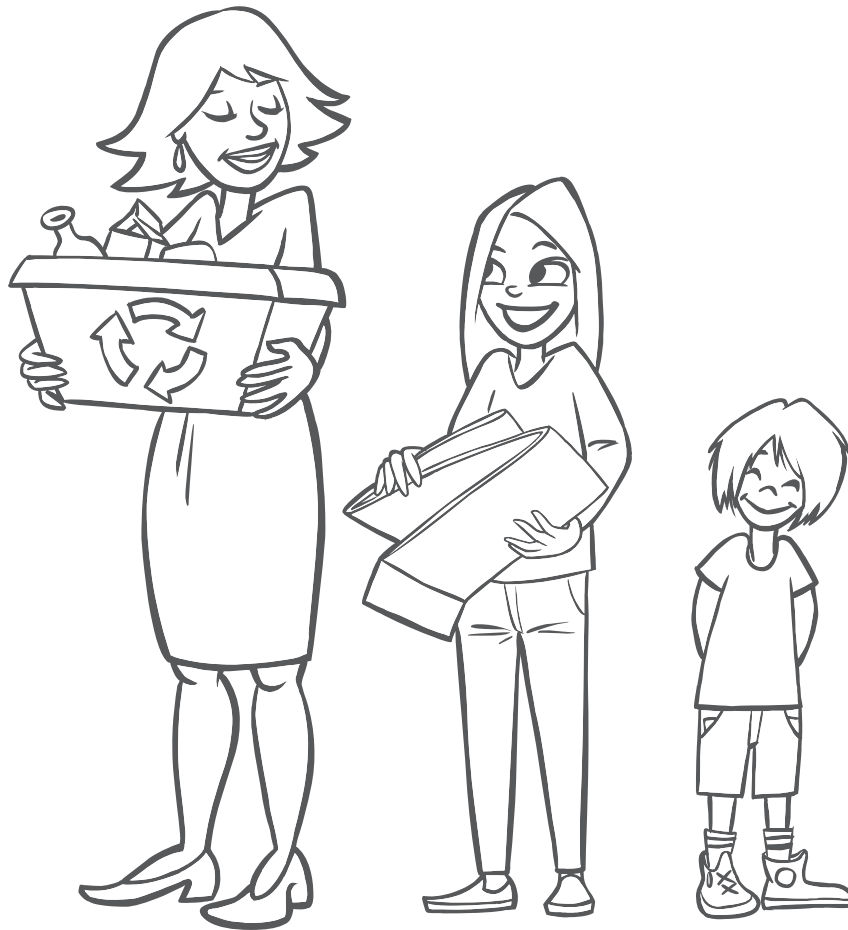
Who is shorter, the mother or the boy?

Who is tallest? shortest?

Finishing Off

Compare your own family using these words. (For example., Mommy is taller than me.)

Shorter and Taller



Focus for Today

Compare the mass (weight) of two given objects and explain the comparison using the words lighter, heavier, or almost the same.

Materials Needed

- a shoe and a sock
- ruler
- eraser
- a variety of objects (Some examples are blocks, paper clip, crumpled paper, feather, buttons, coins.)

Starting Off

Say: Take off one shoe and one sock.

Ask the student to hold one in each hand.

Say: Which one is heavier?

Next **say:** Which one is lighter?

Student must answer in a complete sentence. (The sock is lighter.)

Activity

Make a simple balance using a ruler and eraser.

Position the ruler over the middle of the eraser so that it is balanced.

Gather a variety of objects that will fit on the ends of the ruler.

Have the student choose two objects at a time to compare.

Say: Which one is heavier?

Have the student place the two objects on the balance to compare them.

Then **say:** Which one is lighter?

Have the student find objects that they think are almost the same.

Test them on the balance.

Do this a number of times until the student is confident with the words heavier, lighter, and almost the same.

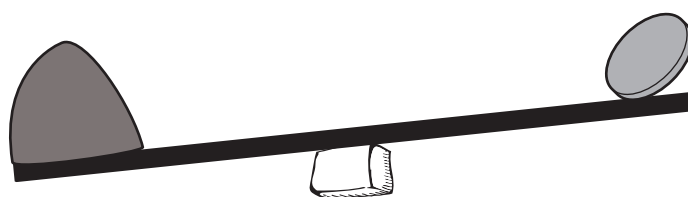
Remember that the student must answer in complete sentences.

Lighter and Heavier

Finishing Off

Have the student find a variety of objects that they want to compare.

Have the student guess which is heavier, lighter, or almost the same before testing them on the balance.



Focus for Today

Student will compare the volume (capacity) of two objects using the words **bigger/smaller**.

Materials Needed

- two containers of different sizes
- two containers of different shapes but same volume
- water (optional)

Starting Off

The Home Facilitator puts two containers on the table.

Discuss which container will hold more/less.

Say: How do you know that this one holds more?

The student may wish to try filling the smaller container with water and then transfer the water to the bigger container to show that it holds less water.

Activity

Look at the two containers on this page.

Say: Which container holds **less** water?

Which container holds **more** water?

Which container is **bigger**?

Which container is **smaller**?

Finishing Off

Compare the volume of two objects that are different shapes but hold about the same amount of water (e.g., a short, wide container and a tall, narrow container and compare the results).

Bigger and Smaller



Student Interview

This is the assessment section. The student interview is to be done orally with the student and submitted via tape, video clip, CD, phone, or voice email.

1. **Say:** Count orally from 1 to 10 and then count backward from 10 to 1.
2. **Say:** Tell me the number names between 4 and 8.
3. **Say:** Tell me the number names between 7 and 3.
4. Using a five frame, the facilitator places 3 or more counters on the frame.
Say: Without counting, how many counters do you see?
5. The facilitator shows a number e.g., 6, using fingers from both hands.
Say: Show me 3, using fingers from both hands. Next show me 5.
6. The facilitator makes a set of 5 counters.
Say: Make me a set that has as many as I have. Tell me about the set. (Student should respond orally with “My set has as many as yours.”)
Say: Make me a set that has fewer than I have. Tell me about the set.
Say: Make me a set that has more than I have. Tell me about the set.
7. **Say:** Using actions, objects, or sounds make a pattern.
Then **say:** Make a pattern that does not repeat.
8. **Say:** Using the words taller and shorter tell me the differences between you and me.
Do the same using the words bigger and smaller and finally lighter and heavier.

Checklist

Check the boxes that best describe your child's progress.

	Beginning (Not Yet)	Developing (with Assistance)	Accomplished (Independent)
Can your child name the number that comes after a given number?			
Can your child name the number that comes before a given number?			
Can your child use fingers on both hands to show a given number?			
Can your child use the words "as many as," "fewer than," and "more than" correctly?			
Can your child distinguish between repeating and non-repeating patterns?			

Home Facilitator Comments:

Send-in Materials:

Send the following items to the teacher:

Student Interview

Checklist

Appendix 1



1	2
3	4
5	6
7	8
9	10

Appendix 2

Appendix 3



●	● ●
● ● ●	● ● ● ●
● ● ● ● ● ●	● ● ● ● ● ●
● ● ● ● ● ● ● ●	● ● ● ● ● ● ● ●
● ● ● ● ● ● ● ● ●	● ● ● ● ● ● ● ● ● ●