

SOUTH CAROLINA SUPPORT SYSTEMS INSTRUCTIONAL GUIDE			
Content Area	Kindergarten Mathematics		
Recommended Days of Instruction	First Nine Weeks		
<b>Standards/Indicators Addressed:</b>			
<b>Standard K-2:</b> The student will demonstrate through the mathematical processes an emerging sense of quantity and numeral relationships, sets, and place values.			
K-2.1* Recall numbers, counting forward through 99 and backward from 10. (A1)			
K-2.2* Translate between numeral and quantity through 31. (B2)			
K-2.3* Compare sets of no more than 31 objects by using the terms <i>more than</i> , <i>less than</i> , and <i>the same as</i> . (B2)			
K-2.6* Analyze the magnitude of digits through 99 on the basis of their place values. (B4)			
K-2.7* Represent the place value of each digit in a two-digit whole number. (B2)			
K-2.8* Identify ordinal positions through 31st. (A1)			
<b>Standard K-4:</b> The student will demonstrate through the mathematical processes an emerging sense of two- and three-dimensional geometric shapes and relative positions in space.			
K-4.1* Identify the two-dimensional shapes square, circle, triangle, and rectangle and the three-dimensional shapes cube, sphere, and cylinder. (A1)			
K-4.2* Represent two-dimensional geometric shapes. (B2)			
K-4.3* Use the positional words <i>near</i> , <i>far</i> , <i>below</i> , <i>above</i> , <i>beside</i> , <i>next to</i> , <i>across from</i> , and <i>between</i> to describe the location of an object. (B3)			
K-4.4* Use the directional words <i>left</i> and <i>right</i> to describe movement. (B3)			
<b>Standard K-5:</b> The student will demonstrate through the mathematical processes an emerging sense of coin values and the measurement concepts of length, weight, time, and temperature.			
K-5.7* Use a calendar to identify dates, days of the week, and months of the year. (A3)			
K-5.8* Recall equivalencies associated with time: 7 days = 1 week and 12 months = 1 year. (A1)			
* These indicators are covered in the following 4 Modules for this Nine Weeks Period. Teaching time should be adjusted to allow for sufficient learning experiences in each of the modules.			
Module 1-1 Number Structure and Relationships- Whole Numbers			
Indicator	Recommended Resources	Suggested Instructional Strategies	Assessment Guidelines
Module 1-1 Lesson A:	NCTM's Online Illuminations	See Instructional Planning Guide	See Instructional

<p>Counting</p> <p>K-2.1 Recall numbers, counting forward through 99 and backward from 10. (A1)</p>	<p><a href="http://illuminations.nctm.org">http://illuminations.nctm.org</a></p> <p>NCTM's Navigations Series</p> <p>SC Mathematics Support Document</p> <p><u>Developing Number Concepts: Counting, Comparing, and Pattern</u>, Kathy Richardson</p>	<p>Module 1-1 <u>Introductory Lesson A</u></p> <p>See Module 1-1, Lesson A <u>Additional Instructional Strategies</u></p>	<p>Planning Guide Module 1-1 <u>Lesson A Assessment</u></p>
<p>Module 1-1 Lesson B:</p> <p>Matching Numeral and Quantity</p> <p>K-2.2 Translate between numeral and quantity through 31. (B2)</p>	<p><u>Teaching Student-Centered Mathematics Grades K-3 and Teaching Elementary and Middle School Mathematics Developmentally 6th Edition</u>, John Van de Walle</p>	<p>See Instructional Planning Guide Module 1-1, <u>Introductory Lesson B</u></p> <p>See Instructional Planning Guide Module 1-1, Lesson B <u>Additional Instructional Strategies</u></p>	<p>See Instructional Planning Guide Module 1-1 <u>Lesson B Assessment</u></p>
<p>Module 1-1 Lesson C:</p> <p>Comparing Sets</p> <p>K-2.3 Compare sets of no more than 31 objects by using the terms more than, less than, and the same as. (B2)</p>	<p>Van de Walle website: <a href="http://www.ablongman.com/vandewalleseries">www.ablongman.com/vandewalleseries</a></p> <p>NCTM's <u>Principals and Standards for School Mathematics (PSSM)</u></p> <p><u>Hands On Standards Grade PreK-K and 1-2</u>, Learning Resources</p>	<p>See Instructional Planning Guide Module 1-1 <u>Introductory Lesson C</u></p> <p>See Instructional Planning Guide Module 1-1, Lesson C <u>Additional Instructional Strategies</u></p>	<p>See Instructional Planning Guide Module 1-1 <u>Lesson C Assessment</u></p>
<p>Module 1-1 Lesson D:</p> <p>Ordinal Numbers</p> <p>K-2.8 Identify ordinal positions through 31st.</p>	<p><u>Hands On Standards Grade PreK-K and 1-2</u>, Learning Resources</p>	<p>See Instructional Planning Guide Module 1-1 <u>Introductory Lesson D</u></p> <p>See Instructional Planning Guide Module 1-1, Lesson D <u>Additional Instructional Strategies</u></p>	<p>See Instructional Planning Guide Module 1-1 <u>Lesson D Assessment</u></p>

<b>(A1)</b>			
<p>Module 1-1 Lesson E: Place Value</p> <p>K-2.7 Represent the place value of each digit in a two-digit whole number. (B2)</p>		<p>See Instructional Planning Guide Module 1-1 <a href="#">Introductory Lesson E</a></p> <p>See Instructional Planning Guide Module 1-1, Lesson E <a href="#">Additional Instructional Strategies</a></p>	<p>See Instructional Planning Guide Module 1-1 <a href="#">Lesson E Assessment</a></p>
<b>Module 1-2 Dimensionality</b>			
<b>Indicator</b>	<b>Recommended Resources</b>	<b>Suggested Instructional Strategies</b>	<b>Assessment Guidelines</b>

<p>Module 1-2 Lesson A</p> <p><b>Identify Two-Dimensional Shapes</b></p> <p>K-4.1 Identify the two-dimensional shapes square, circle, triangle, and rectangle and the three-dimensional shapes cube, sphere, and cylinder.</p> <p><b>(A1)</b></p>	<p>NCTM's Online Illuminations <a href="http://illuminations.nctm.org">http://illuminations.nctm.org</a></p> <p>NCTM's Navigations Series</p> <p>SC Mathematics Support Document <u>Teaching Student-Centered Mathematics Grades K-3 and Teaching Elementary and Middle School Mathematics Developmentally 6th Edition</u>, John Van de Walle</p> <p>Van de Walle website: <a href="http://www.ablongman.com/vandewalleseries">www.ablongman.com/vandewalleseries</a></p> <p>NCTM's <u>Principals and Standards for School Mathematics (PSSM)</u></p>	<p>See Instructional Planning Guide Module 1-2, <u>Introductory Lesson A</u></p> <p>See Instructional Planning Guide Module 1-2, Lesson A <u>Additional Instructional Strategies</u></p>	<p>See Instructional Planning Guide Module 1-2 <u>Lesson A Assessment</u></p>
<p>Module 1-2 Lesson B</p> <p><b>Representing Two Dimensional Shapes</b></p> <p>K-4.2 Represent two-dimensional geometric shapes</p> <p><b>(B2)</b></p>	<p><u>Hands On Standards Grade PreK-K and 1-2</u>, Learning Resources</p> <p>NCTM's Online Illuminations <a href="http://illuminations.nctm.org">http://illuminations.nctm.org</a></p> <p>NCTM's Navigations Series</p> <p>SC Mathematics Support Document <u>Teaching Student-Centered Mathematics Grades K-3 and</u></p>	<p>See Module 1-2, Lesson B <u>Additional Instructional Strategies</u></p> <p>See Instructional Planning Guide Module 1-2, Lesson B <u>Additional Instructional Strategies</u></p>	<p>See Instructional Planning Guide Module 1-2 <u>Lesson B Assessment</u></p>

<p>Module 1-2 Lesson C</p> <p><u>Identify Three-Dimensional Shapes</u></p> <p>K-4.1 Identify the two-dimensional shapes square, circle, triangle, and rectangle and the three-dimensional shapes cube sphere, and cylinder.</p> <p><b>(A1)</b></p>	<p><u>Teaching Elementary and Middle School Mathematics Developmentally 6th Edition</u>, John Van de Walle</p> <p>NCTM's <u>Principals and Standards for School Mathematics</u> (PSSM)</p> <p><u>Hands On Standards Grade PreK-K and 1-2</u>, Learning Resources</p>	<p>See Module 1-2, Lesson C <u>Additional Instructional Strategies</u></p> <p>See Instructional Planning Guide Module 1-2, Lesson C <u>Additional Instructional Strategies</u></p>	<p>See Module 1-2, Lesson C <u>Additional Instructional Strategies</u></p>
<p><b>Module 1-3 Plane/Spatial Relationships</b></p>			
<p><b>Indicator</b></p>	<p><b>Recommended Resources</b></p>	<p><b>Suggested Instructional Strategies</b></p>	<p><b>Assessment Guidelines</b></p>

<p>Module 1-3 Lesson A</p> <p>Positional Words</p> <p>K-4.3 Use the positional words near, far, below, above, beside, next to, across from, and between to describe the location of an object.</p> <p><b>(B3)</b></p>	<p>NCTM's Online Illuminations <a href="http://illuminations.nctm.org">http://illuminations.nctm.org</a></p> <p>NCTM's Navigations Series</p> <p>SC Mathematics Support Document <u>Teaching Student-Centered Mathematics Grades 5-8</u> and <u>Teaching Elementary and Middle School Mathematics Developmentally 6th Edition</u>, John Van de Walle</p> <p>Van de Walle website: <a href="http://www.ablongman.com/vandewalleseries">www.ablongman.com/vandewalleseries</a></p>	<p>See Module 1-3, Lesson A <u>Additional Instructional Strategies</u></p> <p>See Instructional Planning Guide Module 1-3, Lesson A <u>Additional Instructional Strategies</u></p>	<p>See Module 1-3, Lesson A <u>Additional Instructional Strategies</u></p>
<p>Module 1-3 Lesson B</p> <p>Left and Right</p> <p>K-4.4 Use the directional words left and right to describe movement.</p> <p><b>(B3)</b></p>	<p>NCTM's <u>Principals and Standards for School Mathematics</u> (PSSM)</p> <p><u>Hands On Standards Grade PreK-K and 1-2</u>, Learning Resources</p>	<p>See Module 1-3, Lesson B <u>Additional Instructional Strategies</u></p> <p>See Instructional Planning Guide Module 1-3, Lesson B <u>Additional Instructional Strategies</u></p>	<p>See Module 1-3, Lesson B <u>Additional Instructional Strategies</u></p>
<b>Module 1-4 Calendar</b>			
<b>Indicator</b>	<b>Recommended Resources</b>	<b>Suggested Instructional Strategies</b>	<b>Assessment Guidelines</b>

<p>Module 1-4 Lesson A</p> <p><u>Using a Calendar</u></p> <p>K-5.7 Use a calendar to identify dates, days of the week, and months of the year.</p> <p><b>(A3)</b></p>	<p>NCTM's Online Illuminations <a href="http://illuminations.nctm.org">http://illuminations.nctm.org</a></p> <p>NCTM's Navigations Series</p> <p>SC Mathematics Support Document <u>Teaching Student-Centered Mathematics Grades 5-8 and Teaching Elementary and Middle School Mathematics Developmentally 6th Edition</u>, John Van de Walle</p>	<p>See Module 1-4, Lesson A <u>Additional Instructional Strategies</u></p> <p>See Instructional Planning Guide Module 1-4, Lesson A <u>Additional Instructional Strategies</u></p>	<p>See Module 1-4, Lesson A <u>Additional Instructional Strategies</u></p>
<p>Module 1-4 Lesson B</p> <p>Seven Days a Week/ Twelve Months of Year</p> <p>K-5.8 Recall equivalencies associated with time: 7 days=1 week and 12 months=year</p> <p><b>(A1)</b></p>	<p>Van de Walle website: <a href="http://www.ablongman.com/vandewalleseries">www.ablongman.com/vandewalleseries</a></p> <p>NCTM's <u>Principals and Standards for School Mathematics (PSSM)</u></p> <p><u>Hands On Standards Grade PreK-K and 1-2</u>, Learning Resources</p>	<p>See Module 1-4, Lesson B <u>Additional Instructional Strategies</u></p> <p>See Instructional Planning Guide Module 1-4, Lesson B <u>Additional Instructional Strategies</u></p>	<p>See Module 1-4, Lesson B <u>Additional Instructional Strategies</u></p>



# MODULE

## 1-1

### Number Structure and Relationships- Whole Numbers

*(Year Long Indicators)*

**This module addresses the following indicators:**

- K-2.1 Recall numbers, counting forward through 99 and backward from 10. (A1)
- K-2.2 Translate between numeral and quantity through 31. (B2)
- K-2.3 Compare sets of no more than 31 objects by using the terms *more than*, *less than*, and *the same as*. (B2)
- K-2.6\* Analyze the magnitude of digits through 99 on the basis of their place values. (B4)
- K-2.7\* Represent the place value of each digit in a two-digit whole number. (B2)
- K-2.8 Identify ordinal positions through 31st. (A1)

\* This module contains 5 lessons. These lessons are **INTRODUCTORY ONLY**. Lessons in S<sup>3</sup> begin to build the conceptual foundation students need. **ADDITIONAL LESSONS will be** required to fully develop the concepts.

## I. Planning the Module

The first bullet under the Continuum of Knowledge represents student's prior knowledge and/or skills related to the standard. It is recommended that students are pre-assessed on this prior knowledge.

### Continuum of Knowledge

K-2.1 Recall numbers, counting forward through 99 and backward from 10.

- Pre-Kindergarten students have some foundation for counting. They are motivated to count everything from the treats they eat to the stairs they climb.
- In First grade, students will use estimation to determine the approximate number of objects in a set of 20 to 100 objects (1-2.2) and compare whole-number quantities through 100. (1-2.5)

K-2.2 Translate between numeral and quantity through 31.

- Pre-Kindergarten students come to school counting up to five using a one-to-one correspondence as they share items during playtime (i.e., sharing cookies as they count 1,2,3,4 and 5). They may not understand the standard numeral 5 to represent the number of cookies shared.
- In First grade, students will translate between numeral and quantity to 100(1-2.1) and represent quantities in word form through ten. (1-2.3)

K-2.3 Compare sets of no more than 31 objects by using the terms *more than*, *less than*, and *the same as*.

- Pre-Kindergarten students have beginning concepts of size with sets of objects. They understand when someone has more cookies than they do, more blocks than they have, etc...
- In First grade, students will compare whole number quantities through 100, *is greater than*, *is less than*, and *is equal to* (1-2.5) and use estimation to determine the approximate number of objects in a set. (1-2.2)

K-2.6 Analyze the magnitude of digits through 99 on the basis of their place values.

- Pre-kindergarten students come to school rote counting and have very little understanding of numbers having an assigned place.
- In First grade, students will represent quantities in word form through 10 (1-2.3), recognize whole-number words (1-2.4) and analyze the magnitude of digits through 999 on the basis of their place values. (1-2.9)

K-2.7 Represent the place value of each digit in a two-digit whole number.  
No continuum of knowledge is included in the support document at this time.

K-2.8 Identify ordinal positions through 31<sup>st</sup>.  
No continuum of knowledge is included in the support document at this time.

**Key Concepts/Key Terms**

*\*These are vocabulary terms that are reasonable for students to know and be able to use. Terms without the \* are additional terms for teacher awareness, knowledge and use in conversation with students.*

Quantity	More than*	Less than*
The same as*	Digit	Forward
Backward	After*	Before*
Numeral	Counting	Quantity
Compare	Sets	Place Value
Tens*	Ones*	Size

**II. Teaching the Lesson(s)****1. Teaching Lesson A: Counting****Teacher Notes**

Counting with whole numbers involves much more than just being able to say numbers in order – rote counting. It involves the development of a sense of number, which is the foundation for mathematics. The concept of number will not happen in one lesson or even one year. Although, many children come to school with the ability to rote count and recognize some numbers, they still need time to develop a good sense of number before moving on to more difficult concepts.

Since there is a developmental progression from counting to understanding place value, it is important to break the numbers 0-99 into smaller, more manageable groups for students to work with. It is for this reason that the **first nine weeks has been designated to working with 0-10**, the second nine weeks 1-20, the third nine weeks 0-99. The fourth nine weeks will focus on joining and separating.

**a. Indicators with Taxonomy**

K-2.1 Recall numbers, counting forward through 99 and backward from 10. (A1)

*Cognitive Process Dimension: Remember*

*Knowledge Dimension: Factual Knowledge*

For this indicator, it is **essential** for students to:

- Understand how to count using a number line or number chart.
- Recognize the counting numbers and be able to rote count.
- Say the counting words in order and then connect this sequence with a one-to-one match of the items being counted.

- Recognize counting objects in a different order does not alter the result.
- Recognize the next number in the counting sequence is one more than the number just named.

For this indicator, it is **not essential** for students to:

- Recognize three digit numbers, which students will translate in first grade.
- Add and subtract two digit numbers.

### **b. Introductory Lesson**

(Adapted from Teaching Student Centered Mathematics Grades K-3, Van de Walle, John A. and Lovin, LouAnn, Pearson Learning, 2006, Pages 40.)

#### **Materials Needed**

- None

#### **Suggested Literature Connection:**

[1, 2, 3 to the Zoo: A Counting Book](#) by Eric Carle is a book about counting. Each car on the train has one more zoo animal than the one before, from the first car with one elephant to the last with ten birds.

[10 Fat Turkeys](#) by Tony Johnston uses antics of ten fat turkeys on a fence to illustrate counting from ten to one.

[Frogs Jump!](#) by Steven Kellogg is a creative book of counting and crazy adventures while counting forwards and backwards.

#### **Introductory Lesson A: Counting**

Choose a target number from 0-5. Line up that number of children in chairs in the front of the room. As a whole class, count orally in rhythmic fashion from 0 to the target number. As the class counts, the children stand up one at a time. Once you get to the target number, have the class count backwards from that number to 0. As you count backwards, the children sit down one at a time.

This lesson could be extended to 10 or beyond as students develop their sense of number.

**c. Misconceptions/Common Errors**

- Students who are able to count forward easily may have difficulty counting on and counting back.
- Although, many children come to school with the ability to rote count and recognize some numbers, they may not have developed a good sense of number.
- Students may omit numbers when counting objects and struggle to recount them for accuracy.
- The first twelve number recall involves no pattern or repetition, and many children do not recognize a pattern in the teens.

**d. Additional Instructional Strategies/Differentiation**

- Have students place counters on a grid mat to count up to a target number from 0-5. After they place the counters to count up, have them remove the counters one at a time while counting down.
- Students should have a fair understanding of counting, but children must construct this idea. It cannot be forced. Only the counting sequence is a rote procedure. There should be *meaning* attached to counting. That is the key concept upon which all other number concepts are developed.
- Saying the counting words in order with a one-to-one correspondence takes a lot of practice and should be done with a variety of concrete items.
- Teachers should use frequent short practice drills to develop counting on and counting back with their students and use naturally occurring opportunities to help them develop number concepts. Teachers may pose questions; such as, "How many pencils do we need at this table?" "How many students are in line ahead of you?"

**e. Technology**

Virtual manipulatives should NOT take the place of concrete manipulation of objects/materials. Once conceptual understanding has been reached, you may move to pictorial representations and then virtual manipulatives. Concrete manipulatives should be the focus of learning to build conceptual understanding. Real life situations/representations are critical for conceptual understanding.

- <http://illuminations.nctm.org/LessonDetail.aspx?id=U147>  
Lessons on counting 5-10 objects

**f. Assessing the Lesson**

As the children work in centers, individually observe for the following areas:

- ability to count in correct sequence forwards to 5 and backwards from 5
- use one to one correspondence when counting.

**2. Teaching Lesson B: Numeral and Quantity****Teacher Notes**

Beginning number concepts encompass much more than rote memorization of words and symbols. Since kindergarten students have generally had experiences with things they can see and feel, developing a concept of number sense requires a new dimension of thinking as numbers are an idea that can't be seen or felt. In order to develop number sense and relationship, students must grasp three main concepts:

- 1) inclusion:** understanding that the last word in the count indicates the amount in the set
- 2) one to one correspondence:** the matching of one number word to one object
- 3) conservation of number:** understanding that the number of objects does not change when the objects are moved, rearranged, or hidden

To develop these concepts, kindergarten students need repeated exposures to activities with authentic materials and given extensive opportunities to count in meaningful situations, match numbers to their quantities, and explore number decomposition.

**a. Indicators with Taxonomy**

K-2.2 Translate between numeral and quantity through 31. (B2)  
*Cognitive Process Dimension: Understand*  
*Knowledge Dimension: Conceptual Knowledge*

For this indicator, it is **essential** for students to:

- Understand that number words refer to a quantity.
- Recognize numerals through 31.
- Say the counting words in order and then connect this sequence with a one-to-one match of the items being counted.

For this indicator, it is **not essential** for students to:

- Recognize three digit numbers, which students will translate in first grade.
- Add and subtract two digit numbers for this indicator.

**b. Introductory Lesson**

(Adapted from Hands On Standards Grades PreK-K, Learning Resources. 2006, Pages 18-19.)

**Materials Needed**

- Interlocking Cubes
- Cards, labeled 0-5 with corresponding number of dots (one set per pair of students)
- Blank index cards (5 per pair of students)

**Suggested Literature Connection**

[The Gummy Candy Counting Book](#) by Amy Hutchings uses bright, uncluttered photos and straightforward, rhyming text as students count the gummy bears.

**Introductory Lesson B: Numeral and Quantity**

Provide each pair of students with cubes and number cards from 1-5. Have the students place the number cards facedown. To begin, have one child pick a number card and work with their partner to make a group of cubes to represent the number. Have the students switch roles so the other student chooses a number card and repeat the process. The students will continue working until all the number cards have been used.

This lesson could be extended to 10 or beyond as students develop their sense of number.

**c. Misconceptions/Common Errors**

- Students who are able to count forward easily may have difficulty counting on and counting back because these are difficult skills for many.
- Although, many children come to school with the ability to rote count and recognize some numbers, they may not have developed a good sense of number.

**d. Additional Instructional Strategies/Differentiation**

**Enrichment:** To differentiate for students who are able to make groups for numbers, you may have them write the corresponding numeral on a blank index card during this activity.

Teachers should represent numbers in multiple ways: by pictures, objects, or models to help students develop conservation of numbers.

**e. Technology**

Virtual manipulatives should NOT take the place of concrete manipulation of objects/materials. Once conceptual understanding has been reached, you may move to pictorial representations and then virtual manipulatives. Concrete manipulatives should be the focus of learning to build conceptual understanding. Real life situations/representations are critical for conceptual understanding.

**f. Assessing the Lesson**

Formative assessment is embedded within the lesson through questioning and observation. However, other formative assessment strategies should be employed.

As the students are working, watch for students who cannot create a group for a specific number. Have those students count forward from 1 as they touch each cube. Also watch for children who count the same cube twice. These children need to put the cubes in a line and count from left to right.

**3. Teaching Lesson C: Comparing Sets****Teacher Notes**

When comparing sets of objects teachers using the terms *more than*, *less than*, and *the same as*, teachers need to provide many opportunities for children to construct sets using concrete items and help them make comparisons of the sets each containing 31 or fewer items.

Young children are quite familiar with the term “more” and have little difficulty understanding this concept. The terms “less” and “same” tend to be more difficult because they are not used as much in everyday conversations with children.

**a. Indicators with Taxonomy**

K-2.3 Compare sets of no more than 31 objects by using the terms *more than*, *less than*, and *the same as*. (B2)

*Cognitive Process Dimension: Understand*

*Knowledge Dimension: Conceptual Knowledge*

For this indicator, it is **essential** for students to:

- Recognize the counting numbers and connect them to the number of objects
- Compare whole number quantities and sets of objects using the comparative vocabulary *more than*, *less than*, or *the same as*.
- Select which set of objects has more than or less than a number

For this indicator, it is **not essential** for students to:

- Identify how much more or how much less than a number. (Ex. Teacher asks, "Which group has more?" showing a group of 5 objects and a group of 15. The child does not need to say the group of 15 has 10 more than the group of 5.)

### **b. Introductory Lesson**

(Adapted from Hands On Standards Grades PreK-K, Learning Resources, 2006, Pages 30-31.)

#### **Materials Needed**

- Interlocking cubes (10 per pair of students)
- Paper or white boards (1 per pair of students)

#### **Suggested Literature Connection:**

Just Enough Carrots by Stuart Murphy is a fun tale of comparing groups with a trip to the grocery store for rabbit.

#### **Introductory Lesson C: Comparing Sets**

Share the following story with the class:

Two children were playing with cars. Each one said they have more cars than the other. Maria has 4 cars. John says he has one more car than Maria. How can Maria find out the number of cars Jordan has?

Give each pair of students 5 cubes of one color and 5 cubes of another color to use to solve the problem. Have one child in the pair make a train of 4 cubes. Ask their partners to make an equal train using a different color. Have the students line up the second train below the first. Tell the students to add a cube to the bottom train. Then have the students count the cubes in each train and write the numbers. Ask: Are the trains the same or different? **Which train has more cubes than the other?** How do you know? **Which train has less cubes than the other?** How do you know? Tell the students you want to make the trains **the same or equal**. Have the students show you how to do this. They may choose to take one away from the 5 train or add

one to the 4 train. Hold up the two equal trains to show the students. Remind the students that when two groups have the same number, they are equal. Connect another cube to the one train. Ask: Are the trains equal now? How do you know? Are there more or less cubes in this train than the other train? How do you know?

### **c. Misconceptions/Common Errors**

- Some children may confuse the terms more, fewer and equal. Reinforce these terms throughout the day by pointing out real life experiences such as more children are in their chairs than are sitting on the floor.
- Students have more difficulty comparing sets using the term “less than” and may have more difficulty counting back
- Although many children come to school with the ability to rote count and recognize some numbers, they may not have developed a good sense of number.
- Students may omit numbers when counting objects and struggle to recount them for accuracy.

### **d. Additional Instructional Strategies/Differentiation**

- Teachers need to provide many opportunities for children to construct sets using concrete items and help them make comparisons of the sets each containing 31 or fewer items. This involves counting groups using one-to-one correspondence. It is especially helpful to connect this concept to everyday situations in the lunch room, bathroom breaks, lining up and so forth.
- Students should have a fair understanding of counting, but children must construct this idea. It cannot be forced. Only the counting sequence is a rote procedure. There should be *meaning* attached to counting. That is the key concept upon which all other number concepts are developed.
- Saying the counting words in order with a one-to-one correspondence takes a lot of practice and should be done with a variety of concrete items.
- Students need opportunities to help them develop number concepts. Teachers may pose questions; such as, “How many pencils do we need at this table?” “How many students are in line ahead of you?”
- Students have difficulty selecting a set when asked, “Which is less?”. Teachers can help by asking students which is less immediately after which set is more. Ask students “Why is this set less than the other set?” Begin by asking students to compare sets that are obviously different in number, then proceed to closer values.

**e. Technology**

Virtual manipulatives should NOT take the place of concrete manipulation of objects/materials. Once conceptual understanding has been reached, you may move to pictorial representations and then virtual manipulatives. Concrete manipulatives should be the focus of learning to build conceptual understanding. Real life situations/representations are critical for conceptual understanding.

**f. Assessing the Lesson**

Formative assessment is embedded within the lesson through questioning and observation. However, other formative assessment strategies should be employed.

As students are comparing groups, watch for students who are still making errors when counting the objects, either skipping a number or counting an object twice. When students compare two groups of objects or stacks of cubes, observe that students are correctly matching the objects in one-to-one correspondence to know which group has more or less. Since students have more difficulty in understanding the concept of "less" make sure that you ask questions similar to these:

"Which group has less than the other?"

"Which group has fewer objects?"

**4. Teaching Lesson D: Ordinal Numbers****Teacher Notes**

Ordinal numbers are primarily taught through the tenth place especially when using straws and other objects to represent base ten numerals. The calendar, however, is a great tool for exploring ordinal numerals beyond ten and through 31 as the students learn to identify the days of the week / month.

**a. Indicators with Taxonomy**

K-2.8 Identify ordinal positions through 31st. (A1)

*Cognitive Process Dimension: Remember*

*Knowledge Dimension: Factual Knowledge*

**b. Introductory Lesson**

(Adapted from Hands On Standards Grades PreK-K, Learning Resources, 2006, Pages 34-35)

**Materials Needed**

- Learning links or interlocking cubes (1 red, 1 orange, 1 yellow, 1 green and 1 blue per child)

**Suggested Literature Connections (if any):**

[Henry the Fourth](#) by Stuart Murphy introduces the ordinal numbers: first, second, third, and fourth.

**Introductory Lesson D: Ordinal Numbers**

Invite 5 volunteers to stand in line at the front of the room.

Then ask the class to repeat after you as you point to each volunteer and say the cardinal number followed by the corresponding ordinal number (one, first; two, second; three, third, four, fourth; five, fifth). Display a chain of links (or a train of cubes) in the order of red, blue, green, yellow and orange). Have the students make the same chain/train that is exactly the same as yours. Invite the children to count aloud with you from one to five, starting with the red link/cube and pointing to each one. Then point to each link/cube as you say the ordinal number aloud, and have children repeat the ordinal number for each link. Have the children make a new chain/train with the blue first, red second, yellow third, green fourth and orange fifth. Then point to a random color link/cube and have the children identify the corresponding ordinal number. Have each students put 3 links/cubes together in any order. Then have the children explain the order of links/cubes to a partner using ordinal numbers.

**c. Misconceptions/Common Errors**

Children may be confused about which link/cube is the beginning and which is the end. Encourage children to work from left to right similar to the way they read a sentence.

**d. Additional Instructional Strategies/Differentiation**

While additional learning opportunities are needed, no suggestions are included at this time.

**e. Technology**

Virtual manipulatives should NOT take the place of concrete manipulation of objects/materials. Once conceptual understanding has been reached, you may move to pictorial representations and then virtual manipulatives. Concrete manipulatives should be the focus of learning to build conceptual understanding. Real life situations/representations are critical for conceptual understanding.

**f. Assessing the Lesson**

Formative assessment is embedded within the lesson through questioning and observation. However, other formative assessment strategies should be employed.

As the teacher questions the students about ordinal positions of cubes in the trains they make with the unifix cubes, observe whether students know where to start as they begin to count. Listen to see if students are saying the ordinal numbers in the correct order.

Suggested questions:

Which cube is third? Show me how you know that.

What place is the red cube in?

What color comes after the second cube?

**5. Teaching Lesson E: Place Value****Teacher Notes**

Kindergarteners must develop the concept of place value only after they have secured a firm understanding of number. They should not be expected to understand place value until they have mastered the one-to-one correspondence and matching numerals to groups of objects less than 10.

With regard to place value students need to understand that the digit to the left in a two-digit number is representing groups of ten and the digit to the right is representing how many are in the ones place that have not yet made a group of ten. It can take the entire school year for many kindergarten students to grasp this concept. *For this reason, it is recommended that students work with **place value for numerals 0-25 during the first nine weeks**, 25-50 during the second nine weeks, 50-75 during the third nine weeks, and 75-99 during the fourth nine weeks.*

The concept should be taught everyday and especially taught with manipulatives that the students can use to demonstrate their understanding. For example, a child may show a tower of ten cubes and a tower of three cubes to represent the numeral 13 or 3 towers of ten and a single cube to represent 31. Do not expect students to understand this concept until after mastering the one-to-one correspondence and matching numerals to groups of objects.

**a. Indicators with Taxonomy**

K-2.6 Analyze the magnitude of digits through 99 on the basis of their place values. (B4)

*Cognitive Process Dimension: Analyze*

*Knowledge Dimension: Conceptual Knowledge*

For this indicator, it is **essential** for students to:

- Develop *meaning* attached to their counting.
- Recognize sets of tens in objects.
- Understand the one to one correspondence of numbers.
- Understand the digit to the left in a two-digit number is representing groups of ten and the digit to the right is representing how many are in the ones place that has not yet made a group of ten.
- Recognize and understand the meaning of “ten-ness”.
- Determine how greater numbers in the tens place increase the value of the total number regardless of the numeral in the ones place being of less value.

For this indicator, it is **not essential** for students to:

- Analyze digits beyond 100 because it will later be addressed in first grade.
- Compute the numbers to increase place values (i.e., 34 plus one more ten is equal to 44).

K-2.7 Represent the place value of each digit in a two-digit whole number (B2)

*Cognitive Process Dimension: Understand*

*Knowledge Dimension: Conceptual Knowledge*

### **b. Introductory Lesson**

#### **Materials Needed**

- Double tens frame mats
- Unifix cubes (one face must be open to fit on children’s fingers)
- Cards labeled 1-19

#### **Suggested Literature Connections (if any):**

[Anno’s Counting Book](#) by Mitsumasa Anno uses beautiful watercolor pictures that correspond with each consecutive number, and the number of items on the page increases exponentially.

[12 ways to get to 11](#) by Eve Merriam uses a whimsical exploration of numeration on each colorful combinations of objects totaling 11: “Out of the magician’s hat: four banners, five rabbits, a pitcher of water, and a bouquet of flowers”, etc.)

**Introductory Lesson E: Place Value**

Quickly review the numbers zero through ten by holding up the number cards and having students hold up the corresponding number of fingers. After you get to ten, ask the students what number should come next. Hold up the 11 card and ask students how they might show 11 fingers. If no student suggests using two students, call two students up. Have one of the students hold up all ten fingers and ask, "How many fingers does my other friend need to hold up?" Pair up the class and continue through 20. (Students should alternate being the "ten".) Then, distribute double tens frame mats and 20 Unifix cubes for each pair of students. Tell students that they are going to practice more, only this time they should put Unifix cubes on the fingers they hold up. Continue with the activity and have students transfer the cubes from their fingers to the tens frames. Ask them how many tens frames they filled up and how many cubes are left over. Ask them what they notice about the cubes on the tens frame mat and the number card. Make a **connection** between the written number and the number of filled tens frames and the number of cubes left over.

**c. Misconceptions/Common Errors**

- Although, many children come to school with the ability to rote count and recognize some numbers, they may not have developed a good sense of number.
- Students may not understand the concept of place value until after mastering the one-to-one correspondence and matching numerals to groups of objects.
- Students who have not yet developed sense of number might hold the misconception that the number 16 is made up of one and six rather than one ten and six ones.

**d. Additional Instructional Strategies/Differentiation**

- Teachers may use the hundreds chart to show how numbers change in the tens and ones place.
- The concept should be taught daily using the number of days in school with a variety of manipulatives that the students can use to demonstrate their understanding (i.e., a student may show a tower of ten cubes and a tower of three cubes, or sticks and bundles) to represent the numeral 13 or 3 towers of ten and a single cube to represent 31.)
- Students that struggle to understand numbers and operations concepts often just need another approach coupled with repetition. Using different manipulatives and connecting the learning to individual interests can help.

**e. Technology**

Virtual manipulatives should NOT take the place of concrete manipulation of objects/materials. Once conceptual understanding has been reached, you may move to pictorial representations and then virtual manipulatives. Concrete manipulatives should be the focus of learning to build conceptual understanding. Real life situations/representations are critical for conceptual understanding.

**f. Assessing the Lesson**

Formative assessment is embedded within the lesson through questioning and observation. However, other formative assessment strategies should be employed.

As students model numbers between 10 and 20 on their tens frame mats with unifix cubes, observe whether they are treating both digits as if they are in the ones place. (15 means 1 cube and 5 cubes) If students have this misconception, have them count out 15 cubes and then fill up the tens frame section on their mat. How many frames are filled? How many cubes are left over? What does the digit 1 in the number 15 mean?

**III. Assessing the Module**

At the end of this module, summative assessment is necessary to determine student understanding of the connections among and between the indicators addressed in this module.

**Assessment Guidelines**

K-2.1 Recall numbers, counting forward through 99 and backward from 10.

The objective of this indicator is recall, which is in the “remember factual” knowledge cell of the Revised Taxonomy table. Remember requires students to retrieve relevant knowledge from long-term memory. Factual knowledge is having the knowledge of specific details and elements. Students should recall numbers, counting forward through 99 and backward from 10. The learning progression to **recall** requires students to recognize the counting numbers and recall their order in the sequence. Students should analyze (K-1.4) patterns by reasoning and use (K-1.8) multiple informal representations as they apply (K-1.1) substantive mathematical problem-solving strategies to explore hands-on activities.

K-2.2 Translate between numeral and quantity through 31.

The objective of this indicator is translate, which is in the “understand conceptual” knowledge cell of the Revised Taxonomy table. Understand requires students to construct meaning from instructional messages. Conceptual knowledge is having the knowledge of classifications and categories. The learning progression to **translate** requires students to recall counting numbers through 31, recognize the one-to-one correspondence as they count and determine the numeral and quantity of the objects given. They use these multiple informal representations (K-1.8) as they apply mathematical problem-solving strategies (K-1.1). Students should use a variety of forms of mathematical communication (K-1.6) as they explain and justify their answers (K-1.3) to their classmates and their teacher..

K-2.3 Compare sets of no more than 31 objects by using the terms *more than*, *less than*, and *the same as*.

The objective of this indicator is compare, which is in the “understand conceptual” knowledge cell of the Revised Taxonomy table. Understand requires students to construct meaning from instructional messages, including oral, written, and graphic communication. Conceptual knowledge is having the knowledge of theories, models, and structures. The learning progression to **compare** requires students to recognize the counting numbers and recall their order in the sequence. Students should understand sets and categorize groups by quantity. Students should use multiple informal representations (K-1.8) as they apply (K-1.1) mathematical problem-solving strategies to compare objects.

K-2.6 Analyze the magnitude of digits through 99 on the basis of their place values.

The objective of this indicator is to analyze, which is in the “analyze conceptual” knowledge cell of the Revised Taxonomy table. Analyze requires students to break material into its constituent parts and determine how the parts relate to one another and to the overall structure. Conceptual knowledge is having the knowledge of finding the interrelationships among the basic elements within a larger structure that enable them to function together. The learning progression to **analyze** requires students to remember the counting numbers and differentiate between the larger and smaller numbers. Students analyze patterns (K-1.4) in the place value of the number and generalize (K-1.7) connections about the size of digit in the tens place versus digits in the ones place.

K-2.7\* Represent the place value of each digit in a two-digit whole number.

No assessment guidelines are available at this time.

## K-2.8 Identify ordinal positions through 31st.

No assessment guidelines are available at this time.

The following examples of possible assessment strategies may be modified as necessary to meet student/teacher needs. These examples are not derived from nor associated with any standardized testing.

*At the end of the module, use this checklist to assess students' progress toward mastery of the indicators. For the first 9 weeks, teachers only need to complete the section for Numbers 0-5. There may be students who are ready to be assessed on all 4 sections at the beginning of the year.*

<b>For Numbers 0-5, the student is able to:</b>		<b>For Numbers 11-20, the student is able to:</b>	
recall numbers forward and backward		recall numbers (forward only)	
Translate between numeral and quantity		Translate between numeral and quantity	
Compare sets of no more than 5 objects		Compare sets of no more than 20 objects	
Identify ordinal numbers through 5th		Identify ordinal numbers through 20 <sup>th</sup>	
<b>For Numbers 6-10, the student is able to:</b>		<b>For Numbers 21-99, the student is able to:</b>	
recall numbers forward and backward		recall numbers (forward only)	
Translate between numeral and quantity		Translate between numeral and quantity (through 31)	
Compare sets of no more than 10 objects		Compare sets of no more than 31 objects	
Identify ordinal numbers through 10 <sup>th</sup>		Identify ordinal numbers through 31 <sup>th</sup>	

# MODULE

## 1-2

### Dimensionality

**This module addresses the following indicators:**

- K-4.1 Identify the two-dimensional shapes square, circle, triangle, and rectangle and the three-dimensional shapes cube, sphere, and cylinder. (A1)
- K-4.2 Represent two-dimensional geometric shapes. (B2)

\* This module contains 3 lessons. These lessons are **INTRODUCTORY ONLY**. Lessons in  $S^3$  begin to build the conceptual foundation students need. **ADDITIONAL LESSONS will be** required to fully develop the concepts.

## I. Planning the Module

The first bullet under the Continuum of Knowledge represents student's prior knowledge and/or skills related to the standard. It is recommended that students are pre-assessed on this prior knowledge

- **Continuum of Knowledge**

K-4.1 Identify the two-dimensional shapes square, circle, triangle, and rectangle, and the three-dimensional shapes cube, sphere, and cylinder. (A1)

K-4.2 Represent two-dimensional geometric shapes. (B2)

- Pre-kindergarten students recognize that everything has shape and that shapes are all around us in our environment.
- In First grade, students will expand their knowledge of two-dimensional shapes. They will analyze shapes by corners and sides, etc.(1-4.2) and classify shapes by different concepts such as polygons and non-polygons. (1-4.3)

- **Key Concepts/Key Terms**

*\*These are vocabulary terms that are reasonable for students to know and be able to use. Terms without the \* are additional terms for teacher awareness, knowledge and use in conversation with students.*

Square*	circle *	triangle*
Rectangle*	cube*	sphere*
Cylinder*	Two-dimensional	Three-dimensional
Shapes	Sides	

## II. Teaching the Lesson(s)

### 1. Teaching Lesson A: Identify Two-Dimensional Shapes

#### Teacher Notes

Kindergarten students should identify and name the two-dimensional shapes square, circle, triangle, and rectangle as well as the three-dimensional shapes cube, sphere, and cylinder. In addition to identifying and naming the two-dimensional shapes, students should be able to represent those shapes. In other words, students should acquire the ability to find an example of a square, circle, triangle, or rectangle in the room and then draw a picture of the shape or vice versa.

Students need experiences with a rich variety of both two and three-dimensional shapes. It is important for students to be able to identify

common shapes, notice likenesses and differences among shapes, become aware of the properties that different shapes have.

**a. Indicators with Taxonomy**

K-4.1 Identify the two-dimensional shapes square, circle, triangle, and rectangle and the three-dimensional shapes cube, sphere, and cylinder. (A1)

*Cognitive Process Dimension: Remember*  
*Knowledge Dimension: Factual Knowledge*

For this indicator, it is **essential** for students to:

- Recognize and understand the difference between shapes.
- Identify shapes found in everyday objects.

For this indicator, it is **not essential** for students to:

- Recognize other three-dimensional shapes.
- Draw three-dimensional shapes.

**b. Introductory Lesson (s)**

**Materials Needed:**

- Attribute Blocks or Two Dimensional Shapes on card stock or some type of heavy paper
- One bag per child with a (square, circle, triangle, and rectangle)
- Chart paper with a representation of the shape at the top without using the formal name of the shape (square, circle, triangle, rectangle)
- Markers
- Construction Paper (any color)

**Suggested Literature Connection:**

[Shapes, Shapes, Shapes](#) by Tana Hoban creates awareness of shapes in the environment.

[The Shapes Game](#) by Paul Rogers introduces shapes by rhyming and abstract paintings.

**Introductory Lesson A: Identify Two-Dimensional Shapes**

**Special Note:** This lesson will only focus on part of the indicator K-4.1 Identify the two-dimensional shapes square, circle triangle and rectangle. The three-dimensional shapes cube, sphere, and cylinder will be addressed in the last lesson in this module.

**Advanced preparation:** Place all of the shapes in a bag. Prepare the chart paper.

**During the Lesson:** This activity can be done in whole group or small group. Each child will explore each shape in his/her bag. The students will tell one or two things they find interesting about their shapes. There are no right or wrong responses. Allow the children to construct their own meaning of square, circle, triangle, and rectangle. As the children give their responses, the teacher should record the children's responses on chart paper. At this point in the lesson ask the following questions:

- What did you notice about your shapes?
- What similarities did you find with your shapes?
- As you think about your shapes and their characteristics, can you name your shapes?
- Where have you seen these shapes in the real world?

At this point in the lesson, ask the children to identify the shapes and place the names on the chart paper as the responses are given. In small groups or whole groups, take the children on a "shape walk." The children will walk around the school building searching for the shapes found in the real world. The children can take a notebook/clipboard and draw the items they observe. Afterwards, the children will come back to the classroom and share what they have observed. (examples: windows, doors, floor tiles) The teacher should redirect the children to the charts and ask, "Do you think we need to add anything to our charts from your observations?" State, "I am thinking of a shape that have three sides, can anyone tell me the name of this shape?" Continue this process until all shapes have been reviewed.

### **c. Misconceptions/Common Errors**

Students may have difficulty differentiating between some two-dimensional and three-dimensional shapes. For example, students may find it difficult to tell the difference between a circle and a sphere or a cube and a square because they are similar shapes.(features, attributes, faces)

No matter what size the shape is, it is still considered a two dimensional shape.

### **d. Additional Instructional Strategies/Differentiation**

After the "Shape Walk" allow the children to create a "Photo Story," The teacher will scan the students' pictures from the walk and allow

the children to record the students' responses while explaining their shapes.

Give the children a collection of polygons included in the lesson: square, rectangle, triangle and square. Ask the students to sort through the shapes to find the square, rectangle, triangle and square.

Extension: Have students make crayon rubbings of shapes they find around the school. These can be bricks, grates, fences, tiles, etc. They label the shapes. The rubbings can then be sorted and displayed.

Students should be given opportunities to see how shapes function in different ways. Perhaps demonstrating why the wheel was made in the circle shape and not another. Compare and contrast what makes a triangle a triangle and a square a square. Look at different types of triangles and sort them based on the angles. Join and separate pattern blocks or tangrams to make new shapes.

#### **e. Technology**

"Virtual manipulatives should NOT take the place of concrete manipulation of objects/materials. Once conceptual understanding has been reached, you may move to pictorial representations and then virtual manipulatives. Concrete manipulatives should be the focus of learning to build conceptual understanding. Real life situations/representations are critical for conceptual understanding."

[http://www.kindergarten-lessons.com/kindergarten\\_activities.html](http://www.kindergarten-lessons.com/kindergarten_activities.html)

Lesson plan ideas for two-dimensional and three-dimensional shapes.

[http://www.harcourtschool.com/activity/solid\\_figures\\_plane\\_shapes/](http://www.harcourtschool.com/activity/solid_figures_plane_shapes/)

Interactive activity: Students find 2D shapes in a scene.

#### **f. Assessing the Lesson:**

It is important to observe the students during the lesson and ask them clarifying questions. *Give the children a collection of polygons included in the lesson: the square, rectangle, triangle and square. Ask the students to sort through the shapes to find the square, rectangle, triangle and square.* At the end of this module summative assessment is necessary to determine student understanding of the connections among and between the indicators addressed in this module. The following examples of possible assessment strategies may be modified as necessary to meet student/teacher needs. These examples are not derived from nor associated with any standardized testing.

Distribute a set of shapes for each student (square, circle, rectangle, triangle). Give the characteristics of a shape and ask the students to hold up that shape. For example, "I am thinking of a shape that has

four sides and four corners. When I give you the signal, hold up your shape” Continue this process until all shapes have been reviewed. Observe the children as students are holding up their shapes.

## **2. Teaching Lesson B: Representing Two-Dimensional Shapes**

### **Teacher Notes**

This lesson is a continuation of the previous lesson where the children identified the shapes. In this lesson, the children will represent two-dimensional shapes.

### **a. Indicators with Taxonomy**

K-4.2 Represent two-dimensional geometric shapes. (B2)

*Cognitive Process Dimension: Understand*

*Knowledge Dimension: Conceptual Knowledge*

For this indicator, it is **essential** for students to:

- Recognize and understand the difference between shapes
- Find all shapes from common objects
- Draw two dimensional shapes
- Name the shape when shown object

For this indicator, it is **not essential** for students to:

- Draw three dimensional shapes
- Recognize three dimensional shapes

### **b. Introductory Lesson**

#### **Materials Needed:**

- Wicki Sticks
- Modeling Clay
- Paper/Pencil
- Yarn
- Glue
- Paper/pencils

#### **Suggested Literature Connection**

[The Shape of Things](#) by Dayle Ann Dodds is a beginning shape book. [So Many Circles, So Many Squares](#) by Tana Hoban shows shapes in the environment.

## **Introductory Lesson B: Representing Two-dimensional Shapes**

### **Teacher Notes**

This lesson can be done in whole groups or small groups. Refer back to the charts that were made for the previous lesson, [Introductory Lesson A: Identify Two-Dimensional Shapes](#). Review skills addressed in the previous lesson. Encourage the students to share their pictures of their two-dimensional shapes. Explain that in the previous lesson, they constructed **their** own meaning of circle, square, rectangle, and triangle. Now, they will have an opportunity to represent their shapes. Please explain that represent means to create an object. Using one of the materials listed above, create an example of one of the shapes. Do not model how to make all of the shapes. Distribute a variety of materials (listed above) and ask the students to create their four two-dimensional shapes (circle, rectangle, triangle, square) While the children are constructing their figures, the teacher should observe the students, making notes of the students' progress.

### **c. Misconceptions/Common Errors**

If the students create a ball using the modeling clay and state that it is a circle, please help the student distinguish between a circle (two-dimensional) and a ball. The term sphere will be addressed later in this module.

### **d. Additional Instructional Strategies/Differentiation**

Group the children into small groups. Hold up a square and ask the students to come up with some ways to create a square using their bodies. Encourage the children to come up with a strategy before beginning. The children can stand up or lie down on the floor to create shapes.

Enrichment for Advanced Learners: Students should be given opportunities to see how shapes function in different ways. Perhaps demonstrating why the wheel was made in the circle shape and not another. Compare and contrast what makes a triangle a triangle and a square a square. Look at different types of triangles and sort them based on the angles. Join and separate pattern blocks or tangrams to make new shapes.

### **e. Technology**

"Virtual manipulatives should NOT take the place of concrete manipulation of objects/materials. Once conceptual understanding has been reached, you may move to pictorial representations and then virtual manipulatives. Concrete manipulatives should be the focus of learning to

build conceptual understanding. Real life situations/representations are critical for conceptual understanding."

**f. *Assessing the Lesson:***

Formative assessment is embedded within the lesson through questions and observation. However, other formative assessment strategies should be used.

During teacher observation, ask individuals to look around the classroom to find two-dimensional shapes. Observe to see if they have a clear understanding of square, rectangle, triangle, and circle.

As you think about the shapes we have discussed today, where have you seen this shapes outside of school?

Thinking about the shapes, are any of the shapes similar? If so, how?

### **3. Teaching Lesson C: Identify Three Dimensional Shapes**

**Teacher Notes**

Kindergarten students should identify and name the two-dimensional shapes square, circle, triangle, and rectangle as well as the three-dimensional shapes cube, sphere, and cylinder.

Note that students are required to represent two-dimensional shapes and to identify both two- and three-dimensional shapes. It is not appropriate for kindergarten students to represent three-dimensional shapes. Students need experiences with a rich variety of both two and three-dimensional shapes. It is important for students to be able to identify common shapes, notice likenesses and differences among shapes, become aware of the properties that different shapes have.

**a. Indicators with Taxonomy**

K-4.1 Identify the two-dimensional shapes square, circle, triangle, and rectangle and the three-dimensional shapes cube, sphere, and cylinder.

(A1)

*Cognitive Process Dimension: Remember*

*Knowledge Dimension: Factual Knowledge*

For this indicator, it is **essential** for students to:

- Recognize and understand the difference between shapes.
- Identify shapes found in everyday objects.

For this indicator, it is **not essential** for students to:

- Recognize other three-dimensional shapes.
- Draw three- dimensional shapes.

**b. Introductory Lesson:**

This lesson will address part of the indicator K-4.1: Identify three dimensional shapes: **cube, sphere, and cylinder.**

**Materials Needed:**

- 4-5 sets (depending class size) of physical models of a cube, sphere, and cylinder
- Chart paper with each 3-D figure listed without using the name.

**Suggested Literature Connection**

[Cubes, Cones, Cylinders, and Spheres](#) by Tana Hoban introduces three dimensional shapes.

**Introductory Lesson C: Identify Three-Dimensional Shapes**

Let students handle, examine, and talk about physical models of geometric solids. Lead the class in generating a list of characteristics for each shape. Record the information in a chart and post it in the room for reference during the lesson. As students list characteristics, guide them with questions such as:

- Which of the shapes roll?
- Which ones don't roll?
- How are they alike?
- How are they different?
- What can you tell me about the shapes?

Record the responses on chart paper. Afterwards, ask, "What are the names of these shapes?" Go for a "Three-Dimensional Shape Walk." Review names of shapes during the shape walk. Walk around the school or playground and see how many **three-dimensional** shapes can be found. On the walk, point out objects and have students identify the shapes they see. Encourage students to point out objects they see and name the shapes. Lead a discussion on shapes that are found. Have students make a picture of the objects they see and identify the shapes found in that object. After returning to the classroom, recording sheets can be discussed and students can select an object to create a poster around. Instruct the students to make a picture of the object and write about what they found.

Optional: Take **photographs** of the objects students select. When snapshots are ready have students select a picture. They use the photo and narrate a story for their shape using, "Photo Story" **software, if available.**

**c. Misconceptions/Common Errors**

Some students may confuse circles and spheres/ squares and cubes during the "Shape Walk". If this occurs, this is a perfect opportunity to help student by asking clarifying questions.

**d. Additional Instructional Strategies/Differentiation**

While additional learning opportunities are needed, no suggestions are included at this time.

**e. Technology**

Virtual manipulatives should NOT take the place of concrete manipulation of objects/materials. Once conceptual understanding has been reached, you may move to pictorial representations and then virtual manipulatives. Concrete manipulatives should be the focus of learning to build conceptual understanding. Real life situations/representations are critical for conceptual understanding.

**f. Assessing the Lesson:**

Formative assessment is embedded within the lesson through questions and observation. However, other formative assessment strategies should be used.

It is important to observe the children during this activity. Give the children three slips of paper with the words sphere, cube, cylinder. (one word per sheet) Ask the students to listen to the clues and hold up the card that describes that object.

*Hold a sphere behind your back. State, "I am holding an object that rolls. What might this object be?"*

*Hold a cube behind your back. State, "I am holding an object that looks like a box. What might this object be?"*

*Hold a cylinder behind your back. State, "I am holding an object that looks like a can of soup. What might this object be?"*

**III. Assessing the Module**

At the end of this module summative assessment is necessary to determine student understanding of the connections among and between the indicators addressed in this module.

## Assessment Guidelines

K-4.1 Identify the two-dimensional shapes square, circle, triangle, and rectangle, and the three-dimensional shapes cube, sphere, and cylinder.

The objective of this indicator is recognize, which is in the “remember factual” knowledge cell of the Revised Taxonomy table. Remember requires students to retrieve relevant knowledge from long-term memory. Factual knowledge is having the knowledge of specific details and elements. The learning progression to **recognize** requires students to understand the attributes of each shapes. Students explore these shapes using concrete models, pictorial model and real world example to generalize (K-1.7) connections among mathematics, the environment, and other subjects (K-1.8). They also use informal representations to convey these mathematical ideas by finding examples of these shapes in their environment. As students recognize these shapes, they explain and justify their answers to their classmates and teacher.

K-4.2 Represent two-dimensional geometric shapes.

The objective of this indicator is represent, which is in the “understand conceptual” knowledge cell of the Revised Taxonomy table. To understand means to be able to construct meaning from instructional messages and communication. Conceptual knowledge is the knowledge of classifications and categories. The learning progression to **represent** requires students to interpret information by identifying shapes and translating from one form of representation to another. They are translating from paper to real life objects. Students should generalize (K-1.7) connections among two dimensional shapes, the environment, and other subjects. They should be able use informal representations to convey mathematical ideas (K-1.8) about the properties of two dimensional shapes. Students may use different forms of communication (K-1.6) to explain and justify ideas (K-1.3) as they exchange ideas with their classmate and the teacher (K-1.2).

Since the lessons are based on teacher observation and student discussions, the summative assessment should be administered through student observation and discussion.

The following examples of possible assessment strategies may be modified as necessary to meet student/teacher needs. The examples are not derived from nor associated with any standardized testing.

Use this checklist to assess identification of two-dimensional and three-dimensional shapes. (K-4.1)

<b>Task:</b> Give the student a <b>square, circle, triangle,</b> and <b>rectangle.</b> Ask the student to identify each shape.	<b>Comments:</b>
Square	
Circle	
Triangle	
Rectangle	
<b>Task:</b> Give the student a <b>cube, sphere,</b> and <b>cylinder.</b> Ask the student to identify each shape.	
Cube	
Sphere	
Cylinder	

**Choose one of the following for a summative assessment of K-4.2:**

- Give each child a piece of construction paper and ask them to draw an example of a square, rectangle, circle, and triangle. Please allow the students to do the assessment independently. Observe the students as they are creating their objects. Record observations.
- Give the students materials such as wiki sticks, clay or yarn and ask them create the shapes (square, rectangle, circle, and triangle). Please allow the students to do this assessment independently.

# MODULE

## 1-3

### Plane/Spatial Relationships

**This module addresses the following indicators:**

- K-4.3 Use the positional words *near, far, below, above, beside, next to, across from, and between* to describe the location of an object. (B3)
- K-4.4 Use the directional words *left* and *right* to describe movement. (B3)

\* This module contains 2 lessons. These lessons are **INTRODUCTORY ONLY**. Lessons in S<sup>3</sup> begin to build the conceptual foundation students need. **ADDITIONAL LESSONS will be** required to fully develop the concepts.

## I. Planning the Module

The first bullet under the Continuum of Knowledge represents student's prior knowledge and/or skills related to this standard. It is recommended that students are pre-assessed on this prior knowledge.

### Continuum of Knowledge

K-4.3 Use the positional words near, far, below, above, beside, next to, across from, between to describe the location of an object. (B3)

- In Pre-Kindergarten, students are introduced to positional words informally in various classroom situations.
- In First grade, students expand their knowledge of positional words to include directional terms. They use positional and directional terms to describe location and movement. (1-4.5)

K-4.4 Use the directional words left and right to describe movement. (B3)

- In Pre-kindergarten students are introduced to positional words and directional words informally.
- In First grade, positional words and directions are extended to include North, South, East, and West.(1-4.5)

### Key Vocabulary/Concepts:

*\*These are vocabulary terms that are reasonable for students to know and be able to use. Terms without the \* are additional terms for teacher awareness, knowledge and use in conversation with students.*

**positional words**  
**below\***  
**next to\***  
**directional words**  
**direction**

**near\***  
**above\***  
**across from\***  
**left\***

**far\***  
**beside\***  
**between\***  
**right\***

## II. Teaching the Lesson(s)

### 1. Teaching Lesson A: Positional Words

#### Teacher Notes

Students entering kindergarten should be able to use positional words (*on, off, over, under*) to describe the location of objects. In kindergarten, students should have opportunities in a language rich classroom to hear and use the positional and directional words *near, far, below, above, beside, next*

*to, across from, left and right.* Singing and acting out songs like “Going on a Bear Hunt”, playing “Simon Says” and other games that use these specific words are ways to begin enhancing this vocabulary.

It is important for teachers to embed these positional words *near, far, below, above, beside, next to, across from, and between* in daily activities. For example, in the hallway state, “Logan is standing **beside** Sarah.” Parker is **between** Reagan and Ella. Using these situational statements daily will reinforce these positional phrases

### **a. Indicators with Taxonomy**

K-4.3 Use the positional words *near, far, below, above, beside, next to, across from,* and *between* to describe the location of an object. (B3)

*Cognitive Process Dimension: Apply*

*Knowledge Dimension: Conceptual Knowledge*

For this indicator, it is **essential** for students to:

- Learn the definitions of the positional words so they can use them correctly.
- Differentiate and compare terms *far, below, above, beside, next to, across from, between.*

For this indicator, it is **not essential** for students to:

- Know the difference between left and right positions

### **b. Introductory Lesson**

**Materials Needed:** *Students need to bring their favorite stuffed animal*

#### **Suggested Literature Connection:**

[Goldilocks and The 3 Bears](#) (any version) Teachers can read and retell story with puppets using positional words.

[Over, Under, and Through](#) by Tana Hoban is a black and white book explaining spatial concepts.

[Inside, Outside, Upside Down](#) by Stan and Jan Berenstain introduces basic spatial concepts with colorful pictures and rhymes.

#### **Introductory Lesson A: Positional Words**

**During Lesson:** *Ask the children to name some words that tell where an object is or its position. Listen for the responses and record them on the board. Tell that today we will be working with words that tell*

position or where something is located. Ask *the* children to take out their stuffed animal and tell them they are going to play a game with their bear. Tell the children you are going to give them a set of directions and they are going to put their bear in the position.

1. Place your animal **below** your desk.
2. Place your animal **above** your desk.
3. Place your animal **next to** your desk.
4. Place your animal **across from** your desk.
5. Place your animal **between** your desk and your neighbor's desk.

During this time, the teacher should observe the students' actions.

At this point *in* the lesson, the teacher should find a focal point in the room like a window or a door. Ask, "In small groups, take your animal **near** the window. Now take your animal **far** from the window." Ask the children, "Why do you think it is important that we use positional words?" Listen to the responses and write them on the board. Now state, "Now, let's look at the chart with the positional words that you gave earlier. *Listen as I read the words. If there are words we need to remove or add, raise your hand.*" As a class, mark out any words that are not positional words after the discussion. Afterwards, call a student up to the board and turn their back to the class. Instruct *another* student to place the student's (with back turned) animal somewhere in the room. The child with his back turned will ask the rest of the students questions about the position of the animal. The students will either answer yes or no to the following questions:

Examples: Is my animal below the table?

Is it beside my desk?

Is it far from me?

Wrap up the lesson by asking the students, "Where is your animal?"

### **c. Misconceptions/Common Errors**

Students may confuse positional words at first, modeling is important. The students may confuse the terms **near** and **next to**.

### **d. Additional Instructional Strategies/Differentiation:**

- Cut out a picture of a bedroom from a magazine/circular, ask the children to place a counting bear in different positions.
- Ask the students to act out parts and have the students guess which positional words they are using. Example; she is jumping **above** the ground, she is looking **under** the bed
- Play Hokey Pokey using positional words.
- Play "Going on a Bear Hunt".

- Vocabulary must be used everyday and in varied situations. Try to focus on one concept at a time instead of several. For example, emphasize the word *between* in different situations and demonstrate that it means to be in the middle of other things like a sandwich. Use the Oreo as an example to teach that the icing is *between* the cookies.
- Differentiation/Remediation Activity: (*This activity will be helpful for kinesthetic learners.*) The teacher will discuss positional words and ask students to visualize themselves standing over a box, hiding under a box, standing beside a box, etc. The teacher will silently model a movement/dance using one of the positional words incorporating the elements of dance. The teacher, without disclosing the word she modeled, will discuss the various elements of dance and how they are incorporated into her dance. The students will incorporate the elements of movement and dance using body, energy, space, and time by performing a positional word that has been written on a card. [Anderson 5]

### **e. Technology**

"Virtual manipulatives should NOT take the place of concrete manipulation of objects/materials. Once conceptual understanding has been reached, you may move to pictorial representations and then virtual manipulatives. Concrete manipulatives should be the focus of learning to build conceptual understanding. Real life situations/representations are critical for conceptual understanding."

### **f. Assessing the Lesson:**

*During teacher observation, ask the students to place their stuffed animal in different positions (above, below...etc) Observe to see if the students truly understand the concept.*

*Have the students place their stuffed animal in a location and describe its position using one of the words on the chart. Listen to see if students are using positional words correctly and whether they can use a variety of positional words.*

*For students who are having difficulty, give them two choices of words to use and assess whether they can describe the position of the stuffed animal if given a limited choice of positional words.*

## **2. Teaching Lesson B: Left and Right**

### **Teacher Notes**

In kindergarten, students should have opportunities in a language rich classroom to hear and use the positional and directional words *near, far, below, above, beside, next to, across from, left and right*.

It is important to address left and right throughout the year since some students find it difficult to grasp the concept of left and right. When teaching left and right be sure that students understand that direction is related to their bodies orientation so that when they turn around what was to their left has now become the right as well as the reverse. Students will often confuse left from right. One strategy to help students is when they make an "L" (for left) with their left hand (index finger and thumb extended) it has the appearance of a capital "L". This may not help students who are still writing letters backwards or who do not hear the "L" sound in the word left, however it can prove helpful for some students.

### **a. Indicators with Taxonomy**

K-4.4 Use the directional words *left* and *right* to describe movement.

(B3)

*Cognitive Process Dimension: Apply*

*Knowledge Dimension: Conceptual Knowledge*

For this indicator, it is **essential** for students to:

- Learn which hand is left and which hand is right so they can use them correctly.
- Students need both left and right directions to function together appropriately.

For this indicator, it is **not essential** for students to:

- Know directional terms North, South, East, West to describe location and movement.

### **b. Introductory Lesson**

#### **Materials Needed :**

*red yarn*

*1-piece of construction paper for each student*

*1-pair of scissors for each student*

#### **Suggested Literature Connection:**

[Left Hand, Right Hand: A "Hands On" Book](#) by Janet Allison Brown

#### **Introductory Lesson B: Left and Right**

This lesson can be done in whole groups or small group. Establish benchmarks for left and right by putting a red yarn or ribbon bracelet on each child's right wrist. Say "R is for Red and Right." Explain to students that the red bracelet will help them remember that side is right while the side with no bracelet is the left side. Another tip to help

students remember left versus right is to hold up their hands with their pointer finger and thumb at right angles. The hand that makes the letter L is the left side. Instruct the children to trace both of their hands; allow them to work in pairs to do this. Tell them to write the word "right" on the right hand and "left" on the left hand. The children can use this as a visual reminder of their left and right hand. Lead the students in a game such as the Hokey Pokey to reinforce the concepts of left and right. Reinforce left and right throughout daily activities the entire year. For example, stating "let's walk on the right side of the hallway." State, "Let's raise our right hands."

**c. Misconceptions/Common Errors:**

*Students may have difficulty determining left and right when moving. For example, walking down the hall on the **right** and coming back on your **right**; the student may get confused because they are now on opposite side of the hallway but they are still walking on the right. This concept is very difficult, therefore, numerous experiences is extremely important.*

**d. Additional Instructional Strategies/Differentiation**

Play "Simon Says" instructing the children to do movements that involve them moving their bodies/and or body parts to the left or right.

During the day ask children instructions that involve them using their left and their right hands. For example:

- Place your math book on the left side of your desk.
- Write your name on the right side of the paper.
- Move your pencil to the left side of your desk.
- Place your crayons on the right side of your desk.

**e. Technology**

"Virtual manipulatives should NOT take the place of concrete manipulation of objects/materials. Once conceptual understanding has been reached, you may move to pictorial representations and then virtual manipulatives. Concrete manipulatives should be the focus of learning to build conceptual understanding. Real life situations/representations are critical for conceptual understanding."

**f. Assessing the Lesson:**

Formative assessment is embedded within the lesson through questions and observation. However, other formative assessment strategies should be

used. While the students are doing activities with left and right, observe **whether** they understand the concept of left and right. Record notes.

**Questions:**

- Show me your right hand.
- Show me your left hand.
- Show me your right foot.
- Show me your left foot.
- Take one step to the left.
- Take one step to the right.

**III. Assessing the Module:**

At the end of this module summative assessment is necessary to determine student understanding of the connections among and between the indicators addressed in this module.

**Assessment Guidelines**

K-4.3 Use the positional words *near, far, below, above, beside, next to, across from, between* to describe the location of an object.

The objective of this indicator is use, which is in the “apply conceptual” knowledge cell of the Revised Taxonomy table. To use requires students to “carry out” or apply a procedure to a given situation. Conceptual knowledge is not bound by specific examples; therefore, students explore these terms in a variety of situations. The learning progression to **use** positional words requires students to recall teacher-generated examples of these words. Students then generalize these mathematical concepts by finding or demonstrating their own examples of these words. They explain and justify their examples to their classmates and teachers using a variety of forms of mathematical communication (K-1.6). They then apply their understanding of positional words in a given situation.

K-4.4 Use the directional words left and right to describe movement.

The objective of this indicator is use, which is in the “apply conceptual” knowledge cell of the Revised Taxonomy table. To use requires students to “carry out” or apply a procedure to a given situation. Conceptual knowledge is not bound by specific examples; therefore, students explore these terms in a variety of situations. The learning progression to **use** requires students to recall teacher-generated examples of these words. Students then generalize these mathematical concepts by finding or demonstrating their own examples of these words. They explain and justify their examples to their classmates and teachers using a variety of forms of mathematical communication (K-1.6). They then apply their understanding of left and right to describe movements when given a situation.

The following examples of possible assessment strategies may be modified as necessary to meet student/teacher needs. The examples are not derived from nor associated with any standardized testing.

This module would be best assessed through a one-on-one performance assessment. Interview each student while using the following checklist and playing the game "I SPY." For example, "**I spy something above the door. What do you think I see?**" Use the checklist below to record the results.

<b>POSITIONAL WORDS and Left/Right CHECKLIST</b>		
<b>Task</b>	<b>Rating</b>	<b>Comments</b>
I spy something <b>near...</b>		
I spy something <b>far...</b>		
I spy something <b>below...</b>		
I spy something on the <b>right</b> side of the door....		
I spy something <b>above...</b>		
I spy something <b>across from...</b>		
<b>Other Performance Tasks</b>		
<b>Task</b>	<b>Rating</b>	<b>Comments</b>
Show me your <b>right foot</b>		
Place this book <b>beside</b> your chair.		
Put this pencil on the <b>left side</b> of the book		
Go stand <b>next to</b> the computer		

# MODULE

## 1-4

### Calendar

**This module addresses the following indicators:**

- K-5.7 Use a calendar to identify dates, days of the week, and months of the year. (A3)
- K-5.8 Recall equivalencies associated with time: 7 days = 1 week and 12 months = 1 year. (A1)

\* This module contains 2 lessons. These lessons are **INTRODUCTORY ONLY**. Lessons in  $S^3$  begin to build the conceptual foundation students need. **ADDITIONAL LESSONS will be** required to fully develop the concepts.

*These indicators will be revisited in the first module of the 2<sup>nd</sup>, 3<sup>rd</sup>, and 4<sup>th</sup> nine weeks for a year-long emphasis.*

## I. Planning the Module

The first bullet under the Continuum of Knowledge represents student's prior knowledge and/or skills related to the standard. It is recommended that students are pre-assessed on this prior knowledge

### Continuum of Knowledge

K-5.7 Use a calendar to identify dates, days of the week, and months of the year. (A3)

- Pre-kindergarten students experience marking birthdays on calendars, singing songs about the days of the week and months of the year.
- In First grade, students will illustrate past and future dates on a calendar (1-5.9) and represent dates in standard form (i.e., June 1, 2009) and numeric form (i.e., 6-1-2009). (1-5.10)

K-5.8 Recall equivalencies associated with time: 7 days = 1 week and 12 months = 1 year

- Pre-kindergarten students experience counting days on a calendar while singing rote songs for the days of week and months of the year.
- In First grade, students will illustrate past and future dates on a calendar (1-5.9) and represent dates in standard form (i.e., June 1, 2007) and numeric form (i.e., 6-1-2007). (1-5.10)

### Key Concepts/Key Terms

\*These are vocabulary terms that are reasonable for students to know and be able to use. Terms without the \* are additional terms for teacher awareness, knowledge and use in conversation with students.

Dates	Days*	Week*
Months *	Year*	Equal*
Yesterday*	Today *	Tomorrow*

7 days= 1 week\*

12 months=1 year\*

Days of the week (Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, and Sunday)\*

Months of the year (January, February, March, April, May, June, July, August, September, October, November, and December)\*

## II. Teaching the Lesson(s)

### 1. Teaching Lesson A: Using a Calendar

#### Teacher Notes

Kindergarten students should use a calendar to identify dates, days of the week, and months of the year. Teachers must connect the repetition of the

days and months so that students can understand the continual cycle of weeks and years. By doing so, students will be able to understand transitions Saturday to Sunday and December to January.

### **a. Indicators with Taxonomy**

K-5.7 Use a calendar to identify dates, days of the week, and months of the year. (A3)

*Cognitive Process Dimension: Apply*

*Knowledge Dimension: Factual Knowledge*

For this indicator, it is **essential** for students to:

- Understand the order of the months and days of the week.
- Recognize the vocabulary used to indicate positional days (i.e., Today is \_\_\_\_, tomorrow will be \_\_\_\_, and yesterday was \_\_\_\_).
- Recognize a row on the calendar is one week.
- Understand that each box on a calendar represents a day.
- Name and locate the month on a calendar.

For this indicator, it is **not essential** for students to:

- Determine the number of months between to given ones (i.e., “How many months are there before December, if this month is April?”)
- Illustrate past dates using the calendar (i.e., “If today is June 2, what day was it three months ago?”) In first grade, they will illustrate past and future dates on a calendar.

### **b. Introductory Lesson**

#### **Materials Needed:**

- A pre-made calendar or construct your own using poster-board, construction paper, die-cuts etc.
- Three teacher-made pockets stating, yesterday, today, and tomorrow
- 7 sentence strips (one for each day of the week: Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday)

#### **Suggested Literature Connection:**

*Chicken Soup with Rice* by Maurice Sendak. Story of eating soup each month of the year.

*How do you Say It Today, Jesse Bear?* By Nancy White Carlstrom. Rhymed text describe Jesse Bear’s activities each month of the year.

### **Introductory Lesson A: Using a Calendar**

**Teacher Note:** Since this is an ongoing skill to be addressed throughout the year, this lesson should be taught in the first few days of school. Continue calendar throughout the year; especially the process of building a calendar.

This lesson will be done whole group with the group sitting together on a carpet close to the board. Begin the lesson by asking the students how we can keep up with the days of the week, dates, and what month of the year it is? (Hopefully, students will say calendar) State that today we are going to construct our own calendar. Tell the children that calendars are ways of measuring time. Tell the students that we are going to start with the days of the week, "Can anyone tell me what day of the week it is today?" After listening to the responses, state for example, if today is Monday, what was yesterday? State, today is Monday, what is tomorrow? Place the appropriate day of the week in the corresponding pockets. Can anyone name all of the days of the week? Place all of the days of the week on the top of the calendar. Now that we know what day it is, who knows what month this is? Place the appropriate month at the top of the calendar above the days of the week. Now, can anyone tell what is today's date? State today is the 20<sup>th</sup>, of what month? State, each month begins on the 1<sup>st</sup>. Let's look at this August calendar, can anyone tell me, when was the first day of August, where do you see the number 1? What day of the week is the number 1 under? Trace the number one on the August calendar and go up showing that day of the week. Instruct the children to help you fill in the days of the week preceding today's date. As the children place the numbers on the calendar, state the ordinal numbers. For example, 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>... Does anyone have a birthday in August? If so, ask the children with the August birthdays to come up to the calendar and place a marker on their birth date.

To recap lesson, ask who remembers what today is? What month is it? Who can point to today's date? What day did August start on?

#### **c. Misconceptions/Common Errors**

- Students may have difficulty understanding the concept of week, month or year.
- Students may have difficulty recognizing days before and after a certain date on a calendar (i.e., "Yesterday was \_\_.", etc...).
- Students may have difficulty associating whole numbers with ordinal numbers. For example, the number 1 is dated on a calendar as the 1<sup>st</sup>.

**d. Additional Instructional Strategies/Differentiation**

- Teachers must connect the repetition of the days and months so that students can understand the continual cycle of weeks, months and years. By doing so, students will be able to understand transitions Saturday to Sunday and December to January.
- Teachers may color code every other week on the calendar to help students understand the concept of a week
- Incorporate calendar activities daily
- Give the students a copy of a blank calendar. Tell what day the month begins on and allow the children to fill in the calendar. As a whole group, ask the children questions about the month.
- **To differentiate for more advanced students:** Allow the children to create story problems centered on a month of the year. For example, "Today is December 5, how many more days until Christmas?"

**e. Technology**

"Virtual manipulatives should NOT take the place of concrete manipulation of objects/materials. Once conceptual understanding has been reached, you may move to pictorial representations and then virtual manipulatives. Concrete manipulatives should be the focus of learning to build conceptual understanding. Real life situations/representations are critical for conceptual understanding."

**f. Assessing the lesson:**

Display a copy of the calendar and ask the students some questions about the days of the week and months of the year.

- What is today's date?
- What **day** is today?
- What month is it?
- **What was yesterday?**

**2. Teaching Lesson B: Seven Days a Week/ Twelve Months a Year****Teacher Notes**

Kindergarten students should also use a calendar to identify dates, days of the week, and months of the year. While students can learn these facts from rote memory, they need to understand the deeper meaning of connections between these larger amounts of time.

**a. Indicators with Taxonomy**

K-5.8 Recall equivalencies associated with time: 7 days = 1 week and 12 months = 1 year. (A1)

*Cognitive Process Dimension: Remember*

*Knowledge Dimension: Factual Knowledge*

For this indicator, it is **essential** for students to:

- Understand what equal means when it applies to time.
- Recognize the vocabulary as it relates to equivalency (i.e., all 12 months equals a year).
- Recognize a row on the calendar is one week.
- Recognize that some calendars begin on different days of the week.

For this indicator, it is **not essential** for students to:

- Recognize the number of days in several weeks or number of months in several years.
- Determine smaller amounts of time (i.e., 1 day = 24 hours, etc.).

### **b. Introductory Lesson**

#### **Materials Needed :**

- *Enlarged weekly calendar*
- *The Months of the Year listed in order on a teacher-made chart or commercial chart.*

#### **Suggested Literature Connection:**

[All about the Months](#) by Joanne Randolph uses photographs and rhyming text to introduce the twelve months of the year.

#### **Introductory Lesson B: Seven Days a Week/ Twelve Months a Year**

Introduce the lesson by telling the students that they are going to learn the days of the week. Have an enlarged weekly calendar to use as a visual aid for students (i.e., posted on a wall or chalkboard, an overhead projector, chart or bulletin board. paper). Lead a discussion by asking the children their thoughts on the importance of knowing the days of the week. Walk the students through the days of the week, pointing out each day to them. This can be done as a whole class or by asking the students guiding questions like "Who can put their finger on Monday?" As you focus on each day, ask the children to comment on an event that happens on that day. (e.g., "Monday is the first day of school each week; Tuesday is gym day."). Continue this process with the months of the year. There are also some songs listed below. Teach the students a couple of songs to help them remember the 7 days of the week and 12 months of the year. These songs should be sung everyday to reinforce learning. See examples below:

**Teacher Note:** Chose songs that your children would enjoy singing. Ask the children to point to the days and months of the year when they appear in the song.

**Songs:**

For the day of the week the song is:

*Today is Monday all day long doo-dah doo-dah Today is Monday all day long all the doo dah day*

*(This song can be used for everyday of the week. The kids need to wave their hands back and forth when they sing the song.)*

For all the days of the week at one time the song is:

*(Sung to the tune of Happy Days) Sunday Monday Happy Days Tuesday Wednesday Happy Days Thursday Friday Happy Days Saturday What a Day What a Day to watch cartoons with you...*

*(On the Happy Days song, the kids clap their hands as they say happy days. Each time they say happy days they clap it out as well as sing it.)*

During group time this can be sung everyday to help children learn the days of the week.

*Songs for the months of the year:*

**The Months of the Year**

(To the Tune of "Three Blind Mice")

January, February, March,  
April, May, June.  
July, August, September,  
October, November, December.  
These are the twelve months of the year.  
Now sing them together so we can all hear.  
How many months are there in a year?  
Twelve months in a year.

**Months of the Year**

(to the tune of "Ten Little Indians")

January, February, March, and April,  
May, June, July, August, and September,

October, November, and December,  
These are the months of the year.

(to the tune of The Battle Hymn of the Republic)

January  
February  
March  
April  
May,  
June  
July  
and August  
Septembers on it's way,  
October  
and November  
and Decembers at the end,  
Then we start all over again...

### **Months And Seasons**

January, February, middle of March,  
Brrr! In the cold I'm stiff as starch!  
Let's make a snowball, sled down a hill.  
Wintertime, wintertime, time to chill!

April, May, to the middle of June,  
Ahh! What a nice cool afternoon!  
Let's fly a kite, and plant pretty flowers.  
Springtime, springtime, time for showers!

July, August, middle of September.  
Ouch! Got a sunburn I'll always remember!  
Let's go swimming, let's eat a peach.  
Summertime, summertime, time for the beach!

October, November, middle of December.  
Hey! each day grows shorter than September!  
Let's see the leaves fall, let's bake a cake  
Autumntime, autumntime, time for a rake!

Hooray for the seasons all through the year,  
One just left and another one's here!  
I love the seasons, each is a ball:  
Wintertime, springtime, summertime, fall.

Meish Goldish.

### **The Months**

January brings the snow;  
Makes our feet and fingers glow.

February brings the rain;  
Thaws the frozen pond again.

March brings the wind so cold and chill;  
Drives the cattle from the hill.

April brings us sun and showers,  
And the pretty wildwood flowers.

May brings grass and leafy trees,  
Waving in each gentle breeze.

June brings roses, fresh and fair,  
And the cherries ripe and rare.

July brings the greatest heat,  
Cloudless skies and dusty street.

August brings the golden grain;  
Harvest time is here again.

Mild September brings us more  
Fruit and grain, for winter store.

Brown October brings the last  
Of ripening gifts, from summer past.

Dull November brings the blast:  
Down from the trees the leaves fall fast.

Cold December ends the rhyme  
With blazing fires and Christmas time.

Sara Coleridge

- Each week choose one of these songs to sing.

### **c. Misconceptions/Common Errors**

- Students may be able to sing the songs, but not recognize them written. While students are singing the songs; point the days of the week and months of the year.
- Students tend to omit Saturday and Sunday when counting the days in a week.
- Students may have difficulty understanding 12 months can be the same as 1 year and 7 days = 1 week because the numbers are smaller.

#### **d. Additional Instructional Strategies/Differentiation**

##### **Calendar Song**

(To the tune of "Twinkle, Twinkle")

When we do the calendar  
We learn the month the date the year.  
Every week day has a name  
There are lots of numbers that look the same.  
So let's begin to show you how  
We do the calendar right now.

#### **e. Technology**

"Virtual manipulatives should NOT take the place of concrete manipulation of objects/materials. Once conceptual understanding has been reached, you may move to pictorial representations and then virtual manipulatives. Concrete manipulatives should be the focus of learning to build conceptual understanding. Real life situations/representations are critical for conceptual understanding."  
These are suggestions for resources:

##### **f. Assessing the Lesson:**

Formative assessment is embedded within the lesson through questions and observation. However, other formative assessment strategies should be used. *Using an exit tickets ask the children these two questions.*

*How many days are in a week?*

*How many months are in a year?*

*What is the importance of using a calendar?*

### **III. Assessing the Module**

At the end of this module summative assessment is necessary to determine student understanding of the connections among and between the indicators addressed in this module.

#### **Assessment Guidelines**

K-5.7 Use a calendar to identify dates, days of the week, and months of the year.

The objective of this indicator is use, which is in the “apply factual” knowledge cell of the Revised Taxonomy table. Apply requires students to carry out or use a procedure in a given situation. Factual knowledge is a knowledge of terminology, specific details and elements. Students should use a calendar to identify dates, days of the week, and months of the year. The learning progression to **use** requires students to recognize the days in a week and months in a year, and execute specific information to solve real-world problems focused around the use of the calendar. Students should use a variety of forms of mathematical communication (K-1.6) to generalize connections (K-1.7) among the calendar, the environment, and other subjects. As students identify dates, days and months on the calendar, they explain and justify their answers (K-1.3) to their classmates and their teacher.

K-5.8 Recall equivalencies associated with time: 7 days = 1 week and 12 months = 1 year.

The objective of this indicator is recall, which is in the “remember factual” knowledge cell of the Revised Taxonomy table. Remember requires students to retrieve relevant knowledge from long-term memory. Factual knowledge is having the knowledge of specific details and elements. Students should recall equivalencies associated with time: 7 days = 1 week and 12 months = 1 year. The learning progression to **recall** requires students to identify the number of days in a week and months in a year, and recall another representation or name for them. Students should use multiple informal representations (K-1.8) such as calendars to support retention of these facts. They also use these informal representations to explain answers (K-1.3) to simple problems as they apply mathematical problem-solving strategies (K-1.1).

The following examples of possible assessment strategies may be modified as necessary to meet student/teacher needs. The examples are not derived from nor associated with any standardized testing.

**Calendar Checklist**

Use the checklist below to assess a student's understanding of the organization of a calendar and ability to use a calendar to locate information. Insert notes or a rating in each of the 9 weeks columns to indicate progress towards mastery. (These indicators will be assessed each nine weeks in the Year-Long Indicator Modules for the remaining nine weeks (Modules 2-1, 3-1, 4-1).

<b>TASK</b>	<b>1<sup>st</sup> 9 Weeks</b>	<b>2<sup>nd</sup> 9 Weeks</b>	<b>3<sup>rd</sup> 9 Weeks</b>	<b>4<sup>th</sup> 9 Weeks</b>
<b>Names Days of Week in Order</b>				
<b>Correctly uses the vocabulary: "Today is ____, Yesterday was _____, Tomorrow will be _____."</b>				
<b>Names Months of Year in Order</b>				
<b>Identifies a week on a calendar</b>				
<b>Uses a calendar to locate a date</b>				
<b>Finds the name of the month on a calendar</b>				
<b>Answers questions about the monthly calendar:  How many Fridays? How many days during the month? What day is (<i>name a date</i>)? What is the date for the third Monday?</b>				

