

**Discipline:** Mathematics

**Standard Category:** Numbers, Number Systems and Number Relationships

**Lesson Focus:** Place value of numbers 0 to 20

**Suggested Level:**  
Primary

<b>PA Standard(s):</b>	<b>Related TESOL Standard(s):</b>
2.1.3C: Represent equivalent forms of the same number through the use of concrete objects, drawings, word names and symbols. 2.1.3I: Apply place-value concepts and numeration to counting, ordering and grouping.	Goal 2: To use English to achieve academically in all content areas. Standard 2: Students will use English to obtain, process, construct, and provide subject matter information in spoken and written form. Standard 3: Students will use appropriate learning strategies to construct and apply academic knowledge.

**Lesson Focus:**  
Place value

**Teaching Strategies:**  
Whole group instruction

Use of manipulatives

Use of visual aids

**Key Objectives in Accordance with TESOL Level:**

<b>Pre-Conversational/ Beginning</b>	<b>Intermediate</b>	<b>Advanced</b>
Students will be able to: <ul style="list-style-type: none"><li>Use unifex cubes to represent numbers 0-20 as tens and ones.</li></ul>	Students will be able to: <ul style="list-style-type: none"><li>Use unifex cubes to represent numbers 0-20 as tens and ones.</li><li>State how many tens and ones are in a given number.</li></ul>	Students will be able to: <ul style="list-style-type: none"><li>Use unifex cubes to represent numbers 0-20 as tens and ones.</li><li>Explain how to represent numbers using tens and ones.</li></ul>

**Assessment Strategies:**  
Interview

Open-ended response

Teacher observation

**Materials:**

1. Unifex Cubes
2. Index cards
3. A paper bag
4. Overhead projector
5. Transparency of place value mat
6. Copies of place value mat
7. Copies of worksheet
8. Abacus/ large manipulatives

**Advanced Preparation:**

1. Write the numbers 11-20 on index cards and put them in a paper bag.
2. Set up an overhead projector with a transparency of tens and ones place value mat and 20 unifex cubes.
3. Count out sets of twenty unifex cubes for each student.

**Procedures:** (ESL suggestions are in italics.)

1. Use an abacus or other large manipulatives to practice counting to

twenty in unison in a variety of ways: by twos, by fives, forwards, and backwards.

*ELL students, who do not normally talk out loud, may feel more comfortable talking in unison.*

2. Call for volunteers to demonstrate using unifex cubes to represent numbers. Teacher calls out a number from 0-20 while students show the number in cubes. The entire class counts the cubes one by one along with the student to verify the correct amount is displayed.
3. Explain there is an easier way to represent numbers larger than nine. Counting out cubes one by one takes a long time. Counting using tens and ones is easier and saves time. Model the process of using tens and ones to count 11, 12, 13, and so on  
*Display the words “tens” and “ones” for a visual connection.*
4. Pull a number from a bag. Example: 17. Instruct a volunteer to place 17 single cubes on the ones side of the mat displayed on the overhead projector. The class counts aloud the cubes one by one to verify there are 17.
5. Count the cubes again, explaining when they reach ten to connect the cubes to make a ten and display it on the tens side of the mat. The display shows one ten and 7 ones on the mat. The amount and value is still 17 cubes, but displayed differently there is one ten and seven ones. Write  $17 = 1 \text{ ten and } 7 \text{ ones}$  on the board  
*Although the counting and re-counting of the cubes may seem tedious, ELL students benefit greatly from repetition. Don't skip this step!*
6. Count the cubes one last time, starting at ten, which represents a group of ten ones. Start counting from ten: 10, 11, 12, 13, 14, 15, 16, and 17.  
*Steps 4-7 are important because the teacher models the procedure. The teacher may also choose to “think aloud” by talking through each step to further help students understand the concept.*
7. Distribute a place value mat, worksheet, and twenty cubes to each student.
8. Repeat the same activity as in step 4, and observe for understanding. Use a new number.
9. Instruct the students to connect the cubes until they build a ten.
10. Demonstrate how to complete the first line on the worksheet to correctly represent the number.  
*Display the process on a transparency.*
11. Repeat until the worksheet is complete.
12. Use the challenge section of the worksheet as a fun brainteaser. Model how to link cubes together for each group of ten. Explain it is possible to have more than one group of ten.

### **Assessment:**

While students are working on this activity, the teacher can complete an informal assessment using the following checklist:

- Student accurately counts out the unifex cubes.
- Student places tens and ones accurately on place value mat.
- Student correctly identifies the tens and ones.
- Student counts up from ten.

**Beginning**

Assess the students as they represent various numbers from 0-20 as tens and ones using unifex cubes.

**Intermediate**

Assess the students as they represent various numbers from 0-20 as tens and ones using unifex cubes. Listen to the students state how many tens and ones are in a number. The teacher may choose to provide a patterned sentence to assist students. For example: There are \_\_\_ tens and \_\_\_ ones in the number \_\_\_\_.

**Advanced**

Assess the students as they represent various numbers from 0-20 as tens and ones using unifex cubes. Listen as the students “think aloud” to explain how they worked through the problem. Students must state how many tens and ones are in the number.

For additional assessment, or practice design another worksheet, similar to the one used in the lesson. For example:  $16 = \underline{\quad}$  ten and  $\underline{\quad}$  ones. This may be used as a formal quiz.

*When designing your own assessment worksheet, keep it simple. ELL students, and first graders in general, become overwhelmed with worksheets that are too “busy.” Avoid unnecessary clip-art and complicated formatting. Keep directions simple.*

**Notes:**

- Some first grade ELL students may not be ready to complete this activity independently. Students may work better in pairs.
- Students may confuse the number ten with the place value of ten. Teachers may want to refer to the place value of ten as a “group of ten.” The number 19 has 1 group of ten and 9 ones.

<b>Tens</b>	<b>Ones</b>