

**Discipline:** Mathematics

**Standard Category:** Measurement and Estimation

**Lesson Focus:** Metric system

**Suggested**

**Level:**

Middle

<b>PA Standard(s):</b>	<b>Related TESOL Standard(s):</b>
2.3.8A: Develop formulas and procedures for determining measurements (e.g. area, volume, distance).	Goal 2: To use English to achieve academically in all content areas. Standard 1: Students will use English to interact in the classroom. Standard 2: Students will use English to obtain, process, construct, and provide subject matter information in spoken and written form.

**Lesson Focus:**  
Metric system

**Teaching Strategies:**  
Modeling

Whole group instruction

Independent practice

**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>• Participate in group “human modeling”.</li><li>• Learn how to convert from one unit to another (Some ESL students may already be familiar with the metric system).</li><li>• Verbally express the number of places the decimal or commas need to move.</li></ul>	Students will be able to: <ul style="list-style-type: none"><li>• All beginner activities</li></ul>	Students will be able to: <ul style="list-style-type: none"><li>• All beginner activities.</li><li>• Help explain the metric system to an English speaking student if the ESL student is already familiar with the metric system.</li></ul>

**Assessment Strategies:**  
Participation

Individual practice

**Materials:**

1. Twelve sheets of 8 ½” X 11” paper
2. Black marker
3. Paper with metric units written

**Procedures:** (ELL suggestions are in Italics)

1. Using the marker, make number cards by writing numbers (1-9) on nine of the cards. Using the three other pieces of paper, make two “comma cards” and one “decimal card”.
2. Give a brief explanation of the metric system to the students. *Many ELL students will already be familiar with the metric system.*

3. Using the board or overhead, show how one metric unit can be converted to another by moving the decimal or comma the prescribed number of spaces. Students need to connect the moving of the point to multiplying or dividing by powers of 10. (A metric map is helpful.)
4. Ask for volunteers to help in modeling how to convert from one unit to another.
5. Volunteers each hold a number card or appropriately placed comma or decimal card. Number cards should be held one per volunteer, so when the students stand in a line, they form a larger number. The teacher should assign one student with a unit card to stand at the end of the line. *ESL students are able to participate in group-modeling.*
6. The teacher should call on a student who is at his/her seat to read the number that the volunteers have created. *Some students will be familiar with reading numbers in English.*
7. The teacher then tells the students to which unit the number needs to be converted.
8. The students work together to help the person(s) with the comma or decimals to move to the correct spot. This should continue until the students are able to easily convert from one unit to the other, with different students taking turns at being the commas or decimal.
9. The teacher should then write problems on the board for the students to copy and solve independently.

**Assessment:** Students are evaluated based on their participation in the group modeling and their ability to solve the individual problems at the end of the lesson.

**Notes:**

This is great way to build confidence in an ELL learner if he/she is already familiar with the metric system.