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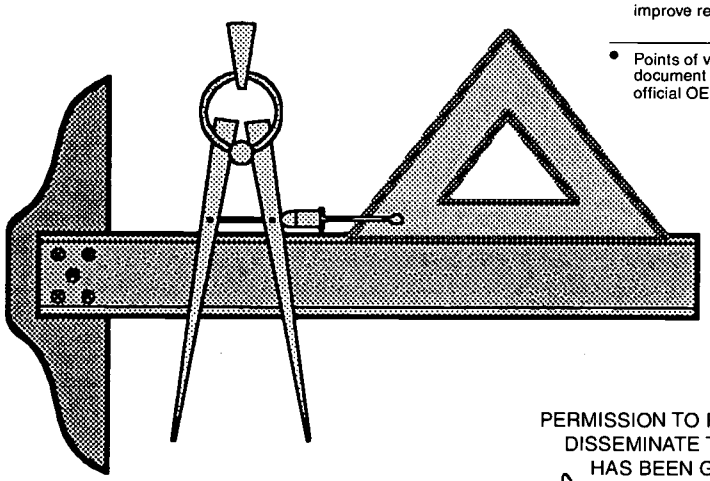
ABSTRACT

The materials in this unit include a teacher manual and student book for an 18-day English-as-a-Second-Language (ESL) unit in measurement and comparisons. The teacher manual contains a list of instructional objectives for the unit, daily lesson plans, vocabulary chart, metric conversion table, a series of class activities, signs for labeling activity stations in the classroom, and instructions for an ancillary activity in making comparisons. The student book contains visual aids, worksheets, and exercises. (MSE) (Adjunct ERIC Clearinghouse on Literacy Education)

Measuring and Comparing

A Content-Based ESL Unit



Measuring and Comparing

A Content-Based ESL Unit

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Measuring and Comparing is a content-based ESL unit written to meet the tandem goals of teaching students the essential vocabulary and grammar of measuring and comparing and practicing oral and written English skills. The unit covers a four week time period, assuming a two hour class period. The specific objectives for each activity in the unit are listed below.

Activity #	Objective
1	LEARN VOCABULARY AND CONCEPT OF LENGTH AND WIDTH
2	PRACTICE CONVERSION OF INCHES AND CENTIMETERS
3	LEARN VOCABULARY AND CONCEPT OF HEIGHT and MEASURE BODY PARTS
4	INTERVIEW CLASSMATES
5	ENTER INFORMATION INTO DATABASES
6	GENERATE COMPLETE SENTENCES FROM DATABASE
7	GENERATE COMPLETE SENTENCES FROM DATABASE
8	PRACTICE GRAMMAR OF COMPARING: GOOD, BETTER, and BEST
9	ACQUIRE AND PRACTICE VOCABULARY OF WEIGHT
10	ACQUIRE AND PRACTICE VOCABULARY OF SPEED
11	CLASSROOM OLYMPICS
12	CLASSROOM OLYMPICS
13	ASSESSMENT
14	ASKING QUESTIONS: GIVING A SURVEY
15	GIVING RESPONSES:
16	WRITING A SHORT PARAGRAPH
17	IMPROVING SHORT, REPETITIVE SENTENCES
18	EDITING SIMPLE PARAGRAPHS

The Measuring and Comparing document contains 2 parts, daily lesson plans for the unit, and a student booklet to be used with the unit. Throughout the daily lesson plans the student booklet is referred to as **SB**, and there are additional procedural notes for the teacher in brackets. ([ ]).

Measuring and Comparing Daily Lesson Plans

Day 1: LEARN VOCABULARY AND CONCEPT OF LENGTH AND WIDTH

1. Class looks at graphics on page 1 of **SB**. Teacher reads vocabulary and discusses.
2. Students, in pairs, label the length and width of 6 objects in the classroom using strips of post-its. Teacher models by taking a post-it strip, walking to an object, saying the word, then writing the word on the post-it and putting the post-it on the length or width of the object.
3. Class walks around room together and discusses width and length: Make generalization that length is the longer one.
4. Students measure objects from #2 and record on page 2 of **SB**.
5. **HOMEWORK #1**: Repeat above with home objects (**SB** p.3).

Day 2: PRACTICE CONVERSION OF INCHES AND CENTIMETERS

1. Class discusses homework from Day 1. Students share pictures of what they measured and use complete sentences to tell the dimensions of the length and width of what they measured.
2. Class reviews terms *width* and *length*.
3. Students turn to **SB** page 4. Teacher uses transparency copy of completed chart (below) to discuss terms for length and width. Teacher introduces vocabulary of rulers, meter stick, and tape measure by showing objects. Students copy terms into empty squares on **SB** page 4 as teacher discusses and explains.
4. Teacher introduces inches versus centimeters. Teacher shows a ruler with both units and class discusses when they have used both.
5. Teacher explains and illustrates idea of changing one unit for the other; conversion. Teacher shows transparency of conversion table and formulas (below).
5. **SB** Page 5 to practice conversion. Students choose objects to measure in the classroom and work conversion formulas to complete page 5.
6. Class shares results.
7. **HOMEWORK #2: SB #6**

Measuring Word	What does it mean?	THINGS WE MEASURE WITH	UNIT
length	how long or short something is	• ruler • meter stick • tape measure	• centimeters • inches • feet • meters • miles • kilometers
width	how wide or narrow something is	• ruler • meter stick • tape measure	• centimeters • inches • feet • meters • miles • kilometers
height	how tall or short someone is	• ruler • meter stick • tape measure	• centimeters • inches • feet • meters • miles • kilometers
weight	how heavy or light something is	• scale	• pounds • grams • kilograms
speed	how fast or slow something moves	• watch • clock • stop watch	• seconds • minutes • hours • days

Converting Metric Units to English Units

Conversion Table:

Unit	=	Conversion Number
1 inch	equals	2.54 centimeters
1 centimeter	equals	0.3937 inch
1 foot	equals	0.3048 meter
1 meter	equals	3.2808 feet
1 yard	equals	0.914 meter
1 meter	equals	1.0936 yards
1 mile	equals	1.609 kilometers
1 kilometer	equals	0.621 mile

Conversion Formula:

To convert metric units to customary or customary to metric, use the following formula:

- **Metric to Customary:**

Metric Unit x *Conversion Number = Customary Unit

Example: 12 inches x 2.54 (conversion number) = 30.48 centimeters

- **Customary to Metric:**

Customary Unit x *Conversion Number = Metric Unit

Example: 6 centimeters x 0.3937 (conversion number) = 2.36

*See Conversion Table above

Day 3: LEARN VOCABULARY AND CONCEPT OF HEIGHT and MEASURE BODY PARTS

1. Discuss homework from Day 2.
2. Introduce HEIGHT. Teacher uses chart from Day 2 and repeats procedure for showing scales, discussing vocabulary on chart, and asking students to complete HEIGHT section of empty table on SB page 4.
3. Students measure teacher for height, then for all body parts. Class decides on standard places to begin and end measurements. Record measurements on OHP with sheet like the one on **SB** page 7.
4. Students divide into pairs and measure each other. Record on **SB** p.7.

Day 4 : INTERVIEW CLASSMATES

1. Teacher models interviewing students to get information to complete chart on **SB** p. 8.
2. Students interview each other and complete their charts on **SB** p. 8. They use phrases:

"How long is your _____?" "How wide is your _____?"

Day 5: ENTER INFORMATION INTO DATABASES

1. Teacher models how students can use charts from Day 4 to enter information into a database on a computer. Teacher shows students how to access a field, enter the data, and save the data.
2. Students use completed charts from Day 4 to insert data into databases.

[**NOTE:** This activity can be omitted if teachers do not have access to a computer lab environment where students can work alone or in pairs to enter the information. The activity requires that the instructor generate a database with fields that are identical to the chart on SB p. 8 so that students can enter the information.]

Day 6 and 7: GENERATE COMPLETE SENTENCES FROM DATABASE

1. Teacher distributes copies of database. [Teacher needs to print copies of completed databases from Day 5 for distribution.]
2. Teacher asks: "Whose nose is longer, Juan's or Jin Hee's?"
3. Students respond, teacher writes sentences of answer on OHP.
4. In pairs, students write 10 or more true sentences about the database on page 9 of **SB**.

Day 7:

1. Students share their sentences from Day 6 with class. Class edits sentences as needed.
2. Homework #3: (**SB** p. 10)

Day 8: PRACTICE GRAMMAR OF COMPARING: GOOD, BETTER, and BEST

1. Discuss and share homework from Day 7.
2. Teacher asks: How far do you think I can step?
3. Students record prediction on **SB** page 11. Teacher steps, students record.
4. Teacher introduces *GOOD BETTER and BEST.*
5. Teacher models writing about her/his steps on OHP; students copy onto **SB** p. 11.
6. Teacher asks students to predict how far **THEY** can step, and record on **SB** p. 11.
6. With partners students step, measure, and record all 3 trials.
7. Students individually write complete sentences about what they did.

Day 9: ACQUIRE AND PRACTICE VOCABULARY OF WEIGHT

1. Teacher shows balance scale and asks for name of object (**SCALE**).
2. What do we use it for? To **WEIGH** things.
3. What is weight? How heavy or light something is. Teacher asks students to fill in weight terms chart on page 4 of **SB.**
4. Teacher chooses 2 things in the room and asks, Which one do you think is heavier? (Teach **PREDICT**: to guess smartly!)
5. Teacher records prediction on OHP, then actually weighs objects and compares predictions to actuality.
6. Students repeat activity with new objects in the room and record both predictions and actual weights on chalkboard so they can discuss.
7. Students repeat activity with a set of boxes. [Before class teacher fills 3 small boxes with different weighted items such as cotton balls, pencils, and paper, etc. Teacher covers or colors the boxes purple, blue, and black. Items need to be somewhat close to each other in weight or the predicting is too easy.]
8. Teacher first passes each box around the room one by one so students can predict which is heavier. Complete **SB** #12.

Day 10: ACQUIRE AND PRACTICE VOCABULARY OF SPEED

1. Teacher introduces fast and slow by running, walking at different speeds.
2. Teacher says **SPEED** is how slow or fast something moves. Teacher asks how we measure speed. Class volunteers ideas.
3. Teacher asks what units we record speed in.
4. Class fills in speed vocabulary on chart on **SB** p. 4.
5. Teacher demonstrates cotton ball on a spoon relay, asks a student to record results with a stop watch.
6. Students record trials and answer questions on **SB** # 13.

Day 11 and 12: CLASSROOM OLYMPICS

1. Students predict and participate in activities and record data on their charts for classroom Olympics. [Directions to activities and station directions for Speed Trial follow] **SB** #14

PAPER STRAW JAVELIN THROW

1. Estimate the distance (in cm) that you think you can throw the "javelin". Record.

2. Place feet on starting line. Throw "javelin". (One throw only.)

3. Measure distance from starting line to the position of the "javelin." Record on score sheet.

MINI-METRIC OLYMPICS
TASK CARD

COTTON BALL SHOT PUT

1. Estimate the distance (in cm) that you think you can throw the "shot". Record.

2. Place feet on starting line. Throw the "cotton ball shot". (One throw only.)
Measure distance from starting line to the position of the cotton ball. Record.

MINI-METRIC OLYMPICS

RIGHT-HANDED MARBLE GRAB

1. Estimate (in grams) the amount of marbles you can grab in your right hand. Record.

2. With right hand only, grab a fistful of marbles from the container.

   Weigh on a balance scale. Record.

(4)

MINI-METRIC OLYMPICS
TASK CARD

Station #1:

1. Pick up a pencil.
2. Balance it on your index finger.
3. Walk to Station #2.

Station #2:

1. Drink the cup of water.
2. Walk to Station #3.

Station #3:

1. Pick up the ball.
2. Bounce the ball 20 times.
3. Smile! You're finished!

Day 13: ASSESSMENT

1. Students write complete sentences about Olympic results in **SB** page 15. [They use their charts from **SB** p. 14 to generate sentences.]
2. Students fill in blank chart of terms on **SB** page 16.

Day 14: ASKING QUESTIONS: GIVING A SURVEY

1. Teacher asks students: What is the best hamburger in Chicago? Discuss.
2. Teacher explains what a SURVEY is, and they look at Best of Chicago survey on **SB** p. 17.
3. Class generates one more question to ask and adds as #8 of the survey.
4. Students practice asking questions with WHAT IS ...?
5. Students give each other the survey from **SB** p. 17.
6. Class discusses how to record responses.
7. **HOMEWORK:** Students are given 5 copies of the survey each and 3 days to complete it outside of class with volunteers either from the workplace or outside.

Day 15: GIVING RESPONSES: Tabulating results of survey

1. Teacher is at computer [or chalkboard], and asks for responses for each question. Teacher records.
2. Class discusses giving the survey.

Day 16: WRITING A SHORT PARAGRAPH

1. Teacher distributes copies of compilation of survey results. Class discusses.
2. Students use data gathered and write paragraph about survey results.

Day 17: IMPROVING SHORT, REPETITIVE SENTENCES

1. Teacher on computer shows some examples of students' paragraphs. [Teacher looks at writing before class and generates samples from student work to share with class.] Then teacher discusses **COMBINING** sentences, and having **VARIETY** in writing by modeling how to combine and begin some sentences differently.
2. Together class discusses various ways to combine and improve the quality of their sentences, make **BETTER SENTENCES.**

Day 18: EDITING SIMPLE PARAGRAPHS

1. Class reviews ways to combine and introduce information in sentences.
2. Students rewrite paragraphs from Day 17.

POSSIBLE ANCILLARY ACTIVITY:

OBJECTIVE: PRACTICE THE GRAMMAR AND VOCABULARY OF COMPARING

1. Teacher shows empty chart [below] and students discuss various animals.
2. Teacher assigns partners or groups.
3. Using the CD *Animals in Our World,* students research the animals and complete as much of the chart as possible.
4. Using the chart, students compare animal characteristics orally.
5. Students write a short paragraph using information from the chart.
6. Students share their paragraphs with a small group. The group aides the student in editing.

COMPARING ANIMALS

	Tiger	Kangaroo	Dolphin	Gorilla
length				
height				
weight				
speed				

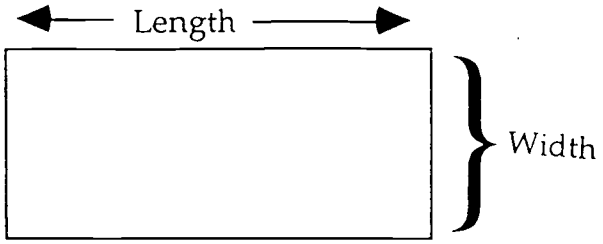
STUDENT BOOK

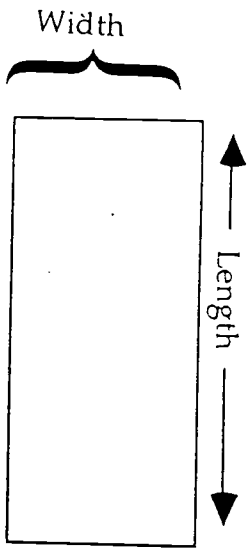
Measuring and Comparing

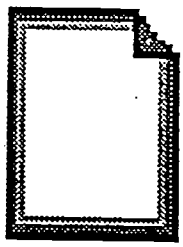
A Content-Based ESL Unit

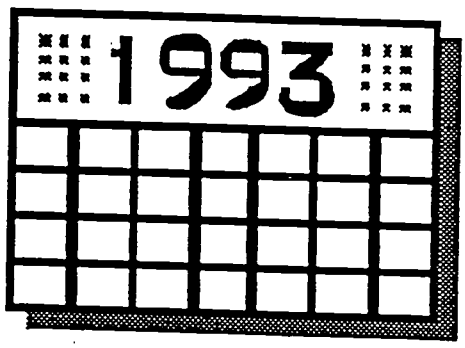
Measuring and Comparing

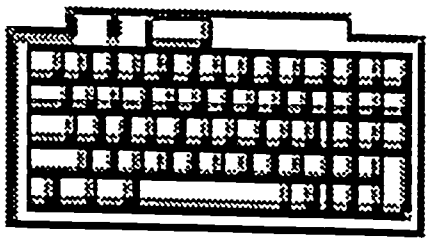
Length and Width











WHAT IS THE LENGTH AND WIDTH OF THESE OBJECTS?

1. **Name of Object:** _____

   Length: _____

   Width: _____

2. **Name of Object:** _____

   Length: _____

   Width: _____

3. **Name of Object:** _____

   Length: _____

   Width: _____

4. **Name of Object:** _____

   Length: _____

   Width: _____

5. **Name of Object:** _____

   Length: _____

   Width: _____

6. **Name of Object:** _____

   Length: _____

   Width: _____

Measuring and Comparing: Homework #1

Directions:

1. **Find** 6 things in your home to measure.
2. **Draw** them below and on the other side of this paper.
3. **Label** the width and length of each object.
4. **Measure** the width and length of each thing.
5. **Record** the width and length of each beside the picture.

VOCABULARY	DEFINITION: What does it mean?	THINGS WE MEASURE WITH	UNIT
length			
width			
height			
weight			
speed			

WHAT IS THE LENGTH AND WIDTH OF THESE OBJECTS?

1. **Name of Object:** _____

	Centimeters	**Inches**
Length:	_____	_____
Width:	_____	_____

2. **Name of Object:** _____

	Centimeters	**Inches**
Length:	_____	_____
Width:	_____	_____

3. **Name of Object:** _____

	Centimeters	**Inches**
Length:	_____	_____
Width:	_____	_____

4. **Name of Object:** _____

	Centimeters	**Inches**
Length:	_____	_____
Width:	_____	_____

5. **Name of Object:** _____

	Centimeters	**Inches**
Length:	_____	_____
Width:	_____	_____

6. **Name of Object:** _____

	Centimeters	**Inches**
Length:	_____	_____
Width:	_____	_____

Measuring and Comparing: Homework #2

MILES and KILOMETERS

How many meters are there in a kilometer? _____

Americans use **miles** to measure long distances, but most of the world uses **kilometers.**

How many miles are there in a kilometer? _____
(Remember: Divide the number of kilometers by 1.6 to change to miles)

- About how many **kilometers** is it from downtown Chicago to your home?

_____

- About how many **miles** is it from downtown Chicago to your home?

_____

- About how many **kilometers** is it from your home to your workplace?

_____

- About how many **miles** is it from your home to your workplace?

_____

Measuring My Body

WHOLE BODY:
Height: _____

EARS:
Length: _____
Width: _____

EYES:
Length: _____
Width: _____

ARMS:
Length: _____

SHOULDERS:
Width: _____

FOOT:
Length: _____
Width: _____

HAND:
Length: _____
Width: _____

MOUTH:
Length: _____
Width: _____

THUMB:
Length: _____

LEG:
Length: _____

Measuring Our Bodies

	Whole Body	Eye		Arm	Leg	Hand		Ear		Mouth		Thumb	Shoulder	Foot	
NAME	H	L	W	L	L	L	W	L	W	L	W	L	W	L	W

COMPARING OUR BODIES

1. _____

_____

2. _____

_____

3. _____

_____

4. _____

_____

5. _____

_____

6. _____

_____

7. _____

_____

8. _____

_____

9. _____

_____

10. _____

_____

Measuring and Comparing: Homework #3

Directions:

1. Look at the database of our class's measurements.
2. Write complete sentences to compare **your** measurements to **other** students' measurements.

1. _____

_____

2. _____

_____

3. _____

_____

4. _____

_____

5. _____

_____

6. _____

_____

7. _____

_____

8. _____

_____

HOW FAR CAN YOU STEP?

Good Better Best

PREDICTION: I think my teacher can step _____

First Step: _____
Second Step: _____
Third Step: _____

Write 3 sentences comparing the steps using **GOOD, BETTER**, and **BEST**.

1. _____

_____

2. _____

_____

3. _____

_____

PREDICTION: I think I can step _____

First Step: _____
Second Step: _____
Third Step: _____

Write 3 sentences comparing your steps using **GOOD, BETTER**, and **BEST**.

1. _____

_____

2. _____

_____

3. _____

WHICH BOX IS THE HEAVIEST?

Prediction: I think the _____ box is the heaviest.

I think the _____ box is the lightest.

What happened? How much did the boxes weigh?

Black box: _____

Purple box: _____

Blue box: _____

Write complete sentences comparing the boxes.

_____

_____

_____

_____

_____

_____

_____

_____

How fast can you walk?

How fast can you walk with the cotton ball on the spoon?

Trial #1: _____

Trial #2: _____

Trial #3: _____

Answer these questions:

Which trial was your fastest? _____

_____

Which trial was your slowest?_____

Write complete sentences comparing your trials.

_____

_____

_____

Class Olympics

EVENT	TRIAL # 1		TRIAL # 2	
	Estimate	Actual	Estimate	Actual
Speed Trial				
Javelin Throw				
Cotton Ball Throw				
Marble Grab				

ASSESSMENT

Directions:

1. Look at the Olympics database.
2. Write complete sentences comparing the results of the Olympics.

FOR EXAMPLE: Paul was faster than Pedro in the speed trial.

1. _____

_____

2. _____

_____

3. _____

_____

4. _____

_____

5. _____

_____

6. _____

_____

7. _____

_____

8. _____

_____

VOCABULARY	DEFINITION: What does it mean?	THINGS WE MEASURE WITH	UNIT
length			
width			
height			
weight			
speed			

The **Best Of Chicago** Survey

1. Who makes the best pizza in Chicago?

_____

2. Who has the best sports team in Chicago?

_____

3. What is the best lake in Chicago?

_____

4. What is the most interesting TV program in Chicago?

_____

5. What is the most beautiful building in Chicago?

_____

6. What is the best radio station in Chicago?

_____

7. What is the best restaurant in Chicago?

_____

8. _____?

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