

# MATH

## Can Take You Places

## LESSON 14

### “On the Road Again”

by Elsie Sneed

**CONCEPT AREA** Patterns

**GRADE LEVEL** 4-6

**TIME ALLOTMENT** 60 minutes

**LESSON OVERVIEW** In this lesson, students will learn about the responsibilities of the Head Trainer for an NBA team by viewing the *Math Can Take You Places* video #001 “Measurement” video. Students will then find similarities within sets of numbers, create a pattern and develop a general formula from the information they develop.

**LESSON ACTIVITIES OVERVIEW** Students will be responsible for purchasing uniforms and other equipment that was lost while the team was on a road trip. Students will use patterns to help them calculate the total cost of each item.

**LEARNING OBJECTIVES** Students will be able to:

- Use patterns in multiplication and division.
- Use organizational structures to analyze and describe patterns and relationships mathematically.
- Make generalizations based on observed mathematical patterns and relationships.
- Solve problems involving proportional relations.
- Use letters as variables in mathematical expressions and to represent unknowns in equations.

**STANDARDS (TEKS)** From the Texas Essential Knowledge and Skills for Math for grades 4-6:

Grade 4  
4.1A, F; 4.5B  
Grade 5  
5.1A, F; 5.3A  
Grade 6  
6.3A; 6.11A, C

**MEDIA COMPONENTS** Video: *Math Can Take You Places* #001 “Measurement”

Internet:

Practice problems using patterns:  
<http://www.aaamath.com>

National Basketball Association:  
<http://nba.com>

American Airlines:  
<http://www.aa.com/>

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For shoe and warm-up suit pricing:  
[www.nike.com](http://www.nike.com)

For shoes, socks and uniform pricing:  
[www.reebok.com](http://www.reebok.com)

- MATERIALS**
- Graph paper (optional)
  - Pencils/paper
  - Markers (optional)

- PREP FOR TEACHERS**
- Bookmark Web sites.
  - Cue videotape.
  - Prepare student materials.
  - Review simple patterns using charts if needed.

**Note:**

The concepts of **patterns** and **estimation** will be covered during this lesson. Students may need to review the concepts prior to beginning the activities, especially if your class includes students who are acquiring English as a second language (ESL).

- INTRODUCTORY ACTIVITY: SETTING THE STAGE**
1. Show students the video *Math Can Take You Places #001* “Measurement” featuring Roger Hinds, Head Trainer for the Dallas Mavericks. Focus the viewing on the interview portions. Ask the students to pay close attention to what Mr. Hinds’ job is, and to be able to discuss some of his responsibilities.
- LEARNING ACTIVITIES**
2. Ask students whether they remember from the video what Mr. Hinds does for the Mavericks. Discuss their findings. Say to the class: “He is also responsible for making sure that all of their equipment is ready to go on game days. Pretend the box with all of the Mavericks’ uniforms has mysteriously disappeared. Your job is to use the Internet to find them new socks, shoes, uniforms and warm-up suits. You can find the total number of players for the team on the [www.nba.com](http://www.nba.com) Web site. Once you have found the items online, use the “Patterns” worksheet to write the Web site address on the line given. Write down the actual costs of each of the items, then the estimated cost to the nearest dollar. Complete the chart using the estimated prices.”
  3. Divide the students into groups of two or three.
  4. Students will move to the computers to obtain information on costs. (Teacher note: To save time, you can create a listing of the prices of the items for students to use with this activity instead of having them find the prices on the Internet.)
  5. Students will place information on the “Patterns” charts, using their estimated prices to calculate the costs of different quantities of each item.
  6. Optional: Students can create a graph to illustrate the pattern for each of the items (Cost vs. Quantity).

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**CULMINATING ACTIVITY** 1. Bring students back together as a group to discuss their results. Talk about the patterns that they see on each of the charts on their “Patterns” worksheet. Discuss how they arrived at the answers for the various quantities of items.

2. Ask, “Can you think of a way to find the cost of *any* number of basketball shoes? For example, what if Mr. Hinds needs to order a lot of pairs to replace the old ones as they wear out? What standard formula or set of steps could he take to figure out the total cost for any number of pairs of shoes?” Work with students to develop the formula (Total Cost = # of pairs needed \* cost of one pair or  $C = n * p$ ).

**CROSS-CURRICULAR EXTENSIONS** Social Studies  
Research the playing schedule for the NBA team nearest your school on [www.nba.com](http://www.nba.com). Determine the city in which the team will play its last away game. Use the Internet to find three interesting historic sites the players could visit in that city before their flight home.

**REAL-WORLD CONNECTIONS** Interview the trainer for the local high school football team. Use a Venn diagram to compare and contrast the high school trainers’ responsibilities with Roger Hinds’.

**ASSESSMENT** Allow students to work individually to attempt to develop the formulas for the uniforms, warm-up suits and socks. Monitor for understanding as they share their answers.

**STUDENT HANDOUTS** “Patterns” worksheet

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Name \_\_\_\_\_ Date \_\_\_\_\_

### Mavericks Equipment Patterns

## Patterns

Pretend the box with all of the Mavericks’ uniforms has mysteriously disappeared. Your job is to order them new socks, shoes, uniforms and warm-up suits. Estimate as a class or use the Internet to find the total number of players for the team. Write down the actual cost of each of the items, then the estimated cost to the nearest dollar. Complete the chart **using the estimated prices**.

Total number of players on the Mavericks: \_\_\_\_\_

#### 1. Socks

Actual cost of one pair \_\_\_\_\_

Estimated cost of one pair (to the nearest dollar) \_\_\_\_\_

Number of pairs of socks	Total cost
1	
5	
10	
15	
20	
50	

#### 2. Basketball shoes

Actual cost of one pair \_\_\_\_\_

Estimated cost of one pair (to the nearest dollar) \_\_\_\_\_

Number of pairs of shoes	Total cost
1	
5	
10	
15	
20	
50	

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#### 3. Uniforms

Actual cost of one uniform \_\_\_\_\_

Estimated cost of one uniform (to the nearest dollar) \_\_\_\_\_

Number of uniforms	Total cost
1	
5	
10	
15	
20	
50	

#### 4. Warm-up suits

Actual cost of one suit \_\_\_\_\_

Estimated cost of one suit (to the nearest dollar) \_\_\_\_\_

Number of warm-up suits	Total cost
1	
5	
10	
15	
20	
50	

5. Can you think of a way to find the cost of *any* number of shoes? For example, what if Mr. Hinds needs to order a lot of pairs to replace the old ones as they wear out? What standard formula or set of steps could he take to figure out the total cost for any number of pairs of shoes? First write your answer using words. Then, use variables to stand for the words.

#### 6. What formula could he use to find:

The cost of any number of basketball shoes? \_\_\_\_\_

The cost of any number of uniforms? \_\_\_\_\_

The cost of any number of warm-up suits? \_\_\_\_\_

# MATH

## Can Take You Places

Te Lleva a Muchos Lugares

## LECCIÓN 14

### “Otra Vez en el Camino”

Elsie Sneed

Nombre \_\_\_\_\_ Fecha \_\_\_\_\_

### Patrones - Equipaje de los Mavericks

#### Patrones

Imagínate que la caja con todos los uniformes de los Mavericks ha desaparecido misteriosamente. Tu trabajo es ordenar nuevos calcetines, zapatos, uniformes y conjuntos de gimnasia para ellos. Como parte de la clase ó usa la Internet, haz una estimación para encontrar el número total de jugadores en el equipo. Escribe el costo actual de cada artículo, luego el costo estimado (al dólar más cercano). **Completa la tabla usando los precios estimados.**

Número total de jugadores de los Mavericks: \_\_\_\_\_

#### 1. Calcetines

Costo actual de un par de calcetines \_\_\_\_\_

Costo estimado de un par de calcetines (al dólar más cercano) \_\_\_\_\_

Número de pares de calcetines	Costo total
1	
5	
15	
20	
50	

#### 2. Zapatos para baloncesto

Costo actual de un par de zapatos para baloncesto \_\_\_\_\_

Costo estimado de un par de zapatos para baloncesto (al dólar más cercano) \_\_\_\_\_

Número de pares de zapatos para baloncesto	Costo total
1	
5	
15	
20	
50	

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## Can Take You Places

### LECCIÓN 14

## “Otra Vez en el Camino”

Elsie Sneed

### Te Lleva a Muchos Lugares

#### 3. Uniformes

Costo actual de un uniforme \_\_\_\_\_

Costo estimado de un uniforme (al dólar más cercano) \_\_\_\_\_

Número de uniformes	Costo total
1	
5	
15	
20	
50	

#### 4. Conjuntos de gimnasia

Costo actual de un conjunto de gimnasia \_\_\_\_\_

Costo estimado de un conjunto de gimnasia (al dólar más cercano) \_\_\_\_\_

Número de conjuntos de gimnasia	Costo total
1	
5	
15	
20	
50	

5. ¿Podrías pensar en una manera de encontrar el costo de cualquier cantidad de pares de zapatos para baloncesto? ¿Por ejemplo, si el Sr. Hinds necesita ordenar muchos pares para reemplazar los viejos que ya están gastados? ¿Qué fórmula estándar ó qué pasos tomarías para saber el costo total de cualquier cantidad de pares de zapatos para baloncesto? Primero, escribe tu respuesta con palabras. Luego, usa variables para reemplazar a las palabras.

6. ¿Cuál fórmula podría usar él para encontrar:

¿El costo de cualquier cantidad de pares de zapatos para baloncesto? \_\_\_\_\_

¿El costo de cualquier cantidad de uniformes? \_\_\_\_\_

¿El costo de cualquier cantidad de conjuntos de gimnasia? \_\_\_\_\_