

# MATH

## Can Take You Places

## LESSON 25

### “Out to Lunch”

by Sonya Cook

**CONCEPT AREA** Domain/Range/Reasonableness

**GRADE LEVEL** 6

**TIME ALLOTMENT** Two 60-minute sessions

**LESSON OVERVIEW** Students will plan family outings to several local restaurants and estimate the cost of feeding families of various sizes.

**LESSON ACTIVITIES OVERVIEW** Students will work in groups using menus from different restaurants to determine a reasonable cost for ordering an appetizer, an entrée for each adult, a kids’ meal for each child, a dessert and drinks. The groups will then compare prices of the cost of the meal with other groups.

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

- Demonstrate how mean, median and mode are used to describe what is “typical” in a set of data.
- Demonstrate how a reasonable total can be determined by using mean, median or mode.
- Use range to determine how much money can be saved by choosing the least expensive meal compared to the most expensive meal.

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

6.2(A), (B), (D), 6.10(D), 6.11(A), (B)

**MEDIA COMPONENTS** Video: *Math Can Take You Places #005 “Patterns”*  
Internet:

Sample restaurant menus:  
American favorites  
[www.chilis.com](http://www.chilis.com)

Mexican food  
[www.ontheborder.com](http://www.ontheborder.com)

Italian food  
[www.olivegarden.com](http://www.olivegarden.com)

Indian food  
[www.claypit.com](http://www.claypit.com)

Chinese food  
[www.pfchangs.com](http://www.pfchangs.com)

**MATERIALS**

- Restaurant menus
- Pencil
- Paper
- Calculators

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#### PREP FOR TEACHERS

- Organize groups
- Gather menus
- Determine necessary modifications, such as omitting some items on the menus to reduce the number of choices

#### Note:

The following concepts will be covered during this lesson: **mean, median, mode** and **range**. Students may need to review the concepts prior to beginning the activities.

If your class includes students who are acquiring English as a second language (ESL), you may also need to brainstorm problem-solving strategies or offer a list of possible strategies for students to refer to while completing the activities.

#### INTRODUCTORY ACTIVITY: SETTING THE STAGE

1. Students will look at the arrangement of a menu from a restaurant and locate the appetizers, main entrées, desserts and drinks.
2. Discuss with students what a family must think about before going out to a restaurant. They should say the family must make sure it has enough money to pay for the meal.

#### LEARNING ACTIVITIES

1. Students use the “Food List” handout to make a list of the prices of the appetizers and decide how to determine a “typical cost” for an appetizer. Students should use mean, median or mode to describe a “typical cost” for the appetizer.
2. Students make a list of the prices of the main entrées and decide how to determine a “typical cost” for a main entrée. Students should use mean, median or mode to describe a “typical cost” for the main entrées. Students will need to include an entrée for each adult.
3. Students will make a list of the prices of the kid’s meal to determine a “typical cost” for the kid’s meals. Students should use mean, median or mode to describe a “typical cost” for the kid’s meal. Students will need to include a kid’s meal for each child.
4. Students will make a list of the prices of the drinks to determine a “typical cost” for drinks. Students should use mean, median or mode to describe a “typical cost” for drinks. Students should include a drink for every person at the table unless it is included in the kid’s meal.
5. Students will make a list of the prices of the desserts to determine a “typical cost” for desserts. Students should use mean, median or mode to describe a “typical cost” for a dessert.
6. Students write a number sentence to show how the cost of the meal could be determined.
  - Groups share their totals and discuss which restaurant is most expensive for the family and which restaurant is least expensive, as well as how they arrived at their solutions.
  - Students write a number sentence to figure how much money would be saved by eating at the least expensive restaurant compared to the most expensive restaurant.

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**CULMINATING ACTIVITY** 1. Introduce the culminating activity by watching *Math Can Take You Places* video #005 “Patterns.” **Cue** the video from right before Chef Koval asks, “How much is the eight-ounce piece of beef going to cost me?” right after the blue chart leaves the screen. Ask students to listen closely to Chef Koval, and to be able to name at least one thing that he mentions that they should consider when creating a menu. **Play** the video, stopping when Chef Koval says, “Your math has to be right or you’ll be losing money.” One of the responses should refer to how expensive the ingredients are and how that would affect the cost of an entrée. If you would like, allow students to use grocery store Web sites to check the prices of key ingredients for their entrées to help determine pricing. For example, they can search by keyword on [www.albertsons.com](http://www.albertsons.com) under “Browse our online store.”

2. Students create their own restaurant menus; including appetizers, main entrées, kids’ meals, desserts and drinks. The teacher must set a maximum and minimum number of items for each category.

2. Students determine a reasonable cost for feeding families of varying sizes (seen on student handout). Students write a number sentence to determine a reasonable cost for feeding the family.

3. Students determine the most expensive and least expensive costs for feeding families of varying sizes (seen on student handout). Students write a number sentence to determine how much money they would save by ordering the least expensive meal.

**CROSS-CURRICULAR EXTENSIONS** Social Studies  
Students read *Everybody Cooks Rice* by Norah Dooley. Students research foods consumed in different cultures and prepare a sample menu of foods from a restaurant that serves foreign cuisine.

Language Arts  
Students do recipe writing including a how-to paper on cooking their favorite meal. Students include the price of the ingredients necessary to prepare the food and determine a price they would put on the menu in a restaurant.

**REAL-WORLD CONNECTIONS** Watch the video, *Math Can Take You Places* “Patterns”, featuring an interview with Chef William Koval at the Adolphus Hotel. Focus on the interview segments. As a class, list all of the different ways a chef would use mathematics.

**ASSESSMENT** Have students use the menus they created to calculate the least and most a family of two parents and three kids could spend on a meal. Observe closely for proper use of vocabulary and strategies.

**STUDENT HANDOUTS**

- “What’s On the Menu?” worksheet
- “Food List” handout

### “What’s on the Menu?”

You will create a menu for a new restaurant you are opening in town. You may want to survey friends and family members to find out what kinds of foods they enjoy eating at a restaurant. Also determine what they consider to be the “typical” price of that item. Record that information, as you will later calculate the mean, median and mode of those prices to determine what is considered the “typical” price. You can also use the Internet to research menu prices. This may help you decide what items to put on the menu of your new restaurant.

Working with your group, set up the problem by first creating a menu that includes at least four appetizers, five main entrées, three kid’s meals, four desserts and three drinks. Each menu item must reflect the price that best describes the typical cost of the item, which will be the mean, median or mode. Your group must determine the price of each item on the menu and create the menu. (Point Value – 30)

Next, your group will determine the typical cost for feeding a family of five. The family includes three adults and two children under age 12. Each person will order an entrée or kids’ meal and a drink. The table will share an appetizer and a dessert. Applying problem-solving strategies, show two different approaches to solve this problem. Include proper units and label[s?] on your solution. (Point Value – 40)

Determine the most expensive and least expensive costs for feeding this family. Write a number sentence that shows each cost. (Point Value – 20)

Determine how much money you will save by ordering the least expensive meals. Write a number sentence that shows how this can be determined. (Point Value – 10)

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Food Lists  
 Appetizers

Item	Nachos				
Price 1	\$5.75				
Price 2	\$6.00				
Price 3	\$4.50				
Price 4	\$6.00				
Price 5					
Price 6					
Price 7					
Price 8					
Mean					
Median					
Mode					
Typical price					

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Entrées

Item					
Price 1					
Price 2					
Price 3					
Price 4					
Price 5					
Price 6					
Price 7					
Price 8					
Mean					
Median					
Mode					
Typical price					

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## Kid’s Meals

Item					
Price 1					
Price 2					
Price 3					
Price 4					
Price 5					
Price 6					
Price 7					
Price 8					
Mean					
Median					
Mode					
Typical price					

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## Desserts

Item					
Price 1					
Price 2					
Price 3					
Price 4					
Price 5					
Price 6					
Price 7					
Price 8					
Mean					
Median					
Mode					
Typical price					

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## Drinks

Item					
Price 1					
Price 2					
Price 3					
Price 4					
Price 5					
Price 6					
Price 7					
Price 8					
Mean					
Median					
Mode					
Typical price					

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Te Lleva a Muchos Lugares

## LECCIÓN 25

### “Salir a Almorzar”

by Sonya Cook

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

### “¿Qué Hay en el Menú?”

Vas a crear un menú para un restaurante nuevo que estás abriendo en la ciudad. Pregúntales a tus amigos y a miembros de tu familia qué clase de comida les gusta comer cuando van a un restaurante. También pregúntales lo que ellos consideran un precio “típico” para esas comidas. Registra la información para que más tarde calcules el promedio, la mediana y el valor más frecuente o modo de esos precios para determinar lo que se considera un precio “típico”. También puedes usar la Internet para investigar los precios de los menús. Esto te podría ayudar a decidir qué comidas poner en el menú de tu nuevo restaurante.

Trabajando con tu grupo, establece el problema creando primero un menú que incluya por lo menos cuatro aperitivos, cinco entradas principales, tres comidas para niños, cuatro postres y tres bebidas. Cada menú debe reflejar el precio que mejor se adapta al costo típico de ese producto, que serán el precio promedio, la mediana y el valor más frecuente o modo. Tu grupo debe fijar el precio para cada producto en el menú y debe crear el menú. (Valor en puntos – 30)

Luego, tu grupo debe determinar el precio típico para alimentar a una familia de cinco. La familia incluye tres adultos y dos niños menores de 12 años. Cada persona ordenará una entrada o un plato para niños y una bebida. La mesa compartirá un aperitivo y un postre. Aplicando las estrategias de resolución de problemas, muestra dos maneras diferentes de resolver este problema. Incluye etiquetas y unidades apropiados en tu solución.

(Valor en puntos – 40)

Determina la manera más cara y la más barata de alimentar a esta familia. Escribe una oración numérica para mostrar cada gasto. (Valor en puntos – 20)

Determina cuánto dinero ahorrarás ordenando las comidas más baratas. Escribe una oración numérica que muestre cómo puedes determinar esto. (Valor en puntos – 10)

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### Listas de Comida Aperitivos

<b>Producto</b>	Nachos				
Precio 1	\$5.75				
Precio 2	\$6.00				
Precio 3	\$4.50				
Precio 4	\$6.00				
Precio 5					
Precio 6					
Precio 7					
Precio 8					
Costo Promedio					
Media					
Modo					
Precio típico					

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### Entradas

Producto					
Precio 1					
Precio 2					
Precio 3					
Precio 4					
Precio 5					
Precio 6					
Precio 7					
Precio 8					
Costo Promedio					
Media					
Modo					
Precio típico					

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### Comidas para Niños

Producto					
Precio 1					
Precio 2					
Precio 3					
Precio 4					
Precio 5					
Precio 6					
Precio 7					
Precio 8					
Costo Promedio					
Media					
Modo					
Precio típico					

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### Postres

Producto					
Precio 1					
Precio 2					
Precio 3					
Precio 4					
Precio 5					
Precio 6					
Precio 7					
Precio 8					
Costo Promedio					
Media					
Modo					
Precio típico					

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### Bebidas

Producto					
Precio 1					
Precio 2					
Precio 3					
Precio 4					
Precio 5					
Precio 6					
Precio 7					
Precio 8					
Costo Promedio					
Media					
Modo					
Precio típico					