Objective: Students will be able to:
- Describe and illustrate the concept of demand
- Explain how demand and utility are related
- Express the concept of diminishing marginal utility using a graph

Time Required: 1 class period

Materials Needed:
- One bag of mini pretzels
- Graph paper for every student

Vocabulary:
Demand - The quantity of a good or service that buyers are willing and able to buy at all possible prices during a period of time
Marginal Utility – The satisfaction one derives from the consumption of one additional good or service
Law of Diminishing Marginal Utility – For each additional unit an individual consumes the marginal utility is less than the previous unit consumed
Utility – The satisfaction one derives from the consumption of a good or service

Applicable Common Core State Standards:
CCSS.ELA-Literacy.W.9-10.2, W.11-12.2 Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.

CCSS.ELA-Literacy.W.9-10.4, W.11-12.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

CCSS.Math.Content.HSS-ID.A.1 Represent data with plots on the real number line (dot plots, histograms, and box plots).
1. Open the lesson with a discussion about the business of professional sports. Leagues and teams sell a product that blends athletics and entertainment. Fans participate in the business by spending their time watching games, spending money on tickets and souvenirs, and spending emotional energy following the ups and downs of a team throughout the season. Why do sports fans do it?

2. Explain that economists approach the question through the concept of utility: People choose to spend money on a product or service because they get a certain amount of use, pleasure, or satisfaction from consuming it.

Utility can be practical. For example, any kind of hat will keep your face shaded from the sun. But certain purchases can give you a greater sense of satisfaction, such as a cap with the logo of your favorite team.

3. Discuss that each time a person buys something, the motivation behind that purchase will be different. For example, you buy food because you need to eat, or you buy a new pair of shoes because your old ones got too small. Each purchase you make, no matter what your motivation, involves personal choice, and we derive a certain amount of utility—use, pleasure, or fulfillment—from it.

4. Ask students to describe the utility they would derive from each of the following:
   - an umbrella
   - a pair of scissors
   - your first car
   - an official jersey from your favorite team
   - the autograph of your favorite singer
   - a day hanging out at the pool with your best friends
   - a plate of your favorite cookies

5. Explain that in the language of economics, a “margin” is an outer limit that can expand and contract. Economists often focus on what happens at the margin because it is an indicator of the quantity of a certain good or service consumers are willing to buy.
6. Explain that **marginal utility** refers to the amount of satisfaction or benefit a consumer will gain from consuming one additional unit of something (pushing the limit). A person is likely to derive less satisfaction from each additional unit he or she consumes during a given period of time. This idea is referred to as the **Law of Diminishing Marginal Utility**. For example, you might really enjoy your first hot dog at a baseball game, but a second one will probably be less satisfying than the first, so you'll be less inclined to spend your money for that second one.

7. Discuss that business people use the concept of Diminishing Marginal Utility to try to figure out how much of something they can sell to consumers. Using the example of professional baseball, teams always offer fans the chance to buy season tickets. A full season includes 81 home games. Some fans would like to attend more than one game, but don't want to pay for tickets to every game of the season. The level of satisfaction they derive from going to games has a limit. For this reason, some teams now offer half-season tickets (40 or 41 games) or partial season tickets (20 games) so that they can offer fans a product that more appropriately targets their level of utility.
1. For this activity, you will need to get a bag of mini pretzels or some other type of
    snack food (preferably a healthy one).

2. At the beginning of class, choose one volunteer who would be interested in eating
    pretzels (or whatever snack you brought).

3. Place a chair in the front of the room facing the class and have the student sit in it.

4. Briefly review the concept of utility.

5. Hand out graph paper to all students.

6. Draw a graph on the board, labeling the vertical side 'Utility' and the horizontal side
    'Number of Pretzels Consumed'. The students should create this graph on their own
    graph paper.

7. Explain to the volunteer that he or she is to eat one pretzel and then rate the utility
    they receive from one to 100. (100 being 100% satisfaction)

Example:

<table>
<thead>
<tr>
<th># of Pretzels</th>
<th>Satisfaction In % (Utility)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>100%</td>
</tr>
<tr>
<td>2</td>
<td>95%</td>
</tr>
<tr>
<td>3</td>
<td>80%</td>
</tr>
<tr>
<td>4</td>
<td>70%</td>
</tr>
<tr>
<td>5</td>
<td>55%</td>
</tr>
<tr>
<td>6</td>
<td>30%</td>
</tr>
<tr>
<td>7</td>
<td>20%</td>
</tr>
<tr>
<td>8</td>
<td>-5%</td>
</tr>
</tbody>
</table>
8. After each pretzel is consumed, have the volunteer rate their satisfaction and place a point on the graph that represents this.

9. Continue until the student's satisfaction begins to drop. It is up to you how far you want this drop to go to prove the Law of Diminishing Marginal Utility.

10. Thank your volunteer and allow him/her to get a drink of water.

Conclusion:

To conclude this lesson, review that all consumers derive some sort of utility from anything they purchase. To check for understanding, have each student write a response in which they explain the concept of Diminishing Marginal Utility in their own words, and relate the concept to their own experiences. Students should choose a good or service they like to consume and share realistic predictions about how much of their chosen good or service they would be able to consume before they would no longer want it. Each written response should also include a graph.