

## Duration

One to two class sessions of 40 minutes each

## Resources

### 1. Study Guide



### 2. Worksheet



### 3. Homework



## Objectives of Lesson

- To describe Tobler's "1st Law of Geography"
- To analyze the role of distance decay in the spatial arrangement of various human activities presented at multiple scales
- To analyze the degree to which time-space compression can explain the spatial arrangement of human activities at various scales
- To evaluate ways that Tobler's "1st Law," distance decay, and time-space compression can be used to explain the spatial arrangement of homes and businesses in students' local communities

## College Board Objectives from the 2020–21 CED (Page 15)

- **Big Idea 1: Patterns and Spatial Organization**  
Spatial patterns and organization of human society are arranged according to political, historical, cultural, and economic factors.
- **Big Idea 2: Impacts and Interactions**  
Complex relationships of cause and effect exist among people, their environments, and historical and contemporary actions.
- **Big Idea 3: Spatial Process and Societal Change**  
A spatial perspective allows for a focus on the ways phenomena are related to one another in particular places, which in turn allows for the examination of human organization and its environmental consequences.

## How to Use This Lesson Plan

This lesson is designed to be utilized early on in the school year (ideally before an extensive study of Unit 1). This lesson takes the Big Ideas of AP® Human Geography and enables students to see how they apply to their own lives and community. The Big Ideas serve as the foundation of the course and enable students to create meaningful geographic connections

## NOTES

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throughout the school year. This lesson enables students to connect to these Big Ideas to three basic geographic concepts: Tobler's "1st Law of Geography," distance decay, and time-space compression. These are good topics to use because they are easy for students to understand. Throughout the lesson, students will utilize low-level and high-level skills, including the analysis of various stimuli at different scales.

This lesson will be most successful if followed in the appropriate sequence: Study Guide, Worksheet, then Homework. This document will help guide you through the lesson, along with providing different ways to adjust the lesson to best meet the needs of your students or use digitally.

## Part 1: Study Guide

Distribute the Study Guide to students. The Study Guide provides information about specific characteristics and examples of Tobler's "1st Law," distance decay, and time-space compression. Walk students through the Study Guide and allow them time to read, interact/ask questions, and respond. The Study Guide can be completed several different ways. Below are a few suggestions:

- Students can read and generate responses on their own.
- Collaborative groups—students can collaborate in groups to read, discuss, and respond.
- Class discussion—the entire class can read aloud, or you can facilitate discussion as it is read.
- Digitally—students can read/interact in a digital platform.

## Part 2: Worksheet

Distribute the Worksheet to students. The Worksheet asks students to analyze and explain stimuli at various scales—specifically, ways each stimulus connects to Tobler's "1st Law," distance decay, and/or time-space compression. Walk students through the Worksheet and allow them time to read, interact/ask questions, and respond. The Worksheet can be completed several different ways. Below are a few suggestions:

- Students can generate responses on their own.
- Collaborative groups—students can collaborate in groups to discuss and record responses.
- Class discussion—the entire class can work together and generate responses collectively.
- Digitally—students can respond to a digital platform and view class results.

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## Part 3: Homework

This is the assessment component of the lesson, requiring students to demonstrate higher-level analysis skills. Students will be asked to come up with examples and connect Tobler's "1st Law of Geography," distance decay, and time-space compression to these examples. Students are asked to draw upon their local community to come up with examples. The goal is to help students make sense of geography—by enabling them to see how it connects to their daily lives and local community.

## SUGGESTED ANSWERS

### Worksheet

#### Stimulus 1: Spanish Speakers in the United States

*Evidence of distance decay and Tobler's 1st Law can be seen on the map. States with the closest proximity to Spanish-speaking countries have the largest percentage of Spanish speakers. California, Arizona, New Mexico, and Texas border Mexico, while Florida is closest to Spanish-speaking countries in the Caribbean such as Cuba.*

*Time-space compression can be used to explain the high percentage of Spanish speakers on the Northeast coast. The clustering near New York and New Jersey is due to the high attraction of immigrants to large metropolitan areas. As an immigrant, you are more likely to settle in a place with an established population of people from the same country as you; both New York and New Jersey have been historic destinations of immigrants from Spanish-speaking places. As the ability to move is made easier, more and more Spanish-speaking immigrants have been received by the Northeast coast.*

#### Stimulus 2: The American Corn Belt

*Evidence of distance decay and Tobler's 1st Law can be seen on the map. The Corn Belt is the region of the United States where corn productivity and land-use dedicated to growing corn is the highest. This includes the region from Kansas and the Dakotas eastward to parts of Indiana, Michigan, and Ohio. As you move farther and farther from these states, corn production decreases.*

#### Stimulus 3: Tokyo Dome for 2014 MLB Japan All-Star Series

*Evidence of time-space compression can be seen in the image. Baseball was first played in the United States but is now played in dozens of countries. Improvements in communication and technology help facilitate the spread of culture, such as baseball. As it becomes easier to travel farther distances in shorter time periods, it will take less time for ideas and innovations to spread, thereby increasing the likelihood of interaction between people and places.*

## NOTES

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**Stimulus 4:** NYC Central Business District & Bid Rent Curve

*Evidence of distance decay can be inferred from the photograph and bid rent curve. The photo shows skyscrapers that dot the New York City skyline—focus on the height of the buildings. Buildings located nearer the CBD (central business district) are much taller because land values are high. Buildings are erected vertically instead of horizontally because it reduces land costs since less land is used. As you move farther from the CBD, land values decrease, which will influence the type of architecture you will experience.*

**Stimulus 5:** City Cell Phone Picture

*Evidence of time-space compression can be inferred from the photograph. Improvements in technology, such as the cell phone, increase the ability to connect with other people and places. As seen in the photo, someone can use their cell phone and instantly share it with others worldwide.*

**Homework**

*Answers will vary based on student choice.*

**NOTES**

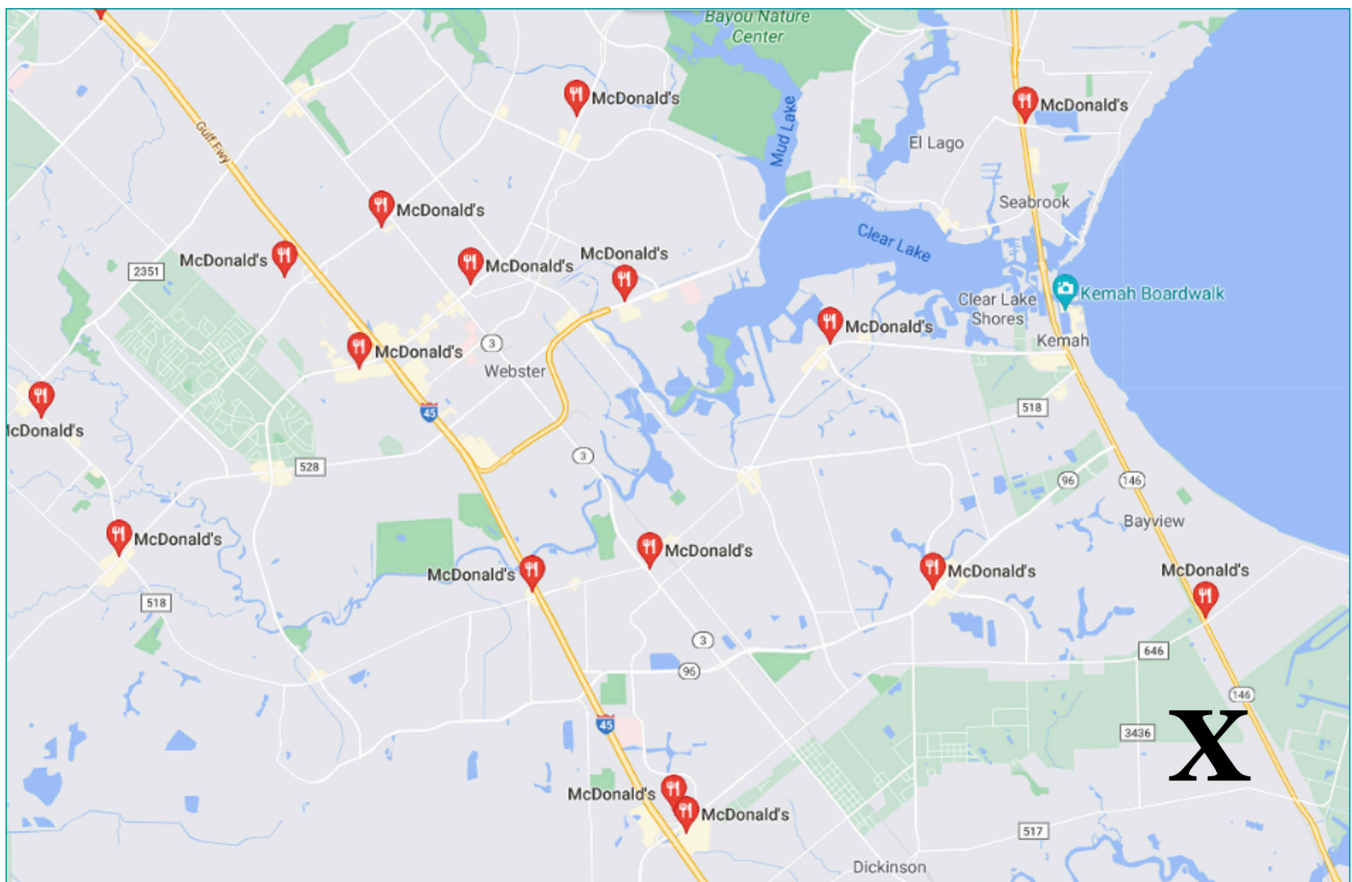
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## Tobler's Law—Spatial Interaction

Waldo Tobler was an American-Swiss geographer who coined the phrase, "Everything is related to everything else, but near things are more related than distant things." This saying and idea has now become known as the 1st Law of Geography. It provides an efficient way to introduce geography and spatial analysis in a simplistic, easy-to-understand perspective. Human behavior is one often dominated by logic—people engage in daily decisions based on reason and efficiency. As humans engage in these behaviors, they create distinct patterns. Spatial analysis attempts to explain these patterns. Geographers accomplish this by examining the arrangement and interaction of human behaviors and activities. For example, take a look at the map below. Each red tab is the location of a McDonald's restaurant near the Clear Lake area outside of Houston, Texas. If you wanted to eat McDonald's, and your current location was marked by the "X" on the map, which McDonald's would you go to?



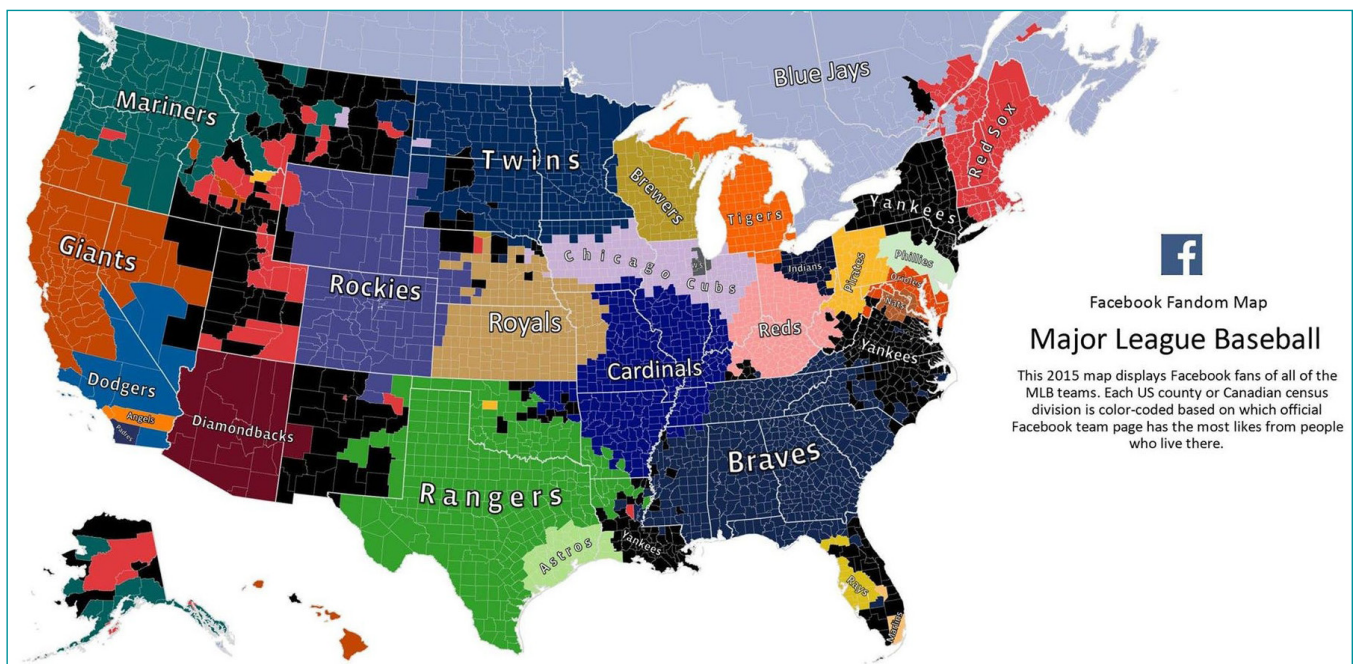
Waldo Tobler, 2007



Like most people, you probably said the nearest McDonald's. In this case, the nearest McDonald's would be the one at the intersection of roads 646 and 146. This illustrates Tobler's Law—you are more likely to interact with things closer to you. We can also use Tobler's Law to explain other shopping behaviors. For example, if you wanted to go buy a new pair of shoes or school clothes, you are likely going to shop at store closer to you. Or, if you wanted to go out for dinner, again, you are more likely to dine at a restaurant within a close distance of your current location.

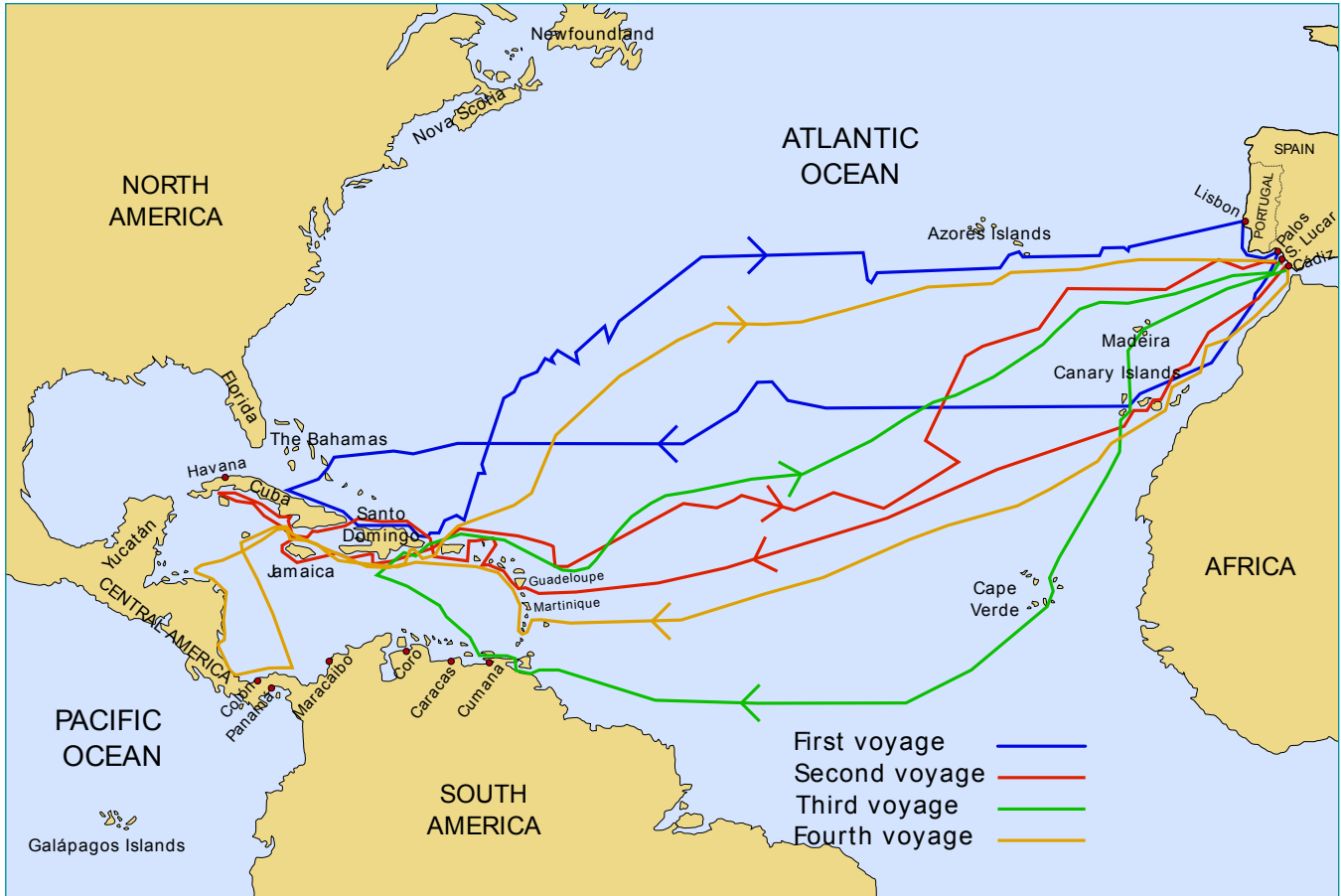
## Spatial Analysis—Distance Decay

Tobler's Law helps us understand that when we are surrounded by places and people near us, we are more likely to interact with THOSE places and people. As we move farther and farther from those places and people, our likelihood of interaction decreases. This illustrates the concept of distance decay—the idea that the farther you are from an activity/location, the less likely you are to engage in it. Study the map below. You can use distance decay to explain the spatial distribution of professional baseball fans. For example, the Astros are the pro baseball team of Houston, which lies in the southeast portion of Texas near the Gulf Coast. From the map, you can see that as distance from Houston increases, the likelihood of becoming an Astros fan decreases.



## Spatial Analysis—Time Space Compression

Tobler's Law and distance decay are not the only ways geographers help make sense of space. As technology and communication improves, so too does the ability of an idea or innovation to spread, thus increasing interactions. This is an idea known as time-space compression—the amount of time it takes for something to spread across space decreases as technology and communication improves. For example, the map on the following page shows the route of Christopher Columbus on his four voyages from Europe to the Americas. Each trip took about a month to complete, between the years 1492–1504.



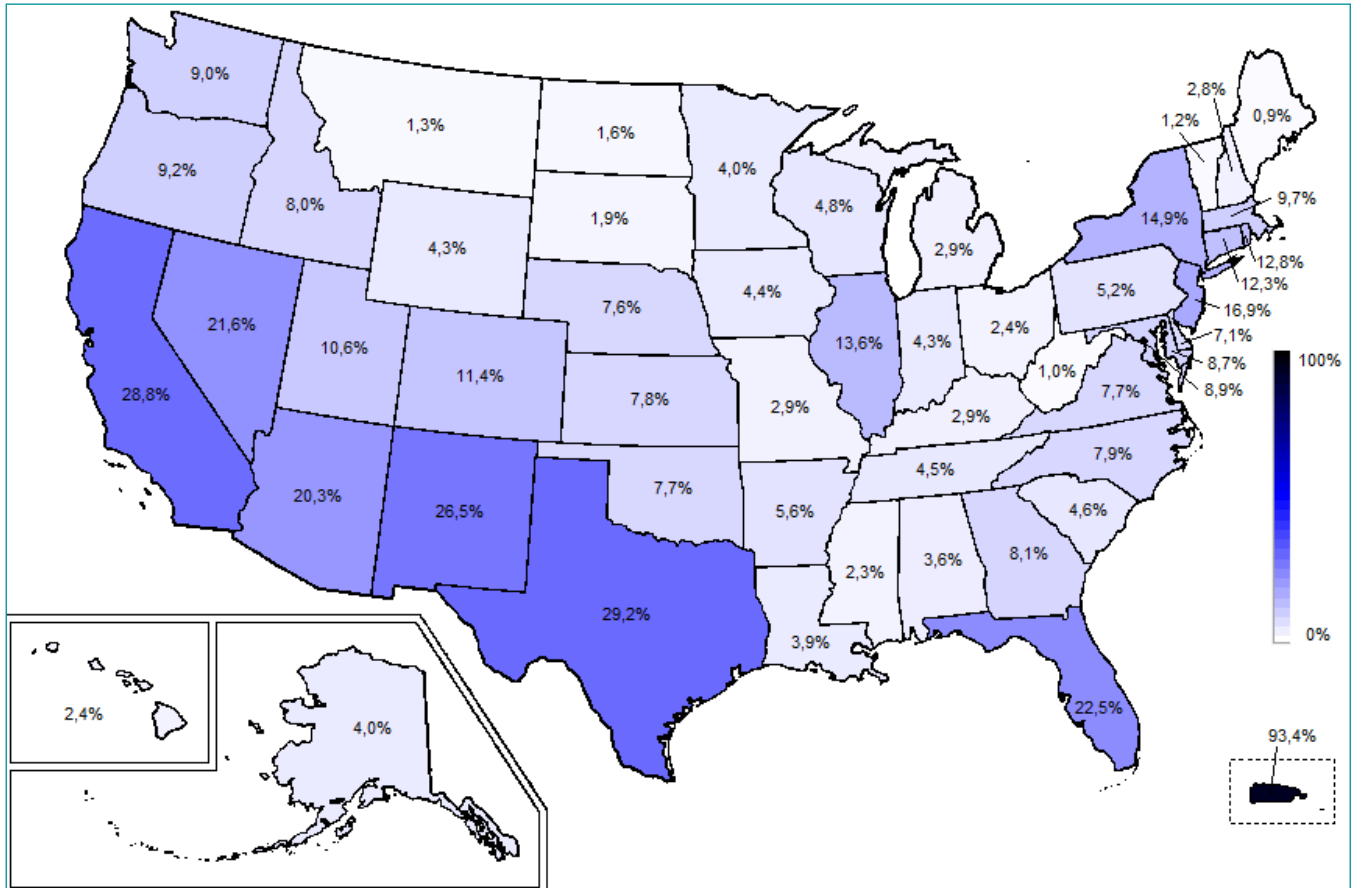
Obviously, transportation has changed dramatically since Columbus set out on his historical journeys. What took Columbus nearly a month can now be done in less than 10 hours by airplane! As transportation and communication continue to improve over time, so too will our sense of connectedness—which can be explained using time-space compression.

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**Directions:** Study each stimulus and explain how it connects to Tobler's 1st Law of Geography, distance decay, and/or time-space compression.

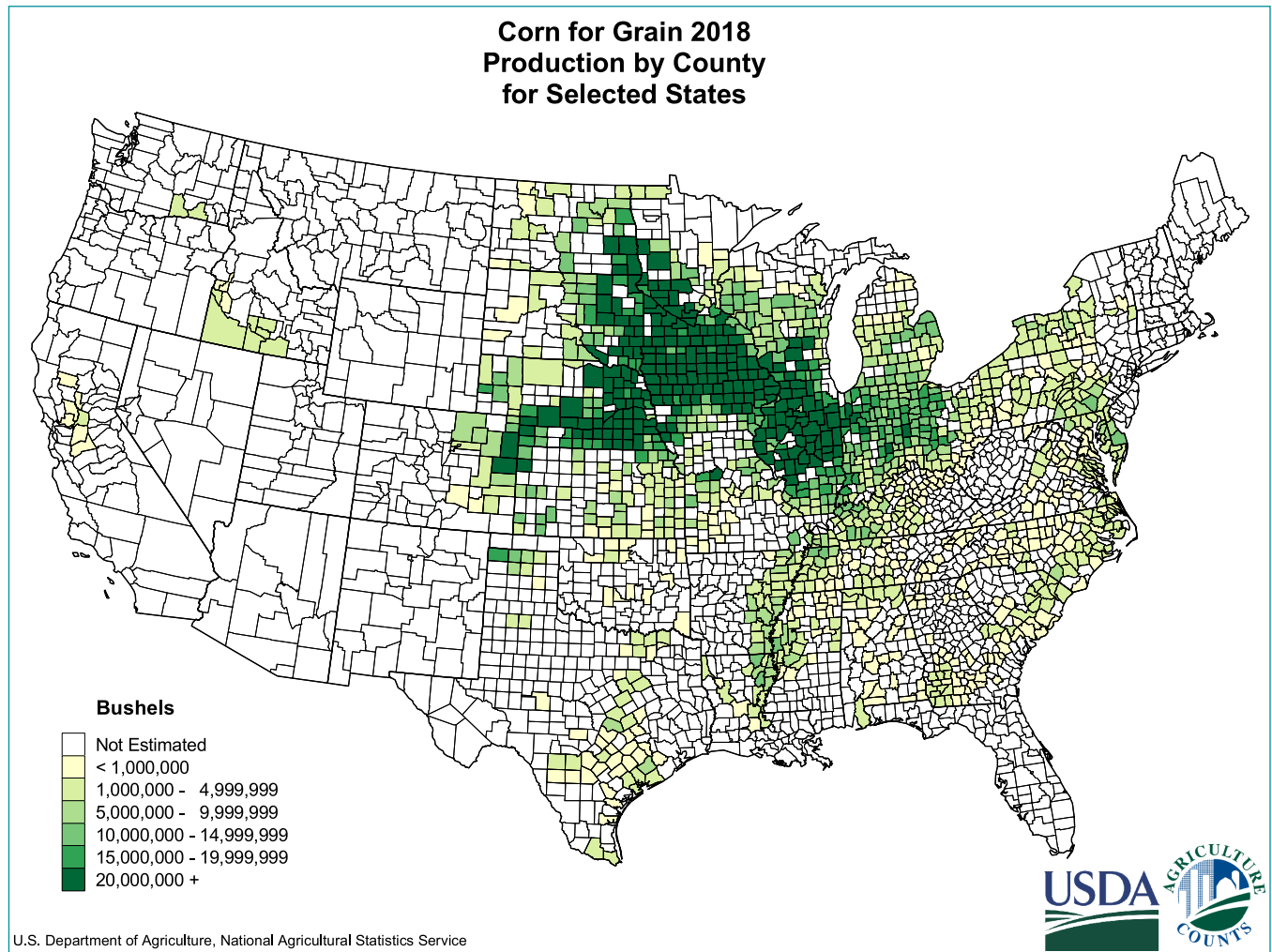
**Stimulus 1:** Spanish Speakers in the United States



*Write or type your response here:*



Stimulus 2: The American Corn Belt



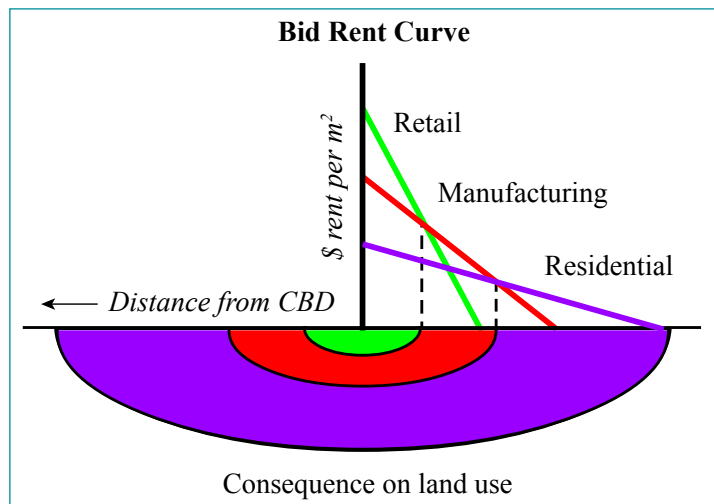
Write or type your response here:

Stimulus 3: Tokyo Dome for 2014 MLB Japan All-Star Series



Write or type your response here:

**Stimulus 4:** NYC Central Business District & Bid Rent Curve



*Write or type your response here:*

**Stimulus 5:** City Cell Phone Picture



*Write or type your response here:*

AP<sup>®</sup> Human Geography Homework  
**Tobler's 1st Law of Geography and  
Spatial Interaction & Analysis**



This activity will ask you to apply what you've learned about Tobler's 1st Law, distance decay, and time-space compression to the world around you. The goal is to help you understand how these geographic concepts can help explain the spatial arrangement of human activities in your community.

**Directions:** Complete the table below. For each row, come up with ways it applies to your community. Think about the following in the context of your local community to help you get started: schools and businesses, types of housing options, professional sports teams, fine-dining and fast-food restaurants, etc.

SPATIAL CONCEPT	HOW IT'S REPRESENTED IN MY COMMUNITY
Tobler's 1st Law	
Distance Decay	
Time-Space Compression	