

Treasure Map

By Stuart J. Murphy / ISBN: 978-0-06-446738-4

Lesson Authors

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Standards and Benchmarks (see pages 14-15)

Lesson Description

Students gain experience in geographic thinking using different types of maps to locate information. They begin by reviewing a current population map of the United States and answering questions about the map and its features. Next, they listen to the book *Treasure Map*, a story about a group of students who go on a treasure hunt. The students then practice mapping by creating a floor plan of their classroom. Next, they use this map to hunt for clues in the classroom. Finally, they practice their map-reading skills by using a thematic map (population) to answer the clues and solve a puzzle.

Essential Question

How do we use maps to help us locate important information?

Grade Level

2-4

Geography Concepts

Thematic maps (Theme: population)
Floor plan
Legend
Geography skills
Map creation (floor plan)
Map reading (floor plan and population map)

Objectives

Students will be able to

- define thematic map, floor plan, and legend;
- create a map to identify the locations of familiar places and objects in their classroom;
- use a map to locate familiar places in their classroom;
- use different types of maps (e.g., political, physical, and thematic) to locate information; and
- use the legend (key) on a map.

Time Required

75-90 minutes

Materials

- *Treasure Map* by Stuart J. Murphy (ISBN 978-0-06-446738-4)
- Visual 1, cut into cards
- Handouts 1, 2, and 3, one copy for each pair of students
- Handout 3—Answer Key
- Handout 4, one copy for each student
- One small prize for each student
- Crayons or markers
- Internet access
- Projector and screen or interactive whiteboard (i.e., SMART Board)

Preparation

Before students arrive, place the cards from *Visual 1: Clues* in various locations around the room. They should be in places the students will be able to read easily (i.e., avoid placing up too high), but not in plain view if possible. NOTE: You will mark the locations on a classroom floor plan the students create in class (see Step 11).

Procedure

1. To begin the lesson, show the current population map of the United States at <http://geof.red/m/3CF>. Ask the students to take a moment and look at the map. Discuss the following:

- What is this map showing? (*Population*)
 - What is population? (*Population is how many people live in an area. In this case, it is the population of each state.*)
 - How do you know the map is about population? (*The title*)
 - What is the title of this map? (*2015 Resident Population by State*)
2. Tell the students that this is a **thematic map**, which is a map that focuses on one particular idea or theme. The focus of this map, or its theme, is population. It shows how many people live in each state in the United States.
3. Point to the **legend** and explain the following:
- Legend is another word for key. A legend explains the symbols found on a map.
 - This map uses colors in its legend to represent different populations.
 - States with smaller populations, or fewer people, are shown in warm colors (e.g., red and orange), whereas states with large populations, or more people, are shown in cooler colors (e.g., blue and light blue).
 - Legends sometimes use abbreviations. This legend uses K, which stands for 1,000. For example, TX with 27.47K is actually 27,470,000, or about 27 million.
4. Proceed as follows:
- Point to Maine and Texas and ask which one has the larger population, or more people? (*Texas*)
 - How do you know Texas has the larger population? (*Texas is dark blue, Maine is red. Students might also point to the data values on the states and say that 27.47K is more than 1.33K*)
5. Call on three students to come up to the map. Proceed as follows:
- Ask the first student to point to the states with the smallest populations. (*They should point to the red states: MT, ND, SD, WY, DE, RI, NH, VT, and ME.*)
 - Ask the next student to point to the states with the largest populations (*They should point to the dark blue states: CA, TX, GA, FL, NC, IL, OH, PA, and NY.*)
 - Call on the final student to point out the state you live in and ask the student what the population is in your state. (*Answers will vary.*)
6. Tell the students they are going to hear the story *Treasure Map*. It is about a group of children who use a map to find a buried treasure. Begin reading the story and pause at page 6. Point to the map on page 7 and discuss the following:

- What is the title of the map? (*Buried Treasure*)
 - When was this map created? (*July 15, 1950*)
 - What symbols are in the legend? (*Shoe prints [giant steps], an oak tree, a pine tree, a river, a rock, and an "X" [treasure]*)
 - What symbol marks the spot where the treasure is buried? (*An "X"*)
 - How do you know? (*The legend, or key, has an "X" with "Treasure" written next to it.*)
7. Continue reading until the end of the story and then discuss the following:
- Two times the map didn't exactly show what the characters saw in current day. What were the two times it was different? (*A dirt path was now a sidewalk [pg. 14], and the big oak tree was now a stump [pg. 19].*)
 - Why are the map and the current-day landmarks different? (*The map was created a long time ago [it's old]; things change over time.*)
 - If we were to look at a population map of the United States for 1950 instead of 2015, like the one we looked at, how do you think it would be different? (*Answers will vary, but they should say that some states would be more or less populated.*)
8. Tell the students they are going to practice their mapping skills by creating a **floor plan** of the classroom. A floor plan is a type of map that shows where things are located in a room. It is like a picture someone drew looking down from the sky to show you where things are.
9. Assign partners and distribute a copy of *Handout 1: Classroom Map* to each pair of students. Direct the students to the example classroom map on the left-hand side of the handout.
10. Instruct the students to color the symbols in the colors labeled on the map. Ask the students to then point out the various components of the map (e.g., point to the teacher's desk) and walk around to check that they are finding things accurately.
11. Explain that the partners will work together to create a map of the classroom. They are to imagine they are looking at the classroom from the ceiling or on top of the light fixtures. Explain that the map should be similar to the example but of their own classroom. Their map must include all of the items shown in the legend and use the same colors:
- The teacher's desk must be a brown, colored in, rectangle.
 - The window(s) must be blue lines.
 - Student desks (or tables) must be white squares.

- Their desks must be marked with yellow stars.
- The chalkboard or whiteboard must be a green line.
- The classroom door(s) must be a red line.
- The American flag must be a red star.

Tell the students they may also add two additional legend symbols in the blank spaces, such as a classroom pet, library, activity center, or computer stations. (NOTE: Depending on the age level, you may want to decide the additional symbols.)

12. Instruct the student pairs to bring you the maps (or raise their hands) when they are finished so you can check their work. Allow time for students to work.
13. When each pair is finished creating their floor plan, proceed as follows:
 - Check their map and then add a clue symbol to the legend (for example, an orange dot). Use that symbol to mark on their map the location of the clues (from *Visual 1: Clues*) that you hid around the room.
 - Give the pair a copy of *Handout 2: Population Map* (or display Handout 2 on a whiteboard) and *Handout 3: Clue Answers*.
 - Tell the pair they are going on a treasure hunt, just like in the story, as follows:
 - They are to use the classroom map they created to find all four clues hidden around the classroom.
 - They are to use the Handout 2 map (or the map shown on the whiteboard) to answer the clue questions.
 - After they find all four clues, they are to return to their desks and decode the secret message at the bottom of Handout 3.
 - Once the pair is done, they are to bring completed Handout 3 to you.
14. Allow time for the student pairs to complete the tasks. As they bring their completed handouts, check their work using Handout 3—Answer Key and award their treasure—a small prize.

Closure

15. Review the important points of the lesson by discussing the following:
 - What is a map that focuses on one particular idea or theme called? (*A thematic map*)
 - What was the theme of the U.S. map shown at the beginning of the lesson? (*Population*)

- What type of map shows where things are placed or located in a room? (*A floor plan*)
 - What explains the symbols found on a map? (*The legend*)
 - What is another word for a legend? (*A key*)
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Assessment

16. Distribute a copy of *Handout 4: Assessment* to each student. Instruct the students to complete questions 1 to 10 using the map on the first page and questions 11 to 15 using the map on the second page. Allow time for students to work and then review their answers.

Handout 4: Assessment—Answer Key

1. *A thematic map*
2. *Population*
3. *The legend*
4. *1,001-5,000*
5. *C, B, D, and J*
6. *501-1,000*
7. *I*
8. *J*
9. *2 (M and I)*
10. *B, E, K, Q, Y, Z, and I*
11. *A floor plan*
12. *Hannah's New House*
13. *The living room*
14. *Terry's*
15. *The legend*

NOTE: The following lesson objectives were assessed formatively in the lesson with the main activity and thus are not included in the final summative assessment:

- Create a map to identify the locations of familiar places and objects in the classroom and
- use a map to locate familiar places in the classroom.

Visual 1: Clues

Clue 1

For each box,
compare the populations
of the two states.
Circle the state with
the larger population.

Clue 2

Circle the states
that have less than
1,900,001 people.

Clue 3

Circle the states
that have more than
2,650,000 people.

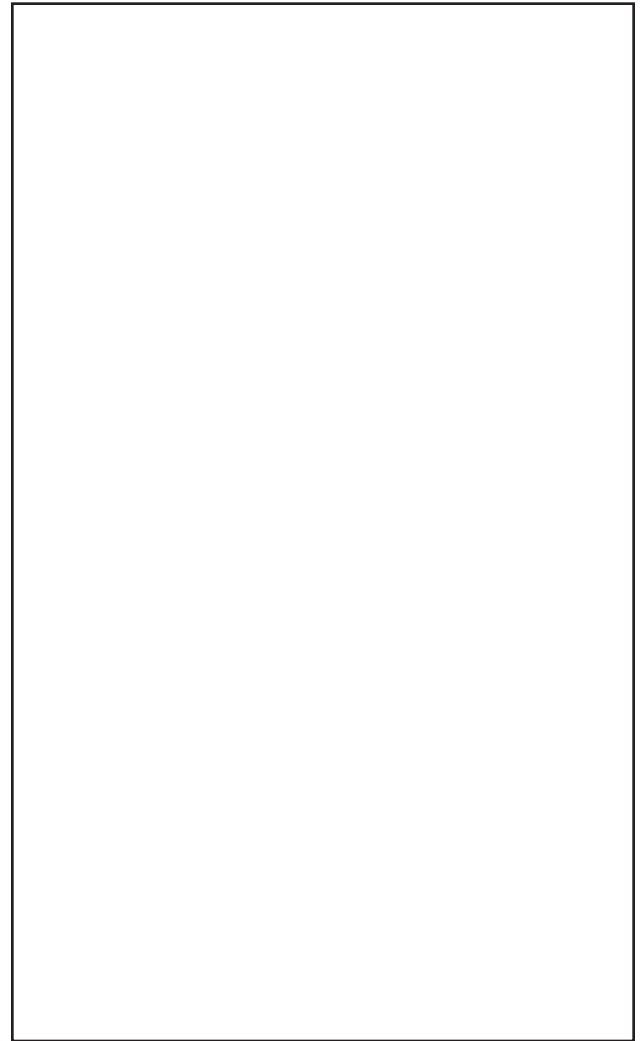
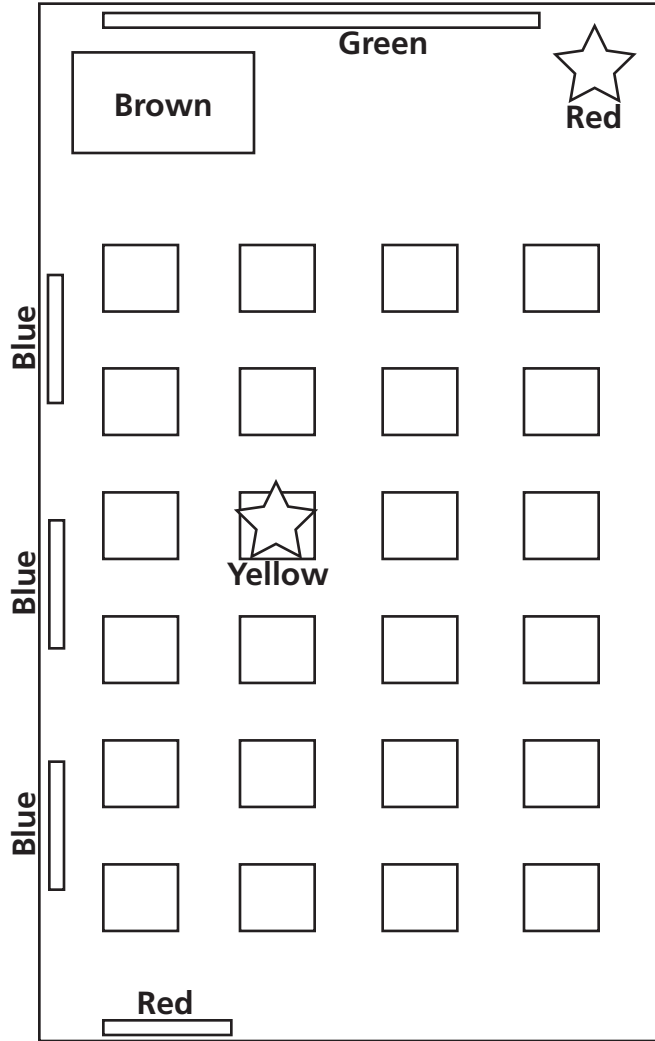
Clue 4

Circle the box with the
states correctly ordered
from smallest to largest
population.








Handout 1: Classroom Map

Example Classroom Floor Plan

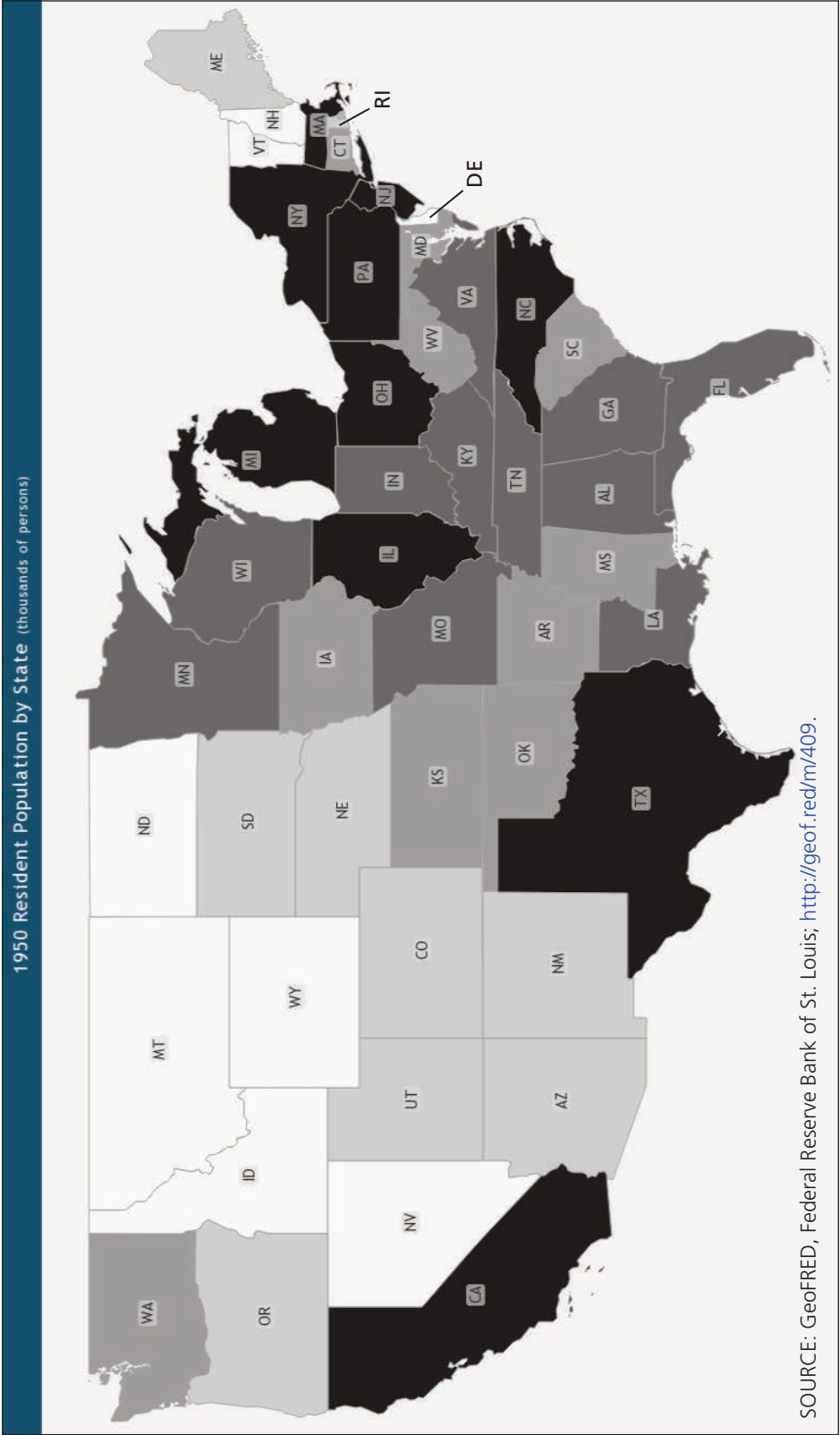
My Classroom Floor Plan



Legend

- | | | | | |
|--|-------------------|---|----------------|-------|
|  Brown | Teacher desk |  Red | Classroom door | _____ |
|  | Student desk |  Red | American flag | _____ |
|  Blue | Window |  Yellow | Where I sit | |
|  Green | Chalk/white board | | | |

Handout 2: Population Map



Handout 3: Clue Answers

Directions: Use the classroom floor plan you created to find the four clues hidden around the classroom. Answer the questions on the clues by using Handout 2 (or the map displayed by your teacher), a thematic population map. Use the first letter in each correct answer to decode the mystery phrase at the bottom of the page. Good luck!

<p>Clue 1</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>UT or ID 1 2</p> </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>SC or FL 2 9</p> </div> <div style="border: 1px solid black; padding: 5px;"> <p>NC or GA 4 7</p> </div>	<p>Clue 2</p> <p>MT LA TX ID WV 7 2 7 3 9</p>
<p>Clue 3</p> <p>AZ PA GA DE ME 1 8 5 6 9</p>	<p>Clue 4</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>SD, MS, AL 2 7 6</p> </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>AR, TN, WY 2 4 7</p> </div> <div style="border: 1px solid black; padding: 5px;"> <p>IL, MO, CT 3 2 9</p> </div>

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1 2 3 4 5 6 7 6 8 3 2 9 1 4

Handout 3: Clue Answers—Answer Key

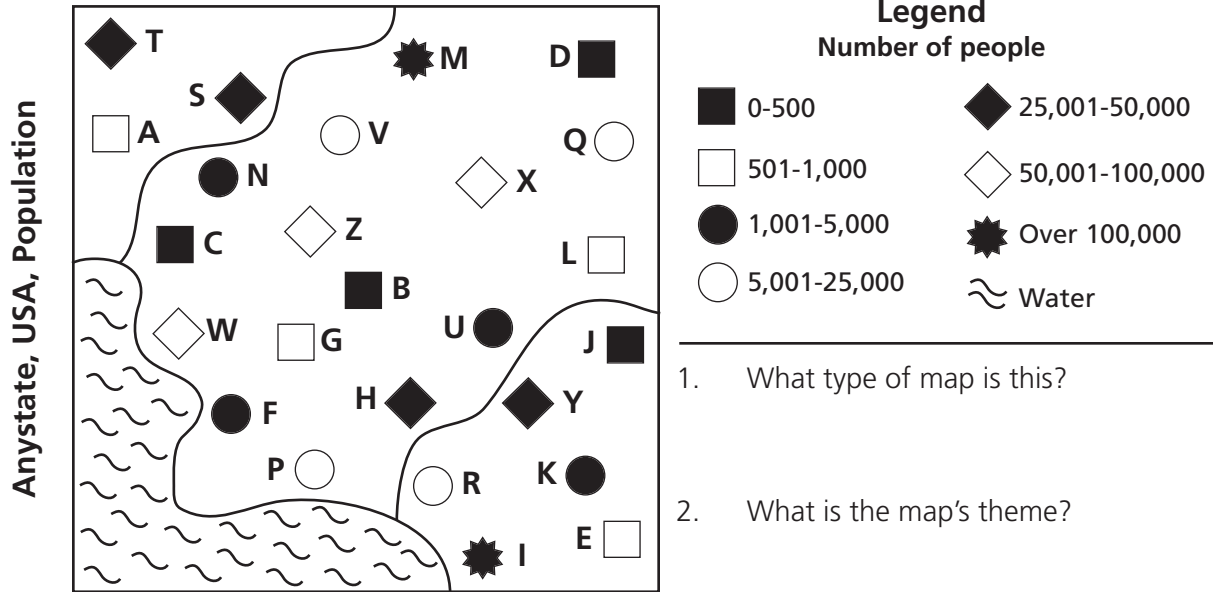
Directions: Use the classroom floor plan you created to find the four clues hidden around the classroom. Answer the questions on the clues by using Handout 2 (or the map displayed by your teacher), a thematic population map. Use the first letter in each correct answer to decode the mystery phrase at the bottom of the page. Good luck!

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<p>Clue 3</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="margin: 0 10px;"> <p>AZ 1</p> </div> <div style="border: 1px solid black; padding: 5px; margin: 0 10px;"> <p>PA 8</p> </div> <div style="border: 1px solid black; padding: 5px; margin: 0 10px;"> <p>GA 5</p> </div> <div style="margin: 0 10px;"> <p>DE 6</p> </div> <div style="margin: 0 10px;"> <p>ME 9</p> </div> </div>	<p>Clue 4</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>SD, MS, AL 2 7 6</p> </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>AR, TN, WY 2 4 7</p> </div> <div style="border: 1px solid black; padding: 5px;"> <p>IL, MO, CT 3 2 9</p> </div>

U S I N G A M A P I S F U N !
 1 2 3 4 5 6 7 6 8 3 2 9 1 4

Handout 4: Assessment (page 1 of 2) Name: _____

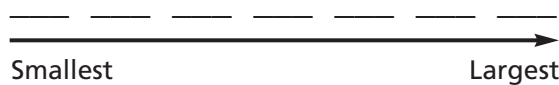
Directions: Use the "Anystate, USA, Population" map to answer questions 1 to 10. Use the "Hannah's New House" map to answer questions 11 to 15.



Anystate, USA, Population

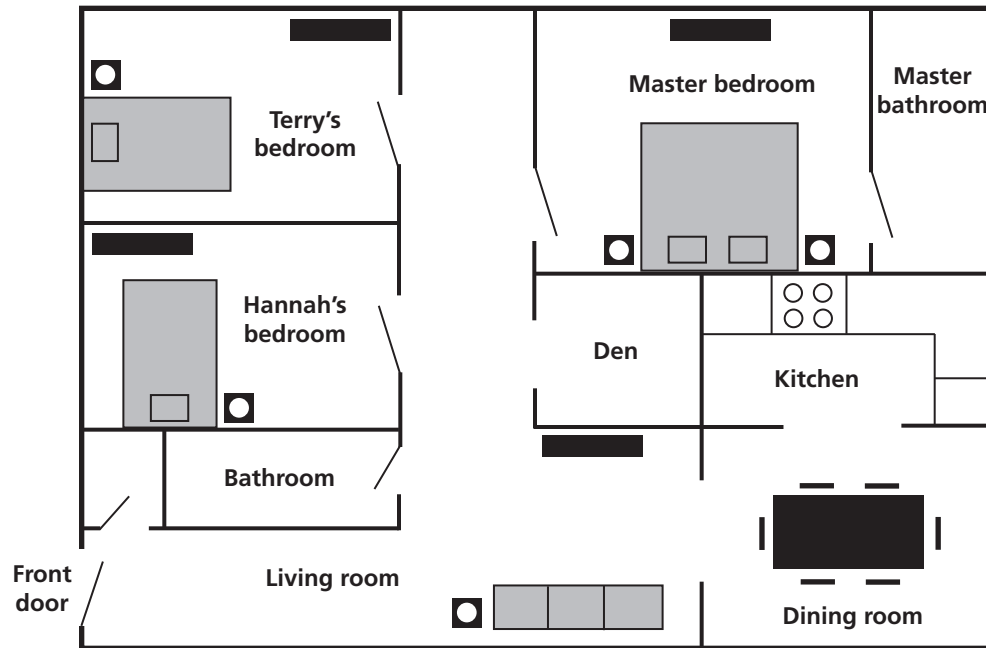
1. What type of map is this?
2. What is the map's theme?

3. What explains the symbols found on the map?
4. How many people live in a town with this symbol: ● ?
5. Name four towns with 0-500 people.
6. How many people live in town G?
7. Circle the town with the most people: A B I
8. Circle the town with the fewest people: L K J
9. How many towns have over 100,000 people?
10. Put the following towns in order from smallest to largest number of people:
K Q B Z I E Y



Handout 4: Assessment (page 2 of 2)

Hannah's New House



11. What type of map is this?
12. What is the title of this map?
13. When you come in the front door, what room are you in?
14. Whose bedroom is next to Hannah's?
15. What is missing that would help explain the symbols used on this map?

Standards and Benchmarks

National Geography Standards, Grade 4

Standard 1: How to use maps and other geographic representations, geospatial technologies, and spatial thinking to understand and communicate information.

Properties and Functions of Geographic Representations

1. Properties and functions of geographic representations—such as maps, globes, graphs, diagrams, aerial and other photographs, remotely sensed images, and geographic visualization

Therefore, the student is able to:

- A. Identify and describe the properties (position and orientation, symbols, scale, perspective, coordinate systems) and functions of geographic representations, as exemplified by being able to
 - Identify and describe the properties of a variety of maps and globes (e.g., title, legend, cardinal and intermediate directions, scale, symbols, grid, principal parallels, meridians) and purposes (wayfinding, reference, thematic).

Using Geospatial Data to Construct Geographic Representations

2. Geospatial data are connected to locations on Earth's surface

Therefore, the student is able to:

- A. Identify examples of geospatial data, as exemplified by being able to
 - Identify landmarks on the school grounds and describe their size, shape, and location.
 - Identify the spatial location of each student's assigned seat in the classroom.
 - Identify the locations and types of trees in the neighborhood of the school.
 - B. Construct maps and graphs to display geospatial data, as exemplified by being able to
 - Construct a map that displays geospatial data using symbols explained in a key (e.g., a sketch map to illustrate a narrative story, a map of cars in the school parking lot showing type and color, a classroom map showing different types of tables, desks, and chairs).
3. Geospatial technologies—Internet-based mapping applications, GIS, GPS, geovisualization, and remote sensing—display geospatial data

Therefore, the student is able to:

- A. Compare how different geospatial technologies are used to display geospatial data, as exemplified by being able to
 - Identify and describe the types of information communicated by different Internet-based mapping technologies.

Using Geographic Representations

4. The interpretation of geographic representations

Therefore, the student is able to:

- A. Describe and analyze the ways in which geographic representations communicate geospatial information, as exemplified by being able to
- Describe the purpose and components of a typical map key or legend.
 - Describe and analyze the similarities and differences in information displayed at different scales.
 - Analyze the different ways of symbolizing geospatial data (e.g., graduated circles, cartograms, choropleth versus isopleth maps).