

# GPS and the Young Learner

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<b>Grade Level</b>	1 - 3
<b>Duration</b>	45 minutes

## Arizona Social Studies Standards

### Strand 4: Geography

#### Grade 1

##### Concept 1: World in Spatial Terms

**PO 3.** Construct maps of a familiar place (e.g., classroom, bedroom, playground) including a compass rose, symbols, and map key/legend.

**PO 5.** Locate physical and human features using maps, illustrations, images, or globes.

##### Concept 2: Places and Regions

**PO 1.** Discuss human features (e.g., cities, parks, railroad tracks, hospitals, shops, schools) in the world.

#### Grade 2

##### Concept 1: World in Spatial Terms

**PO 3.** Construct a map of a familiar place (e.g., school, home, neighborhood, or fictional place) that includes a title, compass rose, symbols and key (legend).

**PO 6.** Locate physical and human features using maps, illustrations, images, or globes.

##### Concept 2 Places and Regions

**PO 2.** Discuss human features (e.g., cities, parks, railroad tracks, hospitals, shops, schools) in the world.

#### Grade 3

##### Concept 1: World in Spatial Terms

**PO 3.** Construct a map of a familiar place (e.g., school, home, neighborhood, or fictional place) that includes a title, compass rose, symbols and key (legend).

**PO 4.** Construct maps using symbols to represent human and physical features.

## Other Arizona Standards

### Mathematics

#### Grade 1

##### Strand 1: Number and Operations

###### Concept 1: Number Sense

**PO 1.** Express whole numbers 0 to 100, in groups of tens and ones using and connecting multiple representations.

#### Grade 2

##### Strand 1: Number and Operations

###### Concept 1: Number Sense

**PO 1.** Express whole numbers 0 to 1000, in groups of hundreds, tens and ones using and connecting multiple representations.

#### Grade 3

##### Strand 1: Number and Operations

###### Concept 1: Number Sense

**PO 1.** Express whole numbers through six digits using and connecting multiple representations.

### Writing

#### Strand 2: Writing Elements

##### Concept 1: Ideas and Content

###### Grades 1 and 2

**PO 1.** Write **stand-alone text** that expresses a clear message.

###### Grade 3

**PO 1.** Express ideas that are clear and directly related to the topic.

##### Concept 6: Conventions

###### Grade 1

**PO 2.** Use capital letters correctly for:

- the pronoun I
- the beginning of a sentence names

**PO 3.** Punctuate endings of sentences using:

- periods
- question marks
- exclamation points

###### Grade 2

**PO 1.** Use capital letters for:

- the pronoun I

- b. the beginning of a sentence
  - c. proper nouns (i.e., names, days, months)
- PO 2. Punctuate endings of sentences using:
- a. periods
  - b. question marks
  - c. exclamation points

**Grade 3**

- PO 2. Punctuate endings of sentences using:*
- a. periods*
  - b. question marks*
  - c. exclamation points*

## Overview

Young children are just exploring the world around them. As they develop their spatial thinking skills, it is logical for them to learn how maps portray locations, how symbols are used on maps, and how technology can be used to locate places on maps.

## Purpose

This lesson will use GPS units to locate places and have young students practice map making using symbols. They will also be learning to distinguish human features in their world.

## Materials

- Mapmaking worksheet
- 1 GPS unit for the teacher to use
- Colored pencils
- Power Point of human and physical features
- Oklahoma Roads map
- Clipboards (optional)
- Outside area
- Computer
- Internet connection
- 6 Traits Writing Rubric (optional)

## Objectives

Students will:

- Construct a map using symbols
- Locate human features
- Identify 2 and 3 digit numbers
- Discuss human features
- Identify how technology can assist us in locating places

## Lesson Components

**Prerequisite skills:** Students will have knowledge of 2 or 3 digit numbers. Be sure the GPS unit is set to latitude in degrees, minutes and seconds.

**Prior Preparation:** The teacher will need to identify 4 or 5 human features outside by degrees, minutes, and seconds prior to doing this lesson and create dots on the blank Mapmaking worksheet. Be sure to travel far enough to get different 2 and 3 number combinations. For example:

**33° 25' 12" N and 111° 56' 11" W**

**33° 25' 13" N and 111° 56' 10" W**

**33° 25' 14" N and 111° 56' 13" W**

Obviously, the only number changing is the last set of numbers (the seconds). This is because it would be too far to travel to get the minutes to change. However this still gives students the concept that places have an absolute location.

### Session One

1. Introduce students to the difference between physical and human features by showing the included Power Point. Have students generate other examples of physical and human features and list these on the white board.
2. Show some examples of maps that use symbols to represent locations on the map. If you use the Oklahoma Roads map, point out the symbols used and how the map also includes some symbols that are not explained. To be a really good map, the symbols should all be explained.
3. Show the students the GPS unit. Discuss how this machine can pinpoint places on earth by giving numbers. Pass around the GPS unit and show the students where the numbers can be found. Put some coordinates on the board (**33° 25' 12" N and 111° 56' 11" W**). Practice reading the numbers in degrees, seconds, and minutes with the direction indicated.
4. Pass out the Mapmaking worksheets. Have the students put their names on the worksheets and attach them to the clipboards.
5. Go outside. Go to the first dot. Read off the numbers you have previously figured out for that location. Have the students identify the dot by recognizing the numbers you have called out. Then ask them what human feature is found at this location. Have them either draw the feature or use a symbol.
6. After all of the dots have been identified by the human feature found there, have the students complete the key using colored pencils.

### Session Two

1. Use the Internet to locate the 4 or 5 coordinates on Google Earth (<http://earth.google.com/>) that the students mapped the day before. **Note: The resolution may not be great enough to see the human features well. You might want to select your coordinates prior to this lesson based on what shows well on Google Earth.**

2. Have the students (as a class or individually) write a few sentences about how technology helped them find places on Earth.

## Assessment

The dots can be graded for accuracy of number sense (identifying the 2 or 3 digit numbers correctly). Four out of 5 would be considered mastery.

The human features should be symbolized on the map and labeled correctly in the legend. Four out of 5 would be considered mastery.

The sentences about the use of technology to find places on Earth can be graded for conventions (capital letters and punctuation) and ideas (two main ideas should be given).

Possible main ideas are:

- GPS units can give us numbers that tell us where things are located on Earth.
- Google Earth uses pictures to show us places on Earth.
- You can find places on the computer.
- If you mention how GPS use satellites to get the coordinates, then students might write about satellites help us find places on Earth.

## Extensions

Add some distracter points (***33° 25' 24" N and 111° 56' 19" W***) to the map. This will make the identification of numbers more difficult.

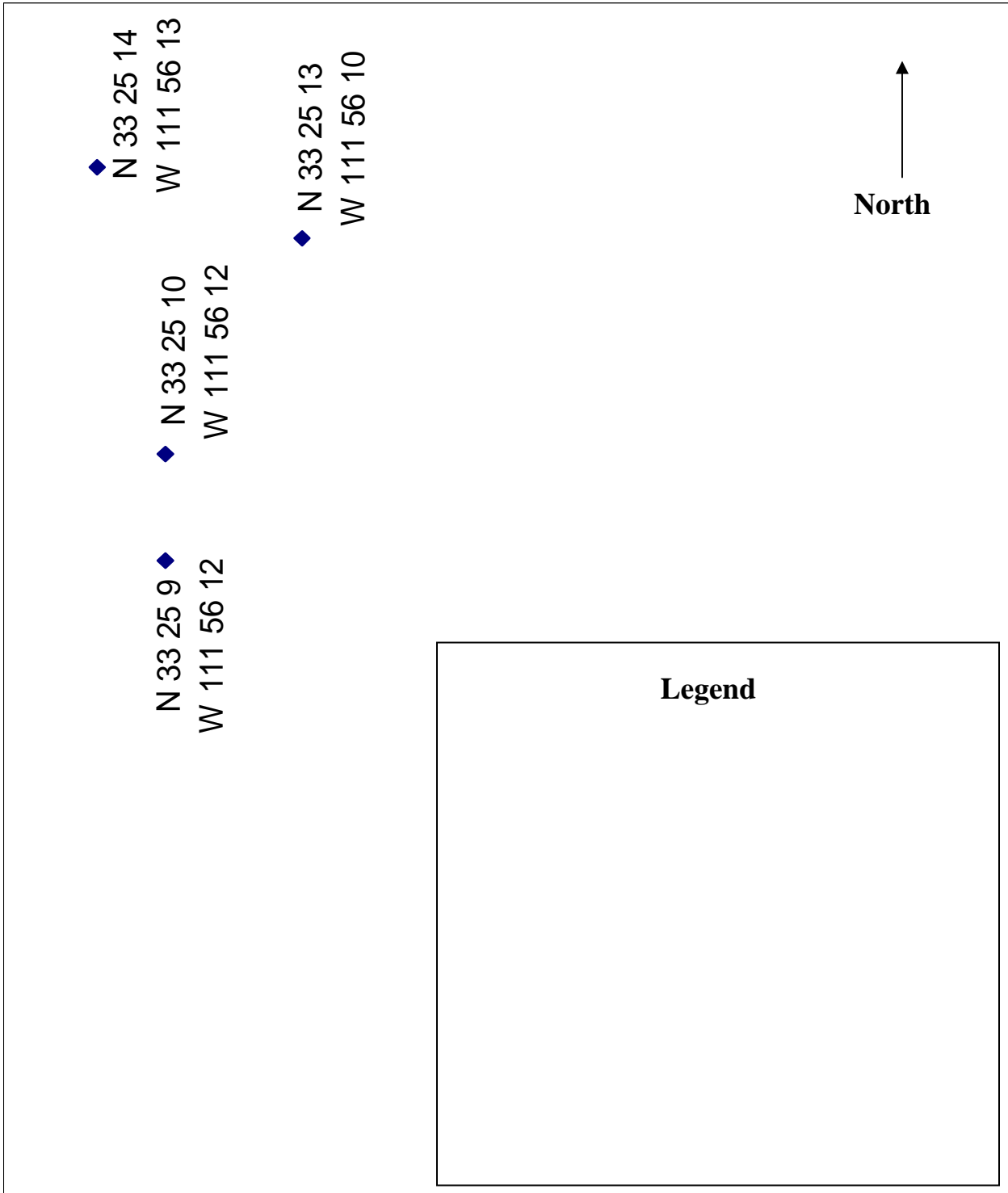
Have the students add human features to the map based on relative location to the pinpointed ones. (The water fountain was west of the sculpture.) Make sure they add these to the legend.

## Sources

Google Earth: <http://earth.google.com/>

Name: \_\_\_\_\_

# Locating Human Features at \_\_\_\_\_



Name: \_\_\_\_\_

Locating Human Features at \_\_\_\_\_



**North**

**Legend**