A systematic progression of social studies skills for the interpretation of maps and globes in grade four

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A SYSTEMATIC PROGRESSION OF SOCIAL STUDIES SKILLS
FOR THE INTERPRETATION OF MAPS AND GLOBES
IN GRADE FOUR

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Presented to
the Faculty of the School of Education
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CHAPTER I

INTRODUCTION

The purpose of this study is to produce a systematic progression of social studies skills for fourth grade pupils in the interpretation of maps and globes.

Intelligent map reading tends to develop intelligent diagnosis of human and world relationships. Incidental or non-directive map teaching is not sufficient for all of the vicarious travel encountered in the social studies. Since the cartographer's language introduces a new symbolic communication, a mental picture behind each feature on the map becomes a necessary step to understanding. The ability to read types of specific information from maps and globes needs to be developed gradually and in systematic progression as early as possible.

Many research studies deal with the testing and the compiling of data on the inadequacy of elementary pupils in the social studies skills. Medical diagnoses infer planned treatment for ailments, whereas, too many educational diagnoses merely become alarming statistics. This study is an attempt to eliminate confusions by introducing basic techniques of map reading before misconceptions can be formed through aimless trial and error methods.

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The ability to read does not assure the correct interpretation of geographic terms until the development of these new concepts brings meaning to the printed material. Vocabulary readiness is a prerequisite for any reading with understanding. Many teachers do not have the time and the technical background to prepare a step by step program of instruction in map reading. This study is constructed to present a gradual and cumulative pattern for applying mental images to new visual symbols.

"A knowledge of how to acquire knowledge is a permanent possession which can be used throughout life."

CHAPTER II

REVIEW OF LITERATURE

Readiness and instruction in the use of maps and globes should be a definitely planned program. Map reading skills require a certain sequence of understandings before children can comprehend the realities symbolized on a flat surface or a sphere representing the earth.

Since social studies deal with human relationships, the map and globe reading skills should be a part of every classroom activity where associations are needed for remote or unfamiliar portions of the earth. Skills should be adapted to the ability and current experiences of pupils in translating abstractions into realities. Continuity of teaching and re-teaching these steps to map interpretation is necessary for developing and maintaining competence.

"The use of maps should be a definite part of the daily experience of living." Maps are a pleasure and profit for those who can interpret them but much effort is needed before a pupil can look at a map and visualize an area inhabited by flesh and blood people.1

Globes and maps give only generalized patterns of the natural and cultural features. "Only the globe represents the surface of the earth true in all four characteristics sought in flat map projections: namely true shapes, true distances, true directions, and equal areas." It is a scale model, in three dimensions, representing the earth and for this reason is basic to the development of skills and abilities to read flat maps. All flat map projection must constantly be related to the globe.2

The globe map is really a diagram showing selected information by utilizing symbols which all have assigned meaning. The consistent use of the globe reminds the user of world unity, relationships, and earth movements and their significance for the inhabitants of the earth. "We must first learn to use the globe, and then use the globe to learn about the country, the continent, the world, and the universe in which we live."3

Improvements in communication and transportation along with the nature of prevailing world problems have made geographic horizons much broader today. Adequate globes and maps should be a part of every complete social studies classroom. "Over and above all these things should be a

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3Ibid.
supervision to be sure that effective use is made of every type of visual aid ... that the greatest benefits to our educational objectives may be realized.  

Basic ideas of sphere, hemisphere, poles, equator, axis, rotation, oceans, continents, distance, and direction should be developed by fourth graders as they use the globe for each new region studied.

Maps are one step further removed from reality than the globe. They are arrangements of space, shapes, colors, lines, and words upon a flat surface simulating parts of the earth. A wealth of information which would require many pages of text explanation is revealed concisely. "In order to understand symbols children must realize that the map is not a real picture of the earth but a kind of graph made up entirely of symbols and geographic features."

A consensus of geographers' opinions by Elaine Forsyth states that three elements common to all maps are: a system of lines on which the map is laid out; a scale which shows the size of the map compared with the earth; and symbols to show the distribution of natural or human features.

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6Elaine Forsyth, "Map Reading," Journal of Geography, 42:249-257 (October, 1943)
The map is a precision instrument for cultivating both qualitative and quantitative concepts. The arranged patterns of symbols give information only to those who can interpret the arbitrarily assigned meanings. "Only in shape and relative distance does the map resemble nature. It is entirely symbolic and to learn the meaning of its symbols is like learning to read a foreign language." 7

Winifred Brooks constructed some exercises for teaching map interpretation in her study during 1946. She felt that since children must be taught to speak correctly, to read fluently, and to write acceptably, they must also be taught to read and draw deductions from maps. Map reading skills cannot be assimilated casually along with the many other phases of social studies teaching. 8

When a map is placed before a student, we must not assume any understanding of its symbols or any ability to interpret its meaning. The development of map reading skill must come step by step, just as gradually as the development of words and phrases in reading. 9


8 Winifred Brooks, "Exercises in Map Interpretation," (unpublished Master's thesis, Boston University, Boston, 1946)

9 Preston E. James, "Developments in the Field of Geography and Their Implications for the Geography Curriculum," The Journal of Geography, 46:221-226 (September, 1947)
The Twenty-Fourth Yearbook of the National Council for the Social Studies has been a valuable source of information and guide in the preparation of this skills program to supplement the basic text. It was like finding one's mental pictures in print to read the Foreword by Helen McCracken Carpenter.

There was a need to present at least the major skills needed in the social studies program in successive degrees of difficulty in order to illustrate how learning could be cumulative. At the same time the treatment of the development of any skill at a given level of the school system should be readily accessible to the teachers most concerned.10

The challenge of John H. Haefner in the Preface of the Twenty-Fourth Yearbook provides justification for this workbook of graded exercises to develop a readiness for map interpretation.

One of the most valuable contributions the teacher can make to the education of youth is the development of a wide range of skills that will be invaluable to them as they enter into adult citizenship... It is the responsibility of every social studies teacher and school administrator to do everything possible to incorporate the development of these skills into their teaching and school programs.11

The gradation used in this study for developing a readiness to interpret maps and globes follows suggestions made in Chapter VIII of this same yearbook.

10Helen McCracken Carpenter, Skills in Social Studies, Twenty-Fourth Yearbook of the National Council for the Social Studies (Washington, D. C., 1954)

11Ibid., Preface
Spatial relations of things, places, and areas of the earth's surface and visualizing symbols of physical and cultural features must be mastered through step-by-step development of each skill.

1. Locate places on the globe and map by using cardinal directions in relation to the equator and the poles.

2. Compute and express distance in terms of simple linear measurements.

3. Work with concepts of location relative to the major elements of the physical environment.

4. Visualize a real landscape for map symbols of physical and cultural features.\(^\text{12}\)

**Directions**

The sense of direction is not an innate quality. The everyday activity of children involves placement of familiar objects near or far from other familiar objects. The language of direction and the relative position of things in their environment are learned skills. Like primitive man, after children orient themselves in relation to the sun and the immediate neighborhood they need a more stable method for determining cardinal and intermediate directions.

Orientation should begin on floor maps of the child's locality progressing to the globe for relative location. The importance of the globe is expressed by Clyde F. Kohn. Because of its sphericity the Globe represents the shape of land masses correctly, possesses equality of areas in all portions, presents directions accurately, and shows size.

\(^\text{12}\text{Ibid.}, \ p. \ 175\)
and location relationship of land masses.13

Distance

Maps represent reductions of broad areas of the earth's surface to a size small enough to examine close at hand. One Chinese map maker gives a beautifully graphic description of maps as a way of looking at distant places as if they were on the palm of your hand.

The charted area may be many thousand or million times larger than the reproduction on paper. Maps help to reduce the scale of areas and distances so that what is otherwise intangible becomes meaningful. This brings the abstract concepts of size, distance, and direction into the region of reality.14

Ground distances have little actual importance to the child's normal activity over relatively small portions of the earth's surface. Understanding a scale of distance implicates a relationship of two linear measurements with ground distance and map distance. Computing and expressing distance must coincide with mathematical maturity. Functional understanding of scales depends upon the ability to visualize landscape in terms of familiar quantities.


Physical Features

The map is a symbolic representation of the surface of the earth. It is a geographic shorthand record of a mass of knowledge which would require many pages, or even a volume, to record in words.15

First experiences with flat maps should be of the child's immediate environment and within his limits of knowledge. Familiar features of the neighborhood should be located on a large floor map by using suitable symbols or photographs for the landscape. Pictures can short-cut the learning process by many hours and actually extend the limits of experience. Comparative study of pictures will save hours of text-book reading while it teaches true facts, concepts, and mental associations.16

Physical features of the earth's surface make some places more or less accessible than others. The kind of terrain is a big factor in the location, occupation, and transportation of the people in the world. Unfamiliar phrases and geographic vocabulary remain merely verbalisms until some vicarious activity is attached to the elements beyond childhood environment.


It is futile to expect children to understand abstractions involving insufficient background. Facility in map reading requires many skills, much practice, and step by step development before a pupil can look at a map and see an inhabited earth behind the shapes, colors, lines, and symbols.  

Symbols

Children are not expected to talk fluently in a foreign language but are often exposed to maps, globes, and geographic terms without proper indoctrination.

No teacher would expect an elementary pupil to read adult books; yet children are constantly given adult maps to read without any preparation in map reading whatsoever. It is no wonder that Americans have grown up with little interest in maps or little ability to read them.

Each new symbol, like each new word or phrase in reading must be carefully introduced, and only gradually should the difficulty of a map be increased. No conventional, or even semi-pictorial symbols, should be introduced without first picturing the object that is represented by the symbol.  

Symbols are map language for physical and cultural features of the earth. Reality in reading the map exists only to the extent of associating personal experience and acquired knowledge with the isolated area. Understanding

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of any feature should not be assumed since incorrect ideas can set up misconceptions, detrimental to future associations. M. Melvina Svec gives a most comprehensive mental picture of mental pictures behind symbols.

If far away places so much in the news today were as real to our students as a neighboring state, how much more meaningful the news would be! If they can read a map so that they get a mental picture of a particular country or city, they have at their command an electronic eye that opens doors to this understanding. . . . They have a whole parade of associated ideas that march across that section of the map in which the symbol is placed. 19

Because maps are symbolic representations, children will need definite, gradual instruction in the interpretation of them. We will succeed with children only if the necessary skills are identified, taught in proper sequence, presented slowly enough for the child to acquire them, and maintained in higher grades. 20

The ability to orient oneself, estimate distances, and visualize a landscape or structure behind each map feature and symbol will contribute toward better understanding of world conditions. When the skills are developed in gradual and systematic progression, they are invaluable tools for the vicarious travel in the social studies.


Succinct arguments for sensory aids compiled by Edgar Wesley and Mary Adams illustrate the premise of this study.

Visual aids, properly used, are fundamental not supplementary. They furnish experience; facilitate an association of word and object; save time; provide authentic information; enrich appreciation; furnish entertainment; simplify complicated data; stimulate imagination; develop powers of observation; and in conclusion, they need no translators for their universal language of form, color, position, and motion.21

CHAPTER III

PROCEDURE

Preliminary procedure in the construction of the skills program was to make sure that the exercises were made educationally sound by following the basic principles of learning and the recommendations gathered from research.

Basic principles of learning which have implications for the most efficient and effective development of skills are: (a) Skills are not ends in themselves but are useful in achieving goals. (b) Experiences to promote growth must be meaningful and geared to the maturation level of the learner. (c) Repetitive practice in connection with on-going activity is necessary for successful learning and retention of skills.¹

The skills of finding directions, estimating distance, recognizing physical features, and reading information from symbols are needed in achieving a relative view of different regions in the world. Experiments were made, corrected for clarity, and graded for difficulty to make the experiences with maps and globes meaningful to fourth graders. Each new skill developed involved the previously learned skills to

provide repetitive practice and set a pattern for the automatic interpretation of maps and globes in situations requiring mental pictures for vicarious travel.

Since maps are symbolic representations, attention must first be given to the gradual development of the map language. New symbols, colors, and terms should be taught, identified, and learned as they are needed for functional use. The use of maps must be related to children's backgrounds and experiences, information must be associated with things and places they already know, concepts and symbols must be put to use in solving problems as they arise.²

New concepts and symbols involved in just one portion of the social studies, interpreting maps and globes, needed a vocabulary readiness. Map language to be developed was drawn from an analysis made by Carolyn Grund and Helen C. Long of the vocabulary used in seven recently published fourth grade books.³ Their list of geographic terms was used as an oral-test introduction to some of the words which were needed to understand the information that maps and globes give about the lands and peoples of the world. Fifty words were selected to be developed as a Pictorial Dictionary and


³Carolyn Grund and Helen C. Long, "Exercises to Develop Skill in Map Reading in Grade Four" (unpublished Master's thesis, Boston University School of Education, Boston, 1954)
Guide Words pages. Photographs and commercial pictures were collected and identified for compiling individual notebooks and a class Pictorial Dictionary.

Since the intention of this study was to provide background experiences in the use of interpretive abilities, the plan for a systematic progression of skills was set up as follows: (1) The sequence of teaching would be the use of directions, the globe, distance, physical features, and cultural symbols. (2) The pattern for each area would be a page of explained guide words, a study page for guided experience with the new skill, and pages for independent work to show the application of the learned theory of study. (3) Repetitive practice would be provided by picking up previously learned skills after each area. (4) A series of cumulative tests would be used to show aggregate interpretive abilities.

Orientation began with establishing the cardinal points of direction within the classroom and moving out into the neighborhood to the child's own home. Original pictorial symbols were used to identify the school, the highway, a few physical or cultural features, and the child's own home. The directional arrow pointing toward the north was used on a board diagram showing the general direction of the roads at the intersections around the school. Each child set out pictorially in his proper homeward direction on a simplified one road map. Symbols, colors, directions, and features
were utilized by each child in reaching his house by means of a wordless explanation.

Bringing the general conception of direction into the actual concepts of direction was the next step of development. A simplified floor plan of the school was used to find the in-between points in relation to the cardinal points. The directional arrow was put on the floor-map to fix one cardinal direction in mind from which the other three points could be determined. By tracing a line toward the north and toward the east an in-between point was established where the lines converged which could easily be described with one word, northeast. The first floor-map defeated the purpose of this thesis by drawing too fine lines of distinction. For example, the two central east and west rooms jutted out from the main contour of the building. The adjacent rooms were then placed at an in-between angle but the difference was hard for the children to see and too complicated for a first step of instruction. The children suggested that the sides of the building should be made even and the word corner used in place of the word side in statements like, "Grade One is on the southeast side of the building." The suggestions were followed and the corrected floor-map and exercises were put into the workbook.

Following orientation on the globe, flat maps of the globe were made to show the location of continents in relation to the two poles and the equator, the east-west and
north-south directional lines, and the different hemispheres. The flat globe-map was simplified to show how places on the north-south or east-west directional lines appear to be curved toward an in-between direction but in reality they were in relation to other places on the same line toward the north, south, east, and west.

Background for the map key or legend was built through a collection of pictures titled to identify each symbol for directions, distances, relief features, and cultural features. Individual maps were made by the children to picture their conceptions of the map language and clarify their misconceptions. Large board maps were constantly being altered as suggestions were made which helped to bring understanding. The final maps for the workbook were refined to introduce the skills of interpreting directions, distances, features, and symbols in the simplest form.
CHAPTER IV

SUMMARY AND CONCLUSIONS

For the purpose of this thesis, the skills for the interpretation of maps and globes were isolated only for the identification of necessary skills and the recommended gradation. The implications of the program were that the exercises would be used to provide background experiences in situations requiring the use of interpretive abilities. As each new map opens a field of investigation based on a sequence of direction, distance, physical features, and descriptive symbols, the premise was that the study habit formed early in the social studies would help fix a pattern of mental associations to use as new map references occurred.

In order to expand horizons as strange areas of the world are developed, inert geographic materials become meaningful only through relations with real people in real places. The ability to visualize remote places, people, and events behind the various symbols on maps implies a knowledge of the geographic factors affecting the economic and social status of the depicted areas. A known quantity must be established first before any critical thinking can be derived.

Detailed studies of the abilities to use social studies skills have revealed wide variance in them as a result of neglect, indifference, or ignorance of this phase of subject
matter. A wealth of concise information too often is lost through infrequent, casual, or unskilled use of maps and globes. A progression of basic techniques for the interpretation of maps and globes should be taught inductively for the maximum efficiency in projecting a three dimensional surface for the space saving map projection.

A study habit formed early in the social studies, a knowledge of geographic factors, an efficient use of world projection, and a cumulative background of mental associations should be effective tools for understanding the spatial, geographic, economic, and cultural relationships of the world fellowship.

Suggestions for Further Research

1. Make a Fourth Grade Map Skills Test to show the growth in the interpretation of maps and globes. The test could be administered after one group had used the Workbook for about eight weeks and another group the basic text with no additional map study.

2. Make a Fifth Grade Workbook of Map Skills to intensify and elaborate the fourth grade skills. This study should include making inferences and comparing pattern maps of physical, agricultural, and cultural distribution.

3. Use the Workbook at the beginning of the year to set the pattern for interpreting maps and globes. Watch the pupils' actual use of the skills throughout the year. Test with some standardized test and compare with national norms.
CHAPTER V

WORKBOOK OF STUDY SKILLS FOR
INTERPRETATION OF MAPS AND GLOBES
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FOREWORD TO THE PUPILS

Have you ever heard anyone say that he was going "Down East" for the summer? If he drove along the seacoast highway he would find almost flat land. Sometimes he would go uphill or downhill. The highway signpost would probably point toward the north. Along the highway he would follow some numbers and go toward the right place. Finally he would come to a place where the highway crossed a dirt road and would turn toward the west for a mile. He would turn into the yard of his summer cottage on the south shore of the lake. He knew just where he was going but if anyone else followed his directions he would go downhill toward the Atlantic Ocean.

When you look at a map of some place that you have been you can see the lake where you went fishing, the beach where you went swimming, the toll bridge where you had to pay money to cross the river, or the railroad that took you to visit some place farther away. You can picture these places in your mind and have the fun over and over again if you can read the map language.

This year we are going to study about people in far away places which we can not see in our mind because we have not been there yet. If we look at pictures of these different places, we can see in our minds what the reading words and map language mean. Map language is really a plan for seeing many things in a small space. You have to understand the language before you can see the things.
MAP SKILL STUDY PLAN

This plan will help you to see how other boys and girls live in lands which may have places just like ours or very different.

1. DIRECTION AND GLOBE
   What direction is the place from us?
   What direction is it from the equator?
   What continent is it in?
   What direction is it from other places we know?

2. DISTANCE
   How far is the place from us?
   How far is it from the equator?
   How far is it from the other places we know?
   How large is the country?
   How far is it between the different cities?

3. FEATURES
   What are the kinds of surfaces in the country?
   What are the shapes of land and water?
   What do these places really look like?
   Can I find a picture of this new word so I can see it?

4. SYMBOLS
   What direction does the arrow symbol tell us?
   What does the key or legend tell about the lines, colors, dots, and figures?
   Do I see real places behind each symbol?
DIRECTION GUIDE WORDS

Cardinal directions are north, south, east, and west.
North is always toward the North Pole.
South is always toward the South Pole and opposite north.
East is on the right-hand side when we are facing north.
West is exactly opposite east.

In-between directions are halfway between cardinal points.
Northeast is halfway between north and east.
Southeast is halfway between south and east.
Southwest is halfway between south and west.
Northwest is halfway between north and west.

Northern, southern, eastern, and western mean in the place toward the direction of north, south, east, and west.

Up and down are direction words only when they are used to show relation to the surface of the earth.
Up is toward the sky or away from the surface of the earth.
Down is toward the surface or center of the earth.

Lines from the North Pole to the South Pole are guide lines in finding directions on maps and globes. East-west lines go around the earth the other way from north-south lines.
DIRECTION STUDY GUIDE

Place a compass on a level surface.
Face the direction toward which the needle is pointing.
You are now facing north. Directly in back of you is south.
East is toward your right and west is toward your left.

Hold the compass in your hand and walk toward the north.
Turn around and walk in the opposite direction. You are now
walking south but notice the needle turns back to point
toward the north.
Walk toward the east and then toward the west. Notice the
needle turns back toward north each time.

Arrows or symbols are used on maps to point out one of the
directions on maps. Study the cardinal and in-between
directions on the two figures below.

FIGURE 1
CARDINAL DIRECTIONS

FIGURE 2
IN-BETWEEN DIRECTIONS
DIRECTION EXERCISES

Before you do the written exercise below, review the cardinal directions.

Stand beside your desk and face toward the north. Point north.
Turn one quarter way to your right and you are facing east. Point straight ahead to the east. In back of you is west.
Turn one quarter way to your right and you are facing south. Point straight ahead to the south. In back of you is north.
Turn one quarter way to your right and you are facing west. Point straight ahead to the west. In back of you is east.
Turn one quarter way to your right. You are facing north.

Fill the blanks with the words north, south, east, or west.

1. I am facing _____ when I sit at my desk.
2. The clock is _____ of me.
3. Most of our windows are on the _____ wall.
4. The flag is on the _____ side of my schoolroom.
5. We enter the room by walking toward the _____.
6. In the morning the sun is _____ of my school.
7. The longest chalkboards are on the _____ wall.
8. At recess we walk _____ out of the room.
9. The book shelves are _____ of the teacher's desk.
10. When I face the sun in the morning _____ is behind me.
CARDINAL AND IN-BETWEEN DIRECTIONS

Study Figure 3 and Figure 4 below. Notice that the direction at the top is different on them. On Figure 3 find the point one quarter way to the right. With these two points you can name their opposites and then the point halfway between these cardinal directions. Do the same thing for Figure 4.

FIGURE 3
NORTH ARROW

FIGURE 4
EAST ARROW

DIRECTIONS: Fill the blanks with the words north, northeast, east, southeast, south, southwest, west, or northwest for each number on the Figures above.

1. ___________ 6. ___________
2. ___________ 7. ___________
3. ___________ 8. ___________
4. ___________ 9. ___________
5. ___________ 10. ___________
DIRECTIONS: Use direction abbreviations N, NE, E, SE, S, SW, W, NW.

1. The front door opens to the _____.
2. From the front door we walk _____ to the office.
3. School Street is _____ of the building.
4. The fifth grade girls walk _____ to their room.
5. Grade 4 is _____ of Grade 3.
6. Grade Four is _____ of Grade One.
7. Grade 2 is on the _____ corner of the school.
8. Grade One is on the _____ corner of the building.
9. We walk _____ from the building to School Street.
10. The boys of Grade 6 walk _____ to their room.
Look at the direction arrow. Trace the direction north toward the top of the map. Trace the direction south toward the bottom of the map. Trace to the east and to the west.

The dots on this map stand for cities. The letters stand for the names of the cities. Notice that the names are placed sometimes above, beside, or below the cities.

Put your finger on dot M and trace directly north to dot T. Put your finger on dot M and trace directly south to dot L. Trace directly east from dot M to dot H and west to dot P. Now trace north and east from dot M to dot F. Trace south and east from dot M to dot K. Trace northwest from dot M to dot Z. Trace southwest from dot M to dot R.
MAP EXERCISES

Use the Direction Study Map, Figure 6, to find these cities.

1. The nearest city south of city T is _____.
2. The nearest city southwest of city T is _____.
3. Going north from city R, which city is nearest? _____.
4. When you go northwest of city L, the nearest city is _____.
5. Which is the nearest city east of city A? _____.
6. City M is east of city ____ and west of city ____.
7. City D is east of city ____ and west of city ____.
8. City P is north of city ____ and south of city ____.
9. City K is northwest of city ____ and southwest of city ____.
10. City F is southeast of city ____ and northeast of city ____.

1. Northwest of city P is ............ C, D, A, R.
2. Southeast of city A is ............ J, C, B, F.
4. Southwest of city G is ............ F, R, C, D.
5. Northwest of city H is ............ M, G, K, F.
6. City H is southeast of ............ J, G, M, F.
7. City P is southeast of ............ A, C, L, R.
8. City G is northeast of ............ F, R, C, D.
9. City L is southwest of ............ T, R, G, Z.
10. City A is northwest of ............ C, J, B, F.
GLOBE GUIDE WORDS

The world is almost round or shaped like a **sphere**.
A model of the real earth is called a **globe**.
We can see only the outside of the globe or the **surface**.
The earth turns toward the east on its **axis**.
The **axis** is a make-believe line through the center of the earth from north to south.
The **North Pole** is the point farthest north at the axis.
The **South Pole** is the point farthest south at the axis.
The **equator** is a make-believe line halfway between the North Pole and the South Pole.
The equator divides the globe into two halves or **hemispheres**.
From the equator to the North Pole is **Northern Hemisphere**.
From the equator to the South Pole is **Southern Hemisphere**.
Lines on the globe from the North Pole to the South Pole divide **Eastern Hemisphere** and **Western Hemisphere**.
We live in the **Northern Hemisphere** and **Western Hemisphere**.
Seven large bodies of land are called **continents**.
The continents are: **North America**; **South America**; **Europe**; **Asia**; **Africa**; **Australia**; **Antarctica**.
Four large bodies of water are called **oceans**.
The oceans are: **Atlantic Ocean**; **Pacific Ocean**;
**Indian Ocean**; **Arctic Ocean**.
North-south lines and east-west lines on the globe are **direction guide lines**.
GLOBE STUDY GUIDE

FIGURE 7

HEMISPHERE STUDY GLOBES
GLOBE EXERCISE

FIGURE 8

LOCATIONS ON A GLOBE.

1. Find the equator. It is halfway between the ___ and ___.
2. Trace toward the north from dot A to dot ___.
3. Northwest of dot A is ____.
4. East of dot H is dot ___.  5. Dot H is ____ of dot M.
6. What direction is dot Z from dot H? ____
7. What direction is dot T from dot H? ____
8. East of dot F is dot ___.  9. North of dot G is dot ___.
10. Dot J is _____ of dot G.
DISTANCE GUIDE WORDS

The map key explains the lines, signs, and colors on the map. Legend is another name for the map key. Ground distance is measured by feet, yards, rods, and miles. Map distance has to be a measure small enough to fit the map. A scale is a line on the map which is marked to stand for a different measure of ground distance. Always look at the map scale to see what the map distance is compared with the ground distance.

---

measure of 1 inch

0 1 2 3 4 5 6 7 8 9 10 stands for 10 inches of real space

0 10 20 30 40 50 stands for 50 feet of ground space

0 50 100 150 200 250 stands for 250 miles on the ground

FIGURE 9
SAMPLE MAP SCALES
DISTANCE STUDY GUIDE

Use a strip of paper to measure the distance between two points on the map below.
Mark dots on your paper to stand for the **ground distance** between these two places.
Place your dots on the **map scale** and figure the real **ground distance** between these two places.

**FIGURE 10**
MAP SCALE OF MILES
DISTANCE EXERCISES

Use the map in Figure 10 to find the distances.

1. Put a dot on your slip of paper for L and M. Measure this distance on the Scale of Miles. City L is 10 miles from city M. Notice the point halfway between 0 and 10 miles. This distance stands for 5 miles.


DISTANCE AND DIRECTION EXERCISE

Use the map in Figure 10 to find these answers.

1. City D is _____ miles (northeast, northwest) of city A.
2. Which city is 35 miles southwest of city A? _____
3. Directly south of city A is city ___. It is ___ miles away.
4. City J is 45 miles southeast of city _____.
5. Northeast of city J is city _____.
6. Cities E, F, G, and H are all the same distance apart. ___.
7. How far is it from city E to city H through F and G? _____.
8. How far is it straight from city E to city H? _____.
9. Would it be shorter to go by land or water from city B to city C? _________.

FEATURES GUIDE WORDS

delta
mouth
river
source
tributary
bay
lake
irregular coast line
isthmus
peninsula
strait
island
DIRECTIONS: Write the names for each of these numbered features and check with your GUIDE WORDS.

FIGURE 11
1. Put your finger on the source of the river and trace the river to the mouth. The river flows toward lower land. This is called going downstream.

2. Now start at the mouth and trace to the source of the river. You are going upstream against the current.

3. Find the tributary. This is a smaller river or brook that flows into the main river.

4. Put your finger on B and move to A. You are going with the current, and downstream toward the northwest.

5. Start at B and move to C. You are going upstream and to the southeast.

6. Remember that rivers follow slope of the land downhill.
FEATURES EXERCISES

Use Figure 12 to find the answers for these blanks.
Write the number in front of the words which describe it.

____ land with water all around it.
____ the beginning of a river.
____ land made by a river at its mouth.
____ a river which flows into a larger river.
____ land reaching far out into the water.
____ a body of water surrounded by land.
____ narrow strip of water joining two larger water bodies.
____ land along the edge of the sea or ocean.
____ an arm of water reaching inland.
____ narrow strip of land joining two larger land bodies.

Write the name for each number found on the map.

1. __________
2. __________
3. __________
4. __________
5. __________
6. __________
7. __________
8. __________
9. __________
10. __________
TEST I, PHYSICAL FEATURES

FIGURE 13

DIRECTIONS: The dots stand for cities on this map. Look at sentence 1 below. Find the isthmus on the map. Choose that letter from the four letters after the sentence.

1. The city on an isthmus is ............ A, H, M, B.
2. The city at the delta is ............ A, L, T, P.
3. The city on an island is ............ P, Z, A, J.
4. The city on an irregular coast is .... H, L, T, Z.
5. The city at the river source is ...... F, A, B, C.
6. The city on a strait is ............ H, M, D, L.
7. The city on the lake shore is ........ L, Z, J, A.
8. The city on a regular coast is ...... T, P, H, A.
9. The city on a peninsula is ............ C, M, A, P.
10. The city on a bay is .................. L, J, C, Z.
TEST II, FEATURES AND DIRECTIONS

Use the Physical Features Map, Figure 13. Fill the blanks with northeast, southeast, southwest, or northwest.

1. The city on the isthmus is _________ of city A.
2. The city on the strait is _________ of city A.
3. The mouth of the river is _________ of city D.
4. The source of the river is _________ of city D.
5. The island is _________ of the delta.
6. The lake is _________ of the delta.
7. The tributary of the river flows _________ from city F.
8. The city on the bay is _________ of city M.
9. The city on the peninsula is _________ of city M.
10. Sailing downstream from city F, we go _________.

TEST III, FEATURES, DIRECTIONS, AND DISTANCE

1. About 30 miles upstream from D is _________ F, A, C, B.
2. About 30 miles downstream from D is _________ F, A, C, B.
3. From F to the source is _________ 20, 60, 130, 35 miles.
4. A delta city 35 miles west of city L is city ______.
5. The city on the bay is about 50 miles southeast of ______.
6. The city on the peninsula 35 miles east of city L is ______.
7. It is 40 miles west of the lake to the ______ of the river.
8. Across the strait between the cities it is ______ 30, 60, 10, 95 miles.
9. The mouth is 30 miles (NE, SE, NW, SW) of city D.
10. East-west distance across the lake is ______ 25, 90, 10, 45 miles.
Symbols are sign language used on maps and globes. Symbols stand for features on the real land. Visualize a real landscape as you look at a map.

Pictorial symbols are simple pictures that suggest landscape. Abstract symbols may be dots, circles, squares, lines, shapes.

Legends or keys tell what the symbols mean on that map. Dots, circles, squares, or stars may show different cities.

- • 85,000 population o small cities or towns
- □ seaports * capitals

Lines may stand for many kinds of features.

----- boundary ———— railroads

=♦= canal —( ) rivers

Color keys tell what the colors stand for on that map. Blue, green, and brown are usually used for water and land.

The height of land is measured from sea level. The height above sea level is called altitude.

Shades of blue usually mean the depth of water. Shades of green usually mean lowland. Shades of brown usually mean highland.

Always read the map key to see what the symbols mean on that map. Symbols stand for different things on different maps.
Find the city A on the map. Notice the river, the highway, the railroad, and the delta. What would have to be built across this river?

Find city N on the map. Notice the bay, the highway, and the railroad. Do we need a bridge at this place on this map? There may be a river there but our map doesn't show it.

Find a canal and see if you can picture why this canal was built. Can you see why a lake and river are near the mountains?
SYMBOL EXERCISES

Use the Symbol Study Map, Figure 14, to picture these places.

1. The longest railroad trip is between ____ and ____.
2. There would be a railroad and highway bridge at city ____.
3. A canal connects city ____ and city ____.
4. The highway crosses the river halfway between ____ and ____.
5. A boat trip would be necessary between city ____ and ____.
6. The railroad goes northeast from city ____ to city ____.
7. No railroad or highway goes to city ____.
8. Mountains are between the lake and the _____ of the river.
9. There is a swamp southeast of city ____.
10. The map shows only boat travel from city A to city ____.

---------------------------------------------------------------------

1. The highway goes in a _______ direction to the lake.
2. The canal is about _____ miles long.
3. The _____ on the peninsula is northeast of city M.
4. Mountains are _____ of the lake.
5. The highway on the island is about _____ miles long.
6. The shortest distance between A and P is by _____.
7. From N to L by rail is about .. 50, 150, 70, 45 miles.
8. From N to L by plane is about .. 45, 25, 70, 125 miles.
9. The shortest way to go from P to A would be by (highway or railway).
10. To go from K to L you would travel by _____, _____, _____.
FIGURE 15
REVIEW MAP
TEST IV, SYMBOLS AND DIRECTIONS

Study the direction arrow on Figure 15. Trace toward the cardinal directions and in-between directions.

1. On what shore of Bass Lake is the forest?
   north............south............east............west

2. The seaport northwest of Hub is
   Main...........Pier...........Atlas...........Ebb

3. Southwest of Pier is
   Notch...........Cape...........Ebb...........Globe

4. What direction are most of the mountains from Notch?
   east...........southeast......southwest......west

5. The train from Main to Bass Lake travels
   north...........southeast......northwest......northeast

6. What direction does Rapid River flow?
   southwest......northeast......south...........eastwest

7. Main is north of
   Atlas...........Hub...........Toll...........Bank

8. What direction from Haven does the road follow the coast?
   northwest......southwest......southeast......northeast

9. The train crosses a bridge east of
   Bank...........Main...........Dory...........Atlas

10. The highway goes through a mountain pass southeast of
    Ebb...........Hub...........Toll...........Globe
TEST V, SYMBOLS AND DISTANCE

Study the scale of miles on Figure 15. Mark the distance on a slip of paper and find the miles between the places.

1. The nearest city to Hub is

Main..........Notch..........Toll..........Pier

2. The shortest railroad trip would be from Main to

Atlas..........Pier..........Hub..........Dory

3. The longest railroad trip would be from Bank to

Cape..........Atlas..........Pier..........Dory

4. From Haven to the lighthouse is

25 miles......35 miles......45 miles......80 miles

5. The shortest boat ride from Haven to Pier is

75 miles......65 miles......55 miles......40 miles

6. At Hub you would find the sign, 15 miles to

Toll..........Main..........Notch..........Pier

7. The highway sign at Main would read, 35 miles to

Bass Lake......Bank..........Hub..........Atlas

8. Air distance from Notch to Toll is less than the road by

30 miles......10 miles......40 miles......15 miles

9. By rail between the two seaports it is

50 miles......90 miles......35 miles......105 miles

10. Where would you see the sign, 35 miles southwest to Haven?

Reef..........Wave..........Globe..........Ebb
TEST VI, SYMBOLS AND FEATURES

Study the different land and water forms on Figure 15.

1. Going from the island to the mainland you would cross the
   isthmus..........bay.............strait..........cape

2. At each end of the bay there is a
   seaport........lighthouse........highway........peninsula

3. The city at the delta is
   Atlas..............Cape..............Reef..............Notch

4. The source of Brook River is in the
   ocean.............Bass Lake.............forest.............strait

5. The mouth of Slow River is at the
   mountains.......island............delta.............tributary

6. You would cross a strait to go from Main to
   Cape.............Globe.............Bank.............Pier

7. On the peninsula there is a
   railroad..............forest..............mountain...........lighthouse

8. The highest city is
   Atlas.............Reef..............Notch..............Cape

9. Going downstream from Bank you travel
   to the lake.....by train........southwest......by car

10. Going upstream on Wood River you come to a
    delta.............strait.............isthmus............forest
TEST VII, INTERPRETING MAP LEGENDS

Study Figure 15 and find each direction, distance, feature, and symbol on the map. This is one kind of a check to find out how well you can use the skills of finding directions, measuring distances, understanding the flow of rivers, and seeing a landscape of real places for the features and map symbols. Take time to reason why your answer is correct and what makes the other three choices wrong.

1. Where does the highway cross the railroad tracks?
   Bank..............Main..............Pier..............Dory

2. On which river would there be the most trading boats?
   Rapid.............Brook.............Slow.............Wood

3. What direction is the delta from Main?
   northeast.....northwest.....southwest.....southeast

4. What would be the longest boat trip?
   Pier to Reef.................Atlas to Toll
   Haven to Pier.................Reef to Wave

5. What city is located where most highways meet?
   Main..............Haven..............Pier..............Hub

6. On which river might you find some falls?
   Rapid.............Slow.............Brook.............Wood

7. Which seaport is nearest by plane from the island city?
   Reef.............Atlas.............Pier.............Dory

8. Between Ebb and what city would you cross a bridge?
   Toll.............Bank.............Main.............Atlas
9. Going from Pier to Globe, at what city do you turn toward the southeast?
Hub ............... Haven ............... Ebb ............... Notch

10. Which river might have a lumber camp?
Rapid ............... Slow ............... Wood ............... Brook

11. Which city is nearest a peninsula, river, and strait?
Main ............... Cape ............... Reef ............... Dory

12. Where would you find this railroad sign?
BASS LAKE---30 miles
Dory ............... Pier ............... Main ............... Atlas

13. At Toll which direction does the river flow downstream?
north ............... south ............... southeast ............... northeast

14. Where would you find large warehouses?
Pier ............... Bass Lake ............... Reef ............... Cape

15. Through which city is it shortest from Haven to Toll?
Bank ............... Notch ............... Ebb ............... Wave

16. Which direction is the current of Wood River?
southwest ............... upstream ............... southerly ............... northeast

17. Where do two highways cross?
Haven ............... Main ............... Ebb ............... Pier

18. Where would you find three kinds of transportation?
Haven ............... Atlas ............... Ebb ............... Pier

19. Where would be the best place for a skiing lodge?
Cape ............... Bass Lake ............... Notch ............... Bank

20. Which travel would be about 55 miles from Reef to Ebb?
train ............... plane ............... car ............... boat
MAP WORDS TO VISUALIZE

When we look at a map we want to see the land, water, places, and people that the lines, signs, and colors show us. Below are some of the map-language words we will need to know if we are going to see real places on the map for places we have never really seen. Try to find pictures for each one of these words and make your own Picture Dictionary.

1. bay 18. harbor 35. peninsula
2. boundary 19. hemisphere 36. plains
3. canal 20. highland 37. plateau
4. capital 21. highway 38. poles
5. climate 22. hillside 39. range (mountain)
6. coast 23. irregular coast 40. scale
7. compass 24. island 41. sea level
8. continent 25. isthmus 42. seaport
9. country 26. lake 43. shore
10. current 27. landscape 44. slope
11. dam 28. lowland 45. source
12. delta 29. mountain 46. strait
13. downstream 30. mouth (river) 47. tributary
14. equator 31. navigable 48. upstream
15. forest 32. ocean 49. valley
16. globe 33. pasture 50. village
17. gulf 34. peak
### CARDINAL AND IN-BETWEEN DIRECTION EXERCISE

1. east  
2. northeast  
3. west  
4. northwest  
5. southeast  
6. south  
7. southeast  
8. north  
9. northwest  
10. southwest

### MAP EXERCISES

1. M  
2. Z  
3. P  
4. Z  
5. C  
6. P, H  
7. B, T  
8. R, C  
9. J, H  
10. T, M

### GLOBE EXERCISE

1. North, South Pole  
2. B  
3. H  
4. B  
5. southwest  
6. south  
7. southeast  
8. G  
9. S  
10. northwest

### SCHOOL FLOOR-PLAN MAP

1. north  
2. south  
3. west  
4. northwest  
5. east  
6. northeast  
7. southeast  
8. southwest  
9. west  
10. northeast

### MAP EXERCISES

1. A  
2. J  
3. G  
4. R  
5. F  
6. F  
7. A  
8. R  
9. G  
10. J

### DISTANCE EXERCISES

1. 25 miles  
2. 35 "  
3. 40 "  
4. 45 "  
5. 50 "  
6. 65 "  
7. 80 "  
8. 95 "  
9. 115 "  
10. 120 "

### DISTANCE AND DIRECTION EXERCISE

1. 45 miles, northwest  
2. F  
3. H, 65 miles  
4. A  
5. L  
6. 25 miles  
7. 75 "  
8. 75 "  
9. land
ANSWER KEY

FEATURES EXERCISES
(sequence)

  6. lake
  9. seacoast (irregular)
  4. bay
  8. delta
  5. peninsula
  1. island
  7. strait
  2. tributary
  3. source
  10. isthmus

TEST I

1. M
2. A
3. J
4. T
5. B
6. H
7. Z
8. H
9. P
10. L

TEST II

1. southeast
2. southwest
3. southeast
4. northeast
5. southwest
6. northeast
7. northwest
8. northwest
9. northeast
10. northwest

TEST III

1. C
2. A
3. 20 miles
4. A
5. B
6. P
7. source
8. 10 miles
9. SE
10. 25 miles

SYMBOL EXERCISES

1. L, P
2. A
3. C, E
4. D, E
5. K, H
6. N, P
7. G
8. source
9. K
10. E

SYMBOLS EXERCISES (bottom of page)

1. northwest
2. 10, 11, 12 miles
3. swamp
4. west
5. 20 miles
6. highway
7. 70 miles
8. 45 miles
9. railway
10. auto, boat, and train
# TEST VII, INTERPRETING MAP LEGENDS

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<tbody>
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<td>1.</td>
<td>Main</td>
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<td>2.</td>
<td>Slow</td>
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<td>3.</td>
<td>northeast</td>
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<td>4.</td>
<td>Atlas to Toll</td>
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<td>5.</td>
<td>Hub</td>
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<td>6.</td>
<td>Rapid</td>
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<td>9.</td>
<td>Haven</td>
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<td>10.</td>
<td>Wood</td>
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<td>11.</td>
<td>Cape</td>
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<td>12.</td>
<td>Dory</td>
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<td>19.</td>
<td>Notch</td>
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<td>plane</td>
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# REVIEW STUDY GUIDE FOR TEST VII

Make a list of the numbers which you had wrong. Find which kind of skill each one is from the list below. Study the pages of GUIDE WORDS and STUDY GUIDE for those questions to see if you can correct your wrong reasoning. Always try to find which skill is hardest for you and what is wrong with your answer.

- **Direction questions:** 3, 9, 13, 16
- **Distance questions:** 4, 7, 11, 12, 15, 20
- **Features questions:** 2, 3, 6, 7, 8, 11, 14, 19
- **River questions:** 2, 6, 8, 10, 13, 16
- **Symbol questions:** 1, 2, 5, 7, 8, 9, 10, 12, 14, 17, 18, 20
BIBLIOGRAPHY


APPENDIX

FREE MAPS AND MATERIALS
FREE MAPS

Pictorial Symbols:

Armour and Company, General Offices, Chicago, Illinois. Food Sources Map. (Animal and products picture symbols, key to symbols, direction arrow.)


McCormick and Co., Inc., Baltimore 2, Maryland. Picture Map of the World. (Spices, explorers' routes, time clocks.)

New Hampshire State Planning and Development Commission, Concord, N. H. New Hampshire Tourist Map. (Historical and recreational pictorial symbols.)

Standard Oil Company of New Jersey, 30 Rockefeller Plaza, New York 20, N. Y. Picture Map of the United States. (Oil area pattern maps, products, resources, natural features, scale of miles, two hemispheres and relative size of U. S.

Swiss Federal Railroads, 10 West 49th Street, New York 20, N. Y. Montreux Folder. (Letter symbols, border of photographs to picture real places behind map symbols.)

Communication Symbols:

Alaska and Yukon Tours, General Passenger Agent, Seattle 11, Washington. Alaska Airlines and Highways. (Airlines, highway, railroad, river symbols with key and pictures.)

Bell Telephone System, Local Office, Booklet. (Maps of the telephone and television connections in the United States.)

Greyhound Highway Tours, Inc., Central Information Department, 71 West Lake Street, Chicago 1, Illinois. Vacation Planning Map. (Bus routes and picture symbols.)

Union Pacific Railroad, 294 Washington Street, Boston 8, Mass. Union Pacific Railroad Map of the United States. (Railroads west of Chicago, in-sets of over seas connections, scale.)

United States Department of Commerce, Maritime Administration, Washington 25, D. C. Essential Foreign Trade Routes.

Wheeler Publishing Company, South Parkway, Chicago 16, Ill. Pioneer Trails to the West. (Picture border of explorers and their routes to the west.)
Teaching Aids from Publishing Companies:

Teaching and Learning Geography with Maps, Globes, and Pictures. (Reprints of articles from education journals.)

Denoyer-Geppert Company, 5235 Ravenswood Avenue, Chicago 40, Illinois. Toward Better Understanding and Use of Maps, Globes, Charts. (In-service aid for teachers in teaching map and globe interpretation.)

Jeppesen and Company, School Map Department, Stapleton Airfield, Denver 5, Colorado. Map of the World. (Natural color series showing altitude of land.)

National Council for the Social Studies, 1201 Sixteenth St., N.W., Washington, 6, D. C. How to Introduce Maps and Globes. (Price per copy is 25 cents.)

Rand McNally and Company, Chicago 80, Illinois. Catalog 556 (Graded program for maps and globes, types of materials, maps, globes, atlases, filmstrips.)

FOREIGN COUNTRY INFORMATION SERVICE:

Australia News and Information Bureau, 636 Fifth Ave., New York 20, New York.

Chinese News Service, 30 Rockefeller Plaza, New York 20, N. Y.

Egyptian Embassy, Press Department, 2310 Decatur Place, N.W., Washington, D. C.

Italian State Tourist Office, 21 East 51st Street, New York 20, New York.

K.L.M. Royal Dutch Airlines, 430 Park Ave., New York 22, N. Y.


Northland Tours, Box 10, Waverly, Baltimore 18, Maryland.

Norway Information Service, 290 Madison Ave., New York, N. Y.

Swiss National Travel Office, 10 West 49th Street, New York 20, New York.