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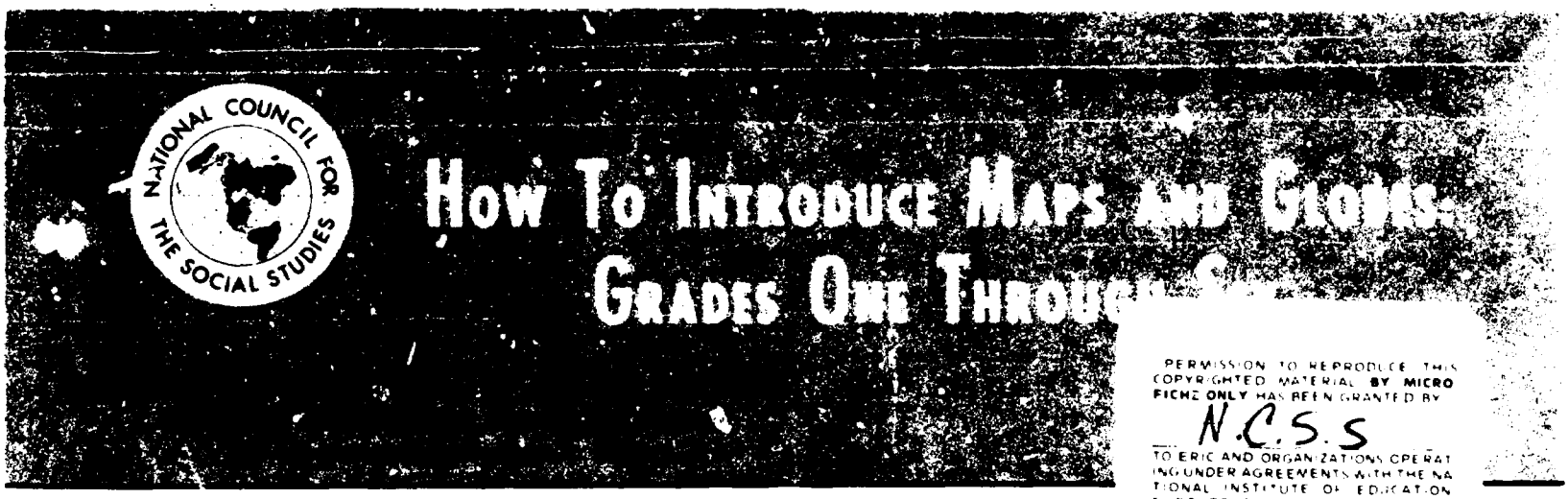
ABSTRACT

This bulletin lists map concepts and skills in a workable, sequential order of teaching in grades 1 through 6. By using the grade level lists the teacher perceives his part in the total program. The list can also be used to test children before they advance to the next sequence. For each set of skills the bulletin outlines what to teach and suggested teaching methods. Skills are as follows: Grades 1 and 2, Providing a Wide Acquaintance With Landscape Features; Grade 3, Developing Readiness to Undertake Map-Reading; Grades 3 and 4, Introducing Flat Maps; Grade 4, Developing Initial Concepts in the Use of the Globe and More Complex Map Symbolization; Grade 5, Developing Fundamental Skills in the Use of Maps; and, Grade 6, Developing Advanced Map-Reading Skills. Following the entire grade level list, sources of classroom globes and maps are given. Related documents are SO 005 979 through SO 006 000. (Author/SJM)



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Why Teach Map-Reading?

Each area of the school curriculum has its special skills that must be mastered if the child is to advance in the field. Learning to spell correctly requires a knowledge of phonetics and of the alphabet. Literature can be appreciated only with skill in imaginative and emotional response to words. Social studies, too, has its essential skills, and a very important one is ability to use maps. In fact, it has been said that the language of map symbols opens up a new world to the person who can interpret it.

The map is of inestimable value in helping the child solve social studies problems which require a consideration of locational factors. From maps a variety of information may be gathered significant in gaining understanding—not only of locations, but also of the significance of a location in terms of transportation, markets, raw materials, resort areas, and the like. Directions, relative distances, relief features, elevations, slope of the land, rainfall, vegetation, size of a region, and the arrangement and distribution of numerous natural and cultural features can best be seen on maps. Although such facts have little significance in and of themselves, they become vastly important when they are referred to a problem and used in social thinking.

General Procedures in Teaching

Instruction in the use of globes and maps can best be given at the time when the children are using the map to gain some geographic understanding. Then they are likely to see the purpose of what they are learning. In a laboratory period they may be shown the usefulness of the map and the best methods of deriving needed information from it.

Because maps are symbolic representations written in a foreign language as far as the uninitiated child is concerned, the children will need definite instruction in map-reading. The instruction ought to be gradual, because many skills are essential to the interpretation of the map. In the past, children's progress in map-reading has often been disappointing because finished maps have been presented to them in the early grades and it has been assumed that the mere presence of the maps in the textbooks and on the wall would insure a desire to use them and competency in their use. Often no special effort was made to develop skill. 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.

Organization of This Bulletin

This bulletin lists the map concepts and skills in a workable sequential order of teaching and suggests their grade placements for normal children. Because of children's wide individual differences, any grading of map skills must of necessity be tentative. What is suitable for

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one child in the fourth grade may be entirely beyond the comprehension of another child in the sixth grade. The grading in this bulletin should be shifted upward or downward depending on the ability of the particular pupils. Through the use of this list, each teacher in the elementary school can see his part in the map-reading program; the teacher in the secondary grades can test children on these items and then provide any necessary review or reteaching. For each set of skills this bulletin outlines suggestive teaching methods. Following the entire graded list, it gives sources of classroom globes and maps.

Providing a Wide Acquaintance With Landscape Features (Grades I and II)

What to teach. Because maps and globes show natural and cultural features of the landscape by symbols, a child must have a fund of information and background about the features represented before he can interpret a map. The first steps, therefore, in teaching map-reading are preparatory ones: training the child to observe interesting activities in his surroundings and introducing him to types of landscapes which he has not seen.

It is necessary for the teacher to: Lead the child to become familiar with his immediate geographic environment by discussing common landscape features in his neighborhood such as rivers, valleys, and hills, and to develop an acquaintance with features in other environments. Such preparatory instruction will enable the child to pursue the study of the landscape and to undertake map reading successfully.

Teaching methods. The more the instruction at this early stage deals with the concrete, the better the groundwork laid for later interpretation of the abstract. Among the methods that the teacher may use are the following:

1. Invite children to report on trips they have taken to beaches, mountains, valleys, national forests, and the like; they may show pictures of what they have seen; direct brief discussion with questions to bring out the geographic significance.
2. Take children on short walks and field trips to train them in the observation of surface features; encourage them to ask questions when they do not understand what they see. At this time the concept of "up and down" on the earth's surface can be introduced. This may center around such things as the direction of stream flow and walking up and down hill.
3. Indicate to parents the importance of taking their children on trips, especially to nearby towns.
4. Call attention to the effects of changing seasons.
5. Have the children bring in pictures showing natural surface features; discuss where, if anywhere, the children have seen these features.
6. By showing pictures and films taken in other parts of the world, build up the children's understanding that they have seen only a small part of the world.
7. Announce pertinent television programs so that children can discuss the programs later.
8. Display pictures of surface features drawn by the children; attach a suitable label to each picture.
9. After the children have visited a particular place and discussed their observations, have them make a simple floor layout of the area in one corner of the classroom. For example, they may use blocks and boxes to show in miniature the large buildings along a street; the streets may be sketched in on large sheets of paper placed on the floor; other paper placed along the corner walls may show the background such as hills, mountains, or forests.
10. Teaching of directions should accompany step 9. For grade I, east, south, west, and north can be associated with the position in which the sun rises, is at noon time, sets, and that position in which it does not appear. Floor layouts can then be located properly. Children can also discuss the direction in which school windows, or their homes face, or in what direction they go to reach school. In grade II the names of directions can also be introduced in the spelling lists.

Developing Readiness to Undertake Map-Reading (Grade III)

What to teach. Before maps can have meaning for children, the children must acquire some understanding and skills. The teacher ought to:

1. Teach children the cardinal directions by reference to the position of the sun.
2. Familiarize children with the types of landscapes shown on the maps they will use (e.g., mountainous, hilly, and level lands; lake, river, and ocean scenes).
3. Acquaint children with simple map terms (e.g., island, mountain range, plain).
4. Develop the concept that the earth is a huge sphere or globe, and that half of the earth is called a hemisphere.

Teaching methods. In order to facilitate readiness, the teacher should make certain that the children understand cardinal directions. This may necessitate reteaching or reinforcing past information, and the location of cardinal directions with respect to the sun should again be emphasized. At this time more complex floor maps may be constructed and reoriented so that the north of the floor

plan does not correspond with the true north and the children must mentally construct the correct situation.

Children should also be made familiar with landscape types, both those with which they have direct contact (those which characterize their area) and those of other regions. They may examine pictures of mountainous, hilly, or plain areas. If possible a sand table would be a valuable device with which 3rd graders could mold or shape these features. If the teacher has "aquaphobia," appropriate colored yarn could represent rivers, and construction paper could be utilized to portray lakes.

In presenting the globe, the teacher may well begin with what the children already know. He may remind them that we live and work and play on the earth, and that other people do, too; then tell the children that the earth is made up of land and water and ask if they know what shape it is and what is all around it, thus calling attention to the air. Then he may dwell on the size of the earth, recalling the size of the ocean which they have either seen or viewed in pictures and films, reminding them also of the great distance one can see from the top of a high mountain. Each of these views, the teacher may point out, is only a very tiny part of the surface of the earth.

The children may then be told that the earth is a huge ball. Presenting a classroom globe, preferably one showing only land, water, the poles, and the equator, the teacher may introduce the word *sphere* and add that the earth is not quite a sphere, for it is just a little flat in two places. He may teach the word *hemisphere* by cutting an apple or a clay ball in halves.

The children may next be told that if they traveled directly north for a long distance, they would come to the point farthest north on the earth, called the north pole; that if they went directly south even a greater distance, they would come to the south pole, the point farthest south on the earth. When the poles are pointed out on the globe, the children should be able to show east and west. It should be stressed that direction is determined by the poles—to go north means to go toward the north pole. After the word *equator* has been defined, the children may be shown that it divides the earth into a northern and southern hemisphere. Land and water should also be identified on the globe, and the children should be shown that water covers much more of the earth than does land. The word *continent* may be taught, and the seven continents named. The three big parts of the ocean may be located by the children, and the names Atlantic, Pacific, and Indian Ocean may be introduced.

There are several special purpose globes with only water areas and continental land masses indicated. Some of these are particularly useful, because they have a special surface which is not damaged when marked on with crayon (the crayon is easily removed with a soft tissue or cloth). Additionally, clay adheres to the surface without damage and can be applied to locate land features.

The pupils are then ready for experiences in seeing and using globes of different sizes and in visualizing themselves as being on a huge globe. They are also ready for a simple explanation of why people don't fall off the earth. It is desirable to re-teach the words *up* and *down* with reference to the globe—that *down* means toward the center of the earth and *up* away from the earth. These terms are not synonymous with north and south. By reference to the take-off and landing of airplanes, children may be taught to use these terms correctly.

Introducing Flat Maps (Grades III and IV)

What to teach. As the children become familiar with the appearance of the globe, the teacher may begin gradually to develop the concept of what a flat map is. He should:

1. Teach that the globe is the only true map because it shows the roundness of the earth.
2. Lead the children to understand that a map represents an area on the earth and shows certain facts about that area—not all facts but selected facts such as surface or growing things.
3. Show the children that any part of the globe may be transferred to a flat map.

Teaching methods. Four general approaches assist in presenting the map idea:

1. The children should be introduced to simple concepts of scale. They have already built up a familiarity with floor lay out maps and should begin to produce very simple ones at his desk. With a large piece of drawing paper or even one 8½" by 11", he could reproduce his neighborhood or perhaps a farm which the class has visited. He should be encouraged to label his map with a title, to indicate the cardinal directions, and to develop color symbols for crops which he may have seen such as wheat, corn, vegetables or to indicate livestock areas. Children could exchange maps and then using the legend of someone else's map answer simple questions such as "If the farmer walks to the main road, what fields or buildings does he pass?" or "If the farmer walks to his barn what direction does he go?".
2. Aerial views should be presented, first oblique views and then vertical ones. These, shown together with ground photographs of the same place, are available in many recent schoolbooks. Encourage the children to note that the air view is like a plan and would be helpful to anyone traveling through that part of the land for the first time. They may be asked to

bring in as many aerial views as they can find and to explain them to the class.

3. Opportunities should be given to see a definite area represented first on a globe and then on a map. The children may point out the cardinal directions on the globe and then on the map. The teacher may tell the children that the globe shows the shape of the land almost exactly but the map is flat and does not show the roundness; the map shows a part of the globe flattened out.
4. As the children become more familiar with symbols, they should be introduced to maps showing elevation. The teacher probably has several maps upon which use different devices to show elevation. For instance, some use a color scheme such as green to show all elevations between 0 and 2000 feet, others use graded tones with the colors merging from one elevation to another, and still others use hatching or shading with the colors to indicate roughness of terrain. The teacher can show these maps, explain that the legend should be consulted, and then ask the children to draw the same map three times and with crayon and pencils try to use each of the different methods. With each possibility the children should develop a legend. Concern for a legend and its importance should be developed from the beginning. The concept should be introduced gently with the children learning that a real map is not complete unless it has a legend, and the teacher should insist that every map no matter how simple—have one.

Developing Initial Concepts in the Use of the Globe and More Complex Map Symbolization (Grade IV)

What to teach. In order to provide children with a general background knowledge of the world, the teacher will need to:

1. Introduce the directions northeast, northwest, southeast, and southwest.
2. Show the children that the globe may be divided into hemispheres in many different ways; distinguish the eastern, western, northern, and southern hemispheres.
3. Present the rotation of the earth on its axis from west to east as the reason for day and night.
4. Give as much explanation of the reason for seasonal changes as the children can comprehend; make clear that the northern and southern hemispheres have different seasons and that the seasons at the poles are different from those at the equator.
5. Discuss the different types of map symbols.

Teaching methods. During the children's early experiences with the globe the teacher stresses the idea that the globe provides a picture of our vast earth, and he endeavors to review and extend the children's concepts.

1. The directions. Have the children indicate the main directions either outdoors or in the classroom. Review these directions on a simplified globe and on maps, stressing that north is toward the north pole and south is toward the south pole. Then explain that there are also in-between directions, and that we can tell where they are by their names: northeast, for example, is between north and east. Give the children practice in locating these directions during activities outdoors and in the classroom, and on maps and globes.
2. The hemispheres. Each child may make a ball of clay as nearly spherical as possible, mark the poles and equator in red, and roughly outline the continents. One after another, the children may demonstrate different divisions of the globe into hemispheres. Lead them to see that there are two main divisions: into the northern and southern hemispheres, and into the western and eastern hemispheres. Bring out the idea that the north pole is in the center of the northern hemisphere and that the south pole is in the center of the southern hemisphere.
3. Day and night. Remind the children that we have day and night. Encourage them to tell about watching the sun rise in the morning and seeing it set at night. Make it clear that the sun is a sphere many, many times larger than the earth and that it does not move across the sky, but merely seems to. Using a classroom globe, show how the earth rotates toward the east. Define *axis;* identify the ends of the axis as the poles. Then the children may take turns naming the continents having night at a given time while the others are having day. Teach that when the sun begins to shine on any part of the earth, the sun seems to rise at that place; when it is turned as near the sun as it can be, it is noon; when that place goes into shadow, the sun seems to set and night begins. Have the children tell how long it takes the earth to turn all the way around.
4. The seasons. Ask whether anyone can name the different times of the year which we call seasons, can tell which season it is now, and when this season started. Ask also whether the seasons are the same everywhere. Encourage the children to collect pictures from magazines illustrating the four seasons, to make observations of the sun in the sky at different seasons, and to determine how people change their activities with the seasons. Explain that the earth not only rotates on its axis but also revolves around the sun. Then show a film which illustrates the movements of the earth. Or, using a flashlight in a darkened room, demonstrate that as the earth revolves about the sun,

part of the earth is in shadow, other parts receive indirect rays of the sun, and still other parts receive direct rays. Stress the fact that the seasons are different in the northern and southern hemispheres, and show the winter darkness and summer light at the poles. Answer the children's questions.

5. Map symbols. These can be introduced with whatever geographic unit the class is studying. If the class is studying a continent, maps of elevation (which the child should understand), rainfall and crops may be introduced. The students can make such maps if a common scale is provided. The children should be instructed that rainfall usually is indicated in an atlas by color or black-white shaded patterns, and that crops usually are represented by dot patterns or color. The class could be divided into three groups, one to make an elevation map, one a rainfall map, and the third a crop map. Several techniques can be used. The students could work on tracing paper or on plastic overlays. If the school provides extra money for supplies, the teacher could purchase this clear plastic (carried by most blueprint or art supply stores) which comes in varying weights. The cheapest usually is quite suitable, has a width of one foot, and may be purchased by the yard. It can be marked on with crayons or pencil and can be cleaned, if mistakes are made or if it is to be used again, by rubbing with water or nail polish remover, depending on the media used.

   After the three maps are constructed, they may be placed one on top of the other and questions asked such as "Why don't they grow X in this area?". Two types of responses are generally indicated, either that it is too high or too dry, or perhaps people do not wish to. Although the teacher should keep cultural use of the earth in the foreground, possibilities exist for an integrated understanding of different types of phenomena. Here again, the teacher should stress that use be made of the legend.

Developing Fundamental Skills in the Use of Maps (Grade V)

What to teach. It is very important in teaching map-reading to develop the child's interest in discovering what maps tell. He will use the maps in his books only if he has such an interest and if he possesses the skills which make map-reading easy. Nothing is more essential than that he visualize the landscape behind the map symbols. Thus the teacher will need to present each important symbol separately, relating it to the child's background of experience and leading him to use his new knowledge and skills in solving simple social studies problems. The teacher should:

1. Establish the habit of interpreting the key before trying to read the map.
2. Review directions on maps, avoiding the idea that north is always at the top of the map—where north is depends on the location of the north pole, which may even be in the center of the map.
3. Develop the use of east-west lines in determining direction. Teach the word *latitude* but not *degrees of latitude*, which is too difficult a scale of measurement for children of this age.
4. At the same time that the concept of latitude is introduced, the teacher should also introduce the concept of longitude.
5. Stress the idea that the map is a method of recording the positions of natural and cultural features which can be *seen*, such as a national park that a child in the class has visited.
6. Teach the necessary symbols and terms used on maps, such as rivers, cities, capital cities, railroads, highways, deltas, peninsulas, isthmuses, gulfs, and bays.
7. Introduce the children to the scale of miles; lead them to use it in measuring distances which they want to know.
8. Encourage the children to realize that maps are drawn to different scales and that the larger the scale used, the larger any specific feature appears on the map. Lead them to compare the size of the regions shown on the same map or on maps drawn to the same scale.

Teaching the map key. In books, newspapers, magazines, and other literature, children meet maps containing keys or legends identifying the symbols used. From map to map the same symbol may mean different things. To foster careful habits of consulting the key and interpreting the map correctly, the teacher should:

1. Present at least two maps, preferably of the same continent or area, on which colors have different meanings. One map may use color to show surface—mountains, hills, or plains; another may use it to distinguish countries or states or to show different types of vegetation or rainfall. Have the children study each map key, identify the meaning of the colors used, locate them on the map, and interpret the map. Stress that other maps may show these same facts in black-and-white; illustrate this point by showing such a map. Have the children examine the color maps and the black-and-white maps in one of their textbooks and list what the shadings and colors on each map show. Have them include a key on any maps which they themselves prepare.
2. Give special help in interpreting the key of an elevation map. Explain *sea level* as the level the ocean would reach if it were still as the water in a pail.

Obtain or draw a picture of a seaside mountain marked off in layers of different colors, with the elevation indicated at the top of each layer. Tell the children that the height of all land is measured from sea level and that the colors show how high the land is above sea level. Illustrate this point by reference to the different slopes. Next show a picture of the same mountain marked off in layers, with elevations indicated, but flattened out as if seen from an airplane. Explain that now we are looking down on the painted mountain; the slopes cannot be seen, but we can tell how high the land is by looking at the key. Then introduce the elevation map itself.

If a river is included on the mountain pictures, the teacher can also illustrate the important concept that rivers always flow from higher to lower land and that an elevation map enables us to tell the direction in which a river flows.

The children may be invited to make profiles showing the elevations represented on a particular map.

3. Relate the different colors on an elevation map to places visited by the children of the class.
4. In order to teach *inches of rainfall* as used in the key of a rainfall map, have the class place a tin can outside during a rainstorm and measure the water in it after the storm.

Extending concepts of latitude, longitude, and direction. After introducing the words *latitude,* and *lines of latitude,* the teacher may ask in what direction lines of latitude run, how many the child can count on the globe north of the equator and how many south of the equator, and what happens to the size of these circles as we go from the equator toward a pole. It should be stressed that all places on an east-west line are directly east or west of one another and are the same distance north or south of the equator.

Longitude: The child should be taught that longitude lines show true direction north and south but also let us know how far east and west of a central point we are. If the concepts of longitude and latitude or their use are beginning to be confused by the student, consult the custodial department and borrow a ladder. Label one rung of the ladder the equator, the top the north pole, and either side east and west. Then have a child climb the ladder. As he climbs the ladder, indicate that he is stepping on east-west lines but is moving away from the equator toward the north pole. Ask questions such as "Is he half way to the north pole"—and then have the students find this position on a globe or hemisphere map.

Then place the ladder in the chalk board. Label the upper bar north, the lower south, and one rung the Greenwich Meridian or O°. Have the student grasp the rung and move away from the base point. Ask what direction he is moving in relation to the cardinal directions. With a globe show why one does not know where he is unless he uses both longitude and latitude.

In reviewing the seasons, the teacher may introduce the children to the four circles, the Tropic of Cancer, Tropic of Capricorn, Arctic Circle, and Antarctic Circle, in connection with the study of tribes living in the tropics and the polar lands. The children will learn, for example, that between the Tropic of Cancer and the Tropic of Capricorn the noontime sun is directly overhead twice every year and that the tropics are the only part of the world ever receiving the direct rays of the sun.

Ask the children to follow a line of latitude around the globe and tell everything they know about places on that line, such as: these places are the same distance north or south of the equator; they are east or west from one another; the people living there see the noonday sun in the same part of the sky; and on a particular day there are the same number of hours of light and of darkness. Here again, what the teacher expects will depend on the learning ability of the children.

Likewise the children will learn that the globe has lines running north and south through the poles, that all places on such a line are exactly north and south of one another and that, unlike the lines of latitude, these circles are all the same size.

Teaching the common map symbols. Beginning with the landscape where the children live, lead them to identify natural and cultural features represented on the map such as mountains, hills, plains, rivers, railroad lines, forests, a city, or a route traveled. Show the children a map symbol standing for a given feature; ask them to visualize and describe the real landscape. Have the children examine photographs of various places represented by other symbols and identify these on the map, thinking all the while that the symbol stands for the region under discussion.

The following are suggested methods of teaching specific symbols:

1. Have the child trace the coast line of an island or continent and then describe it as regular, very irregular, etc.
2. Define state and province boundaries; explain that a state physically may be very much like the ones next to it, but using different names makes it easy for us to tell exactly what part of the country we are talking about. Locate on different maps the state in which the children live, calling attention to the mode of representation, the location of the state within our country, the size and shape of the state, its relationship to neighboring states, and routes the children have traveled.
3. Show the children that the names of cities are printed on maps and that a little circle or square is usually used to symbolize the city; after defining *capital city,* indicate that it is usually located by a star. Then have the children find on the map cities they already know or in which they have lived. Later the child may be asked to imagine himself on a trip and to follow a river

or a railroad line, naming all the large cities which he would pass; photos of these cities may be shown and discussed.

4. Have the children make charts listing map features (e.g., mountains, capital city, desert, railroad lines) and beside them show, by color or drawing, how these features appear on the maps in one of their textbooks.
5. Have different children make diagrams to present to the class, showing an isthmus, a gulf, a strait, a bay, and a river flowing down from its source to its mouth. Add to the meaningfulness of the diagram by using aerial photographs, filmstrips, and motion pictures, and by taking the children on related field trips if possible.
6. Build up with the help of the children a brief list of questions which they should try to answer for each new place named in their reading. Example: In what direction is this place from where we live? How large a place is it? What might we see if we went there?
7. Have the children record on individual outline maps the features of a region which they have read about. Beforehand, a list of the important items should be worked out under the teacher's guidance. Afterwards, the maps may be used in presenting ideas to an audience.
8. Have committees make a wall map. Individual responsibilities may be delegated, such as plotting the rivers, the cities, or the mountains. Careful plans are to be made by the chairmen and committee members before they begin work on the map. The entire class may evaluate the finished product in terms of standards set up in advance.

Teaching the scale of miles. We must remember that a map is an abstraction, and unless the child has mastered the concept expressed by a map symbol, it will be meaningless to him. To develop the concept of scale of miles, the teacher may:

1. Take the class on a ride or a walk which will cover exactly a mile or a certain number of miles to observe how the land is used and what men are doing. On their return have them find the route on a large-scale map and measure the distance by the scale of miles; lead them to discuss what variety of activities they might have seen had they traveled the distance represented by an inch on the map and how much time the trip would take. Stress that the scale of miles tells what a given measurement on the map stands for.
2. Have the children measure the classroom, using a yardstick, decide upon three or four scales with which to map it, showing some important objects such as the teacher's desk or a work table. By such work with a scale, the child may be led to see the meaning of "large scale" and "small scale." Stress that large-scale maps can be used to show much about a small area, and that small-scale maps usually show large areas.
3. Have the children determine the number of inches between two cities on each of two maps drawn to different scales. They may then explain the reason for the difference.
4. Have the children use the scale of miles in measuring distances between places being studied; for this purpose they may use a ruler on a map, or a piece of string on a globe.
5. Show the children that they can best compare the size of countries and regions when both are shown on the same map or when the different maps used are drawn to the same scale. Have them trace the outlines of some country from the globe onto transparent paper, then lay this outline over any area on the same globe to compare the two in size.

Developing Advanced Map-Reading Skills (Grade VI)

What to teach. By the time the child reaches the sixth grade, he will require not only introduction to new map language but also guidance in using maps for many different purposes. The teacher should:

1. Explain the key of a population map showing the number of people to a square mile of land; explain a dot map.
2. Introduce the measurement of latitude and the influence of latitude upon climate; teach the location of the low latitudes (a third of the distance from the equator to either pole), the high latitudes (a third of the distance from each pole to the equator), and the middle latitudes (between the low and high latitudes).
3. Teach the abbreviations commonly found on maps.
4. Acquaint the children with the meaning of additional map terms (e.g., port, harbor, ocean current, fiord, cape, coral reef, and belt, as in corn belt or hay and dairy belt).
5. Train the children to choose the right map for a particular purpose.
6. Lead the children to gain information by comparing maps which give different facts about the same area.
7. Lead the children to an understanding of longitude and time zones.

Teaching latitude. The children already know that the east-west lines on the globe help us to locate places on the earth. They can now be told that these imaginary circles around the globe parallel to the equator are called parallels of latitude, that they are numbered in degrees north or south of the equator, and that a degree is one three-hundred-sixtieth part of a circle. They can be led to see that a degree of latitude is equal to almost seventy miles north or south, because the distance around the earth is about 25,000 miles.

It is very important for the child to understand that latitude is only one of the causes of a warm or cold climate. Climate is also influenced by altitude, ocean currents, and nearness to the ocean.

The children may examine a globe and note that the

parallels are really circles, that they run east-and-west, that all places on a parallel are the same distance north or south of the equator, and that the parallels are smaller toward the poles.

The class may make a picture display showing winter scenes in the low latitudes, middle latitudes, and high latitudes, and prepare captions to explain the pictures. They may exhibit pictures showing lands of the northern and southern middle latitudes during our winter. They may also tell whether they would look in the low, middle, or high latitudes to find the equator, the south pole, their own city or the one nearest them, regions having a tropical climate, and countries, states, and cities which they have studied.

As to great circles, the children may be reminded that the equator is a circle separating the northern and southern hemispheres; that any circle which separates the earth into hemispheres is a great circle. They may be shown in their classroom globe that every circle passing around the earth through the poles is a great circle and that any route between two points on the earth follows a great circle. Children may demonstrate this fact by measuring such a route between two places with a string and with this length of string attempting to join the places along other routes. Show that longitude lines are great circles.

Now the children may be told about Greenwich and how it came to be used as a reference point in measuring longitude. They will learn that as one goes from the equator toward either pole, a degree of longitude covers a smaller and smaller distance until all the meridians meet at the poles. Children may use maps showing the time bands of this country, and later of the world, and thus come to know about the hour variations from Greenwich.

Teaching the choice of maps. In leading the children to choose the right map for a given purpose, the teacher may raise questions such as: What map gives information on this particular point? What kind of map shows where the people live? Where would we look to find out whether this is a rainy region or an arid one?

At the beginning of a social studies unit, maps may be used to raise problems for study. For example, a map of the manufacturing areas of the United States suggests the question: Why have great industries developed in the northeast? Why has this region become the largest and most important manufacturing area in the world?

During a unit the children should learn to examine maps for information. They should become as accustomed to consulting maps as to perusing reading matter. To encourage map-reading, the teacher may guide the children in devising directions for looking at maps and recording what they see. In judging a country's trade, for instance, a child should note whether the country seems to have good transportation and large manufacturing areas, and whether there are forests for timber and good grasslands for raising animals. Also, the children may work in committees, each responsible for hunting up information given on maps on a certain topic.

At the close of a social studies unit, discussions and explanations of the patterns of population, railroads, airlines, cities, and farming belts, as they are shown on various maps, may help to summarize the entire unit.

Sources of Maps and Globes

A good many organizations produce map slides, atlases, classroom globes, outline maps for the children's use, and classroom wall maps. A summary of their offerings follows.

ARMY MAP SERVICE, Fort Sam Houston, Texas 78234. Excellent plastic relief maps (18" x 30", 70 miles x 120 miles) of much of the U.S. Send for index and prices; discount on official school orders.

AUSTRALIAN NEWS AND INFORMATION BUREAU, 636 Fifth Ave., New York, New York; maps and wall charts on Australia.

BRITISH INFORMATION SERVICES, 45 Rockefeller Plaza, New York, New York; poster-maps relating to Great Britain and the British dependent territories.

CRAM, GEORGE F., CO., 730 East Washington St., Indianapolis, Indiana; maps, globes and charts for all grade levels; wall and *desk size outline maps*; world and American history maps. All maps and globes available with exclusive Markable-Kleenable finish; new 64" U.S. and world maps in beginners or physical political series.

DENOYER-GEPPERT CO., 5235 Ravenswood Ave., Chicago, Illinois; school globes, maps, charts, atlases, models; outline maps, both slated and cloth and paper wall; desk outline maps; wall maps for handling current events; simplified globes and maps for elementary schools. Write for PC500 Program Chart.

GEO-PHYSICAL MAPS, INC., School Division, 101 Park Ave., New York, New York; accurate relief globe that children can not only observe but also work with, *shows basic land forms*; accompanied by *Teacher's Guide* telling how children can paint globe, indicate countries, rivers, cities, etc. Globe is washable.

HAMMOND, C. S., CO., Maplewood, New Jersey; wall atlases for geography and history including Chalkboard Wall Atlas; student desk atlases; outline maps; 18" diameter inflatable physical-political globe; atlas for young America, an atlas for younger students that explains the meaning of maps.

HEARNE BROTHERS, National Bank Bldg., Detroit, Michigan; student participation maps of any area; can write on map and erase each day's work.

KEYSTONE VIEW CO., Meadville, Pennsylvania; map slides.

MCKINLEY PUBLISHING CO., 809-811 N. 19th St., Philadelphia, Pennsylvania; desk and wall outline maps.

NATIONAL GEOGRAPHIC SOCIETY, 1146 16th St., N.W., Washington, D. C.; more than 50 ten-color wall maps covering the world, United States, continents, oceans, historic, holy and classical areas and even the heavens. Eight of the most popular maps available in greatly enlarged size; write for list.

Newsweek EDUCATIONAL DIVISION, 152 W. 42nd St., New York, New York; map-of-the-month showing newsworthy localities; sent monthly to teachers who use *Newsweek* with students.

NYSTROM, A. J., CO., P. O. Box 7600, Chicago, Illinois; wall outline, black board outline and Erasamark maps, raised relief maps of continents and U. S., desk outline maps; globes—physical, political, and special purpose (may be marked on and cleaned or clay features modeled).

RAND MCNALLY & CO., P. O. Box 7600, Chicago, Illinois; maps, globes, atlases, and filmstrips for geography, history, literature, etc.; new merged relief maps of continents and United States; 12" and 16" merged relief globes; desk project globes; desk and wall outline maps for elementary and secondary levels.

WEBER COSTELLO CO., Chicago Heights, Illinois; matching globes and wall maps, both political and political physical; chalkboard outline maps; American and world history maps; democracy charts; desk outline maps.