A primary unit on the desert

Deborah Bybee Graves

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"A PRIMARY UNIT ON THE DESERT"

A Project Presented to
The Faculty of the School of Education
In Partial Fulfillment of the Requirements of the Degree of
Master of Arts
in
Education: Elementary Option
By
Deborah Bybee Graves, M.A.
San Bernardino, California
1985

Approved by:

Advisor

Committee Member
"Nobody can teach anyone anything... The teacher may think he is teaching when he tells the child, thus and so, but all that he is really doing is making vibrations in the air... Whatever changes occur in the child's mind, occurs only because the child himself makes it happen."

W.R. Wees
Head, Liaison Section
Office of Development
and
Associate Professor
Department of Curriculum
Ontario Institute for Studies in Education

"The purpose of the educational institution is to facilitate the learning of the students. The effective teacher must be aware of how to establish an environment which enhances learning..."

Deborah Bybee Graves
Second grade teacher
Van Buren School
Indio, CA

Tell me,
I forget,
Show me,
I remember,
Involve me,
I understand.

Author Unknown
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I. General Introduction

The desert, with its myriad of unique traits, has much to offer its people. Infinite amounts of knowledge may be obtained from the desert environment, which can enhance the adaption to a more favorable desert living condition for all. This enables children to grow to their fullest capacity, in the future, especially if curiosity for one's environment is instilled at an early age.

As an instructor in the desert environment, this author deems it necessary to create materials for elementary study, due to the fact, that there are very limited resources available concerning a subject that makes a large impact on our children's lives. Also, of importance, a desert unit meets many of the requirements of a typical second grade course of study.

To effectively facilitate the learning of the desert curriculum, it is important that the teacher be aware of how children learn best. The following selection is a review of research on this subject.
II. Review of the Literature

The purpose of the educational institution is to facilitate the learning of the students. The effective teacher must be aware of how to establish an environment which enhances learning. Research has shown that an eclectic use of modalities will produce the best results from children.

Research on modal preference began in the latter part of the last century and has been consistently carried on until the present. The overall use of modalities was determined to be very controversial and depended on specific studies in the current investigation. This paper will provide information regarding early elementary educators' current views towards which is the more effective use of modalities in instruction.

Most of the modal comparison studies conducted prior to 1970 were summarized in the following studies: Henmon (1912), Day and Beach (1950), McGeoch and Irion (1952), Witty and Sizemore (1958, 1959a, 1959b), and Jones (1970).

Henmon's (1912) research concluded that the available research of his day was conflicting. He felt that the conflicting results were due to the inability of the experimenters to determine and control for variables.¹

In 1950, Day and Beach summarized briefly the individual findings of thirty-four investigations of modal comparison studies. Five classifications of material were presented: advertising copy,

meaningful prose, discrete words, digits, and nonsense syllables.

The major portion of the research indicated the following:

1. A combined presentation produces greater comprehension.
2. An oral presentation is more efficient for presenting meaningful, familiar material, while a visual presentation is best for meaningless, unfamiliar material.
3. Preference for the visual mode increases proportionately with the intelligence level of the receiver.
4. Preference for the visual mode increases proportionately with the reading ability of the receiver.
5. The auditory mode is preferred by six year olds, until, by the age of 16, the visual mode is possibly superior.
6. An increase in the difficulty level of material results in a parallel increase in preference for the visual mode.
7. The visual presentation is superior for immediate recall; the auditory presentation, for delayed recall.
8. As the interval between presentation and recall is lengthened, the visual presentation becomes relatively less efficient.
9. The visual presentation is strengthened by the fact that any part of it can be referred to again for purposes of rereading. If the factor of referability is controlled, the relative efficiency of the visual presentation is diminished.
10. When the material to be learned is organized and related, the visual mode is superior.
11. Material is easier to learn through the visual channel, but better retained when presented via the auditory channel.²

Hartman (1961) concluded from a series of experiments that,

Redundant information simultaneously presented by the audio and print channels is more effective in producing learning than is the same information in either channel alone.³

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Also in 1961, Lockard and Sidowski compared the auditory and visual learning of nonsense syllables by fourth and sixth graders. The combined presentation (auditory and visual) produced significantly fewer numbers of errors than did visual or auditory alone.\(^4\)

Jester and Travers (1966) agreed with the research of Lockard and Sidowski. They found that a combined presentation was generally superior to other forms of information presentation.\(^5\)

The Socony-Mobile Oil Company conducted a study on how people learn. The research found that 83% learn best through sight, 11% through hearing, 3 to 3.5% through smell, 1 to 1.5% through touch, and 1% through taste. Of interest in this study is that the retention rate is different according to the learning style used. 90% of the learning that is retained "of what is seen and heard simultaneously", 30% of the learning is retained of "what is seen", 20% of the learning is retained of "what is heard", and 10% of "what is read". Of significance, also, in the Socony-Mobile Study, is the time span of retention. It seems that children are able to recall more after the multi-sensory approach in learning. When the lecture method is used, the recall percentage after three hours is 70%, and after three days is 10%. 72% is retained three hours after observing a demonstration and 20% after three days. After three hours there is 85% retention of learning and after three days the retention

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level is 65% when a blend of show and tell is used.6

Kenneth Dunn, a school superintendent in Hewlett-Woodmere, N.Y., and his wife Rita, a professor at the Center for the Study of Learning and Teaching Styles at St. John's University, Jamaica, New York, and Editor of Learning Styles Network Newsletter, conducted a similar study which culminated with the following results. They found that 40% are visual learners, and remember best that which is seen or read. 20-30% of schoolchildren are auditory learners, they learn best from what they hear. The remainder rely heavily on tactile senses and require mobility, physical activity and touching objects in order to learn.7

It is interesting to note the discrepancy between the Socony-Mobile Oil Study and the Dunn's study. Socony-Mobile Oil Study claims that 85% are visual learners and the Dunn's claim only 40% are visual learners. This only gives credibility to the hypothesis that the eclectic use of modalities in teaching will produce the best results in learning.

A learning styles program that is solidly based on the preceeding research is called S.T.I.L.E. This is an acronym for Success Through Individualized Learning Experiences. This is a classroom management system for individualized instruction that is taught by Rosalie Rhoads, P.h.D., Assistant Professor at the School of Education at the University of San Diego. S.T.I.L.E. is a descendent of LOFT (Barry and Susan Dollar) and it has been implemented as B.S.L. (Behavior Skills Lab) by Charles Meisenger of

7 "Students Learn How to Study and Like It; Learning Style Inventory", ii, U.S. News, 87:75-6, D 31 '79.
the Houston Public Schools.\textsuperscript{8}

The use of modalities in the process of learning are stressed in S.T.I.L.E. This system is divided into two major content areas: 1) the variables of individualized instruction and, 2) the principles of classroom management. The ten objectives of the two areas are as follows:

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In the S.T.I.L.E. workshop, there are seven learning centers. The learning centers are: 1) direct instruction center, 2) self instruction center, 3) learning games center, 4) filmstrip center, 5) seat work center, 6) professional library center, and 7) "think tank".\textsuperscript{10} These seven learning centers provide seven different ways for the same information to be learned. This allows the teacher to provide for individual instruction for the students and allows for the use of all modalities in the learning process.

Four management systems are available for teachers to use to complete the ten objectives. Each system moves the students

\textsuperscript{8} Rosalie Rhoads, P.h.D., Syllabus for University of San Diego Class, p. 1
\textsuperscript{9} Ibid., p.2.
\textsuperscript{10} Ibid., p.2.
through the material in a different way. They are as follows:

1) Teacher directs with the students sitting in the tradition setting of straight rows and raised hands. This system has the maximum amount of teacher control and responsibility.

2) Students are divided into three randomly chosen heterogeneous groups and move through the material on a timed basis.

3) Students are divided into three groups (after diagnostic testing) and move through all centers upon group completion.

4) The student is in an individualized mode. The teacher is the facilitator; gives direct instruction when necessary, as well as providing feedback for evaluation. Peer checkers are used in this management system.11

Based on the above research, an eclectic approach will be utilized throughout this project. Instruction and activities will facilitate use of all senses.

11 Ibid., p.2.
BIBLIOGRAPHY


"Students Learn How to Study and Like It; Learning Style Inventory", ill., U.S. News, 87:75-6, D 31 '79.
III. Statement of Objectives

There is a minimum of materials available dealing with the desert for the early elementary teacher. This project will supply the teacher with a variety of activities and information to provide a thorough unit on the desert. Worksheets for individual reinforcement with the desert theme are included in this unit. Recipes for authentic processes are a part of this project. Contained within the project are components that meet the cognitive, psychomotor, and affective domains.

The purpose of the desert unit is to provide an instructional framework in which the following goals may be obtained by primary students studying the desert.

1. Students will be introduced to the study of nature. (i.e. recognition, classification, scientific method of observation, habitats, food chain, etc.)

2. Students will learn to appreciate nature and learn the need for wildlife protection.

3. Students will better understand their place in the order of the universe.

4. Students will be given the opportunity to gain hobbies and interests to last a lifetime.

5. Students will be exposed to local resources to continue further study.

6. Students will be made aware of the impact of one's environment on one's life.
Desert Unit

Text and illustrations by Debbe Bybee Graves
Kathy Kronemeyer
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Authentic Processes
Games/Answer Sheets/Bibliography
Dedicated to our families,

for their support and their love.
INTRODUCTION

The purpose of this unit is to have in one place a versatile collection of worksheets and activities available for the primary teacher. Many activities were planned with the minimum of teacher preparation, but with the maximum of student participation envisioned. Also included are ways for the teacher to adapt and/or "Create-Your-Own" materials. This book should be used to fit your needs and the needs of your students. Each activity/suggestion can be used:

...as an assignment or as a free choice activity,
...with a small group or with a large group,
...as individual work or for the whole class,
...or at an activity center.

The unit is divided into the following sections:

*WORD-A-DAY DESERT VOCABULARY COMPONENT* - This component contains thirty vital desert words. If presented daily, it takes six weeks to present all of the vocabulary. The seventh week can be used to review and for closure. This activity is excellent for occupying the students during the morning roll call and lunch count.

The students copy the word and meaning (handwriting practice) onto a page in a vocabulary booklet and then draw a picture to illustrate the word, after the teacher has discussed the meaning and significance of the word. In the vocabulary section there is a list of words and definitions, suggested order of presentation, and a master
for duplicating the student books.

Daily drill for the word definition can culminate in a "Definition-Be" at the end of the unit.
* DESERT ANIMALS AND PLANTS SYNOPSIS AND STORY WRITING-
This activity consists of a drawing of an animal/plant on the top of the page and a lined bottom half. There is a short synopsis of each. The teacher may copy the synopsis on the chalkboard and the student may copy for handwriting practice. Other teachers may choose to read the synopsis to the students, who then may collectively or individually rewrite the information. For the brighter student this form may be used as a research report form.

*THE READING COMPREHENSION COMPONENT-
This component has six separate short stories. Each story is based on desert facts) Each story has four questions dealing with the content) The format of the worksheet was designed to familiarize the student with the bubbling procedure, thereby helping to prepare the child for CTBS statewide testing. Depending on the student, the teacher can use this as an individual activity that is read by the student or the teacher can have the stories and questions pretaped on the tape recorder for listening comprehension.
* MATH COMPONENT-
Color the answer math and dot-to-dot are the types of activities in this segment. The skills that are covered are one and two place addition and subtraction, with some carrying and borrowing. Also reinforced are: Counting by 1's, 2's,
and 5's.

* STORY STARTERS-

Six story starters comprise the creative writing segment of this unit.

* ABC ORDER-

There are twelve activity sheets on ABC order. The words are to be evaluated by the first, second, or third letter. These cards can be laminated and used as task cards or as individual worksheets. Two blanks shapes are included for the teacher's creative uses.

* DESERT WORD GRAPHS-

There are six word hunts included for this unit. This exercise is good for visual discrimination. This is also reinforcement of the desert vocabulary words.

* DESERT ART PROJECTS-

This component includes a Big Horn Sheep paper bag puppet, a Kit Fox (movable legs) paper "doll", and a rainbow butterfly.

* AUTHENTIC PROCESSESS-

Directions for making Indian baskets, an Indian Pinch Pot, Prickly Pear Jelly, and adapted Sandpainting are included in this component.
* GAMES—

Games to reinforce some of the concepts or desert curriculum studied in this unit will be the basis of this segment.

TELL ME,
I FORGET,
SHOW ME,
I REMEMBER,
INVOLVE ME,
I UNDERSTAND.

(Author Unknown)
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Desert Life Word A Day

1. **Apex** - the top of a plant or cactus

2. **Burrow** - a hole in the ground that animals dig to live in

3. **Cactus** - a plant that lives in the desert and stores water in the stem

4. **Carnivores** - animals that eat only animals or meat

5. **Cold-blooded** - an animal that has a body temperature of 90°F and cannot stand too much heat or cold

6. **Desert** - an area of land that is dry and hot

7. **Drought** - when there isn't any rain or water in an area for a long time

8. **Endangered Species** - certain animals that are protected by law because there are not very many of them left

9. **Erosion** - when the earth's surface is worn away by water or wind.
10. **Fangs** - long, pointed teeth used for seizing and tearing prey or for injecting poison

11. **Flashflood** - when it rains so hard and fast that the water doesn't sink into the ground

12. **Herbivores** - animals that eat only plants

13. **Hibernate** - when an animal passes the winter in a dormant or deep sleeping state without eating or drinking

14. **Irrigation** - bringing water to the desert so that crops will grow

15. **Mammals** - animals that are warm-blooded, have fur or hair and feed milk to their babies

16. **Nocturnal** - being active by night - nocturnal animals hunt at night for food

17. **Oasis** - a fertile or green spot in a desert made that way by a supply of water

18. **Omnivores** - animals that eat plants and animals

19. **Reptile** - cold-blooded animal that usually lays eggs and has scaley or horny skin
0. Reserve - a place of public land where animals and plants are studied and kept safe

1. Rodents - various mammals having large incisors (teeth) for gnawing or nibbling

2. Roots - the underground part of a plant that supports the plant and draws food and water from the soil

3. Sand Dune - a hill or ridge of wind-blown sand, usually without any plants growing on it

4. Sidewinder - a small rattlesnake that moves with a sideways looping motion of its body

5. Spine - a sharp-pointed, usually woody growth from a stem of a plant - especially the thorns on a cactus

6. Stem - the main stalk of a plant

7. Stomata - the tiny holes or pores in a leaf or stem through which water vapor and gases pass

8. Succulents - plants that have thick, fleshy leaves or stems that store moisture
Washes - the dry beds of streams or rivers - in the desert washes have fast moving water in them during flashfloods.

Well - a place where you can get water from deep under the ground.
CHUCKWALLA LIZARD

The Chuckwalla is the second biggest lizard of the desert. (The Gila monster is first) The chuckwalla lizard grows to about sixteen inches long. They are a sandy-brown in color. He can change his color slightly like a chameleon or inflate his body when wedged between rocks to disappoint an enemy.

The chuckwalla lizard is a harmless creature. He is basically a vegetarian, eating the tender parts of desert plants and cactus fruit.

The Indians used to eat the Chuckwalla lizard. It was considered a delicacy.

DESERT TORTOISE

The desert tortoise is a dull yellow/brown shell. They grow to about ten inches, about five inches high, and eight inches wide. He travels at a speed of about twenty feet a minute. They can live to be about fifty years old.

The desert tortoise has two water sacs in its body to store water. They can convert food to water. They find it necessary to drink water only about once or twice a year. It has small saws for teeth to cut its food.

The tough shell and skin help keep the water from escaping.

To escape the heat the tortoise burrows underground. The tortoise hibernates during the winter.

GAMBEL QUAIL

The Gambel Quail likes to run instead of fly. Quail are commonly seen in the desert running about looking for seeds and berries.

The male is more colorful than the female. Both are gray. The male has a black face outlined in white. He has a buff colored stomach with dark marks. Both are plump and like to "talk".
KANGAROO RAT

Kangaroo rats are brown and white. They are about two inches high, mostly tail. The tail as a rudder, keeps them upright. The hind legs and tail very long. The front legs are short. The kangaroo rats uses his front paws as hands and hops like a kangaroo. They carry their food in a pocket in each side of its mouth. They live in burrows. Kangaroo rats are active during the night and sleeps during the day. They eat seeds and fruit and drink water.

DESERT KIT FOX

This nocturnal predator is the smallest of the North American foxes, weighing only about five pounds. The coat is a yellowish-gray color and the large ears and bushy tail are tipped in black.

This animal sleeps in a burrow, usually located in a sandy location, that has several exits for escape.

They eat small rodents (i.e. kangaroo rats), large insects, snakes, and lizards.

ROADRUNNER

The roadrunner is a bird that is about two feet from beak to tail. He has a long neck with a slightly downward long curving beak. The feathers are brown with a greenish sheen, streaked with black and white and a long tail tipped in white. The breast is buff colored with brown streaks. The wings are rounded and marked with white. A long, skinny crest is on top of its head. The roadrunner has legs that are long and strong. They would rather walk than fly. Sometimes roadrunners have been clocked running as fast as 20 miles an hour.
HORNED LIZARD

The horned lizard is a spotted brown and gray. The head is covered with spines that look like horns. They are hard to see. The color works as camouflage. Few animals want to try to eat the horned lizard as they are very hard and rough.

Some people call these creatures horned toads.

RATTLESNAKE

The scaly skin of the snake prevents excess loss of moisture. This snake is nocturnal. During the day it hides in cooler places like rocks or under shrubs. If cornered, it will strike. It is not necessary for this snake to be coiled first! A person won't always hear a rattle first, either.

In the desert, walk with care, everywhere. Don't put your hands where you can't see them.

This snake is poisonous.

The diamondbacked rattlesnake may grow as long as six feet. The color is a dullish faded yellowish/pink or grayish/blue. It has diamond shaped marks on its back.

The young are born alive.
Desert Tortoise
Gambel Quail

Another Teacher and Me—Copyright Pending
Skill: Writing-Creative
Materials: Pencil/Crayons

Horned Lizard

Another Teacher and Me- Copyright Pending
Diamondback Rattlesnake
BEAVERTAIL CACTUS (Opuntia basilaris)

The beavertail cactus is a low spreading plant, forming clumps from six to twelve inches high and about one to six feet across. The plant is a blue/gray green, and often has a purplish tint. It has beavertail shaped paddles that are about six inches long and five inches wide. The paddles may look smooth, but they are covered with a lot of small barbed spines. The spines are very hard to remove from human skin. In March through June bright pink and cerise flowers appear on this cactus. The fruit is about 1 to 1½ inches long, becoming brown or gray at maturity, with no spines.

This cactus was used by the Indians for food.

BARREL CACTUS (ferocactus wislizenii)

This cactus is green and grows from two to eight feet tall. It is shaped like a barrel and holds a lot of water in the stem. It has orange and yellow flowers and a yellow fruit. The thorns are pink, red, and white.

Cactus candy is made from this cactus.

JOSHUA TREE (Yucca brevifolia)

This is a strange looking plant that is related to the yucca plant. It is very tall and has a heavy trunk with rough bark. The flowers are greenish white and grow in bunches, opening only after a heavy rain. The flowers have a nice smell.
AN OASIS

A gathering place for people and animals. It is a place in the desert which has a supply of fresh water, which is usually under the ground.

OLD MAN CACTUS (Cephalocereus senilis)

This cactus is a ribbed, columnar growth. The spines are hidden in long white hairs. This plant originated at the higher altitudes, where there is snow. The long hairs were to protect the cactus from the snow.

ORGAN PIPE CACTUS (L. thurberi)

This cactus is composed of several cylindrical branches which are succulent and have spiny stems. It can eventually grow to be as tall as 15-20 feet high. The stems are ribbed. At the top of the ribs are the areoles from which the clusters of spines grow. Tubelike purple flowers also grow from these areoles, flowering at night.
SAGUARO (Sahuarro) (Carnegiea gigantea)

The giant saguaro is one of the largest cactus of the desert. They live to be over 200 years old. They grow to about 10-50 feet high and have a diameter of about 12 inches. The stems are unbranched for about 75 years. The spines are pinkish or gray. The flowers bloom in May to June at night. They are white. The fruit is oval, green, and about two inches long. At maturity, the fruit is fleshy and it splitting into 2 or more segments.

This cactus is not common in California. Its natural habitat is Arizona. The indians used this cactus for food. The seeds make a mealy flour for baking and the fruit is used for preservatives.

YUCCA TREE (Yucca schidigera)

The yucca is not a cactus. This plant has fibrous sword-shaped leaves. The leaf points of some of the species are very sharp.

The Indians used yucca leaves to make baskets.

The yucca has pretty yellowish-white flowers.
Beavertail Cactus
The Oasis
Name ____________________________

Skill: Writing-Creative
Materials: Pencil/Crayons

Old Man Cactus

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Organ Pipe Cactus
Queenie, The Quail

Queenie, the quail, has two babies. They were born with feathers. Queenie likes to help her children look for seeds. The chicks peck the ground looking for seeds. When they go for walks, the chicks follow in a straight line.

1. A good title for this story would be
   0 The Quail Family
   0 Seeds
   0 A Desert Morning

2. How many babies does Queenie have?
   0 three
   0 four
   0 one
   0 two

3. The chicks peck the ground for
   0 snakes
   0 seeds
   0 quail
   0 feathers

4. The quail family
   0 walks in a straight line
   0 fly away
   0 drive a car
   0 walk where they want to
Deserts

Close to 1/4 to 1/3 of the earth's land is desert. There are cold deserts and hot deserts. But all deserts are very dry. They get less than ten inches of rain a year.

1. Deserts are
   0 cold
   0 hot
   0 cold and hot

2. A good title for this story would be
   0 Rain
   0 The Earth's Deserts
   0 Land

3. Deserts get
   0 lots of rain
   0 no rain
   0 less than ten inches of rain a year

4. About
   0 1/2 of the earth's land is desert
   0 all of the earth's land is desert
   0 less than 1/3 of the earth's land is desert
People Change the Desert

In many places the deserts have been changed by people. Water has been brought to the deserts by ditches and canals or wells have been dug. This irrigation has changed the deserts, because now more plants can grow.

1. Another name for this story could be
   0 Water Changes the Desert
   0 Desert Plants
   0 Canals

2. Irrigation means
   0 moving a gate.
   0 moving water to where it is needed.
   0 moving to a new house.

3. The deserts change because
   0 the plants make the change.
   0 people bring more water to the desert.
   0 the wind blows the sand away.

4. More plants can grow because
   0 there is more room in the desert for them to grow.
   0 people in the desert like plants better.
   0 now there is more water.
Desert Animals

To live in the desert, animals have learned special ways to protect themselves. Many animals spend the day in a hole in the ground, in the shade, or under a rock. They come out to hunt for food at night. Some animals have scaly skin which helps keep them from losing water.

1. Another title for this story could be
   - Hunting for Food at Night
   - Animals Protect Themselves
   - A Hole in the Ground

2. Animals protect themselves from the hot sun by
   - resting in the day and hunting by night.
   - resting in the night and hunting by day.
   - wearing a sun hat.

3. Scaly skin can keep an animal from
   - losing too much water.
   - having too many friends.
   - taking a bath.

4. Desert animals act
   - the same as any other animal.
   - in a special way to adapt to the desert environment.
   - on a special stage.
Plants That Grow in the Desert

The plants that grow in the desert have special ways of growing with very little water. They are called cactus. They have very large roots that go deep into the ground or big roots just under the ground that are able to soak up the water from a large area and store it in their stems. The cactus have a layer of wax coating the stem to keep the water in the cactus.

1. Another title for this story could be
   - Wax in the Desert
   - Desert Plants
   - Water

2. Cactus get their water from
   - garden hoses.
   - little streams.
   - the ground where they grow.

3. Cactus have
   - no roots.
   - large roots that go deep or close to the surface.
   - little roots.

4. Cactus need
   - lots of water.
   - no water.
   - little water.
Desert Recreation

Lots of people use the desert for recreation. Some go to quietly look at the beauty of the desert and others go to ride ATCs, motorcycles, odessesys, and four wheel drive jeeps and trucks. It is fun to use these "toys", but we have a responsibility not to damage the desert or hurt the plants and animals.

1. Some people go to the desert
   0 to get lost.
   0 to find a friend.
   0 to enjoy the desert.

2. It is important to
   0 hurt the plants and animals.
   0 not hurt the plants and the animals.
   0 have the best ATC.

3. Another title for this story could be
   0 I Spent the Day in the Desert
   0 Desert Fun
   0 Jeeps Are The Best

4. Recreation is
   0 Doing something for fun
   0 Doing what someone tells you is fun
   0 Doing something that you do not like
Name

This snake is very dangerous. It has a poisonous bite.

<table>
<thead>
<tr>
<th>16</th>
<th>8</th>
<th>19</th>
<th>14</th>
<th>8</th>
<th>11</th>
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<td>18</td>
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<td>19</td>
<td>13</td>
<td>12</td>
</tr>
</tbody>
</table>

11  15  9  13  17

10  9  7  9  8

7  16  8  12  8

-8  -8  +9  -7  -2

+10  +7  +5  +2  -6

0  W  A  R  I

+6  +3  +9  -4  +6

C  K  L  B  D

M  N  T
If you look closely, you can see something very special.

Color to find out.

Color the answer 21 blue.
Color the answer 22 yellow.
Color the answer 23 green.
Color the answer 24 brown.
Color number 2 orange.

Skills: Regrouping
Add & Sub 1-24

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If you look closely, you can see something very special.

Color to find out.
Name: ____________________________

Skills: Regrouping,
Add & Sub 1-20

7 BLUE 9 WHITE 11 BROWN 13 GREEN
8 RED 10 BLACK 12 ORANGE 14 GREY

Another Teacher and Me- Copyright Pending
Name ________________________________

Another Teacher and Me- Copyright Pending
This is one of the fastest runners in the desert. What is it?
Skill: Count by 2's
(0 to 100)

Materials: Pencil/Crayons

Name _______________________

Another Teacher and Me—Copyright Pending
Skill: Count by 2's
(0 to 70)
Materials: Pencil/Crayons

This bird sleeps during the day and hunts mostly at night.
What is it?

Another Teacher and Me—Copyright Pending
Skill: Count by 5's
(5 to 220)
Materials: Pencil/Crayons

Name _______________________

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You are a kangaroo rat sitting quietly under a palm tree at an oasis. A large kit fox pounces from behind a sand dune and heads straight towards YOU! What do you feel? What do you do? What could happen?

Another Teacher and Me—Copyright Pending
The Owl

A big owl lives in the tree by my house. He tells me stories. This is one of the stories he told me.
The Tortoise Ride

Timothy Tortoise takes me for a ride every day. Today he will take me to.....
Snake In School

Annie had a snake in school. The teacher saw it. What did she say? Tell me what happened.
This is Terry Tarantula. She is your pet. What do you feed her? Where do you keep her? Tell me about her.
Lost

John was lost in the desert. A giant Saguaro talked to him. What did Saguaro say? Tell me what happened.
Write the words in ABC order

1. burrow
2. desert
3. oasis
4. drought
5. reptile
6. hibernate
7. mammals
8. endangered
9. irrigation
10. erosion
Write the words in ABC order

1. flash flood
2. spine
3. mammals
4. succulents
5. irrigation
6. well
7. Sidewinder
8. omnivores
9. fangs
10. oasis
Write the words in ABC order:

1. hibernate
2. reserve
3. sidewinder
4. roots
5. washes
6. drought
7. succulents
8. stem
9. well
10. stomata
Write the words in ABC order:

1. irrigation
2. hibernate
3. apex
4. fangs
5. drought
6. flashflood
7. desert
8. carnivores
9. oasis
10. sidewinder
Write the words in ABC order.

1. Nocturnal
2. Irrigation
3. Fangs
4. Owl
5. Kangaroo rat
6. Cold-blooded
7. Drought
8. Cactus
9. Hilt fox
10. Apex
Write the words in ABC order

1. rattlesnake
2. quail
3. kit fox
4. yucca
5. roots
6. organ pipe cactus
7. stomata
8. sidewinder
9. desert
10. burrow
Write the words in ABC order
1. reptile
2. burrow
3. desert
4. succulents
5. irrigation
6. apex
7. endangered
8. mammals
9. roots
10. drought

Write the words in ABC order
Write the words in ABC order:

1. spine
2. cactus
3. erosion
4. flashflood
5. desert
6. carnivores
7. stem
8. succulents
9. well
10. cold-blooded
1. Mammals
2. omnivores
3. reptile
4. herbivores
5. carnivores
6. cactus
7. erosion
8. oasis
9. washes
10. spine

Write the words in ABC order

#3.
1. roots
2. stomata
3. fangs
4. irrigation
5. nocturnal
6. spine
7. mammals
8. reserve
9. flashflood
10. stem

Write the words in ABC order
1. oasis
2. cactus
3. cold-blooded
4. drought
5. sand
6. endangered
7. stem
8. stomata
9. dune
10. erosion

Write the words in ABC order.

#5
1. well
2. washes
3. stem
4. spine
5. burrow
6. carnivores
7. drought
8. reptile
9. nocturnal
10. desert

Write the words in ABC order
Write the words in ABC order

1. 2. 3. 4. 5. 6. 7. 8. 9. 10.
Desert Words

Desert  Flashflood
Sand Dune  Drought
Oasis  Erosion
Washes  Irrigation
Well

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Desert Animal Words

Endangered (species)  Burrows
Herbivores            Mammals
Carnivores            Rodent
Omnivores             Sidewinder
Nocturnal             Cold (blooded
Hibernate             Fang

Another Teacher and Me—Copyright Pending
**Skill:** Visual discrimination  
**Materials:** Pencil/Crayons

### Assorted Desert Words

<table>
<thead>
<tr>
<th>Apex</th>
<th>Roots</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dune</td>
<td>Saguaro</td>
</tr>
<tr>
<td>Lizard</td>
<td>Stem</td>
</tr>
<tr>
<td>Oasis</td>
<td>Tarantula</td>
</tr>
<tr>
<td>Rabbit</td>
<td>Tortoise</td>
</tr>
<tr>
<td>Quail</td>
<td>Sand</td>
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<tr>
<td>Reptile</td>
<td>Well</td>
</tr>
<tr>
<td>Reserve</td>
<td></td>
</tr>
</tbody>
</table>

Another Teacher and Me—Copyright Pending
Cactus Words

Succulents
Roots
Spine
Stomata
Stem
Apex
Agave
Cactus
Buck

Horn
Hedge
Hog
Barrel
Yucca
Old
Man
Aloe
Rock

Another Teacher and Me - Copyright Pending
Skill: Visual Discrimination

Materials: Pencil/Crayon

Plantlife of the Desert

saguar0
hedgehog
barrel
yucca
cholla
old man

agave
rock
button
peyote

Name ________________________________

Another Teacher and Me—Copyright Pending
Skill: Visual discrimination

Materials: Pencil/Crayon

Wildlife of the Desert

T S N R O H G I B R
Q A T O R R U B A O
U L I O N B T A R A
A U S N A K E T S D
I T O R T O I S E R
L N C Q A W F Z T U
D A D B C L I X O N
R R A A B M S O Y N
I A O S O S H F O E
B T T I B B A R C R

quail
snake
roadrunner
bighorn
tortoise
coyote
rat
owl
fox
lion
rabbit
burro
bird
fish
DIRECTIONS: COLOR, CUT, AND PASTE ONTO A PAPER BAG TO MAKE A PUPPET.
DIRECTIONS: COLOR, CUT, AND BRAD TOGETHER

Materials:
Crayons, scissors, small brads, hole punch (optional)
RAINBOW BUTTERFLY

1. Cut a piece of plastic wrap that covers the butterfly pattern and staple over the pattern.

2. Using a lot of glue, cover the lines of the butterfly pattern with yarn. When the whole pattern is covered with yarn, make sure that the yarn touches itself. Let dry.

3. Use small bottles of glue (that has been colored with food coloring) and squeeze the colored glue into the areas that are surrounded by yarn. (It is best to do this project on a Friday because it takes a couple of days to dry.) Put the glue on thick, up to the top of the yarn.

4. When dry, slowly peel the plastic wrap off of the butterfly. Put two small holes in the head and attach with clear fishing line and hang in a window as a sun catcher.

Skill: small motor
Materials: Butterfly Pattern, Plastic Wrap, Yarn, Small bottles of white glue, Food Coloring
1. Holding the rope in the left hand and the yarn in the right (the other way, if left-handed) wrap the jute approx. two inches on end of rope; wrap over towards yourself.

2. Bend end of rope over, and wrap onto main rope (several times)

3. Wrap jute around another two inches of rope.

4. Begin coiling rope around the beginning loop, securing jute to the row before at intervals: "1-2-3-4 Wrap into the row before."

5. Connect new jute by holding together:
   A. tail of old piece
   B. rope with left hand and wrapping with right hand

6. Complete by cutting end of rope to taper into the row before.
1. Start with a small ball of clay. Roll clay between hands into a perfect ball about 2" in diameter.

2. Place clay ball in palm of left hand, and press right thumb in the center, gradually working in a hollow.

3. Rotate clay with thumbs in the hollow until clay walls are even and not less than 3/8" thick.

4. Place clay on wet plaster bat and by pinching with the fingers draw clay out into a simple original shape. Walls should be not less than \( \frac{1}{4} \)" thick when completed.

5. Surface decoration can be applied by pressing tool edge or notched stick around top or sides—
SANDPAINTING

Sandpainting was used exclusively in various religious healing ceremonies by the Navajo Indian tribe until recently. The paintings, eight or ten feet in size were/are usually made on the floor of the medicine man's hogan. Special designs are made by the medicine man's sweeping arm that deposits the colored material in the appropriate places. The painting is never enclosed by a border, an exit to the east is visible for the Yeis (gods) to come and go. The medicine man rubs part of the painting onto the patient who sits in the middle. The painting is destroyed when the ceremony is over, thus destroying the disease.

The ritual of sand painting has been handed down for many generations. Sand paintings were/are started very early in the morning and must be destroyed by sundown. Dancing and chanting were/are important parts of this ritual. Sometimes one or more medicine men would conduct ceremonies that would last as long as nine days.

References:
The Navajo Design Book
by Donna Greenlee
Fun Publishing Co.
P.O. Box 2049, Scottsdale, Ar.
85252

The Story of the Navajo
by the Editor of Country Beautiful
Text by Marion E. Gridley
G.P. Putnam's Sons, New York
ADAPTED SANDPAINTING

1. Cover a small part of the design with glue and pour the cornmeal over the glued area. Pour excess into the container. (This is similar to applying glitter.)

2. This project looks good when outlined in black and framed in black.

Skill: Small motor
Materials: Cornmeal, Food coloring, white glue, construction paper (desert colors)

This design can be traced onto sand paper and colored sand can be applied in the same manner as was suggested for the cornmeal, but it is very difficult. (even for an adult.)
1. Hold the fruit with tongs and knock off spines with a sharp paring knife.
2. Brush away glochids.
3. Wash.
4. Cut about one-quarter inch from each end of the fruit with a paring knife.
5. Slit skin carefully in segments from the small end to the large end and peel back the skin, which should take along the areoles.

The prepared fruit is now ready to eat as is or use in cooking. Fresh prickly pears are usually eaten seeds and all, though you can remove the seeds first if you don't mind losing half the pulp.

To seed, slit the fruit open and scrape out the seeds and inner pulp with a spoon.

To puree cactus fruits, prepare fruits by despining and peeling. Then force the pulp through a wire strainer or food mill. This will remove the seeds and fibers. One large prickly pear will yield one-quarter to one-third cup of puree. The puree may be frozen until ready to use.

**Prickly Pear Jelly**

Makes one quart.

| 2 cups prickly pear puree | ⅛ cup sugar |
| 1 cup water | Dash of salt |
| 1 tablespoon gelatin (1 envelope) | Lemon juice to taste |
| (start with ¼ cup) |

1. Puree enough prickly pear fruits to make two cups.
2. Soak the gelatin in one-fourth cup of the water until soft.
3. Meanwhile, bring the remaining water and the sugar to a boil. Add the puree and cook over low heat until the mixture is hot.
4. Add the gelatin mixture and stir until gelatin is dissolved.
5. Stir in salt and lemon juice. Taste and add more lemon, or sugar, if needed.
6. Pour into ice trays and put in a freezing compartment which has been set at very cold.
7. When the mixture is partially frozen but not solid, spoon it into a chilled bowl and beat until evenly blended with a rotary beater or electric mixer.
8. Spoon back into trays and freeze until solid.
9. Serve plain or top with fresh fruit or whipped cream.
DESERt FLAShCARDS
(cut out and paste to stiff paper)

[Diagram of a plant]

[Diagram of a plant]

[Diagram of a bird]
DESERT FLASHCARDS
(cut out and paste to stiff paper)
DESER T FLASHCARDS
(cut out and paste to stiff paper)
DESERT FLASHCARDS
(cut out and paste to stiff paper)
DESERT FLASHCARDS
(cut out and paste to stiff paper)
<table>
<thead>
<tr>
<th>DESERT TORTOISE</th>
<th>SAGUARO</th>
<th>KANGAROO RAT</th>
<th>JOSHUA TREE</th>
<th>BARREL CACTUS</th>
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</thead>
<tbody>
<tr>
<td>FREE</td>
<td>GAMBEL QUAIL</td>
<td></td>
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<tr>
<td>CHUCKWALLA LIZARD</td>
<td></td>
<td>DIAMONDBACK RATTLESNAKE</td>
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<tr>
<td></td>
<td>HORNY LIZARD</td>
<td>OASIS</td>
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<tr>
<td></td>
<td>ROADRUNNER</td>
<td>FREE</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>KIT FOX</td>
<td>KANGAROO</td>
<td>OLD MAN CACTUS</td>
<td></td>
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<tr>
<td></td>
<td>ORGAN PIPE CACTUS</td>
<td>JOSHUA TREE</td>
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Another Teacher and Me- Copyright Pending
# Desert Bingo

<table>
<thead>
<tr>
<th>Gambel Quail</th>
<th>Chuckwalla Lizard</th>
<th>Beavertail Cactus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desert Tortoise</td>
<td>Free</td>
<td>Yucca Tree</td>
</tr>
<tr>
<td>Diamondback Rattlesnake</td>
<td>Oasis</td>
<td>Joshua Tree</td>
</tr>
</tbody>
</table>

**Board C**
DESERt
BINGO

HORNED LIZARD
DIAMONDBACK RATTLESNAKE
ROADRUNNER
FREE ORGAN PIPE CACTUS
BARREL CACTUS
JOSHUA TREE
SAGUARO YUCCA TREE

Another Teacher and Me—Copyright Pending Board D
<table>
<thead>
<tr>
<th><strong>DESER T</strong></th>
<th><strong>BINGO</strong></th>
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<tbody>
<tr>
<td><strong>BEAVERTAIL</strong></td>
<td><strong>CACTUS</strong></td>
</tr>
<tr>
<td><strong>OLD MAN</strong></td>
<td><strong>CACTUS</strong></td>
</tr>
<tr>
<td><strong>FREE</strong></td>
<td><strong>SAGUARO</strong></td>
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<td><strong>OASIS</strong></td>
<td><strong>YUCCA</strong></td>
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<tr>
<td><strong>ROADRUNNER</strong></td>
<td><strong>HORNED</strong></td>
</tr>
<tr>
<td><strong>FOX</strong></td>
<td><strong>LIZARD</strong></td>
</tr>
</tbody>
</table>

*Board E*
Quoic likes to help her children look for seeds. The chicks peek the ground for seeds. When they go for walks, the chicks follow in a strain line.

1. A good title for this story would be
   - The Quoll Fordly Seeds
   - A Desert Adventure

2. How many chicks does Quoic have?
   - three
   - four
   - one
   - two

3. The chicks peek the ground for
   - snakes
   - seeds
   - quail
   - feathers

4. The quoll follows walks In a strain line
   - drive a car
   - fly in a kite
   - walk where they want to go

Close to 1/4 to 1/3 of the earth's land is desert. There are cold deserts and hot deserts. All deserts are very dry. They get less than ten inches of rain a year.

1. Deserts are
   - hot
   - cold
   - cold and hot

2. A good title for this story would be
   - The Earth's Deserts
   - The World's Deserts
   - Deserts Around the World

3. Deserts get
   - lots of rain
   - no rain
   - less than ten inches of rain a year

A. 1/2 of the earth's land is desert
   - all of the earth's land is desert
   - less than 1/3 of the earth's land is desert

People Change the Desert

In many places the deserts have been changed by people. Water has been brought to the deserts by ditches or canals or wells. This irrigation has changed the deserts, because now more plants can grow.

1. Another title for this story could be
   - Watering the Desert
   - Desert Plants
   - Caravans

2. Irrigation means
   - a lot of water
   - using a hose
   - a way to meet its needs.

3. Deserts change because
   - the plants make the change.
   - people bring water to the desert.
   - the wind blows the sand away.

A. More plants can grow because
   - there is more water.
   - there is more sun.
   - there is more air.

Desert Animals

To live In the desert, animals have learned special ways to protect themselves. Some animals spend the day In a hole In the shade, or under a rock. They come out to hunt for food at night. Some animals have scaly skin which helps keep them from losing water.

1. Another title for this story could be
   - Animal Hunting at Night
   - Animals Protect Themselves
   - A Hole In the Ground

2. Animals protect themselves from the hot sun by
   - staying in the shade and hiding by day.
   - wearing a hat.

3. Scalv skin can keep an animals from
   - too many friends.
   - a bath.
   - losing too much water.

A. Desert animals act
   - the same as all other animals.
   - in a special way to adapt to the desert environment.
   - in a special state.

Plants that Grow in the Desert

The plants that grow In the desert have special ways of existing with very little water. They are called cactus. They have xerophytic roots that go deep into the ground or close to the surface. These roots are able to soak up the water from a large area and store it in their tissues. The cactus have a layer of wax coating their stems to keep the water in the cactus.

1. Another title for this story could be
   - Desert Cacti
   - Desert Plants
   - Water

2. Cactus get their water from
   - far distant places.
   - little streams.
   - the ground where they grow.

3. Cactus have
   - no roots.
   - long roots that go deep or close to the surface.
   - little roots.

A. Cactus need
   - lots of water.
   - no water.
   - little water.
This snake is very dangerous. It has a poisonous bite.

**Western Diamondbacked Rattlesnake**

This bird sleeps during the day and hunts mostly at night. What is it?
Answers to the Word Graphs

Desert Words

page

DESERT
SANDS
IRRIGATION
LIFE
EVOKER
OBELISK
SHUSHER
DOOLY
KJCA
TEZSL

Desert Animal Words

page

RUBIO
MAMMAL
DUMP
ENDANGERED
NOCTURNAL
IHIBERNATE
SIDEWINDER
SE ROVIN
HERBIVORES

Assorted Desert Words

page

LIZARD
WAX
REPO
HATIR
SQUAWD
HEMINGWELL
MINT
BRILT
UP
PELO
ESIOTRODA
QUILAPEX

Cactus Words

page

STRAW
BUCK
CHOKER
AGCAVE
UNKSI
EAHOG
LIOE
LTPHED
NTPES
ROCC
YUCCACTUS

Plantlife of the Desert

page

SANZ
PAKLI
QJW
QLCD
CAM
OUBUT
AYAB
VAM
HCIBAR
MNADO
ALOC
KCOR
SHED

Wildlife of the Desert

page

TSNR
QATORTUR
ULION
AUSNAK
ITORTO
INCQAW
OAB
RRAABMS
IAOSHFOE
BTIBBAR

Another Teacher and Me—Copyright Pending
Put the letter of the animal on the line of its name.

1. KANGAROO RAT

2. DESERT TORTOISE

3. CHUCKWALLA LIZARD

4. DIAMONDBACK RATTLESNAKE

5. KIT FOX

6. GAMBEL OUAIL

7. ROADRUNNER

8. HORNED LIZARD
Put the letter of the animal on the line of its name.

1. KANGAROO RAT
2. DESERT TORTOISE
3. CHUCKWALLA LIZARD
4. DIAMONDBACK RATTLESNAKE
5. KIT FOX
6. GAMBEL QUAIL
7. ROADRUNNER
8. HORNED LIZARD
Put the letter of the cactus on the line that has its name.

_ 1. SAGUARO_  
_ 2. YUCCA TREE_  
_ 3. JOSHUA TREE_  
_ 4. BARREL CACTUS_  
_ 5. BEAVERTAIL CACTUS_  
_ 6. AN OASIS_  
_ 7. OLD MAN CACTUS_  
_ 8. ORGAN PIPE CACTUS_
Put the letter of the cactus on the line that has its name.

H 1. SAGUARO
E 2. YUCCA TREE
D 3. JOSHUA TREE
C 4. BARREL CACTUS
B 5. BEAVERTAIL CACTUS
G 6. AN OASIS
A 7. OLD MAN CACTUS
F 8. ORGAN PIPE CACTUS
Trace these letters onto colored paper to form the words THE DESERT to put up on the bulletin board.
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P H
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P H
5738 Death Valley Ground Aire
P C A
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5262 Desert, The
P H
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I H
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I H
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I C A
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I C A
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I H
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I H
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I H
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I H

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I H
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P H
8018 Little Mariner, The - A True Fairy Tale
P H
8002 Statue Of Liberty, The
P H
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P H

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6829 Hawaii - America's Tropical State
I J A
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I C A
7251 Hawaii - The 50th State
I C A
8864 Hawaii's Asian Heritage
I C A
7444 Hawaii's History - Kingdom To Statehood
I C A
7332 Heartbeat Of A Volcano
I J
7440 I Live In Hawaii
I C A
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P H

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MOTION PICTURES
3374 Alaskan Gold Rush, The
P A
11720 Lewis And Clark At The Great Divide
P A

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9180 City - One Day
I C A
1348 Colonial Philadelphia
I C A
11558 Living In The Middle Atlantic States - Urban Complex
I C A
7408 Middle Atlantic Seaboard Region, The - Great Cities - Megacities
I C A
5367 Mount Vernon In Virginia
I H
8215 North American Regions - The Appalachian Highlands
I H
9002 Statue Of Liberty, The
P H
10694 Two Factories - Japanese And American
I H
10657 Two Families - African And American
I H

2072 Com - The Plant With Ears
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