



Grade Level **5-9**

Class Periods **2**

Goals/Objectives/Student Outcomes:

Students will:

- **Observe the landscape and landforms visible in their local area.**
- **Compare and contrast the various landforms of Iowa with the landforms in their own local area.**
- **List and define some of the common materials that make up their local landforms and other landforms in the state of Iowa.**
- **Understand how various processes shaped the landforms of the state.**
- **Be able to recognize some of the many landforms common in other parts of the state of Iowa when they travel.**

Materials:

1. Copies of the block diagrams of the seven landform regions in the state
2. Brief descriptions of the region without the names of the regions

Background:

In her book *Landforms of Iowa*, Jean C. Prior divided Iowa into seven regions based on the various landforms found in each region. Those regions include: the Des Moines Lobe, Loess Hills, Southern Iowa Drift Plain, Iowan Surface, Northwest Iowa Plains, Paleozoic Plateau, and Alluvial Plains. Each region has its own unique landforms and landscape formed by various processes.

Most of the landforms of Iowa were formed by water erosion or glacial erosion. Various geologic materials also have influenced the formation of the landforms. Let's look at each landform region separately. A copy of a map of Iowa from *Landforms of Iowa* showing the landform regions is included.

DES MOINES LOBE: Deposits and landforms on the Des Moines Lobe are the best examples of recent glacial erosion and deposition in the state. The Des Moines Lobe landforms formed during the last glacial advance into Iowa about 12,000 to 14,000 years ago. Since into central Iowa as far south Des Moines in Polk County.

The block diagram of the Des Moines Lobe landforms shows rough edges or end moraines, lakes and flat areas, with circular ponds or depressions. Most of the landscape is covered with glacial drift left behind by the glacier. Glacial drift is a deposit of boulders, gravel, sand, silt, and clay left behind by a glacier or by the streams and rivers that drained off the melting ice. In places boulders can be found along fences or in the fields. They are called erratics and were left behind by the glaciers.

Present day rivers that flow across the Lobe deposit sand and gravel layers called alluvium. Most of the land in this landform region is extensively farmed with crops like corn, soybeans, and oats. It is an area of Iowa that best represents what non-Iowans might think of when they describe Iowa: relatively flat, dotted with farms, and lots of corn.

LOESS HILLS: The Loess Hills landform region is located along the west edge of Iowa. It formed periodically during the last 150,000 years. The word loess rhymes with bus.

Loess is windblown silt that was picked up by winds off the Missouri River valley floor during and between glacial advances and retreats. Loess is thickest along the west edge of Iowa and gradually thins as you go eastward toward central Iowa. Loess is deposited on top of older glacial drift and bedrock.

Streams and rivers have eroded valleys in the loess and deposited alluvium on their flood plains. There also are deposits of colluvium in the valleys. Colluvium is material that has slid or washed down to the bottom of a steep slope. One of the most unusual characteristics of loess is its amazing ability to retain steep, nearly vertical slopes. The landform region is characterized by steep-sided hills and ridges and tree-covered ravines or side valleys. Much of the land is used for pasture and grazing in this landform region.

SOUTHERN IOWA DRIFT PLAIN: This landform region is the largest in Iowa, and it is the one most often seen by people traveling across Iowa on I-80. The landscapes are characterized by gently rolling hills and valleys. They have been formed by hundreds of thousands of years of erosion and stream development on what was once a landscape similar to that in the Des Moines Lobe region.

Often trees or even forests grow in the valleys. Rivers, streams, or creeks at the bottoms of the valleys with their numerous upstream tributaries form a drainage pattern that looks like the branches of a tree. Underlying much of the region is a thin layer of loess, a thick layer of glacial drift, and finally bedrock of limestone, shale, and sandstone.

Alluvium is common on the flood plain of the region's drainages. Paleosols (ancient, buried soils) also are found in the region. This part of Iowa is farmed or often left for pasture land and grazing. It is a relatively dry region.

IOWAN SURFACE: The Iowan Surface is one of the most difficult regions to interpret geologically. Earlier interpretation suggested that the region was formed as a result of glacial deposition, but recent studies indicate that the region formed mainly due to intense erosion in a cold, tundra-like climate.

The region is characterized by almost flat land, occasional long hills that early observers called "dolphin-backed hills," and rivers and streams. In the northern part of the region there are numerous sinkholes or depressions caused by the collapse of underground caves and caverns.

Glacial drift similar to that found in the Southern Iowa Drift Plain and limestone bedrock underlie the region, and loess remains on the tops of the elongated hills, which geologists call Paha after a Native American word that describes a hill.

Colluvium and alluvium are found on some slopes and along flood plains. Erratics (boulders moved by the glaciers from Canada and Minnesota) are common and sometimes very large. Most of the region is used for crop farming as in the Des Moines Lobe region.

NORTHWEST IOWA PLAINS: The Northwest Iowa Plains are the highest, driest, least tree-covered region in the state. It is characterized by a landscape that is similar to the Iowa Surface: flat to very gently rolling, with long parallel hills and subtle valleys. Trees are typically found only where planted around farmsteads or in some valley bottoms. Glacial drift underlies a thin layer of loess that covers most of the region. The region is dominated by crops and a few pastures.

PALEOZOIC PLATEAU: The contrast between the Paleozoic Plateau region of Iowa and all of the rest of the state is very obvious. This region has been called the "Switzerland of Iowa." Outcrops of solid bedrock (mostly limestone) are very common. Only a few scattered patches of glacial deposit exist in the region. Valleys are deep, steep, and make great scenic vistas as viewed from the uplands.

The bedrock that controls the shape of the land in this region formed in warm tropical sea floors between 300-500 million years ago. It forms the famous "bluffs" along the edge of the Mississippi River's flood plain. Caves are common and sinkholes or depressions often filled with water are found in portions of this landform region. Crop farming and pasture land is common in areas where the slope is not so steep or on valley floors.

ALLUVIAL PLAINS: This landform is located adjacent to the Mississippi and Missouri Rivers and other large rivers in the state. Characterized by landscapes developed by water erosion and deposition along a river's flood plain it is wide and flat, with features typical of a flowing river. Alluvium deposited by the river and glacial drift or bedrock underlie the region.

Procedure:

1. For several days prior to the activity have students make observations and descriptions of the landscapes and landforms surrounding their local area.
2. Form small groups of three or four students and ask them to create a list of words or phrases that describe the landscapes and landforms in their area.
3. Share the descriptions with the entire class and create a class list of characteristics of the local area.
4. Pass out the seven block diagrams and descriptions of each landform region and tell each group to try to pick the diagram that best fits the landforms and landscapes in their area.
5. Have a reporter from each group share the choice made by each group with the entire class.
6. Try to arrive at a class consensus as to which drawing and description best fits the students' situations.
7. Have students compare and contrast the similarities and differences between the seven landform regions in the state.

Assessment of Outcomes:

Put transparencies of each landform region on the overhead and have students try to name each region.

Extensions and Adaptations:

Ask students to contact relatives or friends living in other landform regions to learn more about life in other landform areas. Students can use mail, phone, or e-mail.

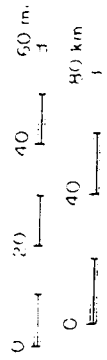
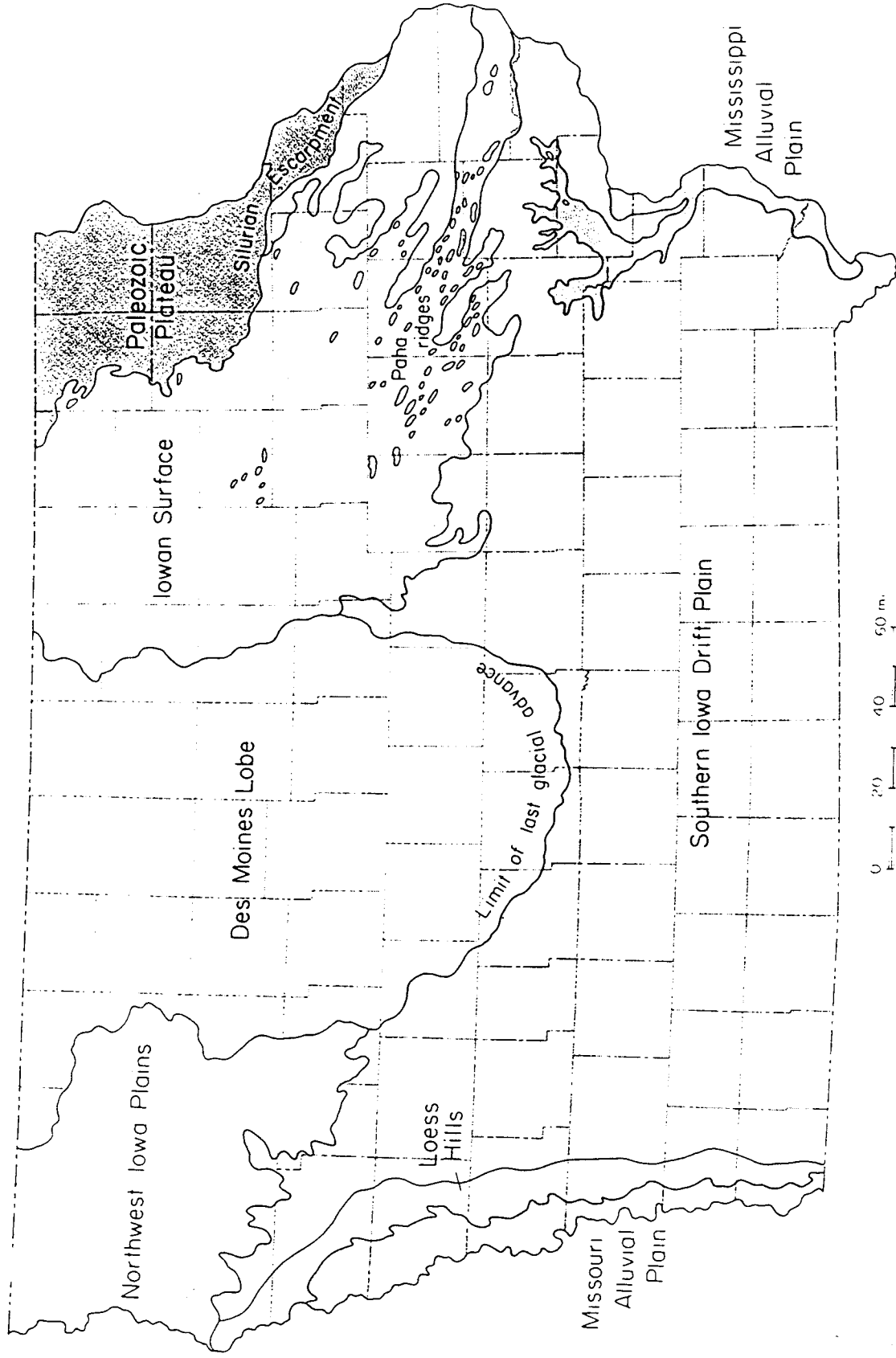
Have students photograph areas in their landform region that show the characteristics of their region and share the photos with others in the class or with other classes.

Students can use available resources to find stories about living in the various landform areas. Sources may include old newspaper stories, books, and interviews with older people who have lived in the area or who have moved from some other area.

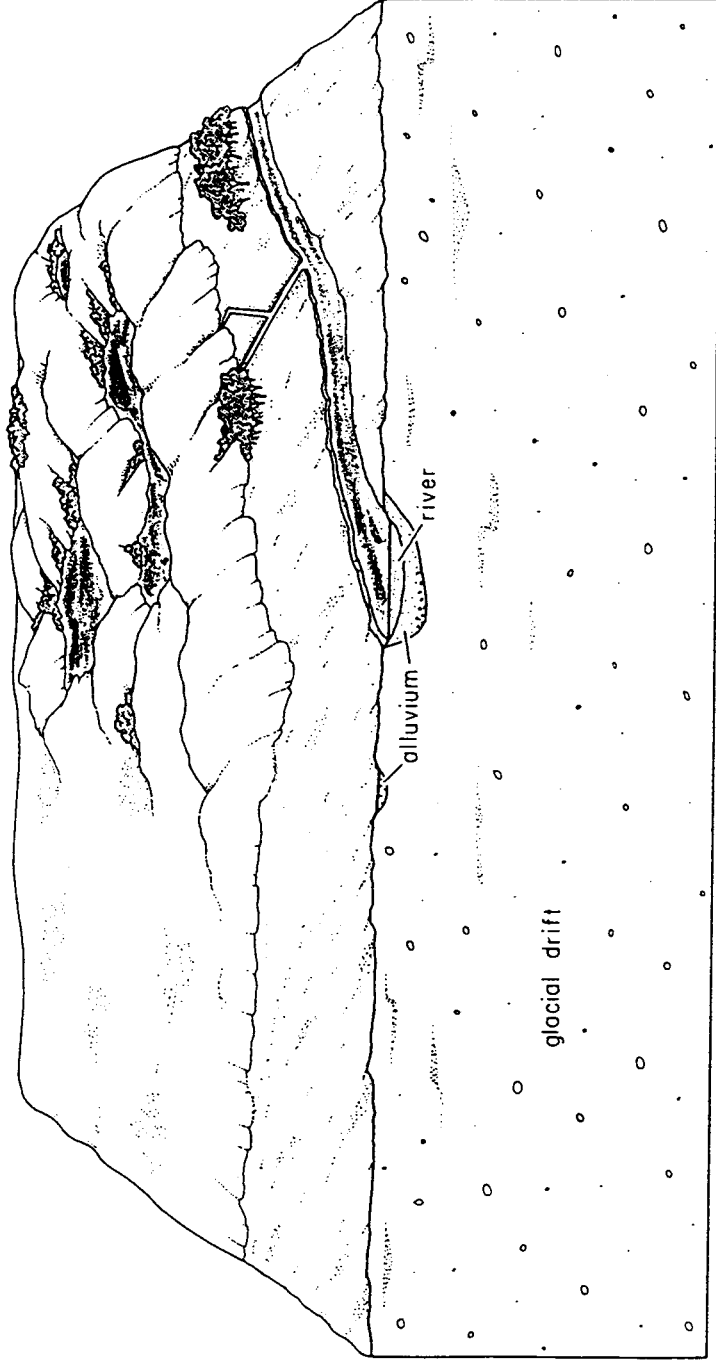
Resources:

Jean C. Prior. *Landforms of Iowa*. Iowa City: University of Iowa Press, 1991.

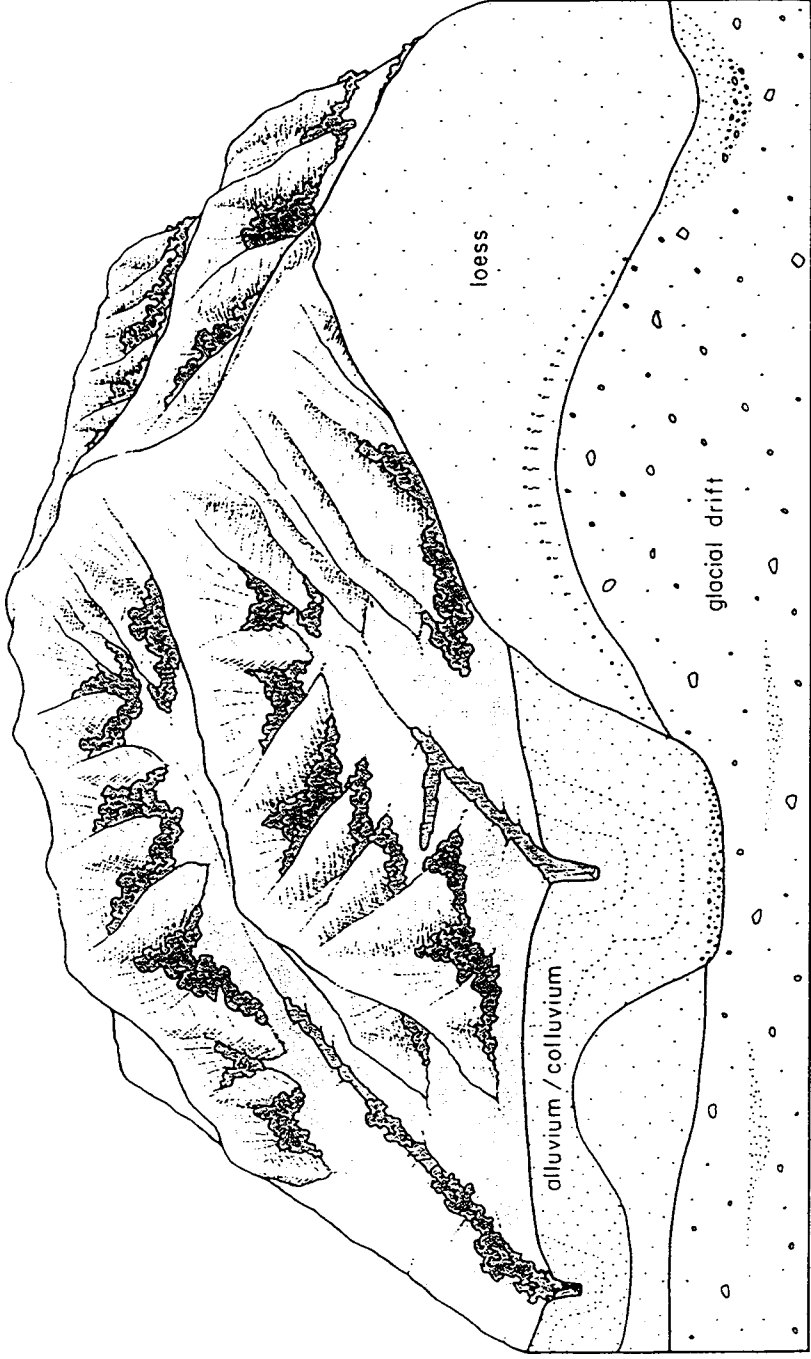
Iowa Public Television. "The Land Between Two Rivers." Video Series and Teacher's Guide



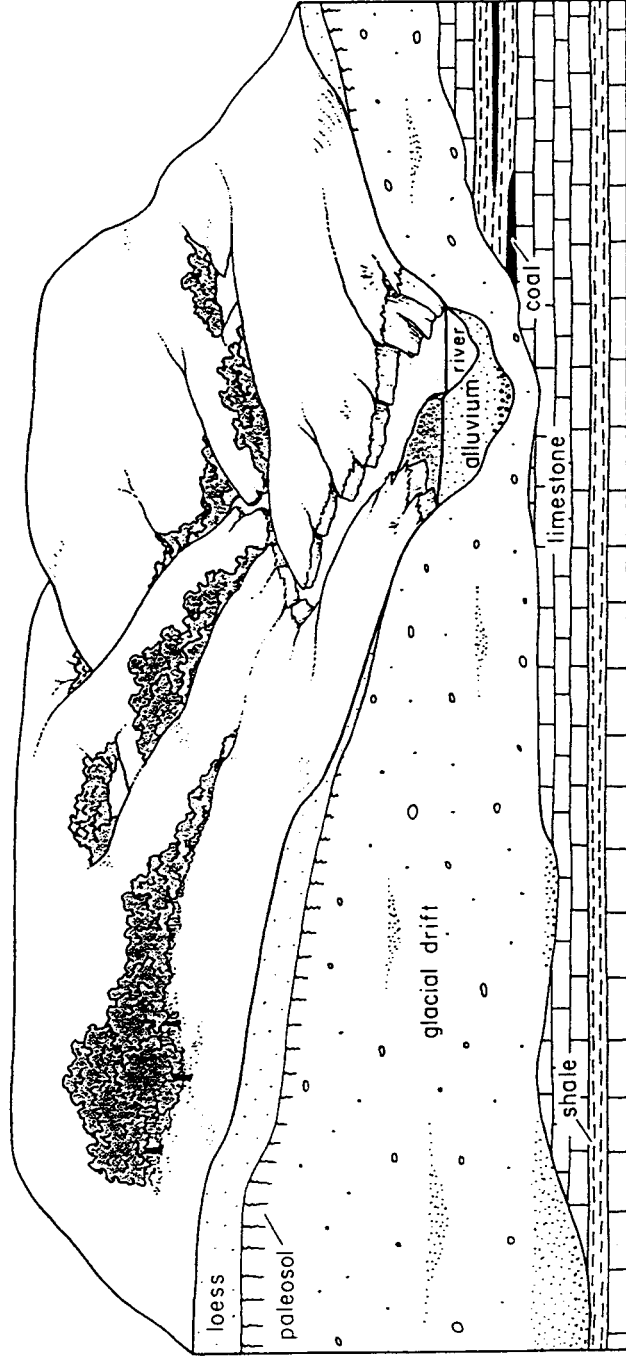
Landform Regions of Iowa



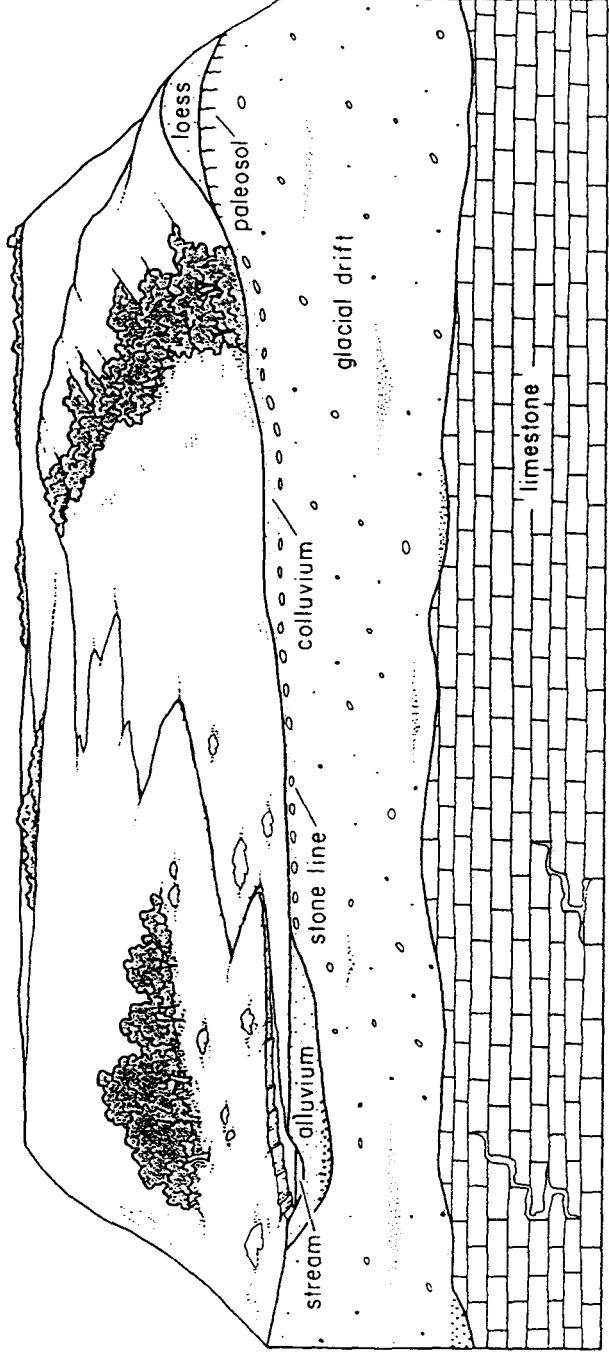
Des Moines Lobe



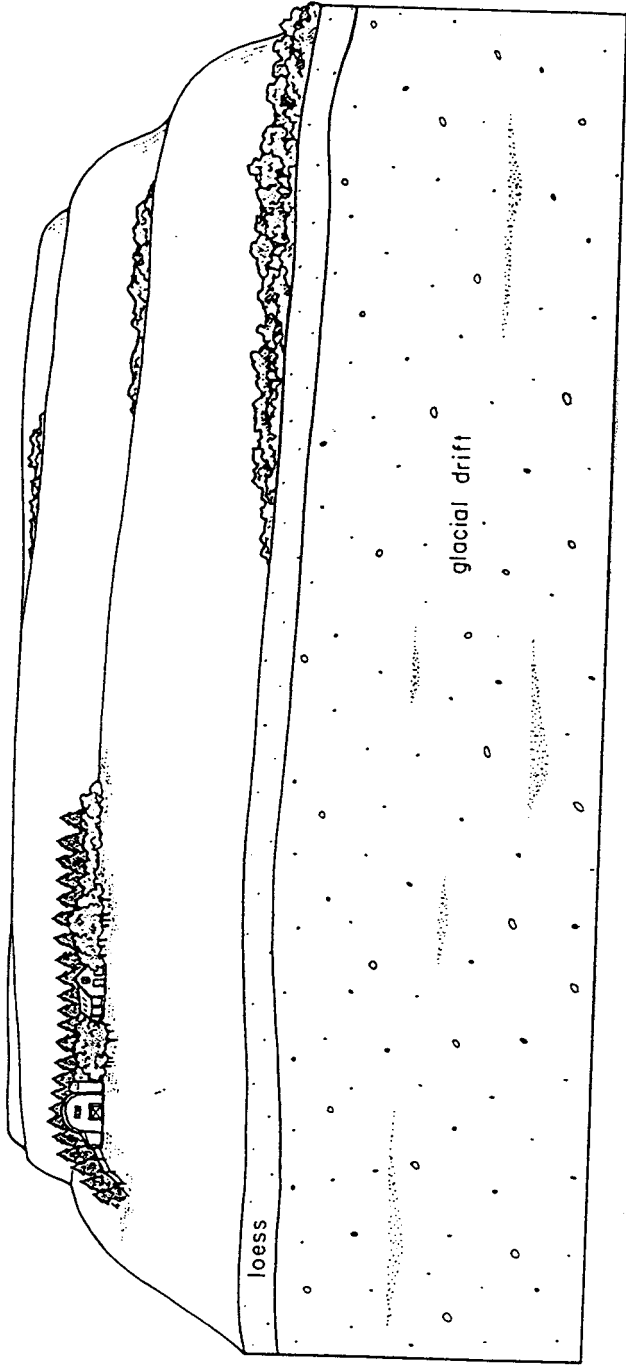
Loess Hills



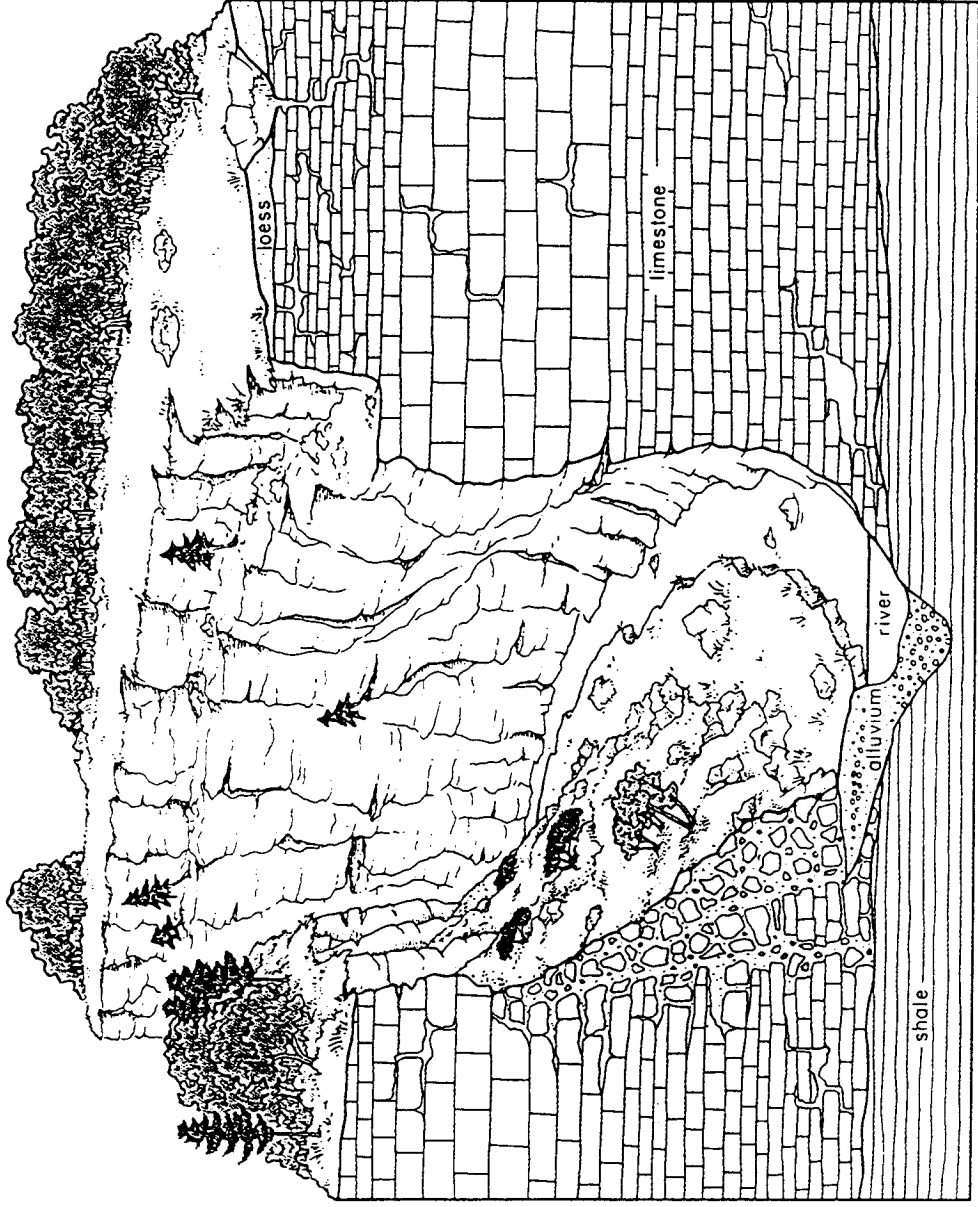
Southern Iowa Drift Plain



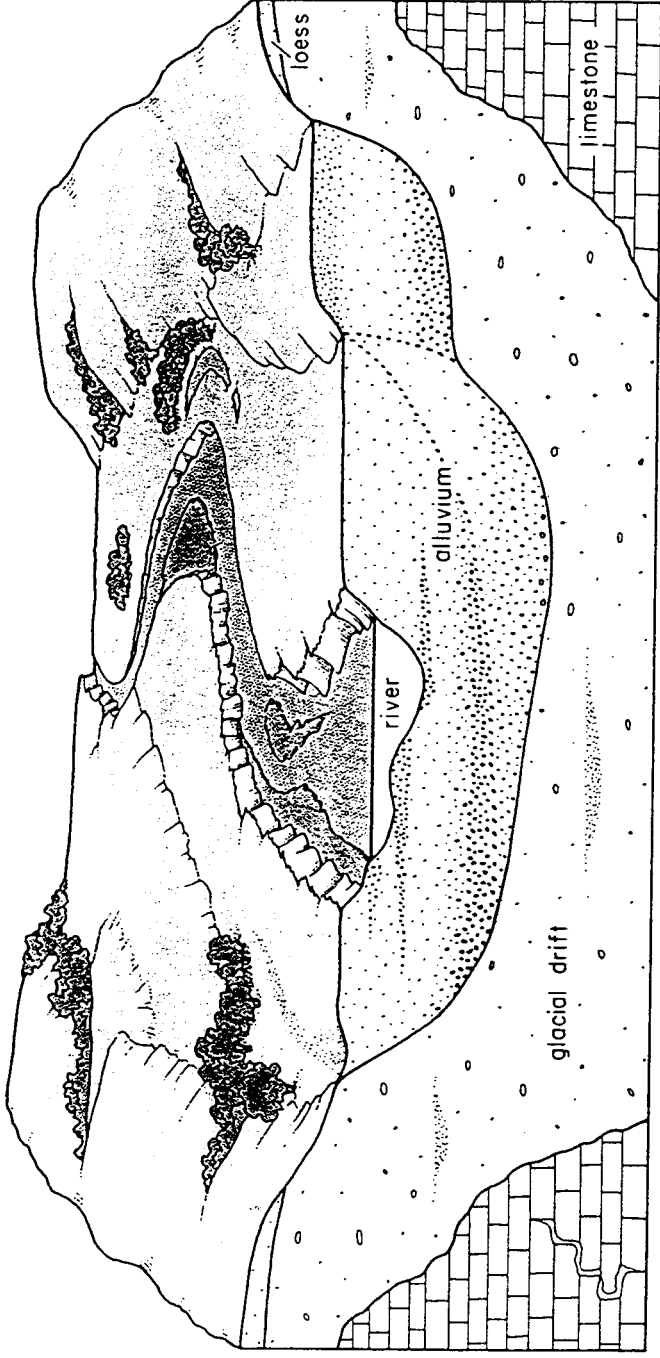
lowan Surface



Northwest Iowa Plain



Paleozoic Plateau



Alluvial Plains

A MATCHING GAME OF IOWA RIVER NAMES

Match The Name Of Each River With Its Meaning

	NAME		MEANING
1.	Panther Creek	A.	Natives made paint from the blue soil along its shore.
2.	Maquoketa River	B.	Name of a tribe that lived in the area.
3.	Floyd River	C.	A member of the cat family that was killed nearby.
4.	Mississippi River	D.	Native word for snake.
5.	Skunk River	E.	Lewis and Clark named it after Charles Floyd who died on their expedition.
6.	Medicine River	F.	The father's name was Daniel and the son explored Iowa in 1835 with Albert Lea.
7.	Nodaway River	G.	Translation of chicaqua, a native word for smelly, striped animal.
8.	Missouri River	H.	Means spiritual power to Native Americans.
9.	Boone River	I.	Native word for the great river.
10.	Blue Earth River	J.	Makwok means bear. Eteg means there are. Say the word together.

Answers: 1-C, 2-J, 3-E, 4-I, 5-G, 6-H, 7-D,
8-B, 9-F, 10-A