6

History-Social Science Standard 6.2.1.

Visual Aids

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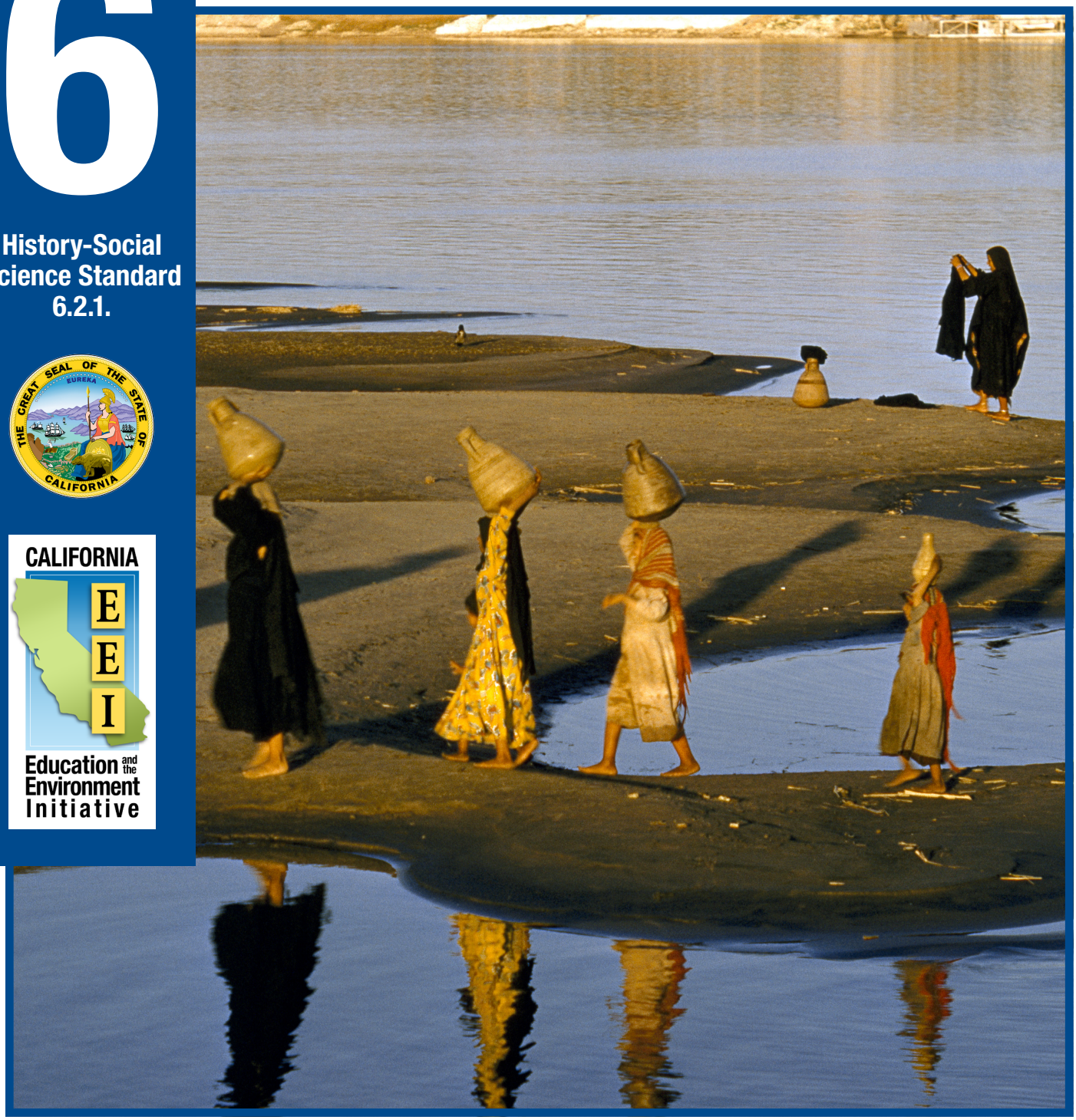

River Systems and Ancient Peoples

California Education and the Environment Initiative

Approved by the California State Board of Education, 2010

The Education and the Environment Curriculum is a cooperative endeavor of the following entities:

California Environmental Protection Agency
California Natural Resources Agency
Office of the Secretary of Education
California State Board of Education
California Department of Education
California Integrated Waste Management Board

Key Leadership for the Education and Environment Initiative:

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Andrea Lewis, Assistant Secretary for Education and Quality Programs, California Environmental Protection Agency
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Key Partners:

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Lesson 4 Growing by the Banks

None required for this lesson.

Lesson 5 Finding Foundations

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Science Background Introducing a River System

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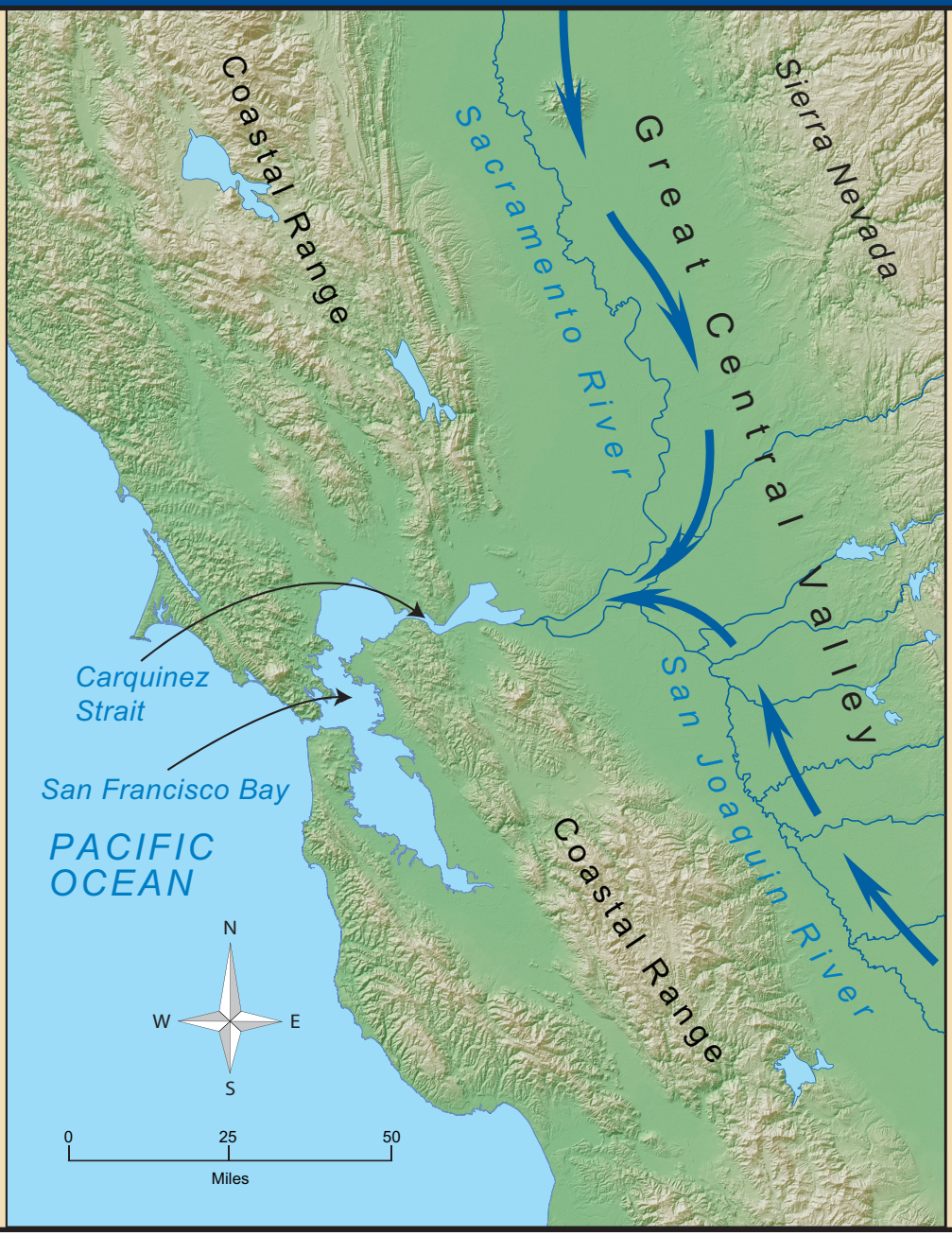
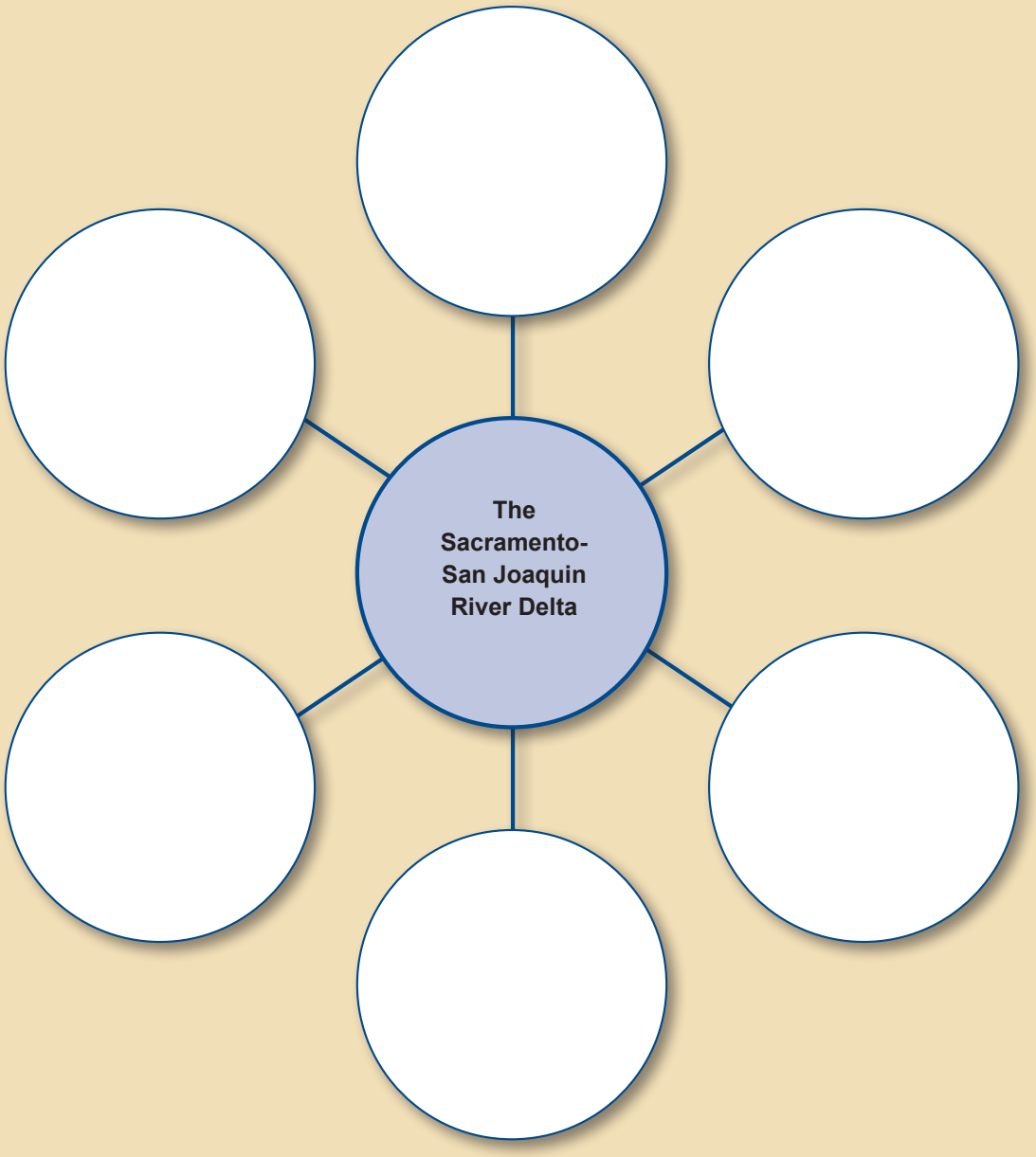
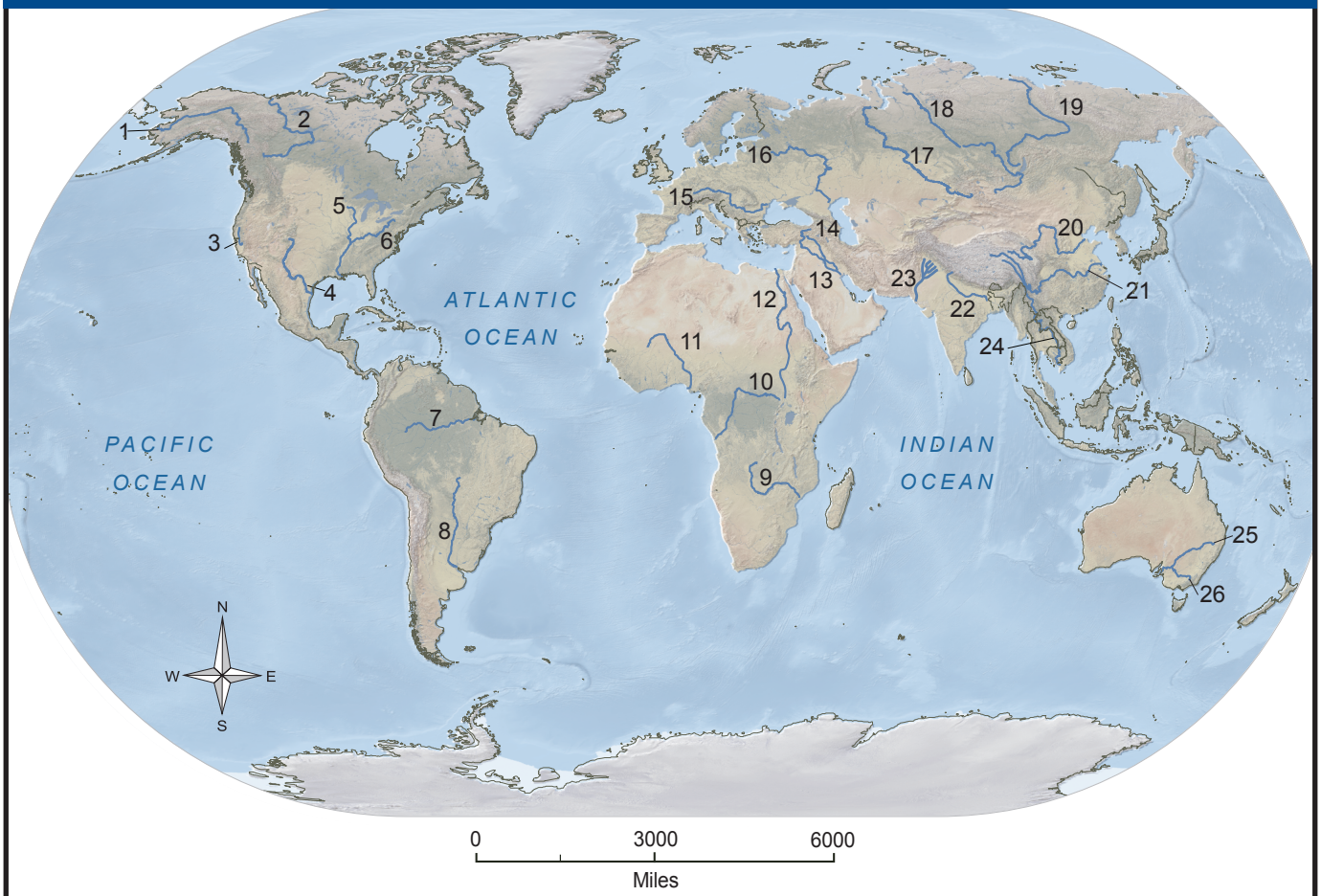
VA #1 The Sacramento-San Joaquin River Delta



VA #2 People and the Bay Delta

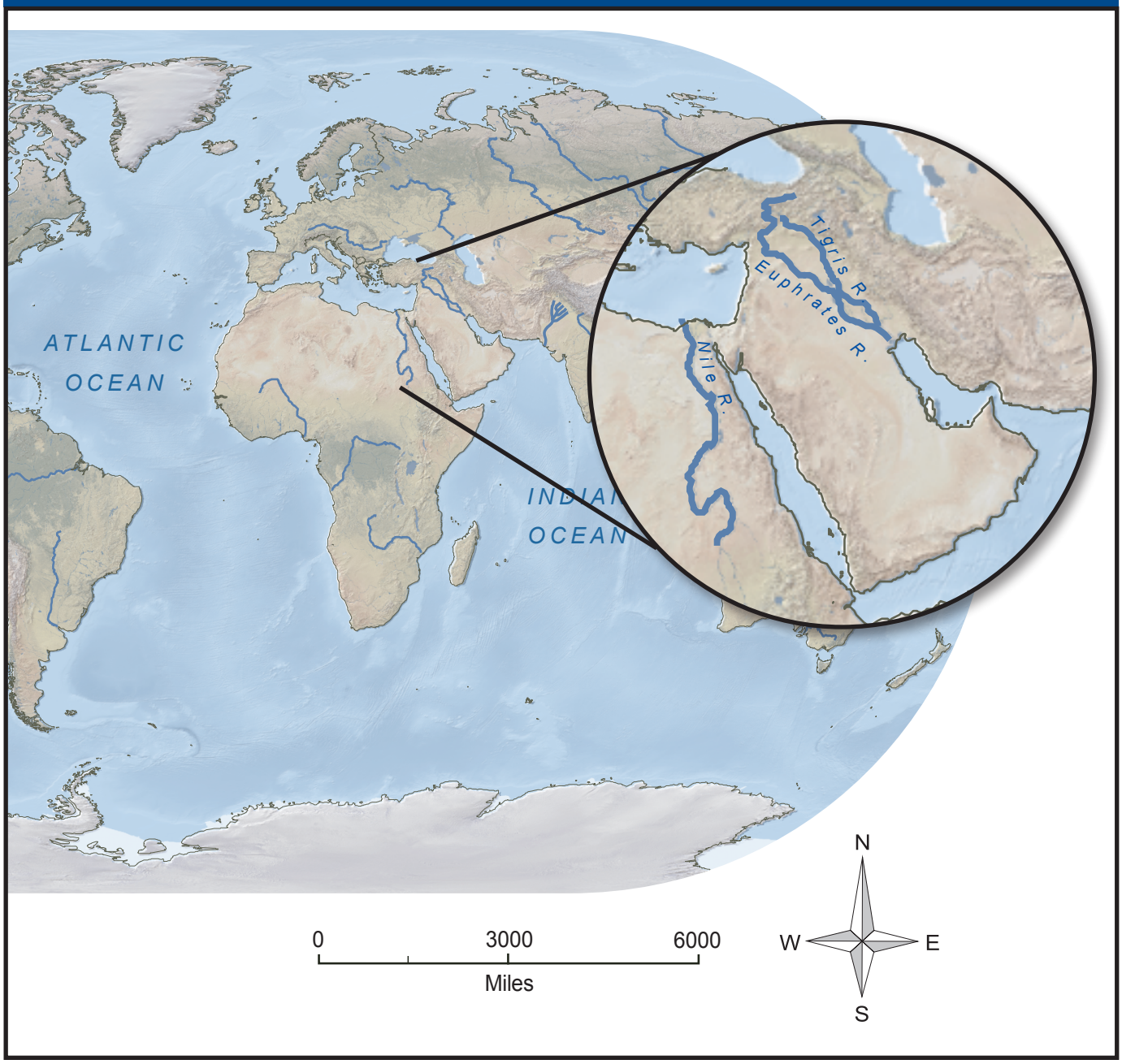


VA #3 Major Rivers of the World



1. Yukon River
2. Mackenzie River
3. Sacramento/San Joaquin Rivers
4. Rio Grande River
5. Mississippi River
6. Ohio River
7. Amazon River
8. Parana River
9. Zambezi River
10. Congo River
11. Niger River
12. Nile River
13. Euphrates River
14. Tigris River
15. Danube River
16. Volga River
17. Ob River
18. Yenisei River
19. Lena River
20. Huang He River
21. Yangzi River
22. Ganges River
23. Indus River
24. Mekong River
25. Darling River
26. Murray River

VA #4 The Fertile Crescent and the World



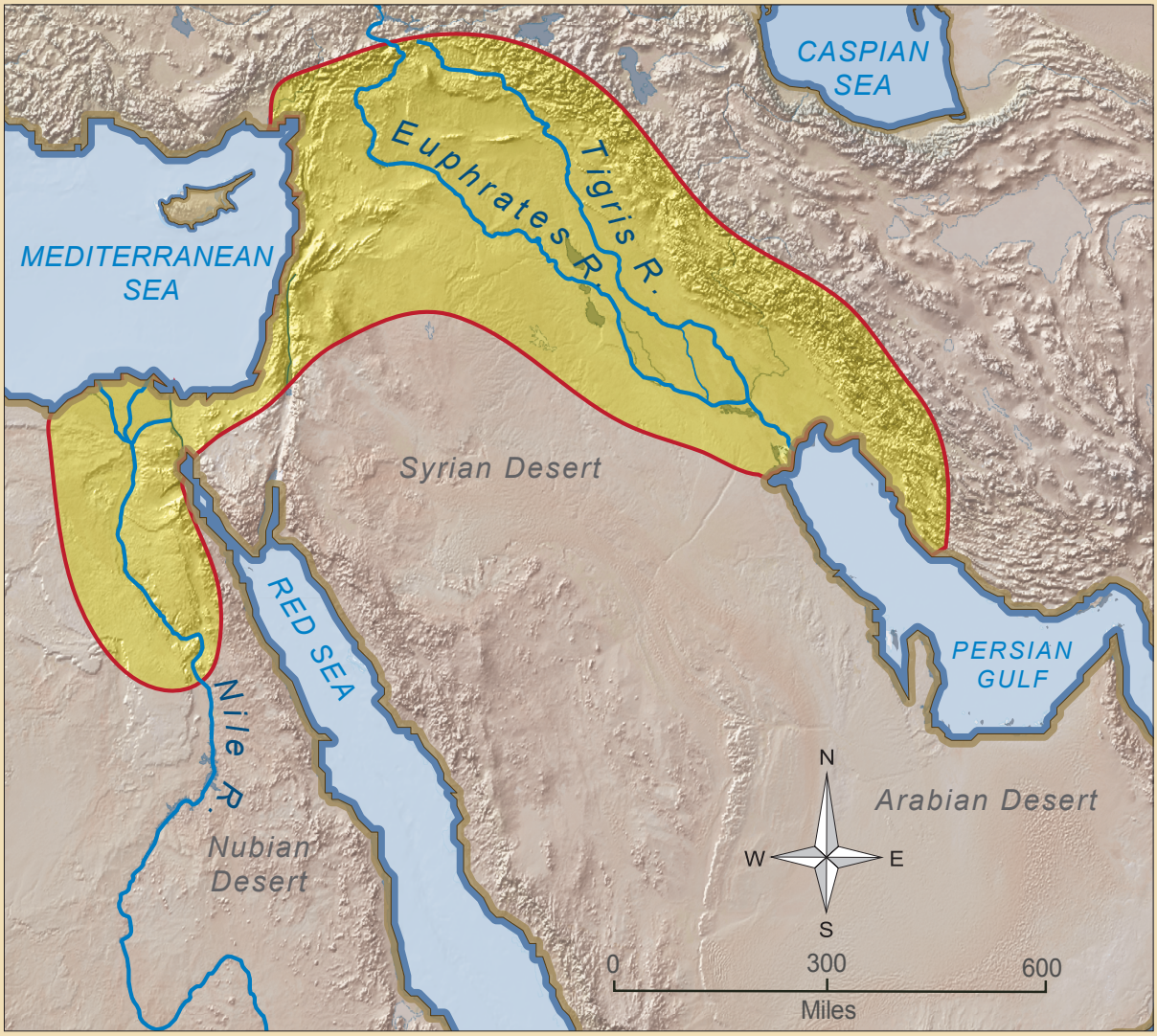
VA #5 Nile River Valley

VA #6 Tigris-Euphrates River Valley

VA #7 Seasonal Cycles of the Fertile Crescent

This presentation provides examples of seasonal cycles in the major river systems that benefitted humans and led to the permanent settlement of early civilizations.

VA #8 The Fertile Crescent



The Tigris-Euphrates and Nile rivers

VA #9 The Tigris-Euphrates River Valley

The Tigris-Euphrates Rivers:

The land between these two rivers was called Mesopotamia, which literally means “between the rivers.”

People developed the area’s first cities here about 5,000 years ago.

VA #10 Winter Floods in Mesopotamia

The Flood Cycle:

There were two flood times in Mesopotamia:

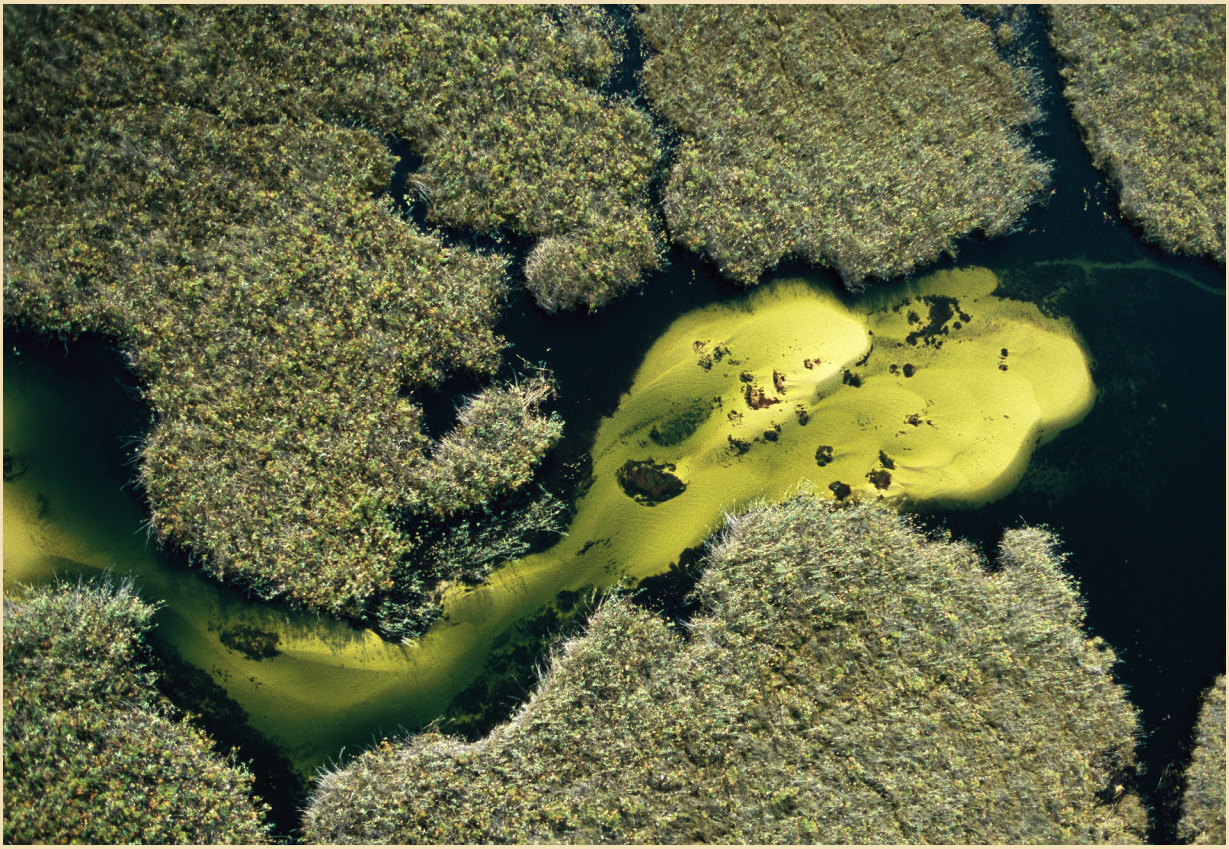
Winter (November–February): Winter was the rainy season, but rain was not heavy and it came in short showers. Rain was heavier in the north. The rain caused the rivers to rise a little at that time of year. The weather was cold and snowy in the mountains, at the headwaters of the rivers.

VA #11 Spring Floods in Mesopotamia

Spring (March–May):

Spring was the major flood season in Mesopotamia. The snow in the mountains, in what is now known as Turkey, melted and the water flowed downhill. The rivers rose by several feet or meters. Spring was also the time of harvest. This meant that the water usually came too late to help the crops grow. Sometimes the floods even ruined the crops.

VA #12 Floods Help Renew the Soil



Usually, rainfall in Mesopotamia was very low. Once every three or four years, however, there was a lot of rain and the Euphrates overflowed its banks, leaving rich silt on the surrounding land.

Overall, flooding was irregular and unpredictable. It was hard for people to plan around the flooding.

VA #13 Summer in Mesopotamia

Summer (June–July):

Summer in Mesopotamia was hot and dry. Temperatures reached over 140° F (60° C)! There was little rain and so river levels dropped. But rivers could suddenly flood if there was rainfall up river.

VA #14 Fall in Mesopotamia

Fall (August–October):

Mesopotamians planted crops during fall. River levels continued to drop to a low in November. People hoped for enough water for a successful winter harvest… but not too much water.

VA #15 Other Seasonal Changes in Mesopotamia

Other Seasonal Cycles:

Bird Migration: In spring and fall, birds such as storks, geese, and pelicans stopped to breed in the marshes of the Tigris and Euphrates. These birds were on their way between Europe and Asia. Why would they migrate at this time of year?

Pelicans: These birds eat fish. In winter, some fish tend to stay closer to the riverbed because it is warmer than it is at the water's surface. The fish get oxygen from the plants at the bottom of the water. When fish swim deeper in the water, it is harder for pelicans to get enough to eat.

VA #16 Onager Migration

Onager:

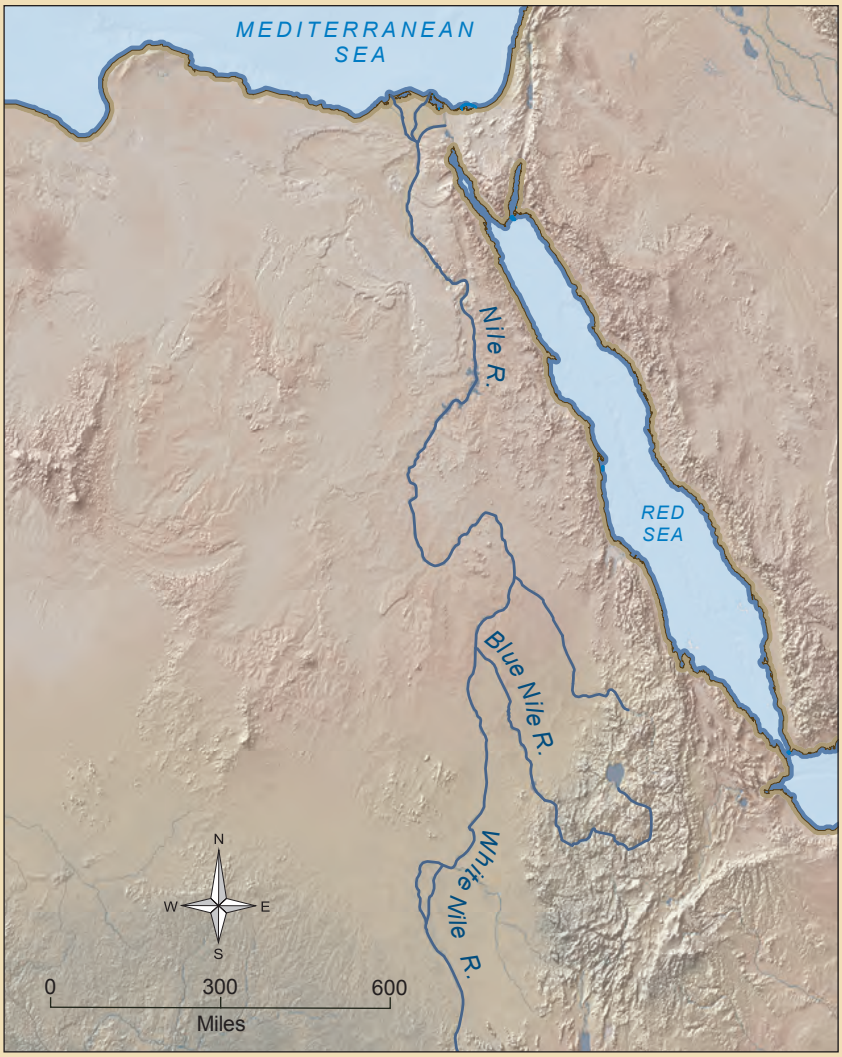
This animal is a cousin to the donkey and horse. Today, the onager is endangered and its range is very small. Onagers need water and grass. After rainy periods, they used to travel in herds of 50 to 100 to their winter feeding grounds. In the summer, Onagers looked for watering holes.

Onagers mate between April and October (depending on where they live). Females give birth after 11 months to one foal. Onagers change color by season, too; they are reddish-brown in summer and yellow-brown in winter!

VA #17 The Nile River Valley

The Nile River:

The Nile is the longest river in the world. It travels over 4,100 miles (6,600 kilometers) through northern Africa. The most important portion for agriculture is 750 miles long from the first cataract to the mouth of the river. The Nile watershed takes up 1/10 of the continent of Africa.



VA #18 The Flood Cycle of the Nile

Flood Cycle: The Nile

Egyptians depended on the yearly flooding of the Nile.

VA #19 Summer in Egypt

The Cycle Begins…

Early Summer (June): Heavy rains in central Africa and Egypt led to Nile floods.

Late Summer (July–August): Like clockwork, the Nile flooded its banks late in the summer. The river left rich, black sediment after flooding.

VA #20 Fall in the Nile River Valley

Fall (September–October):

Thanks to the floods, the water level of the Nile was at its highest in the fall, fertilizing the soil. The higher the flood, the better the harvest! However, high floods could also create problems, destroying villages and leading to late planting and harvest.

VA #21 Winter and Spring in the Nile River Valley

Winter (November–December):

Farmers planted crops in the rich soil.

Spring (March–April):

Crops were harvested when the Nile was at its lowest levels.

VA #22 Other Seasonal Changes in the Nile

Other Seasonal Cycles:

Crocodiles: Crocodiles thrived in swampy areas.

These reptiles breed in July. A female Nile crocodile builds her nest in holes near the river—but far enough away that her eggs are safe! She lays 50 to 60 eggs in the fall. In November, hatchlings emerge from the eggs. The mother crocodile often carries her babies in her mouth for their first swim.

VA #23 Hippos in the Nile River Valley

River hippos: These large animals spent most of their lives in the water.

Most female river hippos get pregnant at the end of the rainy season in the summer. Most births occur in late winter or early spring. Baby hippos are born and nurse underwater.

VA #24 Papyrus of the Nile

Papyrus: This plant grew in the water. It could reach 15 to 25 feet (0.3 to 0.6 meters) high. It is now extinct in Egypt. Papyrus had many uses in the daily life of ancient Egyptians. The flowers decorated shrines to the gods. The roots were used for fuel and to make utensils. Boats, sails, sandals, mats, and paper were made from the stem. People even ate papyrus! It grew year-round and was harvested between October and December.

VA #25 The Nile Perch

Nile perch: These giant fish of the Nile laid eggs all year, but laid most during the rainy season of summer, especially in June.

One fish can lay up to 16 million eggs per cycle! Nile perch kill and eat other fish, even their own babies. They can grow up to 400 pounds (181 kilograms).

VA #26 Rivers of Life

The Tigris-Euphrates and Nile river systems supported many plants and animals. Seasonal cycles in these regions gave people many things they needed. These natural systems made the first permanent cities possible.

VA #27 Season Match, Round 1

1. Onagers looked for watering holes.
2. Pelicans migrated to the Tigris-Euphrates rivers.
3. The Nile River flooded “like clockwork.”
4. The Tigris-Euphrates flooded heavily.
5. Crocodiles laid eggs in nests near the riverbanks.
6. Crops were harvested in Mesopotamia.
7. River hippos gave birth.
8. Heavy rains took place in central Africa.
9. This was considered the “light” flood season along the Tigris and Euphrates.

VA #28 Season Match, Round 2

10. Temperatures reached 140° F (60° C) in Mesopotamia.
11. Crops were planted along the Nile River.
12. Crops were planted along the Tigris and Euphrates rivers.
13. Nile perch laid the most eggs.
14. Floodwaters receded along the Nile, leaving nutrients on the land.
15. There was snowmelt in what is now known as Turkey, which led to flooding in Mesopotamia.
16. Papyrus was harvested.

VA #29 Season Match, Round 3

17. Crops were harvested along the Nile riverbanks.

18. This was the “rainy season” in Egypt.

19. Baby crocodiles hatched.

20. Irrigation was most important at this time of the year to people in Mesopotamia.

VA #30 Ancient Cities of the Fertile Crescent

VA #31 Modern Cities of the Fertile Crescent

VA #32 The Sacramento-San Joaquin River Delta

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