

Name _____

Hour _____

MAKING CONNECTIONS: Reclaiming Land from the Sea in the Netherlands

Read the passages describing use of dikes and polders in the Netherlands. Then complete the work below. (*I have included the passages if you need to finish this as homework.*)

Directions: For each pair of terms, write **one complete sentence** which includes **both terms**. Your sentence should show that you understand what the terms have to do with each other. You will need to understand the passages in order to write good sentences. **Re-read the passages** to help you understand how the terms are connected to each other.

→ **Example:** flood / farmland *In 1287, floods destroyed farmland in the Netherlands.*

windmills / drain _____

Flevoland / bay _____

plants / polders _____

sea level / reclaim _____

HISTORY OF DIKES AND POLDERS IN THE NETHERLANDS

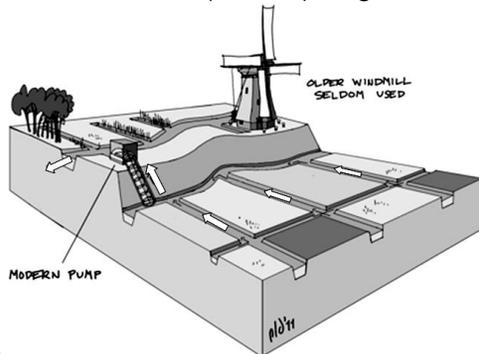
In 1986, the Netherlands added their new 12th province: **Flevoland**. But they didn't get this land by taking it from neighbor countries. And they didn't create **Flevoland** by dividing two province they already had. The Netherlands actually grew.

The Dutch and their ancestors have been working to hold back and **reclaim** land from the North Sea for over 2000 years. Over 2000 years ago, the Frisians who first settled the Netherlands began to build the first **dikes** to hold back the water.

In 1287 the **dikes** that held back the North Sea failed, and water flooded the country. The flooding created new **bay**. This land had been farmland before the flood.

Over the next few centuries, the Dutch worked to again push the water back out. They built **dikes** to create **polders** (the word used to describe land **reclaimed** from below **sea level**). Once **dikes** were built, canals and **pumps** drained the land and to keep it dry. From the 1200s, **windmills** had been used to power those **pumps**. This worked well most of the time.

But in 1916, storms and floods scared the Dutch into starting a major project to push more water back into the North Sea. From 1927 to 1932, a 30.5 km (19 mile) long **dike** called *Afsluitdijk* (the Closing **Dike**) was built. It was built 24 feet high to hold back the North Sea.



https://getintouch eindhoven.files.wordpress.com/2014/10/polder_2.png

approximate average elevation of 11 meters (36 feet).

-- adapted from <http://geography.about.com/od/specificplacesofinterest/a/dykes.htm>

More protective **dikes** and pumps were built, creating more **polders** in the **bay**. The new land led to the creation of the new province of **Flevoland**. The collective North Sea Protective Works is one of the Seven Wonders of the Modern World, according to the American Society of Civil Engineers.

Today most of the **windmills** have been replaced with electricity- and diesel-driven **pumps**. However, modern **windmills** are also being used to create electricity to power those **pumps**.

Approximately 27 percent of the Netherlands is actually below **sea level**. This area is home to over 60 percent of the country's population of 15.8 million people. The Netherlands, which is approximately the size of the U.S. states Connecticut and Massachusetts combined, has an

Polders and Dikes along the North Sea, the Netherlands

This satellite image over the Netherlands shows us how hard humans have worked to control the natural environment. (*The color satellite image was with the passage you read in class.*)

The tan patches of land that you see used to be underwater. This land is still below **sea level**, but it was **reclaimed** from the North Sea (the dark blue in the image). Sections of land **reclaimed** like this are called **polders**.

Some of the newest **polders** are on the right-hand side of the photo. You can also see a long, thin line across the **bay**. This is a 19-mile-long **dike** built about 80 years ago.

More **dikes** were built inside the **bay**, and sea water was **pumped** out of those areas. These areas eventually were drained and turned into polders.

After draining, these **polders** are still not very useful. They are wet and mushy with salty sea water. **Plants** are added. As they grow, the **plants** remove the extra water as they grow. The **plant** roots also help the soil bind together. Rainfall helps remove the salt from the soil. Eventually the **plants** are burned off and plowed under. But it is a slow process. It takes about 15 years of this work until the land is ready for farming. Since the 1300s, more than 7800 square kilometers of land has been **reclaimed** from the sea by the Dutch.

Reclaiming coastal lands has been done around the world using different methods. Often, low areas of coastal land has simply been built up higher by bringing in dirt, clay, and rocks. This method has been used around cities such as Boston (U.S.), Belfast (Ireland), and Tokyo (Japan).

-- adapted from http://www.lpi.usra.edu/publications/slidesets/humanimprints/slide_11.html