**Nordic Architecture and Design**

**Objective:** Students will learn about the principles of contemporary Nordic architecture while looking at examples from all five Nordic countries. Students will then design their own building using Nordic architecture as inspiration.

This lesson plan may contribute to the following learning standards:

Next Generation Science Standards

* 3-5 ETS 1.1 define a simple design problem reflecting a need or want that includes specified criteria for success and constraints on materials time or cost
* 3-5 ETS 1-2 generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem

Washington Office of Superintendent and Public Instruction, Integrated Environmental and Sustainability Learning Standards:

* ESE standard 2: students engage in inquiry and systems thinking and use information gained through learning experiences in, about, and for the environment to understand the structure, components, and processes of natural and human build environments

National Visual Arts Core Standards, Grade 5 level:

* Anchor standard 8: interpret intent and meaning in artistic work.
* Anchor standard 11: relate artistic ideas and works with societal, cultural, and historical context to deepen understanding

Washington State Social Studies Learning Standards, K-5:

* G1.2.2 use maps, globes, and other simple geographic models to identify cultural and environmental characteristics of places
* G1.5.4: Use maps, satellite images, photographs, and other representations to explain relationships between the locations and places and regions and their environmental characteristics.
* G2.3.1 explain how the environment affects cultural groups and how groups affect the environment
* G2.5.4 Describe how environmental and cultural characteristics influence population distribution in specific places or regions.
* G2.5.6 Explain how human settlements and movements relate to the locations and use of various natural resources.

**Lesson Vocabulary**: Nordic, Scandinavia, Architecture, Design, Sustainability, Accessibility, Energy Efficiency,

* Nordic: The Nordic Region is a part of Northern Europe. It is made up of Denmark, Finland, Iceland, Norway, and Sweden. These five countries share a lot of history and culture.
* Scandinavia: Scandinavia is a part of the Nordic Region. It is made up of Denmark, Norway, and Sweden.
* Architecture: Architecture is the art of designing and constructing buildings. It usually refers to the planning, designing, and constructing of a place or a space. Architecture can also mean a specific style that comes from a time, place, and culture, eg: Nordic Architecture, Classical Architecture, Art Deco Architecture
* Design: In architecture, a design is a plan for the construction of a building, structure, or space. Usually, the design will plan out the style of a building and the materials that will be used.
* Nordic Design/Architecture: This refers to the overall style and development of buildings, structures, and spaces in the Nordic region.
* Sustainability: Sustainability refers to things that work to maintain natural resources and that have a smaller impact on the environment, in order to protect it for future generations.
* Accessible: easy to use or get to. Buildings can be accessible by being easy to get into, easy to get around, and available for many people to use.
* Energy Efficiency: Things that are energy efficient only use as much energy as they need without wasting any. Energy efficient items and places also tend to use less energy overall. Energy efficient items and places pollute less and use less water, making them better for the planet.

**Section 1: What is the Nordic Region?**

Read aloud the information below while using images 1-6b as references.

The Nordic region is made up of five countries in Northern Europe: Denmark, Finland, Iceland, Norway, and Sweden. Image 1 shows where the Nordic countries are in the world.

* Norway- images 2a and 2b: Norway has an extensive coastline and a large mountain range.
* Sweden- image 3a and 3b: Almost 10% of Sweden’s landscape is covered by lakes and forests. Sweden also has lots of land great for farming.
* Denmark- images 4a and 4b: Denmark is the smallest of the five Nordic nations and has lots of good farmland. Denmark has a temperate climate throughout the year.
* Finland- images 5a and 5b: Forests cover almost two thirds of the Finnish landscape. Finland is called the land of a thousand lakes, as lakes and rivers make up 10% of the country’s land.
* Iceland- images 6a and 6b- Most of the Icelandic landscape is covered by volcanoes and glaciers-- only about 1% of the land is good for farming. Parts of Iceland have a tundra climate.

All five of the Nordic countries are very far north--reference image 1 again. In the middle of winter, around late December, some places in the Nordic region only get 4 hours of sunlight a day. Check out the table below to see the sunlight hours comparing the Nordic capitals and Seattle WA.

This table shows roughly the amount of daylight hours around the Winter Solstice.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Seattle | Copenhagen | Oslo | Stockholm | Helsinki | Reykjavik |
| 8.5 hours | 7 hours | 6 hours | 5.5 hours | 6 hours | 4 hours |

Parts of the Nordic region are also far to the North, beyond the arctic circle. During the winter months of November through February, the sun remains very low in the sky or does not rise at all. Much of the ocean in the arctic circle is covered by ice for at least part of the year. In the winter, temperatures in the arctic circle are typically below freezing on average.

**Section 2: Nordic Design and Architecture Examples**

Nordic design and architecture fit the climate and geography of the Nordic region. Show your students images 7-18 and share the descriptions. Explain that these are examples of contemporary Nordic architecture, all built within the past 75 years. While looking at the images, ask your students the following questions to prompt discussion:

* What do they notice about the building? What might the building be used for? What might the building be made of?

**Image descriptions:**

Artipelag Art Museum, Sweden

* This art museum near Sweden’s capital is designed to fit into the surrounding landscape. The building embraces nature with a plant covered roof that visitors can walk up to. A giant rock emerges from the earth in the museum’s restaurant.

Finlandia Hall, Finland

* Designed by the famous Finnish designer Alvar Aalto, the Finlandia Hall features large windows and skylights to bring natural light inside. One wing of the hall is curved to fit around the trees that were already growing where the building is located.

Glacier Museum, Norway

* The Glacier Museum in Norway features sharp angles that look like the mountains surrounding it. Alongside the building are two stairways that visitors can use to access the roof, providing a full view of the landscape.

Oslo Opera House, Norway

* The roof of the Oslo Opera House in Norway is angled to the ground level, creating a large rooftop park open to the public. The lobby is surrounded by 49-foot-tall windows.

Harpa Concert & Conference Hall, Iceland

* This events space in Iceland’s capital features distinctive colored glass walls. The shape of the glass is inspired by the basalt crystals you can find in Iceland. In the daytime, the glass shapes in the walls capture and reflect the light.

8Tallet Building, Denmark

* Also known as the big house, the 8Tallet building in Denmark is a large space built in the shape of a figure 8. The complex is like a mini neighborhood on its own--the building has space for shopping, restaurants, an art museum, offices, and apartments.

Temppeliaukio Church, or Church of the Rock, Finland

* This church doubles as an event venue and is built directly into the rocky earth. The inside of the building was built out of solid rock, as you can see from the untouched rock walls. Despite being underground, this building is full of light thanks to the skylight surrounding the ceiling.

Restaurang Tusen, Sweden

* Located in the mountains in western Sweden, Restaurang Tusen is connected to a famous Swedish ski resort. The round shape of the building was intended to help with the harsh winds of the area. The building is also made of birch wood, the only tree that grows in those mountains.

Royal Danish Library, Denmark

* The newest building in the Royal Danish Library complex is sometimes called the “Black Diamond,” thanks to the shiny black outside of the building. Despite the dark colors outside, the inside is a bright space thanks to windows and the light colors of the materials used.

Hallgrimskirkja, Iceland

* This church was designed to look like the Icelandic mountains. Like with the Harpa Concert & Congress Hall, the shape of the pillars on this church are meant to look like the basalt crystal pillars found all over Iceland.

Kamppi Chapel of Silence, Finland

* This round chapel is in one of the busiest parts of the Finnish capital, and it is meant to be a place of quiet that people can take a break in. The inside of the chapel is warm and light, thanks to the wood used to build it.

National Nordic Museum, Seattle, WA

* The National Nordic Museum’s building is made to look like the Nordic fjords, large valleys formed by glaciers. The building brings in a lot of natural daylight with its large glass walls.

To finish this section, ask your students:

* What was their favorite building that they saw? Why was that their favorite? What did they notice about the buildings? Were there any similarities? Any differences?
* You can show your students the additional examples on slide 21.

**Section 3: Nordic Design Principles**

The buildings in images 7-18 all show some part of Nordic Design Principles. These are things that can be found in a lot of buildings designed by Nordic architects. Show your students slides 21-26 in the attached images packet to go over the Nordic Design Principles with them.

Images of samples

* Light- NNM, Rock Church, Finlandia Hall, Oslo Opera House
  + The lack of daylight in the winter months create a need for design elements that bring in as much light as possible, like skylights, glassed roofs, and glass walls. Inside the buildings, Nordic designs often will feature a light, neutral color palette, with lots of light gray, brown, and white. These lighter colors reflect light.
* Comfort- Kamppi Chapel,
  + Nordic design often focuses on comfort--the Danish word ‘hygge’ can help us understand what kind of comfort you will find in a Nordic style home. Hygge is a feeling--basically, it is when you’re cozy, and you feel good about being cozy. Things like warm colors, soft blankets and well-heated rooms can help with this.
* Sustainability- NNM, Restaurang Tusen, Kamppi Chapel
  + Nordic design often focuses on green energy and sustainability. Sustainability means things that work to maintain natural resources and that have a smaller impact on the environment to protect it for future generations. Using green energy alternatives and local resources are a part of that!
* Sleek shapes- Oslo opera house, Finlandia hall, black diamond,
  + Clean and simple lines are a big part of Nordic design. Buildings tend to be sleek and simple in their shape, with very little extra decoration.
* Connection with nature- Glacier Museum, 8tallet Building, Artipelag Museum, Hallgrimskirkja Harpa Concert Hall, Rock Church
  + Nordic designs are often built into or around nature. With examples like the rock church and the Artipelag museum, the land and nature became a part of the building’s design. In other buildings, nature is the inspiration. The Hallgrimskirkja and the Harpa hall in Iceland are both inspired by the basalt crystals that grow naturally in the country. The glacier museum in Norway is built to look like the rocky mountains surrounding it.
* Democratic Design- Oslo Opera House, 8Tallet Building, IKEA
  + ­­Democratic design means that good quality design should be accessible to all. This Nordic design principle calls for making furniture and buildings that are easy to use and affordable and accessible for everyday people. A part of this is functionality--meaning that buildings and furniture should actually be useful to people. One major example of this is the Swedish store IKEA, a company that designs easy-to-assemble and affordable furniture of all kinds. In buildings, one example is the 8Tallet building in Denmark. Known as the Big House, 8Tallet provides homes, shopping, offices, and more to its residents--making everything you need accessible in one building. The Oslo Opera House is another example of this functionality—the roof of the building is an extension of the building. You can see in the image on the slide how people use this roof as a gathering place.

**Section 4: Design prompt**

This section of the lesson asks your students to design a building that is inspired by the Nordic Design Principles that they’ve learned about. With the three prompts below, ask your students to work individually or in groups to come with a building design that utilizes at least one of the following: light, comfort, energy efficiency, clean shapes, connection with nature, and accessibility.

Arctic community center

* You are asked to design a community center for the town of Tromsø, Norway. Tromsø is located in Northern Norway, above the Arctic Circle. Tromsø experiences the ‘polar night,’ meaning that in the winter, the sun will never actually rise. The city is close to many tall mountains and long fjords.

Inner city office building

* You are asked to design an office building for a company in Copenhagen, Denmark. The building should fit in with other buildings in the Danish capital like the Royal Danish Library and the 8Tallet Building but should also look unique. The building should also be energy efficient and sustainable, to fit with Denmark’s green energy policies.

Waterfront library

* You are asked to design a new waterfront location for the National Library of Sweden in Stockholm. Stockholm is a waterfront city, with the city center overlooking Riddarfjärden bay. The new library building will be a highlight for tourists to visit, so your design should help the library stand out.

Students will pick an option, get time to work on it on their own or in groups, and then share out to their class. There are no restrictions to the designs that students can create. Encourage your students to think carefully about what materials they might use and how their design makes use of the Nordic design principles. They can also think about how the building may look inside, thinking about interior colors and decorations.