From cave to metropolis

‘Innovation through ingenuity and progress changes style and transcends boundaries’
Ancient forms of living

• The first humanoids (human like) probably lived about 4,000,000 years ago. About 125,000 years ago the first human beings as we know them today appeared. When the capacity of the brain started to grow, is about the time we speak of Homo Sapiens (human).
• The oldest humanoid with an increased brain size is the so called ‘Turkana boy’, and his skeleton is about 1,700,000 million years old. Archaeologists, scientists specialized in the prehistory, have also found tools that are even older.
• The first homo sapiens lived in Africa, where they lived in caves. A cave is a safe place to live and easy to defend against wild animals. Archaeologists have found tools and drawings in these caves.
• Thousand of years later Homo sapiens appeared in Europe. The drawing as illustrated on the next slide was found in a cave near Lascaux in France and is about 17,000 years old.
Cave painting
Lascaux cave - France

http://www.youtube.com/watch?v=nYhmq3vo7aY
As a population increased man needed more space to live. In the low lying parts of Europe, like most parts of the Netherlands, there were no caves. So other forms of shelter were used.

**Task:**
- Ask yourself the question: ‘How did man live there?’ Can you think of an alternative for living in caves? Bricks (stone made of clay) and concrete, which most houses are built from nowadays, were not available at that time. Which building materials would you use if you had only nature as your supplier?

Your a architect hired by the cave and they want you to construct a new house for them, what are you going to design for them?

State you artistic intention inside your developmental workbook along with a sketch of your building to visualize and make your plans easier to understand for the cave men.
• As time went by, humans lived all over the world. At first they lived in tribes, groups of people travelling and living together, mostly living of hunting and gathering. Later on hunters became farmers and started to settle down in small villages.

• In the Netherlands for instance, agriculture (farming) appeared about 7300 years ago. Many things started to change. Men kept animals such as dogs, sheep, goats, cows and pigs and also started to grow crops, like corn, lentils and peas. There are very few archaeological remains from that time, except some tools, graves and occasionally a skeleton.
Ancient architecture

- What do you think is ancient architecture?
- Write down your answer(s) and give examples in your developmental workbook.
Early architecture

• You can find the first remains of architecture in Europe, in Greece. Greece traded with Egypt, where there were already pyramids. At first the Greeks were influenced by the Egyptian way of building, but over the years they developed their own style.

• In Greece (700 BC – 146 BC) we can put art and architecture in 3 important periods. In architecture we split these up in Doric, Ionic and the Corinthian order.
• The Greeks used optical illusions to make a building look perfect, for instance they made the outer columns slightly thicker than thin inner ones.

• They only use **architrave building** in which the principle is that a architrave (a thick beam made out of stone panels) is place on top of 2 columns. These two parts made sure that the heavy roof on top of the temple didn’t collapse.

• At the time only important buildings were
  • made out of stone,
  • (temples and governmental buildings).
• Normal houses were mainly build of wood
• and there is nothing left of them nowadays
Task:
You get 3 photos of Greek temples, can you find out which one is which style. Write down your answer along with the picture in your workbook. Now write down which architectural elements you can find and draw arrow to point them out.
From about 200 BC the Roman influence increased and the Roman Empire grew and grew. The Romans also occupied Greece. At first the Roman people copied the Greek, even their gods, although the Romans gave them Latin names. For instance Aphrodite, the Greek goddess of Love, became Venus. Also temples were copied from the Greek examples. But the bigger the empire became, the more architecture developed.

**Task:**
What is different or new in this building if we look back at the Greek temples?

Write down your answer in your workbook!
• When the Romans invented cement, a kind of glue between bricks, they were able to build a variety of buildings. They were also capable of building much higher than the Greeks had been capable of.
  • Even big domes and round arches could be constructed.
  • If the Romans had not have had cement they would not have been able to build this three stories high arena!

Task:
- Find to other kinds of buildings, made by Romans.
- Write down the names of those buildings and also describe their function
Early Architecture around the world

- Pagoda at the Kofuku-ji Temple - Japan
- Corner tower of the stupa of Sariputra – Bihar State
- Great Wall of China - China
- Palenque, Mexico
Machu Picchu, Peru

http://www.youtube.com/watch?v=9R0MMhtgCEE
Churches vs. Mosques

Task:
Today we will take a look at how Christian Churches were built, but afterwards I want you to research how Mosques were built and why.

What do you have to include in your investigation page:
- Specific building aspects (vocabulary/ terms)
- Images, examples
- Why where mosques build in this specific way
- What’s the story behind it, is there one?
- Compare the mosque with the Christian Church, are there similarities and what are the biggest differences?
Medieval Architecture

• In about 500 AD (Anno Domini = the year of the lord) the middle ages started. Missionary monks came to convert the people in Northern Europe to Christianity. For that reason they started to build monasteries and churches.

• At first these churches were:
  - small
  - thick walls
  - small windows (round arch)
Which was necessary to support the weight of the roof above the walls.
  → This style was called the Romanesque style
• Look at the small windows which have round arches. These were strong enough to hold the wall above. Another advantage is that these buildings offered a safe haven during wars.
• The Marsum church was the first church in the Netherlands completely build out of bricks.

Example:
Mauritius church,
Marsum (Groningen),
The Netherlands,
12th Century
• In the years that followed building techniques improved. The Romanesque style developed into another style, namely the Gothic style (1140-1500).

• Many Romanesque churches were demolished and on their foundations, new bigger churches were rebuilt in the Gothic style.

• Over the years master masons, a kind of architects, discovered all kinds of new building techniques that made it possible to design high churches with large windows in them.

  **Example:**
  *Cathedral of Santa Eulalia*
  *Barcelona, Spain*
These new building techniques made it possible to build enormous churches. Of course the master masons had a building plan. Building a church like the one in Barcelona lasted hundreds of years, because everything, from the cutting of the stones to making the sculptures was done by hand. During those years new techniques were discovered and the original plan therefore changed many times.

Their cathedrals were very tall as if they wanted to reach to heaven. Most of Europe's famous Cathedrals are built in gothic style but every region had its own style.

Since it took so long to build a church, the craftsmen and their families lived near the building site. And because they lived there, shops started to appear. Over years these buildings sites expanded into small towns.
Flying Buttress
They transfer the weight of the inner section to the buttresses.

(pier) Buttress
The ribs (like a skeleton) of the church. They carried the weight of the roof.

Column
Carrying the ribs and make the height possible.

Pinnacle

Cross rib vaulting
Like the ribs of an umbrella, making the ceiling strong.

Pointed arch
Carries more weight than the round arch.
• The nickname of many Gothic churches was ‘the Bible in stone’, because of the many sculptures and reliefs on the outside and the inside of the church.
• The reason was not only to make the church look beautiful, but because the mass, that is the service led by priests, was in Latin, and only a few people understood this language.
• Another thing was that most people could not read and write. So these sculptures and reliefs acted like a sort of comic for the people to tell the stories in the Bible.
• In the picture you see the portal, the entrance of a cathedral in Amiens. As you can see there are lots of figures.

Example:
Portal of the Cathedral of Our Lady, Amiens, France
Started 1220 – finished 1270
In the middle above the doors, there is a larger figure. You see this figure often above the main entrance of churches. Do you know who he is? Can you find out why he sits on a throne?
Task:

- Along the way we saw several different architectural styles, but what do they have in common or what are the differences. What makes that some of these styles have specific elements in common? Why do you think these styles arise in a specific place or time?

- Make a page in your workbook where you write a short essay about you thoughts and show the knowledge and understanding that you have acquired. Make sure you use appropriate ‘Visual Arts’ language while writing. (see: Vocabulary list)
Renaissance

• While the Roman Catholic Church dominated architecture in the Middle Ages, from about the 15th century onwards things changed. Because of money earned by trading, the common people got richer and richer. Also due to the invention of printing books, the richer civilians could buy books. We call this period the Renaissance.

• The work Renaissance means ‘rebirth’, it seemed that man was reborn and became aware of his own personality.

• More and more people learned to read and write and went to university. New studies arose, anatomy, the science of the human body and also the science of line perspective.
• Architecture became more and more important, because cities grew. Many people wanted to live in the city, to work and get a piece of the wealth.

• Fillipo Brunelleschi was a famous architect in Florence, one of the wealthiest cities in Italy at that time. He is seen as the most important architect of the Renaissance style, but he is also seen as the inventor of line perspective.

• Line perspective is the way to create the suggestion of depth in a drawing. By using a horizon, vanishing point and flight lines you are able to create depth in a drawing.
Task

Get your developmental workbook, an HB-pencil, eraser and a ruler and draw the steps as below on your paper.

Step 1: Draw the horizon line.

What in the heck is a horizon line? Think of it as the place off in the distance where the sky meets together with the earth; that old familiar line where blue meets brown and green. Just draw a horizontal line across the page. Easy enough.

Step 2: Choose a vanishing point.

Pick a point on the horizon line. For my example I'm going to pick a point near the middle of the horizon line. You can pick a point anywhere on this line, it doesn't much matter. If you pick a point away from the middle the results you get will look different than the drawing I am doing, but the principles of one point perspective will be the same. We've now completed the two basic parts to this tutorial. Let's use our horizon line and vanishing point to make something. For this tutorial I'm going to make a simple house shape. You can make whatever you want.
Step 3: Draw in perspective lines.

I'm going to start by making one line with my ruler from the vanishing point outward. This line will be the bottom of my building.

Next, make the top line. This will form the base of one wall of the house.

Step 4: Connect the lines.

Now I'm going to draw 2 vertical lines that connect the bottom and top lines. Once this is done I'll have finished one wall of my structure. How is your drawing looking? Notice how the lines you just drew are not the same length? The shorter line fools your eye into thinking that the object is moving back into the 'space' of the page. Even though the page is flat, you've created some artificial depth. This is the same kind of effect that you see when you look at buildings outside. The further things are away from you, the smaller they appear.

You may notice that my top perspective line goes past the connecting line that I just drew. I am going to erase that extended line, as it is not needed. When drawing objects in one point perspective or any other kind of perspective, it's common to draw lines that are too long or too short and you will need to adjust them accordingly. I usually draw lightly when I am forming my perspective lines so that if I do need to erase something it's quite easy.
Step 5: Form the front of the perspective object.

The next step is to draw 2 horizontal lines of equal distance from the top and bottom of the closest part of the wall. Connect these 2 new lines with another vertical line.

We have a nice looking box happening now. This is one point perspective drawing at it's most simple.

If you aren't seeing the box, erase the part of the horizon line as is shown in the example image. See it now?

Step 6: Add the roof.

Let's finish off this object by adding a roof. Draw 2 diagonal lines from the opposite sides of the box. Extend the point where the lines meet towards the vanishing point. Draw one more diagonal line that connects the far point of the box with the line you just created going towards the vanishing point. Try to make this diagonal line have the same angle as the line it matches up with at the front. These 2 lines should be parallel.

Step 7: Finishing up.

Finish up the drawing by removing any unwanted perspective lines, like the ones extending towards the vanishing point and horizon line. That's all there is to one point perspective, now all you have to do is apply this knowledge over and over again in the same drawing to come up with something amazing.
• You can imagine that this invention gave architects the possibility to draw a house as if you could walk right into it.
• For Brunelleschi who designed houses and had to show his ideas to his clients, line perspective was very useful. It gave the client a good idea what the house would look like after it was built. Brunelleschi was so famous that he got the assignment to design something new for the Santa Maria del Fiore (the dome of Florence).
• He designed the cupola (a dome) as you can see in the picture. A cupola was very difficult to build in his time.

Example:
Santa Maria del Fiore,
Florence,
Italy
1296-1436
• Not only architects made use of line perspective, but also painters this time Leonardo da Vinci for instance was a master in it. He painted a fresco (a painting in wet chalk on a wall) of the last supper of Christ with this disciples. This famous fresco has perfect line perspective with the vanishing point ending exactly on the forehead of Jesus Christ.

The last supper, Leonardo da Vinci, 1495-1498
Cities become metropolises

• In the 15th century Italy was rich and important. In the centuries to come the rest of Europe followed. The Dutch republic, and especially Amsterdam became important in the 17th century, thanks to the United East Indian Company (V.O.C.) which traded with the Far East and the trading of grain with countries round the Baltic Sea (like Poland and the Baltic States.
• In the 17th century Amsterdam was one of the most important cities in the world. Every important city should have an important city hall. In the 1660’s Jacov van Campen, the chief architect of the province Holland, got the assignment to design and build a new city hall as the Palace on the Dam.
• In 1665 the city hall was the largest civil building in Europe. Jacob van Campen designed a modern building influenced by Greek Architecture.
After the 17th century architecture developed, with the invention of several new building materials, like steel and concrete. In the early 20th century architects were able to build high buildings, where many people could live. We call them **apartment buildings** and the highest of them **skyscrapers**.

The American architect Louis Sullivan designed the first skyscraper in 1890 named the Wainwright building (Saint Louis, United States).

The building looks a little classical with influences from Greek Architecture. This is seen on the added **ornaments**, decorations, on the facade of the building that resemble a building from the Greek or Romans. Nowadays consider this building a skyscraper but at the time it was the tallest building ever built. Nevertheless Sullivan is an important architect for the development of modern architecture.