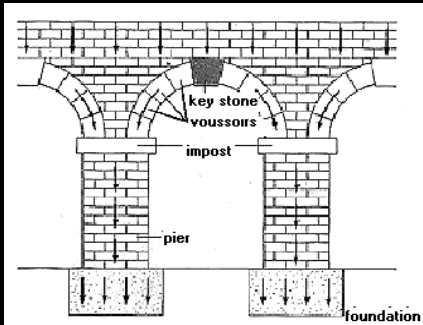
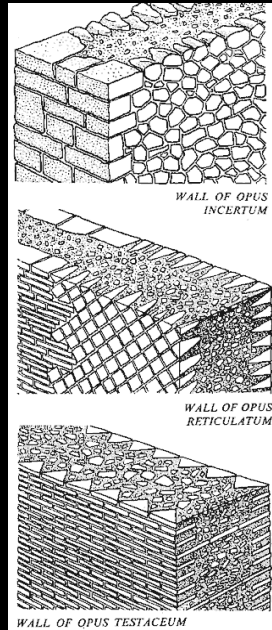


Three Important Elements of Successful Roman Architecture:

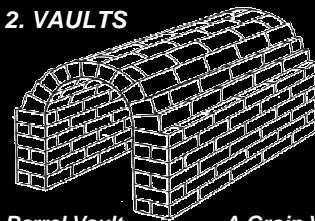
1. The ARCH



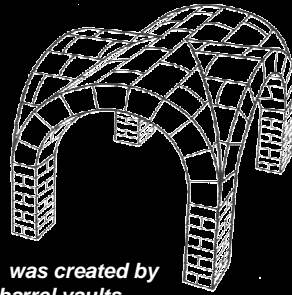
3. CONCRETE
created with
layers of
pozzolana
cement and a
variety of
stone & gravels



2. VAULTS



Barrel Vault



A Groin Vault was created by
crossing two barrel vaults

~Lake Oswego Art Literacy~

1. Three Important Elements of Successful Roman Architecture:

Ancient Roman architecture has endured for about 2,000 years because the Romans perfected the use of three architectural elements: the arch, the vault, and concrete. Each of these three important elements helped to lighten the load carried by Roman structures while maintaining both structural strength and stability. We will see how the Romans used these elements during this presentation.

The Arch

The arch consists of two supports, called **piers**, each topped by a platform called an **impost**. Angled blocks of brick or stone, called **voussoirs** [**voos-wars'**], are placed on the imposts in an arched, curved pattern that is capped by the central block of the arch called the **keystone**. A row of arches is called an **arcade**. Arches allowed the Romans to create wider, taller, and lighter structures. They also learned that if they built arches entirely inside the walls of their buildings that this would make the walls even stronger.

The Vault

Vaults are extended arches and the Romans used them to create large open rooms and high, covered passageways.

Concrete

Concrete was probably the greatest Roman contribution to architecture. Roman concrete, called **opus caementicium** [**o-pus see-men-tic'-ee-um**], was made with a special Roman mortar or cement, called **caementa** [**see-ment'-a**], created by mixing water, lime, and a special volcanic ash sand, called **pozzolana**, that gave Roman caementa its special strength.

Roman concrete [**opus caementicium**] was created by first building a form and then pouring in alternating layers of the Roman caementa and layers of rocks, bricks, or gravels. As each layer of rocks, bricks, or gravels was poured in and spread around, Roman workers would then pound the layers firmly together with a tool called a **tamp**. Roman cement was special not only because it was strong but because it was also **hydraulic**—it would set up and harden even under water, which made it handy for building things like Roman sewers, cisterns, baths, and even harbors!

Roman Art: 509 BCE – 476 CE

***Pont du Gard Aqueduct**
early 1st century BCE, cut stone, 880' long, 162'
high, Nimes, France*



~Lake Oswego Art Literacy~

1. Pont du Gard Aqueduct

early 1st century BCE, cut stone, 880' long, 162' high, Nimes, France

One of Rome's most important contributions to the world of architecture was the development of the arch. Although primitive arches were used by the earlier Etruscans, the Romans built their arches with their special concrete which allowed for taller and more stable arched structures. Thus, the Romans were able to use the arch in a variety of ways, including the aqueduct, or water way, that is seen here.

An aqueduct or "conductor of water" brought water into cities from vast distances. This bridge over the Gard River in France was part of a 30 mile-long aqueduct that is considered one of the greatest of all the aqueducts constructed by the Romans. It was built 2,000 years ago and remains standing today.

On its first level is a road, and the top third level contains a covered water conduit or trough that once carried water to town. The bridge consists of three tiers of arches, with smaller arches on the top tier. The semi-circular arch **shapes** repeat in a regular **rhythm** horizontally across the river. An irregular rhythm is created vertically because there are more smaller arches in the top arcade than are in the two lower tiers of larger arches. Still, we should notice that the important supportive piers of all three tiers do line up vertically so that the weight of the entire structure is properly supported.

Which form repeats in a regular rhythm? The three arcades of semi-circular arch shapes each repeat in regular rhythms.

Roman Art: 509 BCE – 476 CE

Colosseum, Aerial View
ca. 72-80 CE,
concrete, stone & brick,
approx. 187' high x 617' wide
at the longest point, Rome, Italy



-Lake Oswego Art Literacy-

2. Colosseum, Aerial View

ca. 72-80 CE, concrete, stone & brick,

approx. 187' high x 617' wide at the longest point, Rome, Italy

Perhaps the greatest work of architectural engineering left to us by the ancient Romans is the Colosseum. It is one of the most famous buildings in the world. Originally, it was called the Flavian Amphitheater, after the family name of the emperors who built it, Vespasian, Titus, and Domitian [Ves-pay'-shun, Tie'-tus, and Doh-me'-shun]. The Colosseum served as a stage for popular Roman entertainments, such as gladiator and animal fights, public executions, and even naval battles.

This type of building is a Roman invention. They expanded the semi-circular Greek theater into an amphitheater ["amphi" means "double" or "two"] by placing two theatres facing each other to enclose an oval space called the arena. The Roman Colosseum is the largest amphitheater and most major cities throughout the Roman Empire also had their own amphitheaters. This aerial view shows the elliptical (oval) shape of the building with a series of 80 arched entrances [called vomitoria] as well as other openings repeated across the entire exterior façade. On the interior we can see the remains of the many ramps and vaulted corridors used to efficiently move a crowd of over 50,000 spectators. The arch **shape** is repeated throughout the building, from the sub-floor to the top, in regular **rhythms**. The shape of the arch unifies the entire building visually, while its repetition helps the observer relate to its scale by breaking the massive form into smaller shapes. The arches also served to ventilate and light the building. Thus, these arches are an excellent example of form serving function. The entire building is also symmetrically **balanced**.

Fun Fact: The name Colosseum came from the Colossus (giant statue) of Nero that once stood next to the building when it was new. It was built on the ruined gardens of Emperor Nero's palace. After many centuries, parts of the exterior of the Colosseum were demolished by earthquakes and the material was then recycled and used to construct other buildings in Rome. Realizing that this was the destruction of a national treasure, Pope Benedict XIV stopped this practice in 1744 CE.

What shape is the building? The Colosseum has the shape of an oval; it is elliptical.

Roman Art: 509 BCE – 476 CE

*View of the Outer Wall
of the Colosseum
c. 72-80 CE,
concrete, stone and brick, 160 ft. high,
Rome, Italy*



~Lake Oswego Art Literacy~

3. View of the Outer Wall of the Colosseum

c. 72-80 CE, concrete, stone and brick, 160 ft. high, Rome, Italy

This view of the exterior wall of the Colosseum shows the tiers of arches that remain today. Originally, the exterior was covered with gleaming marble and statues stood in every arch of the second and third levels. A noticeable decorative element is the Roman tradition of attaching Greek-style columns to the walls of the arches. The columns are not structural forms and their only function is aesthetic [having a beautiful appearance]. Together, they create a rhythmic and **repetition of shapes** and decorative features across the entire façade of the structure.

Fun Fact: Three different styles of columns are used, one on each of the levels. The ground floor entrances have Doric columns, the simplest design. The second level has Ionic columns, with their scroll-shaped capitals, and the third level has more elaborate Corinthian columns with their acanthus-leaf-decorated capitals. This “progression” of increasingly decorative column styles became a hallmark of Roman design which was also copied and used as a feature of Italian Renaissance designs some 1500 years later.

Which two architectural elements are repeated here? Two architectural elements that are repeated on the exterior of the Colosseum are the arch and the column.

Roman Art: 509 BCE – 476 CE



Arch of Titus
81 CE,
marble over concrete
core, 50' high x 40' wide,
Rome, Italy

~Lake Oswego Art Literacy~

4. Arch of Titus

81 CE, marble over concrete core, 50' high x 40' wide, Rome, Italy

The Romans were the first to use the form of the arch to create monuments that commemorated victories in war. These monuments, known as **triumphal arches**, were an ornamental version of a city gate that was moved to the center of the city in order to permit triumphal processions to enter the city's central forum or town square. Several of these arches still stand in Rome as well as in other cities located in countries that were once part of the ancient Roman Empire.

The Arch of Titus stands near the entrance to the Roman Forum and is an example of the earliest style of triumphal arch. This structure consists of a single arch, flanked by massive piers that are decorated with attached Corinthian columns. The passageway walls are also decorated with relief panels that represent scenes of Titus' victorious return from the conquest of Jerusalem. These reliefs, as well as the columns on the front of the arch, provide actual (tactile) **texture** to the arch **form**. The arch is symmetrically **balanced** with identical design elements on both sides of the exterior face of the arch. Later triumphal arches also have relief sculptures on their outside surfaces as well as multiple arches, and each triumphal arch maintains a symmetrical balance.

What makes this arch a form? The triumphal arch became a traditional and customary shape, or form, that was recognized by the Romans as an enduring monument to victory in war.

Roman Art: 509 BCE – 476 CE



The Pantheon
118-128 CE,
stone, marble,
concrete and bronze,
Rome, Italy

~Lake Oswego Art Literacy~

5. The Pantheon

118-128 CE, stone, marble, concrete and bronze, Rome, Italy

The Pantheon is considered the crowning achievement of Roman architecture and it is the best-preserved building dating from ancient Roman times. Famous for its round design and dome, the whole building is based on the circle, except for the rectangular porch in front. The porch is based on Greek design, but differs in that it has columns only on its front face. The Pantheon is the first temple to combine concrete construction (a Roman innovation) with Greek decorative elements.

The Pantheon (from Greek, meaning “of all the gods”) was originally built as a temple to all Roman gods, some of which were used to name the five planets that were known at the time: Jupiter, Mars, Mercury, Saturn and Venus.

In 608 CE, the Pantheon was converted to a Christian church and it became the burial place of kings, queens and many great men of Italy. This conversion to a church is one of the reasons that the building has survived intact for almost two thousand years.

Note the porch has a rectangular **shape** and is topped by a triangle-shaped roof gable called a pediment. Both of these structural features came from Greek architectural history. Behind these geometric forms is the circular-shaped interior, roofed with a hemispherical vaulted roof that also contains a 30-foot diameter circular-shaped opening at its top center called the oculus. Because the interior of the Pantheon was designed around a spherical shape, the height and diameter of its central space is the same: 142 feet.

It is the dome that sets the Pantheon apart from all other buildings that came before it. The construction of the dome was made possible by the innovation of special Roman concrete that allowed such a large space to be successfully enclosed under one vaulted, domed roof. As with most Roman architecture, the building is symmetrically **balanced** with equal numbers of design elements on either side of the central axis.

Fun Fact: The painter Raphael Sanzio [1483-1520] is buried here.

Roman Art: 509 BCE – 476 CE

*The Pantheon
Interior View*



~Lake Oswego Art Literacy~

6. Pantheon, Interior view

The interior of the Pantheon survives in its original form, making it unique among monuments of antiquity. The hemispherical dome represents the dome of heaven or the vault of the universe. At one time it was gilded so the spectator looked up to see shining gold as well as the natural light streaming down from the opening in the dome's center. This round opening to the sky, called an oculus, is the only natural light source for the interior.

The **repeating** recessed rectangular, coffered shapes within the dome served to reduce its weight and mass (another example of form serving function). The round interior space, called a rotunda, is based on the circle and so is perfectly symmetrical and in **balance**. Eight niches repeat around the room, each separated by eight concrete columns within the walls that have been sunk into the foundation so that they support the major weight of the dome. The walls and floor are decorated with colored marble and each column was carved from a single block of granite. The rotunda, the classical porch, and the gable pediment are all forms that have inspired western architecture for centuries.

Fun Fact: Oculus is a Latin word that means, "eye."

What shape repeats in the dome? Both the circle and the square are shapes that repeat in the dome.

Roman Art: 509 BCE – 476 CE



Augustus of Prima Porta
c. 15 CE,
marble, 7' high,
Vatican Museums, Rome, Italy

~Lake Oswego Art Literacy~

8. Augustus of Prima Porta

c. 15 CE, marble, 7' high, Vatican Museums, Rome, Italy

This statue of the first Roman emperor, Octavian Augustus, was commissioned a year after his death by his adopted son, Tiberius. Here, Augustus is posed in a traditional contrapposto manner and he is portrayed as a victorious general making a speech. Augustus is dressed in a carved breastplate called a cuirass [kwee-rass]. His portrait is idealized in a manner that associates him with the powerful god, Apollo.

After Augustus died in 14 CE, the Romans deified him, making him god-like and glorified as a person of worship. Hence this statue, created after his death, shows Augustus barefoot which referred to his new divinity and indicated that he once stood in a sacred place.

Augustus traced his lineage back to the gods by stating that an ancestor was Aeneas, a Trojan prince who was often claimed as a direct ancestor of the legendary founders of Rome (Romulus and Remus). The Cupid figure seated on the dolphin at Augustus' right foot refers to his familial relationship to the gods.

This statue is a good example of expertise in portraiture and relief sculpture. Note the reliefs carved on the breastplate, **forms** that add both detail and **texture** to the figure. The figures on the breastplate illustrate events both real and mythological, and their message refers to the general fertility, peace, and prosperity of Rome during Augustus' reign [31 BCE -14CE]. Have the students look for other areas of actual and simulated texture, such as in the hair and draped clothing.

Since this is a freestanding statue, it must be **balanced** to avoid falling over. The balance seen here is asymmetrical, with different elements on either side of the central axis, but placed in such a way that the elements are of equal visual as well as actual, balanced weight.

Fun Fact: The back of this statue was unfinished because many such Roman statues stood against walls. The backside of Augustus' cuirass, or breastplate, however, is still decorated with a carved trophy and wings.

How is this statue asymmetrically balanced? There are different elements on either side of the central axis, with each placed in such a way as to balance both visually as well as in terms of actual weight.

Roman Art: 509 BCE – 476 CE

Portrait Bust of Julius Caesar
50 BCE
Size unknown



-Lake Oswego Art Literacy-

9. Portrait Bust of Julius Caesar

50 BCE, marble, size unknown

Portrait sculpture was one of the specialties of Roman artists, and its main form was busts, portraits of the head and shoulders of a person. Romans were particularly interested in making statues that really looked like a specific person. Literally thousands of portrait busts have been found that date from the time of the Roman Republic [509 – 44 BCE]. Most were usually made of marble or bronze and each served to commemorate, glorify, or to politically promote a prominent citizen.

This bust is of Julius Caesar, a famous general, who then became a famous dictator. He attempted to become Emperor when he was assassinated on the Ides of March (the 15th of March) in 44 BCE.

Note the realistic features of his face, such as sunken cheeks, deep lines around the mouth and his wrinkled brow. His hair is stylized, however, and doesn't give the viewer a sense of the actual **texture** of real hair. The hair appears to be the only idealized feature, however, when compared to the muscles in Caesar's neck and with the natural flow of the clothing that drapes from his shoulders. The bust's **form** is symmetrically **balanced**.

Fun Fact: Many of these portrait busts were originally painted.

Which features look realistic? Most features of Caesar's shoulders, neck and head look very realistic. Caesar's hair, however, was carved in a stylized form rather than given the appearance of realistic, textured hair.

Roman Art: 509 BCE – 476 CE

Entry and Atrium with Dog Mosaic
date unknown,
mosaic, from house in Pompeii, Italy



~Lake Oswego Art Literacy~

13. *Entry and Atrium with Dog Mosaic*

date unknown, mosaic, from house in Pompeii, Italy

During the Roman Empire, nearly every well-to-do home [domus] had a large courtyard at its center. Fresco paintings covered the walls, and mosaics covered the floors. Occasionally, mosaics were also used to decorate the walls, too.

The Romans improved on the techniques of their predecessors, the artists of the Ancient Near East and Greece, who had typically used small pebbles in their designs. Instead, the Romans learned to use small shapes, called “tesserae” [tess-er-ray] that were made of marble, limestone and glass. At first, mosaics were mostly formed with black and white pieces, but they soon became elaborate, multi-colored artworks.

This is a “beware of dog” mosaic at the doorway of a home that was excavated after being buried by the eruption of Mt. Vesuvius in 79 CE. Such images were common in Pompeii and they took the place of signs that we often will see today that warn the visitor of the presence of a canine.

This mosaic shows a black dog guarding the foreground and surrounded by a pattern of black lines that suggest architectural **shapes** on the floor. Some “beware of dog” mosaics also contained the Latin warning, “cave canem” (which translates to “beware of dog”).

What shape are the small mosaic pieces? These small mosaic “tesserae” are rectangular in shape.

Roman Art: 509 BCE – 476 CE

Portrait of a Woman
1st century CE,
mosaic detail, size unknown,
Museo Nazionale, Naples, Italy



~Lake Oswego Art Literacy~

14. Portrait of a Woman

1st century CE, mosaic detail, size unknown, Museo Nazionale, Naples, Italy

One of the striking aspects of Roman mosaics is the use of modeling (or shading) techniques that were employed in the construction of a mosaic. The modeling and shading is especially evident in this mosaic of a woman's face.

The work is executed using the most delicate of mosaic techniques known as "worm-like" work. Very small mosaic shapes were laid in curved lines that resembled the undulations of worms. This is especially evident in the left side of the woman's face, especially around her cheek and near her nose.

Note how the **shapes** of the mosaic pieces in the background **repeat** as horizontal layers in contrast to the undulations of those used to form the face. There is a visual **texture** that follows the shape of the woman's face while the texture of the background shapes is more geometric, static, and without much variation.

The shape of the woman's nose creates a 3-dimensional **form** that seems to actually project out towards the viewer because of 25 darker tesserae that were used to form a shadow. Her lower lip has a simulated glossy or moist texture because a row of white tesserae were set across it. The textures achieved by the artist were made possible because of the numerous colors of tesserae that were used to create very realistic shading of the face.

Where can you find simulated texture? Simulated texture can be found in waves of the woman's hair and in the folds of her gown. Each of these textured areas were created by the use of a variety of colored tesserae carefully placed to form a variety of curving patterns.

Roman Art: 509 BCE – 476 CE

Doves at a Fountain
c. 425 CE,
mosaic detail from
Tomb of Empress Galla Placidia,
Ravenna, Italy



~Lake Oswego Art Literacy~

15. *Doves at a Fountain*

c. 425 CE, mosaic detail from Tomb of Empress Galla Placidia, Ravenna, Italy

The Mausoleum of Galla Placidia is one of the most extraordinary monuments of late Roman antiquity. It contains some of the earliest and best preserved of all antique mosaics. This detail shows doves drinking at a fountain. The theme of the doves is very ancient one. A Greek mosaicist, Sosos of Pergamum in the second century BCE, was particularly famous for creating a picture of doves perched on the edge of a vase. Romans then copied this composition, and the finest Roman example is a mosaic from Hadrian's Villa at Tivoli, now in Rome's Capitoline Museum.

The actual **texture** and the large number of the individual mosaic **shapes** used is clearly visible here. The shading on the doves was achieved by using a minimum number of different shades of the same color. Despite the limited number of shades, this was effective when the mosaic was viewed from a distance.

The popular motif in this mosaic looks so fresh and new that it seems as if it was created recently. The mosaic is symmetrically **balanced**, and the uniform **repetitions** of the colored rows of mosaic shapes give it a very unified look.

Fun Fact: The mosaics at Ravenna, including this one showing the doves of peace, have been registered by UNESCO as world heritage artworks.

How is this mosaic balanced? This mosaic is symmetrically balanced with the fountain forming a balanced, central axis. On both the left and right, similar doves as well as similar areas of both colors and shapes all provide visual balance.