Vitruvian Man

General information			
Respective blueprint	Robot inspired by Vitruvian man		
Description	Students are introduced to Leonardo da Vinci's sketch Vitruvian Man, which describes the ideal proportions of the human body. Students will visually discover the proportions described by measuring parts of their bodies. By making a robot, students will practice drawing geometric shapes and discover halves, quarters, and eighths.		
Learning objectives	• Practice the mathematical concepts of halves, thirds, fourths, tenths, units of length. • Acquire knowledge of Leonardo Da Vinci, sketch creation and other famous paintings. • Acquire knowledge of the proportions of the human body as described by the ancient Roman architect Vitruvius.		
Related curricular subjects	**History:** the story of the creation of Vitruvian Man **Mathematics:** half, third, fourth, tenth, units of length, **Art:** making a robot showing parts of the whole.		
Duration	50 minutes		
Level of difficulty	Basic	Medium	Advanced
	☐	☑	☐
Inclusivity guidelines			
How to integrate students with SLD	•Formulate simple instructions that only require one action at a time. •If you give oral instructions, keep track of them in the form of pictograms or written on the board. •When you give instructions (oral or written), highlight the word of action so pupils know what they are expected to do. •When possible, you can show the expected result of the manipulation. •When creating groups, try to place students with difficulties with students who are generally more advanced so that they can help each other (for example, a dyspraxic student will have much difficulty with cutting tasks).		

How to integrate students who work faster	• Students can try calculating the more complex proportions in step 2. • Students will use more and different geometric shapes to make a robot.

Step-by-step description of the lesson

Step 1: Vitruvian Man	Estimated time: 15 minutes

Through the attached presentation, students learn about the personality and work of Leonardo Da Vinci, as well as the story of Vitruvian Man. Here is more information the teacher can use:

- Leonardo da Vinci (Italian: Leonardo di ser Piero da Vinci) (April 15, 1452 - May 2, 1519) was a famous Italian architect, inventor, engineer, sculptor, and artist of the Renaissance period. He is said to be the prototype of the Renaissance man and an all-round genius.
- Leonardo is famous for his paintings:
  - ✓ "The Last Supper"
  - ✓ "Mona Lisa"
  - ✓ "Saviour of the World"
  - ✓ "Vitruvian Man"
- He is also famous for his many inventions that were ahead of their time but remained only on paper. He also contributed to the development of anatomy, astronomy and engineering.

- "Vitruvian Man" is a famous sketch, accompanied by notes by Leonardo da Vinci, drawn around 1490 in one of his diaries. The painting depicts a nude male figure in two superimposed positions with arms and legs outstretched, simultaneously inscribed in a circle and a square. The image and text are often referred to as the Canon of Proportions. The painting is on display at the Gallerie dell' Accademia in Venice, Italy and is a perfect example of Leonardo's interest in proportion. In addition, the painting provides the basis for Leonardo's attempts to relate man to nature.

Step 2: Proportions	Estimated time: 20 minutes

Students are introduced to Vitruvius' description.
According to Leonardo's notes in the accompanying text, written in mirror, the painting was painted as an attempt to study the proportions of the (male) human body as described by the ancient Roman architect Vitruvius, who wrote:

- four fingers equal one palm;
- four palms equal one step;
- six palms make one cubit;
- four cubits make one man's height;

- the width of the outstretched hands is equal to the height of a man;
- the distance from the roots of the hair to the lower edge of the chin is equal to one-tenth of the height;
- the distance from the lower end of the chin to the forehead is equal to one-eighth of the height;
- the maximum width of the shoulders is equal to one-quarter of the height;
- the distance from the elbow to the end of the palm is equal to one-fifth of human height;
- the distance from the elbow to the corner of the armpit is one-eighth of the height;
- the length of the palm is one-tenth of the height;
- the distance from the bottom of the chin to the nose is one-third the length of the face;
- the distance from the roots of the hair to the eyebrows is one-third the length of the face;
- the length of the ear is equal to one-third of the face.

Students measure their body parts.
They discover if they have accurate proportions.
Younger students take only the first 5 of these measurements. Some of these can also be completed without a ruler but by comparison. On slide 8 of the presentation, you will see how this happens.

Step 3: Parts of the whole	Estimated time: 20 minutes

Before moving on to making a robot showing parts of the whole, students will need to recap:

- how to draw geometric shapes (for example: a rectangle has two equal sides and 4 right angles, and a square has 4 equal sides and 4 right angles);
- how to draw a circle;
- how to find half, third, quarter, and tenth of the known geometric figures.

The dimensions of the geometric shapes are found in the illustrations in the blueprint.

Assessment activities

Activity 1: Explore the world around us

Ask students to find everyday objects in their surroundings that can be divided into:
- two halves;
- thirds;
- quarters;
- eighths
- tenths.

Activity 2: The paintings of Leonardo da Vinci

- Using the wordwall.net website, various games can be created to see if students will recognise Leonardo da Vinci's paintings and name them.

https://wordwall.net/resource/59609519/pictures

The paintings used are The Last Supper, Mona Lisa, Saviour of the World, and Vitruvian Man.

- If you do not have the opportunity to present the online game to the students, you can print these 4 images (you can find them in the presentation) and show them only part of the whole sheet. Let the students name the picture themselves.

Attachments

- Presentation

References

https://bg.wikipedia.org/wiki/%D0%9B%D0%B5%D0%BE%D0%BD%D0%B0%D1%80%D0%B4%D0%BE_%D0%B4%D0%B0_%D0%92%D0%B8%D0%BD%D1%87%D0%B8

https://bg.wikipedia.org/wiki/%D0%92%D0%B8%D1%82%D1%80%D1%83%D0%B2%D0%B8%D0%B0%D0%BD%D1%81%D0%BA%D0%B8_%D1%87%D0%BE%D0%B2%D0%B5%D0%BA

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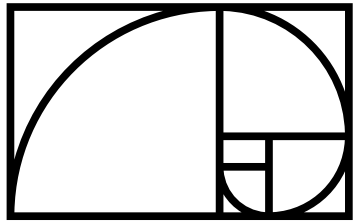
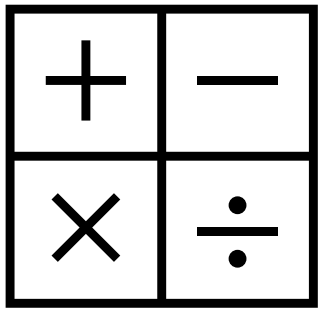
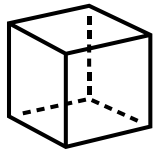
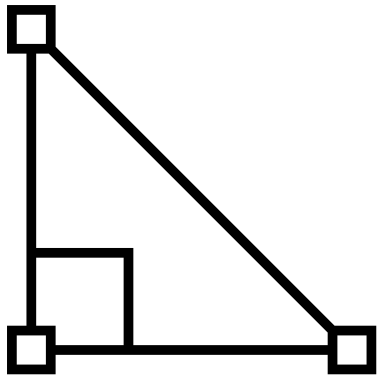
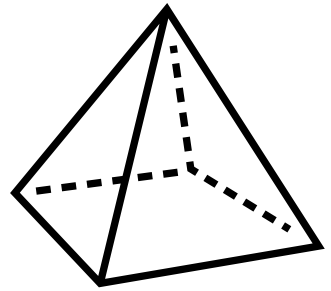








Leonardo Da Vinci



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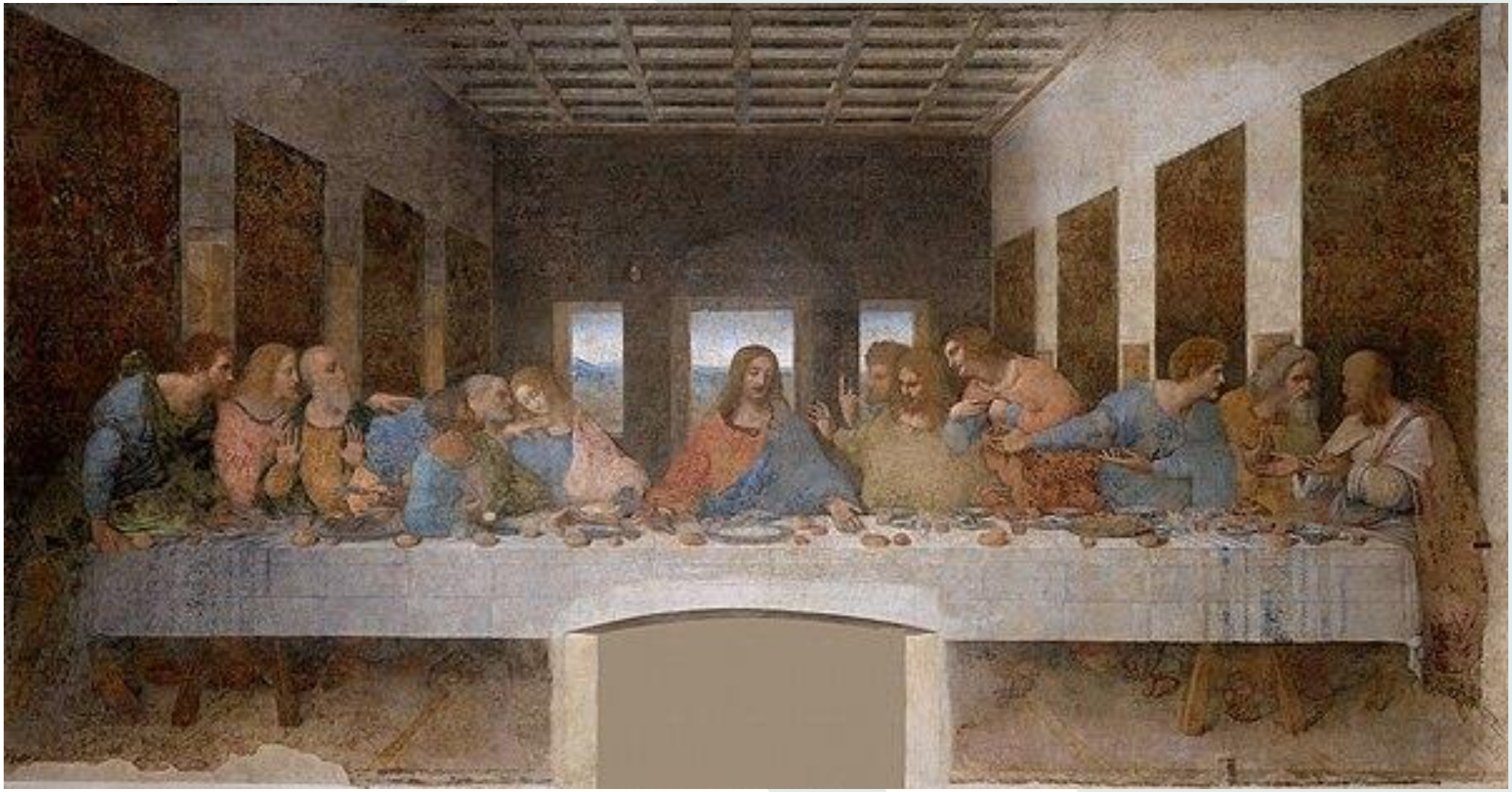
Leonardo da Vinci (15 April 1452 – 2 May 1519) was an Italian architect, inventor, engineer, sculptor and painter of the Renaissance.

Leonardo is famous for his paintings, the most famous of which are The Last Supper and the Mona Lisa. He is also known for his numerous inventions that were ahead of their time, but remained only on paper. He also contributed to the development of anatomy, astronomy and engineering.

The Last Supper (Italian: Il Cenacolo or L'Ultima Cena) is a fresco by Leonardo da Vinci painted for his patron, Duke Ludovico Sforza. The painting depicts a scene from Jesus' Last Days Last Supper, as described in the Bible.

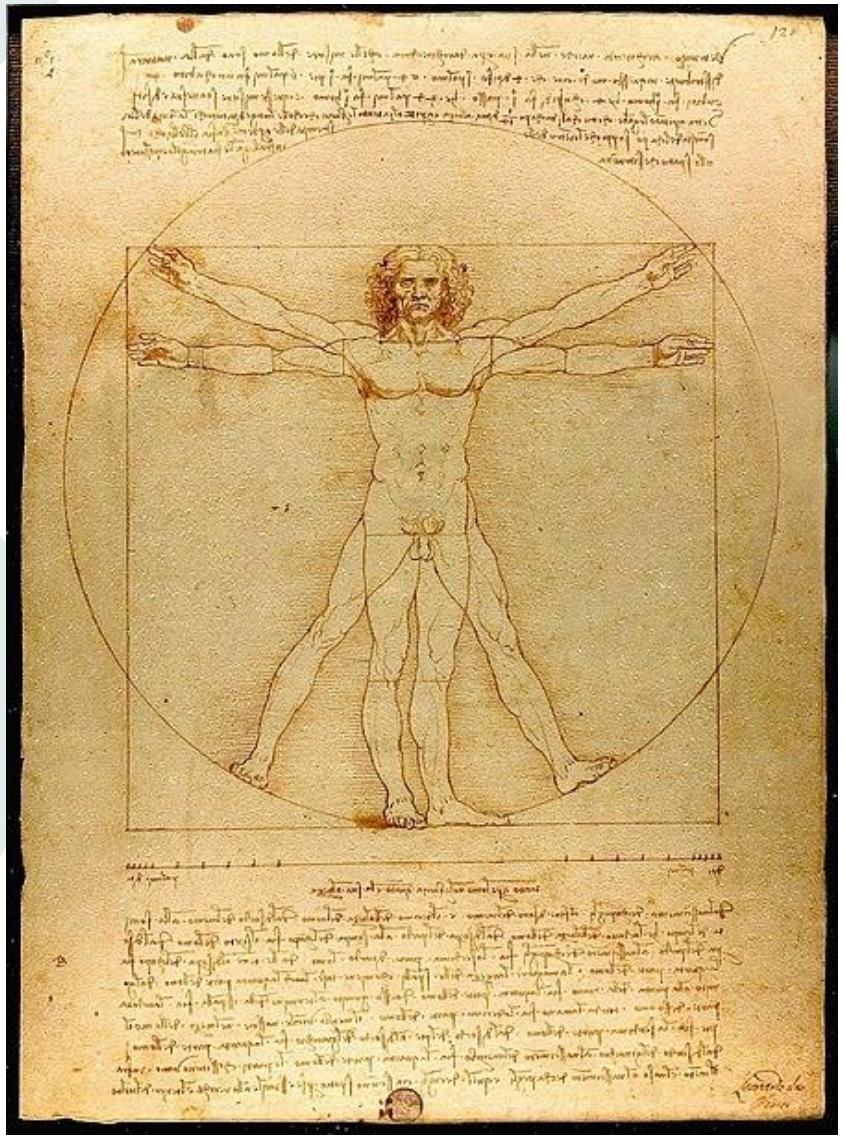


The Mona Lisa or La Gioconda, La Gioconda – the "merry woman" is a painting painted in oil on a poplar board in the 16th century.

The Savior of the World (Latin: Salvator Mundi) is a painting depicting Christ as the Savior of the world, by the Italian artist Leonardo da Vinci.

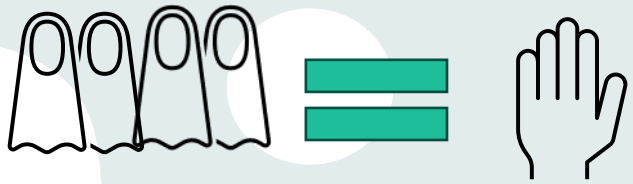
Vitruvian Man is a famous sketch accompanied by notes from Leonardo da Vinci, painted around 1490 in one of his diaries.

The painting depicts a naked male figure in two superimposed positions with outstretched arms and legs, simultaneously inscribed in a circle and a square.



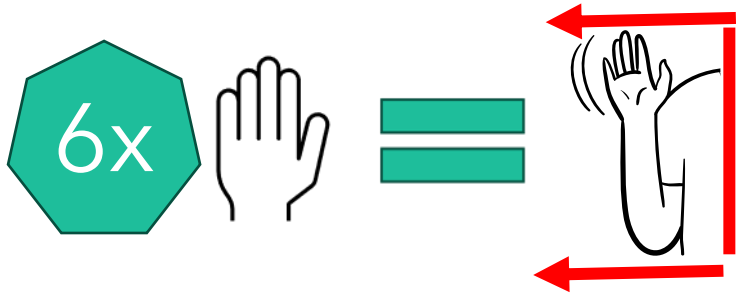
According to Leonardo's notes in the accompanying text, written in mirror, the painting was painted as an attempt to study the proportions of the (male) human body, as described by the ancient Roman architect Vitruvius, who wrote:

- Four fingers are equal to one palm.
- Four palms are equal to one step.
- Six palms make one elbow
- Four cubits is one human height.
- the width of the outstretched arms is equal to the height of a person

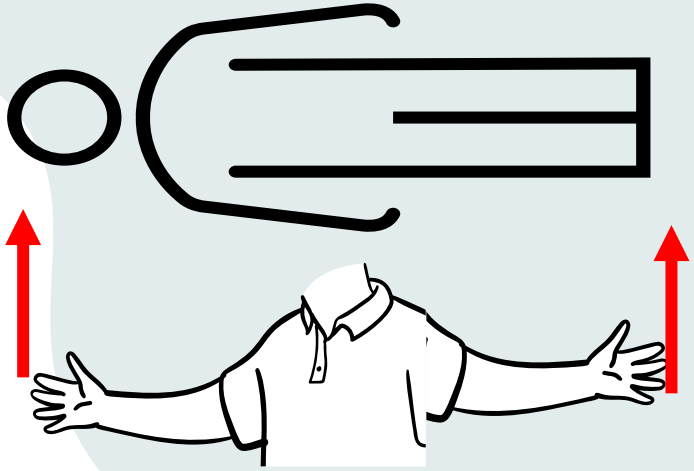


Four fingers are equal to one palm.

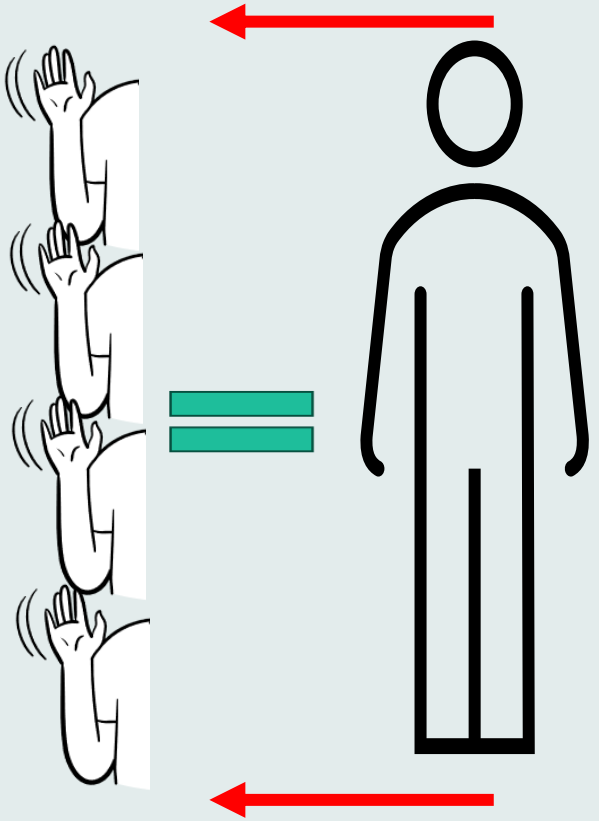
Four palms are equal to one step.



Six palms make one elbow.



The width of the outstretched arms is equal to the height of a person.



Four cubits is one human height.

Sources:

https://en.wikipedia.org/wiki/Leonardo_da_Vinci

https://en.wikipedia.org/wiki/The_Last_Supper_(Leonardo)

https://en.wikipedia.org/wiki/Mona_Lisa

https://en.wikipedia.org/wiki/Salvator_Mundi_(Leonardo)

https://en.wikipedia.org/wiki/Vitruvian_Man

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