

## Robot inspired by Vitruvian man

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Name of the object and creator	Create a robot following Leonardo da Vinci's concept of ideal body proportions,				
Recommended ages	9-12				
Thematic areas combined (STEAM)	Sciences	Technology	Engineering	Arts	Mathematics
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Materials needed	<ul style="list-style-type: none"> <li>• Colour sheets</li> <li>• Scissors</li> <li>• Pencil</li> <li>• Eraser</li> <li>• Protractor</li> <li>• Pair of compasses</li> <li>• Ruler/triangle</li> </ul>				
Outline of the steps	<ol style="list-style-type: none"> <li>1. Measuring proportions of the human body - an experiment</li> <li>2. Making a robot showing parts of the whole</li> </ol>				
References	<a href="https://en.wikipedia.org/wiki/Vitruvian_Man">https://en.wikipedia.org/wiki/Vitruvian_Man</a>				

## STEP BY STEP: How to build Robot inspired by Vitruvian man

Step 1: Measuring proportions of the human body - an experiment

Estimated time: 15 min

The teacher presents the story of the sketch of Vitruvian Man made by Leonardo da Vinci. The students then do the following experiment.

Using a ruler, measure your body parts. Follow the proportions given:

- four fingers make a palm.
- four palms make a foot
- six palms make a cubit
- four cubits make a 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 bottom of the chin is equal to one tenth of the height
- the distance from the bottom 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 lower edge of the chin to the nose is one third the length of the face
- the length of the ear is equal to one third of the face

Step 2: Making a robot demonstrating parts of the whole

Estimated time: 20 min

- On paper or cardboard - preferably coloured – draw the following geometric shapes using a triangle and protractor:

- a rectangle with sides 14 and 3 cm (for the garment part).

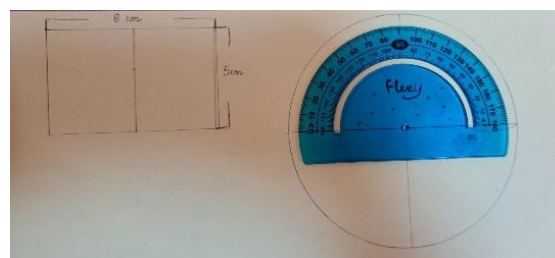
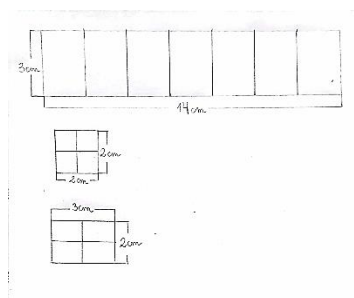
Divide it into smaller rectangles with sides 2 and 3 cm.

- a square with sides 2 cm (arms)
- a rectangle with sides 3 and 2 cm (for shoes)
- a rectangle with sides 8 and 5 cm (for face)

- a circle with a diameter of 10 cm (for body). Younger students will divide half of the circle using a ruler and pencil into halves, quarters and eights.

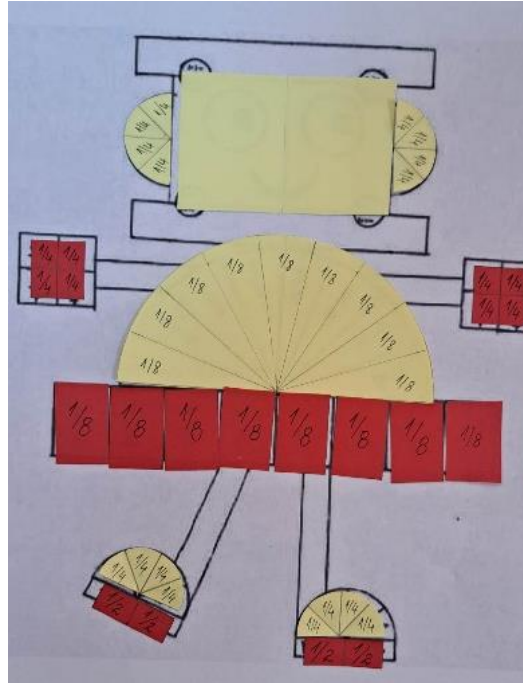
- smaller circle 4 cm in diameter (for shoes and ears).

- Separate the parts of the geometric shapes;
- Create a robot from the resulting parts



- Arrange the individual parts and glue them on a sheet. The shapes can be used for different parts of the robot according to your imagination.

- Create your own robot by drawing its face. To connect the individual body parts, draw rectangles where needed. Here is the result:



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