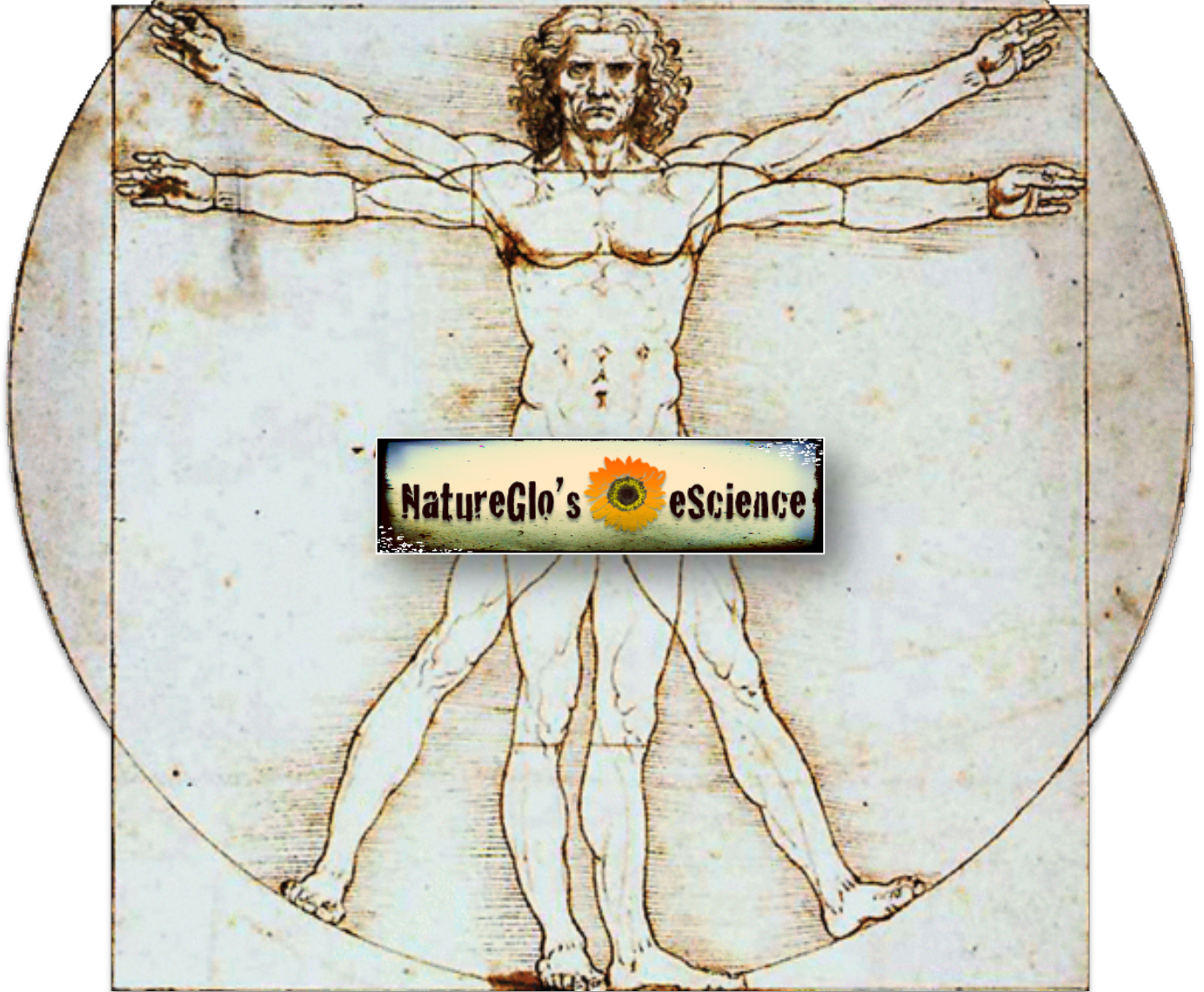


# The Human Body - Phi & Proportion



## **Study Guide**

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# **Introduction to The Human Body: Phi & Proportion**

The human body is ingeniously designed holding miraculous connections to mathematics and patterns found in nature. This study will focus on the connections the human body has with phi, the proportion of beauty represented by 1.618 and the proportions that Leonardo da Vinci used to produce his famed Vitruvian man by solving the squaring of the circle problem. We also briefly look at other patterns the human body has including fractals and spirals.

## **PowerPoint Interaction – Human Body: Phi & Proportion**

Directions: Read through NatureGlo's PowerPoint, The Human Body – Phi & Proportion. Complete the questions below.

### Slide #2 - What is the Golden Ratio?

1. True or False. Chin - Appears many times in geometry, art, architecture and nature including the human body represented by the shortened form 1.618.

### Slide #4 - The Human Body & the Golden Ratio

2. Short answer. The average human body distance between the navel and the foot is 1 unit, the golden section of person's height equals this. \_\_\_\_\_

### Slide #6 Human Proportion In Art

3. True or false. Usually, the standard range artists have used to create idealized artwork standards is the human body. \_\_\_\_\_
4. Short answer. The basic unit of measurement used by artists to establish proportions of a human figure is the \_\_\_\_\_.
5. True or false. The head is the distance from the top of the head to this in art standards. \_\_\_\_\_

### Slide #8 Leonardo da Vinci's Vitruvian Man

6. Fill in the blank. \_\_\_\_\_ believed the ideal human proportions are governed by harmonious proportions which also govern universe.

## **PowerPoint Interaction – Human Body: Phi & Proportion**

### Slide #8 Leonardo da Vinci's Vitruvian Man

7. Short answer. A famous pen and ink drawing depicting a male figure drawn in two superimposed positions with his arms and legs apart within a circle and square. \_\_\_\_\_

### Slide #12 The Vitruvian Man & the Golden Ratio

8. Short answer. The Vitruvian Man does have some of these proportions. \_\_\_\_\_

### Slide #14 DNA & the Golden Proportion

9. Multiple choice. One double helix revolution spiral measures 34 angstroms long by 21 angstroms wide for each full cycle for this.

\_\_\_\_\_

a. DNA b. chin c. Phi d. head

10. Fill in the blank. 34 and 21 \_\_\_\_\_  
found in DNA?

# Journal Entry

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Directions: Fill in the information below.

## Sketch

### 1). General Description

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---

### 2). Size

---

---

---

### 3). Color

---

---

---

### 4). Patterns

---

---

---

### 5). Related numbers and geometric shapes

---

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# Mathematician/MathArtist Journal Entry

Your Name:

Today's Date:

Mathematician/MathArtist:

**Directions:** Select a mathematician or a "MathArtist" (one who used or uses mathematics in their artwork). Follow the guidelines below.

## Sketch and or Photos

	<p>1). Life Work</p> <ul style="list-style-type: none"><li>•</li><li>•</li></ul> <p>2). Related numbers and geometric shapes</p> <ul style="list-style-type: none"><li>•</li><li>•</li></ul> <p>3). Other mathematical relationships</p> <ul style="list-style-type: none"><li>•</li><li>•</li></ul>
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## Natureglo's eScience Student Project Rubric:

**Usage: PowerPoints, posters & other written research projects**

Category	Criteria				Points
	4 Exemplary	3 Accomplished	2 Developing	1 Beginner	
<b>Accurate Research/ Information Gathering &amp; Citation</b>	All taken from several sources & cited in work	Most taken from sources & cited	Some taken from sources and cited	Little or none taken from sources and or not cited	
<b>Content</b>	Great number of interesting facts around topic	Many interesting or too many facts	Some important facts	Few or no facts	
<b>Graphics/ Sound/ Animation</b>	High quality; enhance understanding on every page. All borrowed graphics with source cited.	Many enhance understanding on most pages; most borrowed graphics cited.	Some enhance understanding; some cited	Zero, unrelated, very few or poor quality graphics and/or none cited	
<b>Organization &amp; Attractiveness</b>	Well organized and very attractive; demonstrates creative & logical sequencing and sentence structure	Mostly well organized and attractive; demonstrates logical sequencing and sentence structure	Somewhat organized and attractive, but some illogical sequencing and sentence structure	Unattractive and or weakly organized or disorganized	
<b>Grammar and Mechanics</b>	All correct	1 – 5 errors	5 – 10 errors	Frequent errors	
<b>Divide total points from 20 for grade.</b>			<b>Total Points/Grade:</b>		



**PowerPoint Interaction -  
Human Body: Phi &  
Proportion Quiz**

## **Human Body: Phi & Proportion Quiz**

**Directions:** Read through NatureGlo's PowerPoint, The Human Body – Phi & Proportion. Complete the questions below.

1. True or False. Chin - Appears many times in geometry, art, architecture and nature including the human body represented by the shortened form 1.618.
2. Short answer. The average human body distance between the navel and the foot is 1 unit, the golden section of person's height equals this. \_\_\_\_\_
3. True or false. Usually, the standard range artists have used to create idealized artwork standards is the human body. \_\_\_\_\_
4. Short answer. The basic unit of measurement used by artists to establish proportions of a human figure is the \_\_\_\_\_.
5. True or false. The head is the distance from the top of the head to this in art standards. \_\_\_\_\_
6. Fill in the blank. \_\_\_\_\_ believed the ideal human proportions are governed by harmonious proportions which also govern universe.

## **PowerPoint Interaction – Human Body: Phi & Proportion**

7. Short answer. A famous pen and ink drawing depicting a male figure drawn in two superimposed positions with his arms and legs apart within a circle and square. \_\_\_\_\_
  
8. Short answer. The Vitruvian Man does have some of these proportions. \_\_\_\_\_
  
9. Multiple choice. One double helix revolution spiral measures 34 angstroms long by 21 angstroms wide for each full cycle for this.  
\_\_\_\_\_  
a. DNA b. chin c. Phi d. head
  
10. Fill in the blank. 34 and 21 \_\_\_\_\_  
found in DNA?

**PowerPoint  
Interaction  
Questions & Quiz  
Answer Key**

## **PowerPoint Interaction – Human Body: Phi & Proportion**

Directions: Read through NatureGlo's PowerPoint, The Human Body – Phi & Proportion. Complete the questions below.

### Slide #2 - What is the Golden Ratio?

1. True or False. Chin - Appears many times in geometry, art, architecture and nature including the human body represented by the shortened form 1.618.

### Slide #4 - The Human Body & the Golden Ratio

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### Slide #8 Leonardo da Vinci's Vitruvian Man

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## **PowerPoint Interaction – Human Body: Phi & Proportion**

### Slide #8 Leonardo da Vinci's Vitruvian Man

7. Short answer. A famous pen and ink drawing depicting a male figure drawn in two superimposed positions with his arms and legs apart within a circle and square. \_\_\_\_\_

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