



# Astronomy and Astrophysics Exam Book

Dr. Sarah Salviander

[Download sample](#)



## ASTRONOMY AND ASTROPHYSICS: Exam Book by Dr. Sarah Salviander

Published by Castalia House  
Kouvola, Finland  
[www.castaliahouse.com](http://www.castaliahouse.com)

This book or parts thereof may not be reproduced in any form, stored in a retrieval system, or transmitted in any form by any means—electronic, mechanical, photocopy, recording, or otherwise—without prior written permission of the publisher, except as provided by Finnish copyright law.

Copyright ©2014 by Dr. Sarah Salviander.  
All rights reserved

Data from SOHO, the Solar and Heliospheric Observatory, is courtesy of SOHO consortium. SOHO is a project of international cooperation between ESA and NASA. <http://soho.nascom.nasa.gov>.

Planetary images are courtesy of the Planets app from QContinuum Freeware. <http://qcontinuum.org/>.

Sloan Digital Sky Survey (SDSS) data and images are courtesy of Sloan Digital Sky Survey (SDSS) Collaboration, <http://www.sdss3.org>.

Screen capture from the Sky & Telescope Jupiter Moons interactive observing tool ©Sky & Telescope. All rights reserved. Used with permission

ISBN 978-952-7065-32-7  
Version 001

### PERMISSIONS

Castalia House is committed to making high-quality curricula affordable for everyone. Therefore:

1. Homeschooling parents are permitted to use a single purchased copy of the Instructor's Guide, the Activity & Lab Book, and the Biblical Supplement for their family. A copy of the Exam Book must be purchased for each individual child.
2. Homeschool cooperatives are permitted to use a single purchased copy of the Instructor's Guide and the Biblical Supplement for their meetings. One copy of the Activity & Lab Book must be purchased for each family participating and a copy of the Exam Book must be purchased for each individual child.
3. Public and Private Schools are permitted to use a single purchased copy of the Instructor's Guide and the Biblical Supplement for each teacher. One copy of the Activity & Lab Book and one copy of the Exam Book must be purchased for every individual student in the class.

# Contents

<b>1</b>	<b>Unit 1</b>	<b>4</b>
1.1	Unit 1 Exam 1 . . . . .	5
1.2	Unit 1 Exam 2 . . . . .	9
<b>2</b>	<b>Unit 2</b>	<b>13</b>
2.1	Unit 2 Exam 1 . . . . .	14
2.2	Unit 2 Exam 2 . . . . .	20
<b>3</b>	<b>Unit 3</b>	<b>26</b>
3.1	Unit 3 Exam 1 . . . . .	27
3.2	Unit 3 Exam 2 . . . . .	31
<b>4</b>	<b>Unit 4</b>	<b>35</b>
4.1	Unit 4 Exam 1 . . . . .	36
4.2	Unit 4 Exam 2 . . . . .	39
<b>5</b>	<b>Unit 5</b>	<b>42</b>
5.1	Unit 5 Exam 1 . . . . .	43
5.2	Unit 5 Exam 2 . . . . .	47
<b>6</b>	<b>Unit 6</b>	<b>51</b>
6.1	Unit 6 Exam 1 . . . . .	52
6.2	Unit 6 Exam 2 . . . . .	56
<b>7</b>	<b>Unit 7</b>	<b>60</b>
7.1	Unit 7 Exam . . . . .	61

---

The cover photo shows the Carina Nebula taken by the Hubble Space Telescope. Credit: HST/NASA/ESA.

---

## **1 Unit 1**

**1. Astronomy as a Science and a Sense of Scale**

**2. Method for Finding Scientific Truth**

**3. Astronomy Without a Telescope**

---

## 1.1 Unit 1 Exam 1

### Chapters 1-3

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

#### Fill in the Blank

1. The Earth is about \_\_\_\_\_ years old.
2. The intersection of the plane of Earth's orbit and that of the Moon's orbit is called the \_\_\_\_\_.
3. When two events happen close together in time or space but there is no causal connection between the two, we call that: \_\_\_\_\_.
4. It takes \_\_\_\_\_ counter example(s) to disprove a hypothesis.
5. The imaginary sphere that forms the sky is called the \_\_\_\_\_.
6. The point straight above a person's head is called the \_\_\_\_\_.
7. The arc going through the north point on the horizon, the zenith, and the south point on the horizon is called the \_\_\_\_\_.
8. The \_\_\_\_\_ of a star is how many degrees above the horizon it is.
9. In the equatorial coordinate system, stars are located by \_\_\_\_\_ and \_\_\_\_\_.

#### Longer Answers

10. Why is there a difference between the sidereal day and solar day?
  
  
  
  
  
  
  
  
  
  
11. What causes the temperature differences between the seasons?

12. Explain what 'light-year' means.
  
13. Where is our Solar System located in the Milky Way Galaxy?
  
14. List the steps of the scientific method.
  
15. What makes an idea a good scientific hypothesis?
  
16. How does induction work? Give an example.
  
17. How many positive results does it take to prove a theory is true?
  
18. How does deduction work?
  
19. What are the basic beliefs of materialism?

20. What is precession, and how does it affect the observed position of the stars?

21. What does science study?

22. Explain the peer review process and why it is important.

23. How is a person's latitude related to the position of the North Celestial Pole?

### **Math Problems**

24. What is the equation for the angle star paths make with respect to the horizon as they rise and set?

25. Rearrange the formula  $K = mr$  so it's set up to solve for  $r$ .

26. Use the distance formula to find out how far a space rocket would travel at 20,000 km/h for 10 years.

27. Saturn's average distance from the Sun is approximately 1,433,500,000 km. How far is this in astronomical units?
28. Translate the formula  $D = vt$  into English.
29. How far is the closest star to our Sun?
30. How many degrees are there in 15 arc minutes?

**Bonus**

Describe, in one sentence, what astronomers do.