

Real Science-4-Kids

21 SUPER SIMPLE Astronomy EXPERIMENTS



Rebecca W. Keller, Ph.D



Illustrations: Rebecca W. Keller, Ph.D.

Photographs: Courtesy of NASA—nasaimages.org

Copyright © 2011 Gravitas Publications, Inc.

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without prior written permission from the publisher. However, this publication may be photocopied without permission from the publisher only if the copies are to be used for teaching purposes within a family.

Real Science-4-Kids: 21 Super Simple Astronomy Experiments

ISBN 10: 1936114208

ISBN 13: 9781936114207

Published by Gravitas Publications, Inc.
4116 Jackie Road SE, Suite 101
Rio Rancho, NM 87124
www.gravitaspublications.com

Printed in United States



What are Super Simple Science Experiments?

Super Simple Science Experiments are experiments that focus on one aspect of scientific investigation. Doing science requires students to develop different types of skills. These skills include the ability to make good observations, turning observations into questions and/or hypotheses, building and using models, analyzing data, using controls, and using different science tools including computers.

Super Simple Science Experiments break down the steps of scientific investigation so that students can focus on one aspect of scientific inquiry. The experiments are simple and easy to do, yet they are *real* science experiments that help students develop the skills they need for *real* scientific investigations.

Each experiment is one page and lists a short objective, the materials needed, a brief outline of the experiment, and includes any graphics or illustrations needed for the experiment. The skill being explored is listed in the upper right hand corner of each page. Any additional pages required are included at the back of the book.

Getting Started

Below is a list of the materials for all the astronomy experiments in this book. You can collect all the materials ahead of time and place them in a storage bin or drawer.

Materials at a Glance	
Super Simple Science Experiments Laboratory Notebook compass pencil ping-pong ball softball flashlight balloons cardboard scissors popsicle sticks tape protractor toothpicks glue marker	water-based craft paint in the following colors: white gray yellow red orange blue green styrofoam balls with the following dimensions 1 inch 1.5 inches 2 inches (3 balls) 4 inches (2 balls) 6 inches 8 inches 12 inches

Table of Contents

Title	Page
1. Finding the North Star	1
2. Finding the Big Dipper	2
3. Finding the Little Dipper	3
4. Finding the Dragon	4
5. Finding Cassiopeia	5
6. Moon Phase Calendar	6
7. Solar Eclipse	7
8. Lunar Eclipse	8
9. Ocean Waves and the Moon	9
10. Building a Horizontal Sundial	10
11. Model of the Moon	11
12. Model of the Sun	12
13. Model of Mars	13
14. Model of Venus	14
15. Model of Jupiter	15
16. Model of Saturn	16
17. Model of Neptune and Uranus	17
18. Model of Mercury	18
19. Model of Earth	19
20. Model of the Solar System	20
21. Finding the Center of the Milky Way Galaxy	21
Sundial Diagram	22
Calendar template	23

1. Finding the North Star

observation

Objective

To locate the North Star (Polaris) using a compass. (Visible for locations in the northern hemisphere)

Materials

compass

pencil

Super Simple Science Experiments Laboratory Notebook

Experiment

- 1 On a clear dark night go outside, and using your compass, find "north." North is where the needle of your compass points. Orient your body so that you are facing north.
- 2 Look up at the sky and find a lone star with no bright stars nearby. This is Polaris, also called the North Star or the Pole Star. For the continental United States, it can be found about 45 degrees from the horizon.
- 3 Observe this star for one week. Does the star move?

Results and Conclusions

Polaris is important because it is almost exactly above the North Pole of the Earth. You can think of the North Pole extending up to Polaris, thus making a pole in the sky. Because Polaris is at the end of this pole in the sky, it is the only star that does not appear to move. In other words, the Earth rotates around this pole, and so the North Star remains practically in the same place in the sky each night.

