

A vibrant, stylized illustration on a dark blue background. The central focus is a large, light green circle containing the text 'NATURE OF SCIENCE'. Surrounding this circle are various scientific icons: a DNA double helix in the top left, a Bohr-style atom with a yellow nucleus and green electrons in the top center, a yellow rocket with green fins in the top right, a green microscope in the bottom left, a green test tube with yellow liquid in the bottom right, a green and yellow striped insect in the bottom center, a green microorganism with cilia and internal organelles in the bottom center, and a yellow tuning fork in the middle right. The overall style is clean and modern, using a limited color palette of greens, yellows, and blues.

# NATURE OF SCIENCE

NGS  
MAGNIF/ED

## Table of Contents: Nature of Science

Description	Page #
Introduction	3
Section 1: The Method of Science	4
Layered Book Instructions	5
Layered Book Labels	6
Quiz: The Method of Science	7
Section 2: Standards of Measurement	8
Determining Density	9
Quiz: Standards of Measurement	10
Section 3: Graphing	11
Data Tables	12
Quiz: Graphing	13
Answer Key	14
Contact and Copyright Information	15
Student Section Cover - Blackline	16
Appendix: Teacher Notes	17-19

## Introduction

If you are new to the idea of using a Science Interactive Notebook in your classroom, stop by my Nitty Gritty Science shop and download my Intro to Science Interactive Notebooks tutorial for FREE! In there you will find tips on how to begin with your students, what materials to have on hand and, most importantly, how it will enhance your students' learning through reflection and creativity.

## Focused Lessons with Differentiated Instruction

The lessons shared on the following pages cover National Science Standards and meet students' needs. I have given you the notes that I would give my students (Right Side - Input Side of Notebook) so you can understand what I'm having the students focus on when working on their creative assignments (Left Side - Output Side of Notebook). Each lesson focuses on a Question of the Day (QOD) represented in red in the top margin of each "Input" page with the student giving an answer in red on the "Output" page.

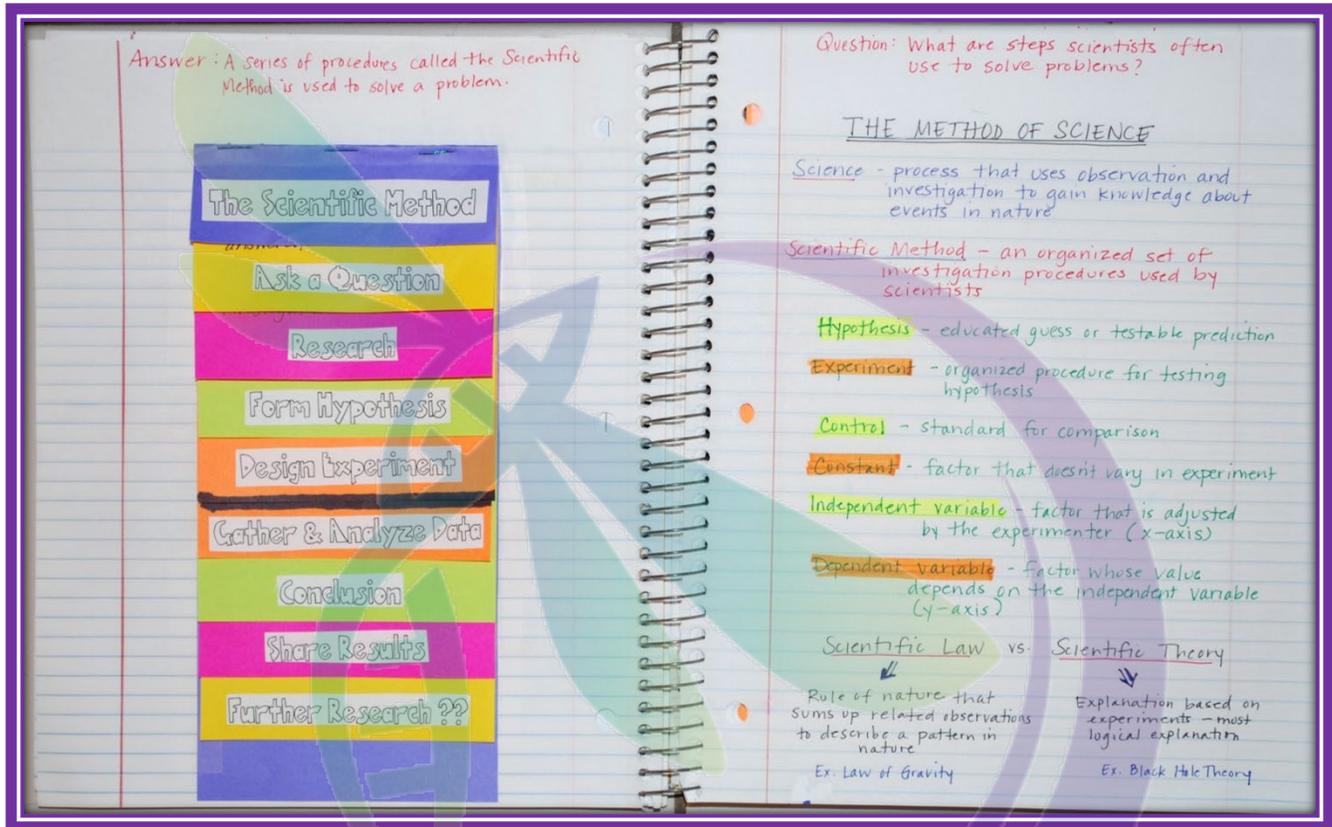
## Left Side - Output

Instructions for each Output Side are included. This includes cut-outs, foldables or master copies where applicable. You may find that students work slowly at first, but once groups are organized and students know what is expected from them, not only will you see more energy focused on the final product, but also you will be shocked at the level of creativity certain students have in certain areas.

## Mini-Assessments

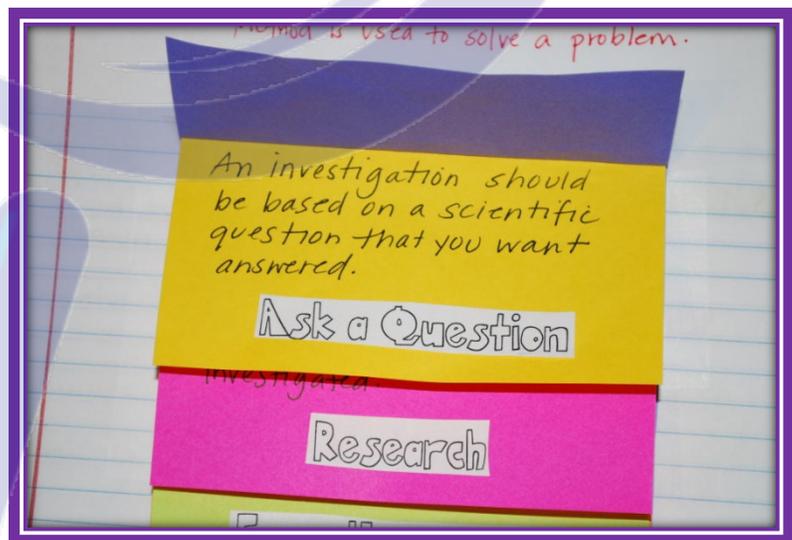
Mini quizzes will be given for each section so you may monitor student's level of understanding. For reproduction purposes, there are two quizzes to a page so you can cut in half and save on some paper.

# Section 1: The Method of Science



## Instructions:

Students will research the Scientific Method then create a Layered Book to help them organize the important steps. The following are instructions needed to make the Layered Book, tab labels if you choose to use them, and a mini-quiz for this section.



**MULTIPLE LEARNING STYLES  
ADDRESSED WITH ORIGINAL  
ACTIVITIES – NO REPEATS!**

## Layered Book

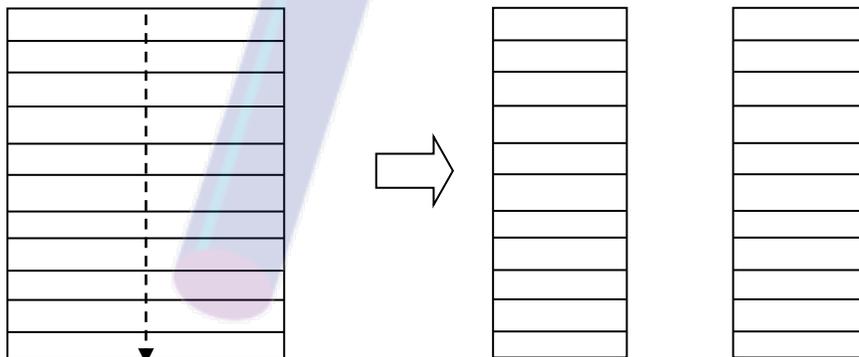
Step 1: Layer 5 sheets of colored paper about an inch apart vertically. Keep edges even.



Step 2: Fold up the bottom edges of the paper to form 10 equal tabs.



Step 3: Fold the papers and crease well to hold tabs in place. Cut down middle of layered book to share other half with a partner.



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

### Quiz: The Method of Science

#### Matching

- |                               |  |
|-------------------------------|--|
| _____ 1. Hypothesis           | a. standard for comparison                     |
| _____ 2. Control              | b. testable prediction                         |
| _____ 3. Dependent variable   | c. factor that is adjusted by the experimenter |
| _____ 4. Experiment           | d. factor that doesn't vary in experiment      |
| _____ 5. Constant             | e. organized procedure for testing hypothesis  |
| _____ 6. Independent variable | f. factor whose value is graphed on y-axis     |
7. Put the steps of the Scientific Method in correct order using numbers 1–7.  
\_\_\_\_\_ Gather and Analyze Data      \_\_\_\_\_ Ask a Question      \_\_\_\_\_ Research      \_\_\_\_\_ Conclusion  
\_\_\_\_\_ Form Hypothesis      \_\_\_\_\_ Design Experiment      \_\_\_\_\_ Share Results

----- **MINI QUIZZES INCLUDED FOR EACH SECTION** -----

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

### Quiz: The Method of Science

#### Matching

- |                               |  |
|-------------------------------|--|
| _____ 1. Hypothesis           | a. standard for comparison                     |
| _____ 2. Control              | b. testable prediction                         |
| _____ 3. Dependent variable   | c. factor that is adjusted by the experimenter |
| _____ 4. Experiment           | d. factor that doesn't vary in experiment      |
| _____ 5. Constant             | e. organized procedure for testing hypothesis  |
| _____ 6. Independent variable | f. factor whose value is graphed on y-axis     |
7. Put the steps of the Scientific Method in correct order using numbers 1–7.  
\_\_\_\_\_ Gather and Analyze Data      \_\_\_\_\_ Ask a Question      \_\_\_\_\_ Research      \_\_\_\_\_ Conclusion  
\_\_\_\_\_ Form Hypothesis      \_\_\_\_\_ Design Experiment      \_\_\_\_\_ Share Results

The background features a central globe with a green and purple color scheme. Surrounding the globe are various scientific icons: a DNA double helix in the top left, an atomic model in the top center, a rocket in the top right, a microscope in the bottom left, a magnifying glass in the bottom center, a test tube in the bottom right, a leaf and an ant in the bottom right, and a petri dish with a microorganism in the bottom center. The text 'NATURE OF SCIENCE' is written in a large, outlined, serif font across the middle of the globe.

# NATURE OF SCIENCE

INCLUDES STUDENT SECTION COVERS

NGSO  
MAGNIFIED

Question: What are the steps scientists often use to solve problems?

## THE METHOD OF SCIENCE

**Science** - process that uses observation and investigation to gain knowledge about events in nature

**Scientific Method** - an organized set of investigation procedures used by Scientists which includes (but is not limited to) the following:

- Ask a Question
- Research
- Form Hypothesis
- Design Experiment
- Gather and Analyze Data
- Form a Conclusion
- Share Results
- Determine if Further Research is Needed

**Hypothesis** - educated guess or testable prediction

**Experiment** - organized procedure for testing a hypothesis

**Control** - standard for comparison

**Constant** - factor that doesn't vary in an experiment

**Independent variable** - factor that is adjusted by the experimenter (x-axis)

**Dependent variable** - factor whose value depends on the independent variable (y-axis)

Scientific Law

vs.

Scientific Theory

Rule of nature that sums up related observations to describe a pattern in nature

Ex. Law of Gravity

Explanation based on experiments - most logical explanation

Ex. Black Hole Theory



1

/ 3





Thank you for sharing NGS Magnified with your students!

### Terms of Use

Copyright © NGS Magnified, LLC (formerly Nitty Gritty Science, LLC.) All rights reserved by author Dr. Erica Colón. This product is to be used by the original downloader only. Copying for more than one teacher, classroom, department, school, or school system is prohibited. This product may not be distributed or displayed digitally for public view. Failure to comply is a copyright infringement and a violation of the Digital Millennium Copyright Act (DMCA). Clipart and elements found in this PDF are copyrighted and cannot be extracted and used outside of this file without permission or license. Intended for classroom and personal use ONLY.

### Contact Information:

Email: [admin@nittygrittyscience.com](mailto:admin@nittygrittyscience.com)

Website: [www.NGSmagnified.com](http://www.NGSmagnified.com)

TPT: <https://www.teacherspayteachers.com/Store/Nitty-Gritty-Science>

