



ASTRONOMY & SPACE

NGS
MAGNIF/ED

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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.

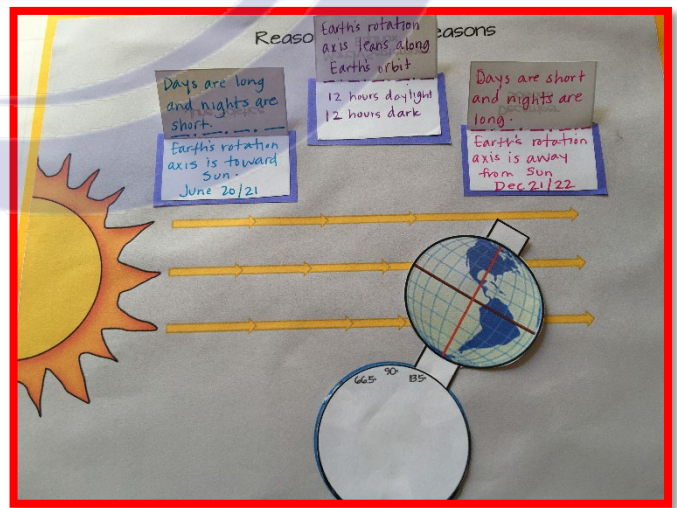
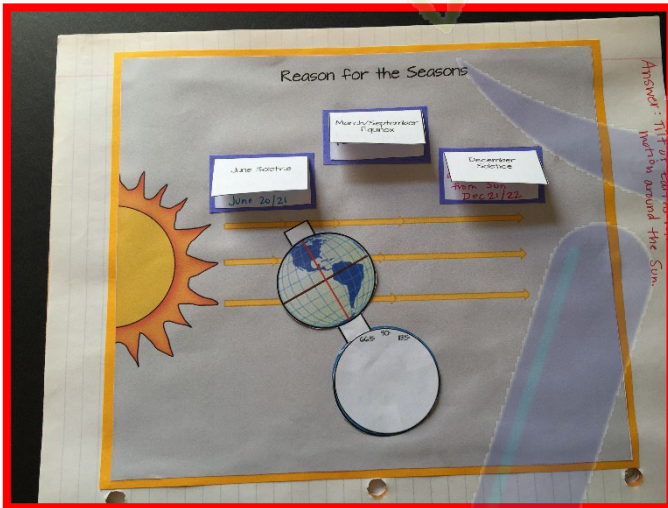
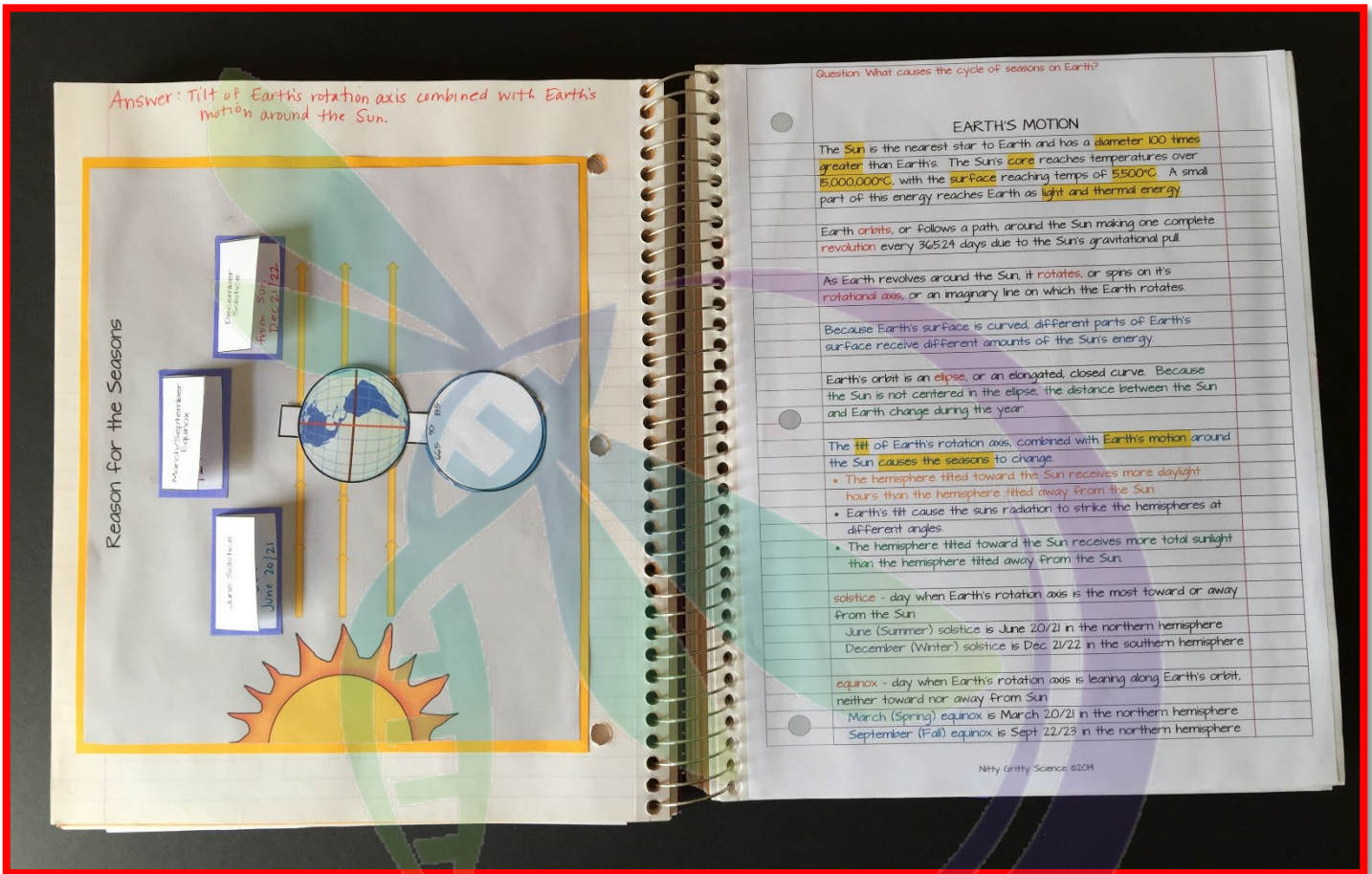
Left Side - Output

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 them in half and save on some paper 😊

Section 1: Earth's Motion

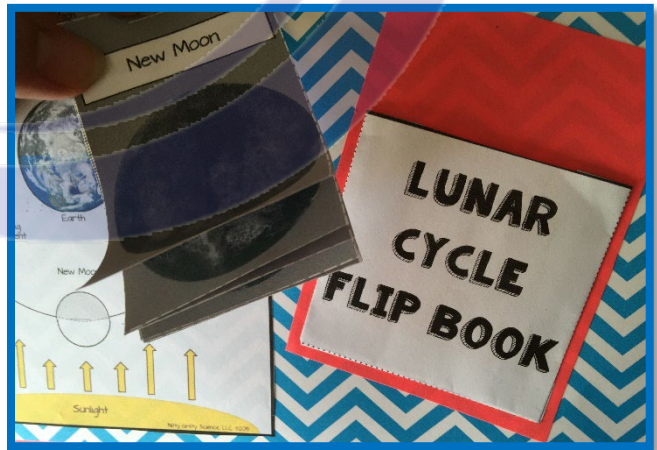
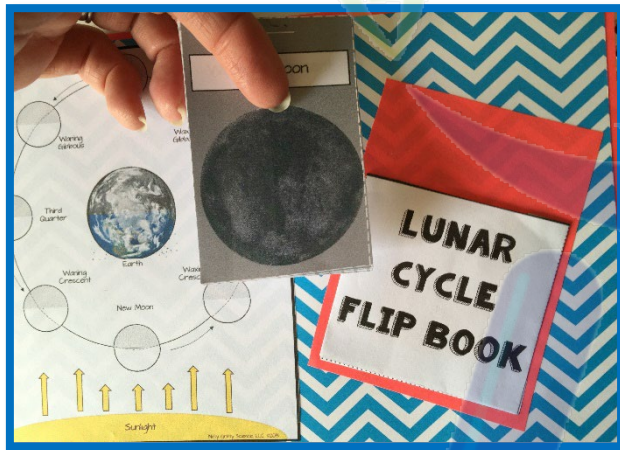
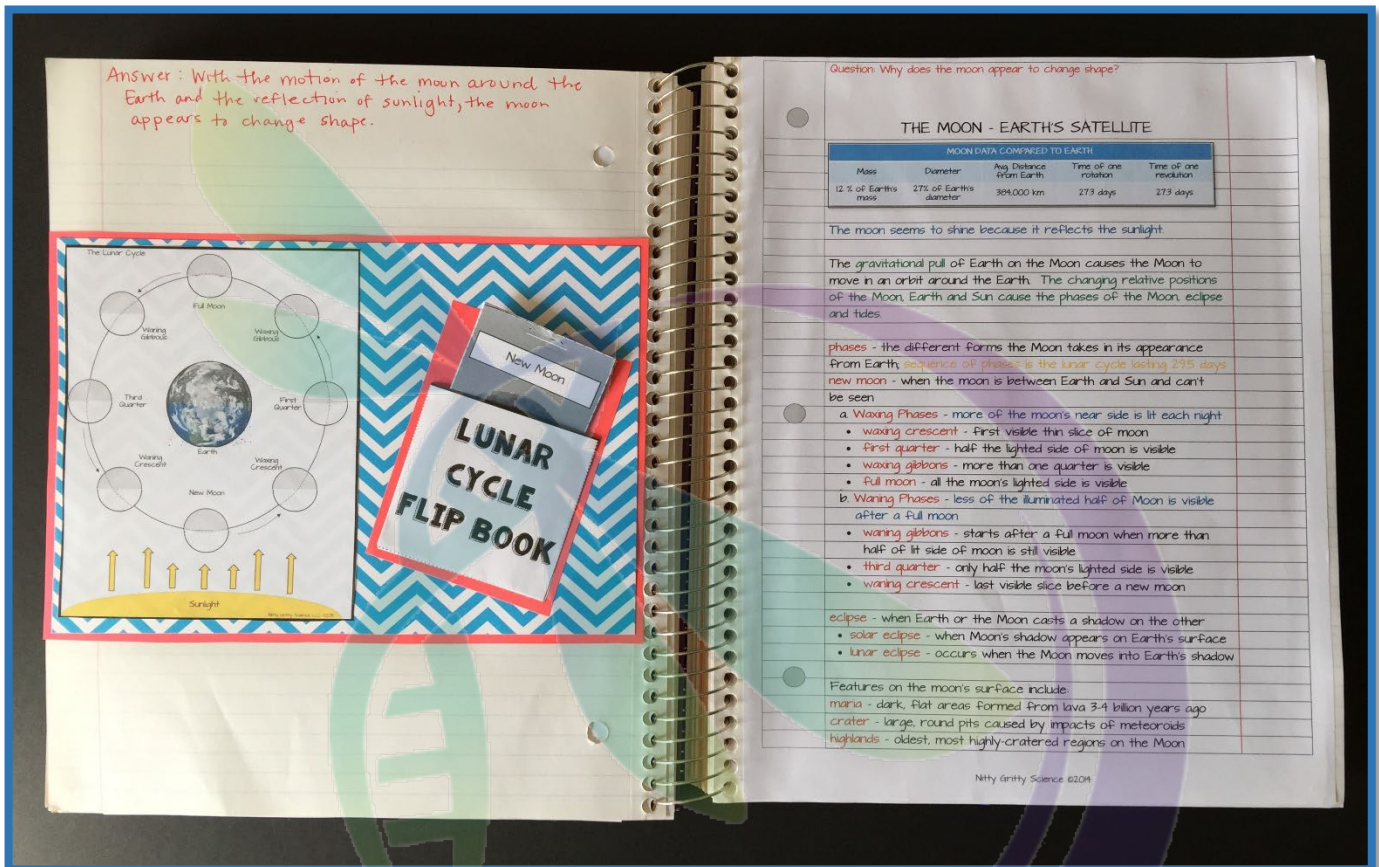


Description:

Students will create a moving model of Earth's rotational axis that will help them understand the reason for the seasons in the Northern Hemisphere. The printables for this activity are offered in color and in gray scale, along with step-by-step instructions and a mini-quiz.

MULTIPLE LEARNING STYLES ADDRESSED WITH ORIGINAL ACTIVITIES – NO REPEATS!

Section 2: The Moon - Earth's Satellite



Description:

Students will need to identify, label and unscramble the moon phase cards in order to make a flip book that features the lunar cycle. For differentiation purposes, I've also included a set where the cards are not mixed up and a set where the cards have already been pre-labeled.

Printables, cut-outs, teacher answer key and a mini-quiz are all included for this concept.

Name _____ Date _____

Quiz: Space Exploration

Using the diagram, explain what is happening at the following steps.

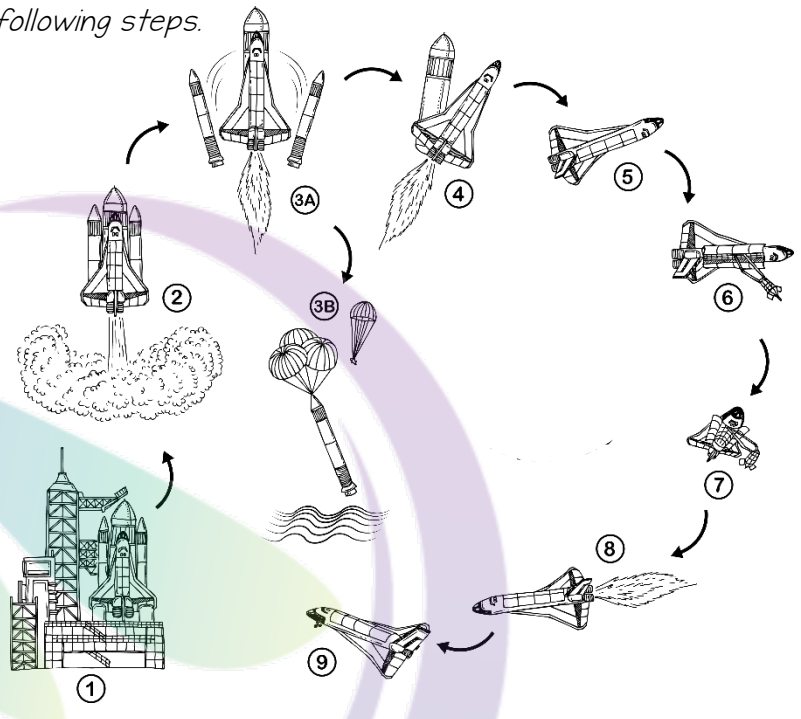
- 1. Step 3A: _____

- 2. Step 4: _____

- 3. Step 6: _____

- 4. Step 8: _____

- 5. Step 9: _____



MINI QUIZZES INCLUDED FOR EACH SECTION

Name _____ Date _____

Quiz: Space Exploration

Using the diagram, explain what is happening at the following steps.

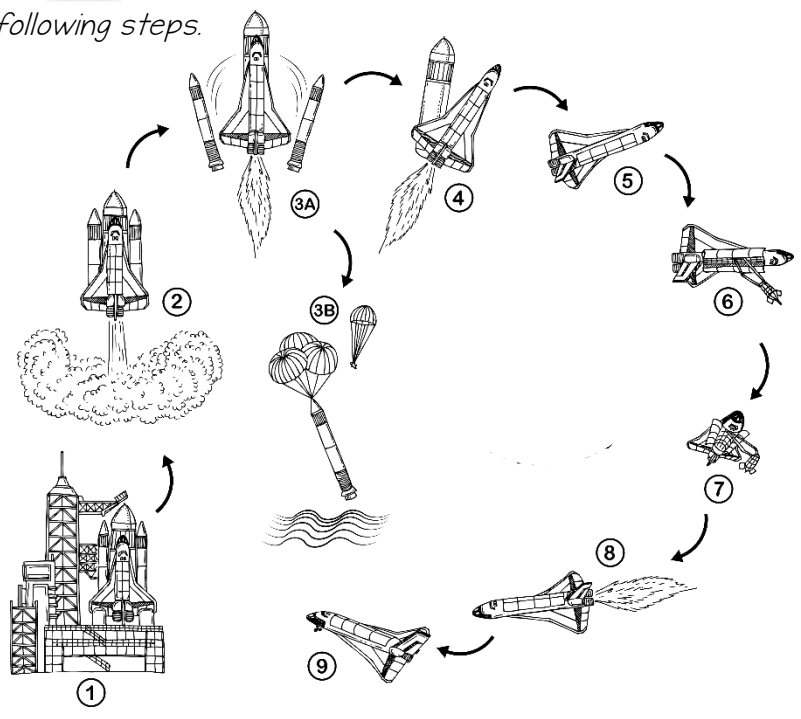
- 1. Step 3A: _____

- 2. Step 4: _____

- 3. Step 6: _____

- 4. Step 8: _____

- 5. Step 9: _____



The background of the cover is a white field filled with small black dots representing stars. Various celestial bodies and spacecraft are scattered throughout. In the top left, a large planet with a grid of latitude and longitude lines is shown. To its right is a satellite with two rectangular solar panels. In the top right, a large planet with a prominent ring system is depicted. On the right side, a smaller planet with a grid is shown. In the bottom left, a rocket is shown in profile. In the bottom center, a planet with horizontal stripes is visible. In the bottom right, a planet with a grid and a satellite are shown. A large, faint watermark of a stylized 'A' is centered behind the text.

ASTRONOMY & SPACE

INCLUDES STUDENT SECTION COVERS

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Question: What causes the cycle of seasons on Earth?

EARTH'S MOTION

The sun is the nearest star to Earth and has a diameter 100 times greater than Earth's. The sun's core reaches temperatures over 15,000,000°C, with the surface reaching temps of 5,500°C. A small part of this energy reaches Earth as light and thermal energy.

Earth orbits, or follows a path, around the sun making one complete revolution every 365.24 days due to the sun's gravitational pull.

As Earth revolves around the sun, it rotates, or spins on its rotational axis – an imaginary line on which the Earth rotates.

Because Earth's surface is curved, different parts of Earth's surface receive different amounts of the sun's energy.

Earth's orbit is an ellipse, or an elongated, closed curve. Because the sun is not centered in the ellipse, the distance between the sun and Earth change throughout the year.

The tilt of Earth's rotation axis combined with Earth's motion around the sun causes the seasons to change

- The hemisphere tilted toward the sun receives more daylight hours than the hemisphere tilted away from the sun
- Earth's tilt causes the sun's radiation to strike the hemispheres at different angles
- The hemisphere tilted toward the sun receives more total sunlight than the hemisphere tilted away from the sun

solstice - day when Earth's rotation axis is the most toward or away from the sun

June (summer) solstice is June 20/21 in the Northern Hemisphere

December (winter) solstice is Dec 21/22 in the Northern Hemisphere

equinox - day when Earth's rotation axis is leaning along Earth's orbit, neither toward nor away from the sun

March (spring) equinox is March 20/21 in the Northern Hemisphere

September (fall) equinox is Sept 22/23 in the Northern Hemisphere



Thank you for sharing NGS Magnified with your students!

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