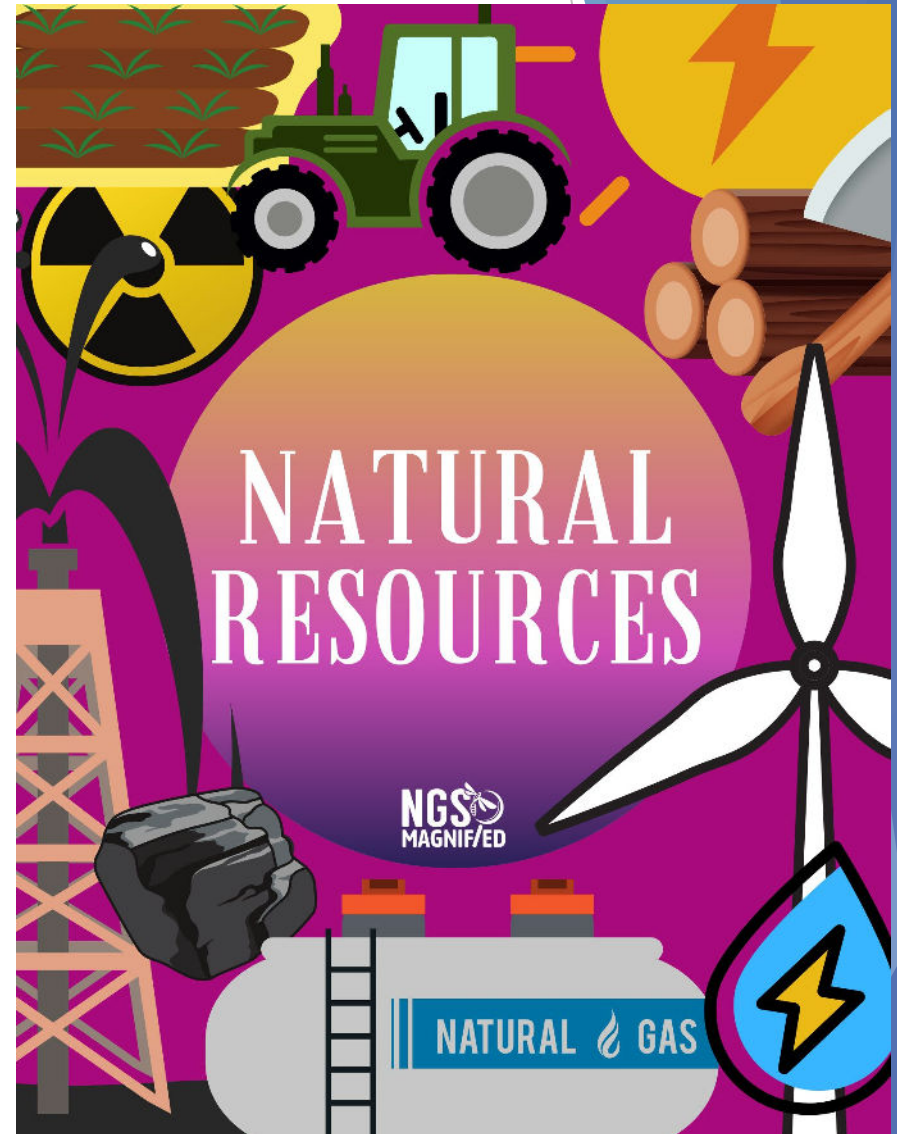




Natural Resources

Natural Resources Unit includes:

- Print and digital Interactive Notebooks
- Editable Resources, including notes, PowerPoints, and test
- Instructional Videos
- Teacher-led Demos & Guided Inquiry Labs
- Task Cards & Digital Task Cards
- Study Guides



Suggested Pacing Guide

The following is a **suggested pacing guide** for my COMPLETE COURSES (Earth, Life or Physical Science) which are based on 50-minute class periods. There are three variations below. Each variation is based on the **number of sections in your SCIENCE INTERACTIVE NOTEBOOK chapter**.

Based on a **4-Section Chapter**

Day	Lesson/Activity	Engage	Explain	Explore	Elaborate	Evaluate
1	- Teacher Demo - Section 1 Notes – INB input - INB Activity – INB output (homework if not completed in class)	x				
			x			
				x		
2	- Mini-quiz - Section 2 Notes – use PowerPoint - INB Activity					x
			x			
				x		
3	- Mini-quiz - Guided Inquiry Lab – Student Led					x
				x		
4	- Section 3 Notes – use PowerPoint - INB Activity		x			
				x		
5	- Mini-quiz - Section 4 Notes – use PowerPoint - INB Activity					x
			x			
				x		
6	- Mini quiz - Science Stations				x	
7	Science Stations				x	
8	Final draft and testing for Creation Station (STEM)				x	x
9	Task Card Review (game-style, full class, partner)				x	
10	Chapter Test					x
	Have students complete notes for next chapter*	x				

* **Note-taking option:** Once students are done with chapter test, they get the next set of notes and work quietly on completing them while other students finish up. All notes are to be completed when they return to class. Have students glue each page of notes into the next few pages of their INB (right side only). This way, when you go over the PowerPoint each day, they have already reviewed topic and are ready for class.

5 E Model

Engage – Teacher-led demos foster wonder and classroom discussion and serve as the hook for the lesson. Videos and images of natural phenomena also foster questioning and communication. NGSS phenomena are aligned to middle school NGSS standards.

Explain – PowerPoints, instructional videos, and guided notes (input side of interactive notebooks) provide definitions, explanations, and information through mini-lecture, text, internet, and other resources which encourages students to explain concepts and definitions in their own words.

Explore – Students investigate problems, events, or situations. As a result of their mental and physical involvement in these activities, students question events, observe patterns, identify and test variables, and communicate results.

Elaborate – It is important to involve students in further experiences that apply, extend, or elaborate the concepts, processes, or skill they are learning. Elaborate activities provide time for students to apply their understanding of concepts and skills. They might apply their understanding to similar phenomena or problems.

Evaluate – Use a variety of assessment to gather evidence of student's understanding and provide opportunities for them to assess their own progress.

Student Interactive Notebook

Each concept shares:

- Actual photos of both the INPUT and OUTPUT pages of Science Interactive Notebook
- Instructions on how to create/use/complete activity for OUTPUT side
- Mini-Quizzes for each concept to check students' understanding
- Answer Keys for all mini-quizzes
- Appendix with Teacher Notes for Interactive Notebook in LARGE print.

Table of Contents: Natural Resources

Description
Introduction
Section 1: Energy & Mineral Resources (Non-Renewable)
Formation of Oil & Natural Gas
Cut-outs
Answer Key
Quiz: Energy & Mineral Resources
Section 2: Renewable Energy Resources
Renewable Energy Resources
Renewable Energy Resources
Renewable Energy Resources
Renewable Energy Resources
Answer Key
Quiz: Renewable Energy Resources
Section 3: Land Resources
Major Uses of Land Resources
Cut-outs
Circle Graph
Section 4: Air and Water Resources
Make a Brochure: Save Our Air and Water Resources
Answer Key - Quizzes
Contact and Copyright Info
Teacher Notes - LARGE Print

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 Science Interactive Notebooks tutorial for FREE! In there, you will learn how to begin with your students, what materials to have on hand, and how it will enhance your students' learning through hands-on activities.

Name: _____
Quiz: Energy & Mineral Resources (Non-Renewable)

Activity:

1. fossil fuels
2. coal
3. oil
4. non-renewable
5. natural gas
6. nuclear energy
7. mineral resources
8. non-metallic minerals

Name: _____
Quiz: Energy & Mineral Resources (Non-Renewable)

Activity:

1. fossil fuels
2. coal
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Section 1: Energy & Mineral Resources (Non-Renewable)

Section 2: Renewable Energy Resources

Description:

Students will need to research and describe the advantages and disadvantages of five different renewable resources.

Student printable is offered in color and black and white. A teacher answer key is provided along with a mini-quiz.

Section 1: Energy & Mineral Resources (Non-Renewable)

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Formation of Oil & Natural Gas

Formation of Oil & Natural Gas

Formation of Oil & Natural Gas

Formation of Oil & Natural Gas

Formation of Oil & Natural Gas

Formation of Oil & Natural Gas

RENEWABLE ENERGY RESOURCES

Directions:

1. Cut out the diagram and tape on the left side of the notebook page. Be sure to cut between the "Advantages/Disadvantages" sides of each paper.
2. Paste each piece around the Earth on the following page. Then, connect the lines, being careful to paste only the top portion of each.
3. Label each paper with the name of the renewable resource, its advantages, and its disadvantages. (Advantages and disadvantages are provided on the back of each paper.)
4. Paste the completed Renewable Energy Resources concept map on the following page.

Student Digital Notebook

The student notebook is on Google Drive and ready for you to share with your students. Here's a quick overview of the features:

Set up like a traditional interactive notebook with input and output sides.

Hyperlinked tabs so student can easily move through chapter for review

Students watch video < 6 min to complete notes.

Directions: Research how oil and natural gas form. Use what you learned to describe events that take place during the formation of oil and natural gas for each period of time.

FORMATION OF OIL & NATURAL GAS

300 - 400 MILLION YEARS AGO	50 - 100 MILLION YEARS AGO	TODAY
Plankton, Fish, etc.	Sediment & Rock	Sediment & Rock
	Infermeable Rock	Infermeable Rock
	Porous Sedimentary Rock	Porous Sedimentary Rock

ENERGY AND MINERAL RESOURCES (NONRENEWABLE)

Most energy sources are _____, meaning they are used up faster than natural processes can replace them within a human time scale.

Fossil fuels -

- Cool -
- Oil -
- Natural gas -

Nuclear energy -

Mineral resources -

Non-metallic mineral resources -

- Industrial minerals -
- Building minerals -

NONRENEWABLE
RENEWABLE
LAND RESOURCES
AIR & WATER RESOURCES
CLASSROOM LIBRARY

Energy & Mineral Resources

Digital Textbook

For further exploration, click button(s) below.

Oil and Gas Formation

Encouraging independent learners. Directions for output side are here along with what they need to complete the activity.

Notes are chunked into manageable sections with large spaces for textboxes

Some pages have links so students can go deeper into the topic if they need.

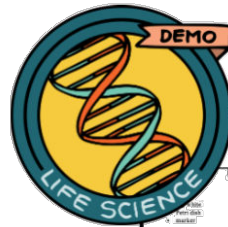
Demos, labs, & Science Stations

Working in the lab and being engaged in science experiments is the most exciting part of science.

Demo, Labs, and Science Stations Includes:

1. **SCIENCE STATION SIGNAGE** for all 7 stations is provided in color and in black and white (see preview) and all student answer sheets have icons that correspond with each station for ease of use.
2. **DEMONSTRATION** (teacher-led) allows teachers to invite scientific discussions and can help uncover misconceptions and, most importantly, lead to heightened curiosity and interest in the topic being studied.
3. **GUIDED INQUIRY LAB** which is a traditional lab that allows students to perform an investigation in order to solve a problem. Students will hypothesize, collect and analyze data and communicate their results.
4. **TEACHER GUIDES to DEMOS & SCIENCE STATIONS** help get you started and give you background information to make your science lessons engaging.
5. **7 SCIENCE STATIONS** which are designated locations in the classroom with activities that challenge students to extend their knowledge and elaborate on their science skills by working independently of the teacher in small groups or pairs. Stations included are:
 - **INFORMATION STATION** – Group members will read an interesting and relevant science passage then complete a task to help increase science literacy and deepen their understanding of the science concept.
 - **OBSERVATION STATION** – Group members will have images, illustrations, or actual samples at this station that show applications or processes of the science topic. Using what they've learned, they will need to apply their observation skills to complete the questions attached to each.
 - **CALCULATION STATION** – Group members use their math skills to complete the station challenge. Skills may include graphing, analyzing data, using models, measurement, and calculating formulas or word problems.
 - **INVESTIGATION STATION** – Group members will work with one another to explore the concept through hands-on activities so they may practice specific inquiry process skills as they learn.
 - **COMMUNICATION STATION** – There are three different options for this station: interviews, video, group essay. Depending on the option you choose, group members will communicate what they know by answering questions in creative ways.
 - **CREATION STATION** – Group members will work together to solve a STEM (Science, Technology, Engineering, Math) challenge by creating models or designs that demonstrate their understanding of the science topic being taught.
 - **IMAGINATION STATION** – This station makes science concepts relevant for students by asking them to imagine scenarios that will bring about discussion and critical thinking.
6. **INQUIRY PROCESS SKILLS CHECKLIST** is provided with each set to show teachers and administrators the inquiry skills used by students in each activity. These skills include, but are not limited to, communicating, creating models, inferring, classifying, identifying variables, measuring, observing, predicting, gathering and organizing data, comparing and contrasting, interpreting data, and manipulating materials.

SCIENCE STATIONS



Eye Safety

SCIENCE SKILLS AND LAB SAFETY

Materials:

- goggles
- apron and GLOVES
- eye wash
- eye dropper
- water

Procedure:

1. Place an eye on the underside of the Petri dish and display for class using the projector.
2. Each group the eye plate for eye vision only of the Petri dish.
3. Explain that the proteins in egg whites are similar to those found in the protective layer of the eye.
4. Tell them that someone's eye has been damaged and has splashed with their eye. Call drops of water to the egg whites.
5. Ask students to make observations of what is happening to the egg whites.
6. Try adding water to cover the effects. Have students make observations.

What's Happening?

The proteins in the egg whites become cloudy when they are exposed to a denaturation of the proteins. This is an irreversible chemical reaction and students need to understand that a chemical reaction can cause damage to their eyes or skin if not used properly. Students must be made aware of the safety procedures involved like such as wearing goggles, gloves and aprons. Make sure they are aware of safety equipment: eye wash, gloves, apron, eye goggles, etc.

Discussion:

1. What happened to the "eye"?
2. The protective layer between the eye and the eye.
3. What type of safety equipment must be worn when doing lab?
4. Goggles, apron, hat, gloves.

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Discussion questions and teacher set-up included!

Teacher guide and answer key offered for every lab!

Easy-to-get materials!



Measure with SI Units

SCIENCE SKILLS AND LAB SAFETY

Materials:

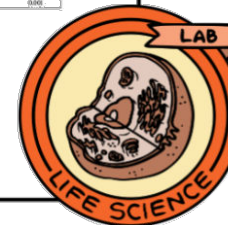
- standard system of measurement used by scientists around the world is known as the International System of Units, which is abbreviated as SI. It is very easy to use because they use the same system of measurement.
- The SI system is based on the metric system.
- The SI system is based on the metric system.
- The SI system is based on the metric system.

Prefix	Symbol	Amount
kilo-	k	1,000
hecto-	h	100
deka-	da	10
deci-	d	0.1
centi-	c	0.01
milli-	m	0.001

Materials:

- standard system of measurement used by scientists around the world is known as the International System of Units, which is abbreviated as SI. It is very easy to use because they use the same system of measurement.
- The SI system is based on the metric system.
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Drip, Drop, Splat!

How does the density of a liquid and drop height affect the shape of droplet splatters?

Materials:

- colored water (graduated cylinder A)
- colored syrup (graduated cylinder B)
- eye dropper
- paper
- metric ruler
- meter stick

Procedure:

1. Make a hypothesis of how density of a liquid will affect splatter size on your lab sheet.
2. Place the piece of paper down on the lab table in order to catch splatters.
3. Measure the heights listed in the data table using a meter stick. Place meter stick with end starting at zero on paper and move up stick when increasing height of drop.
4. Use the eye dropper to drop ONE drop of colored water and ONE drop of colored syrup. Make sure to drop on different places on paper.
5. Measure the size of the splatter in MILLIMETERS. Record in data table on answer sheet.
6. Repeat for each height.
7. Use the collected data to graph the splatter size versus drop height for each liquid.

Analyze and Conclude

1. Was your hypothesis correct? Explain.
2. What are two controls in your experiment that helped you collect the most accurate data possible?

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USER-FRIENDLY PAGES:
Students easily recognize which answer sheet to use at each station by matching station icons located on each page!!

Investigation Station

Name _____ Date _____

Hypothesis

Drop Height (cm)

Drop Height (cm)	Water (mm)	Syrup (mm)
3		
25		
50		
75		
100		

Height of Drop vs. Splatter Size

Height of Drop (cm)

Size of Splatter (mm)

Legend:

- Water
- Syrup

Analyze and Conclude:

1. _____
2. _____

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TEACHERS SAVE TIME:
Laminate station pages and reuse for each class and for years to follow!
Inquiry skills used are timeless!

Instructional Videos

Natural Resources Instructional Videos and Digital Assessments are designed to help teachers move instruction from the group learning space to the individual learning space. Not only does this give students independence in their learning, but it also allows more time for dynamic and interactive learning when teachers meet with students in a group setting.

This resource is perfect for:

- Flipped Classroom
- Absent students
- 1:1 Classrooms
- Sub Plans
- Hybrid Schedules
- Teachers who want more time to guide students as they apply concepts and engage creatively in the subject matter

Features of this resource include:

- Instructional videos which are six minutes or less to keep students focus
- Videos and assessments can be completed independently
- Auto grading and reporting in Google Forms
- Share link with students through educational platforms or email
- Quizzes are editable with 5 – 8 questions per quiz
- Information in video pairs with NGS Magnified Interactive Notebooks

Task Cards & Digital Task Cards

Task cards are a great tool for concept review that can be used in a variety of ways – pairs, small groups, team games, or individually. The reason they are so effective is there is only ONE task per card, allowing students to focus on that single task until they have successfully completed it. Answers sheet and answer key for teachers are included.

The digital, self-checking task cards are hosted at Boom Learning™ and are compatible with Google Classroom. These are perfect for displaying on your interactive whiteboard and leading class games or review sessions.

Print Task Cards

DECIDE 1
Fossil fuels are energy rich because they contain _____.
a. rare metals c. electricity
b. metamorphic d. hydrocarbons

LIST 2
List three renewable energy resources.

DECIDE 3
Substances that provide energy as a result of chemical change are called _____.
a. Fossils c. Fuels

IDENTIFY 4
Identify three inexhaustible energy resources.

DECIDE 5
The most plentiful fossil fuel in the United States is _____.
a. coal c. oil
b. natural gas d. wood

DECIDE 6
_____ is the fossil fuel that produces the lowest levels of most air pollutants.
a. Coal c. Oil
b. Wood d. Natural gas

EXPLAIN 7
Explain how water is used to make energy.

COMPLETE 8
The splitting of an atom's nucleus into two smaller nuclei is called _____.
a. fission c. fusion
b. nuclear fission d. nuclear fusion

COMPLETE 9
Land that is set aside to protect it from environmental problems is called _____.
a. a national park c. a biosphere reserve
b. a national monument d. a national historic site

Digital Task Cards

Natural Resources 1
The heat from the Earth's interior that warms the magma is ____ energy.

Natural Resources 2
Which of the following are examples of inexhaustible energy resources?
a. coal c. oil
b. natural gas d. wood

Natural Resources 3
Which of these converts light from the sun into thermal energy and distributes the heat using pumps and fans?
a. a solar cell
b. an active solar system
c. a solar plant
d. a passive solar system

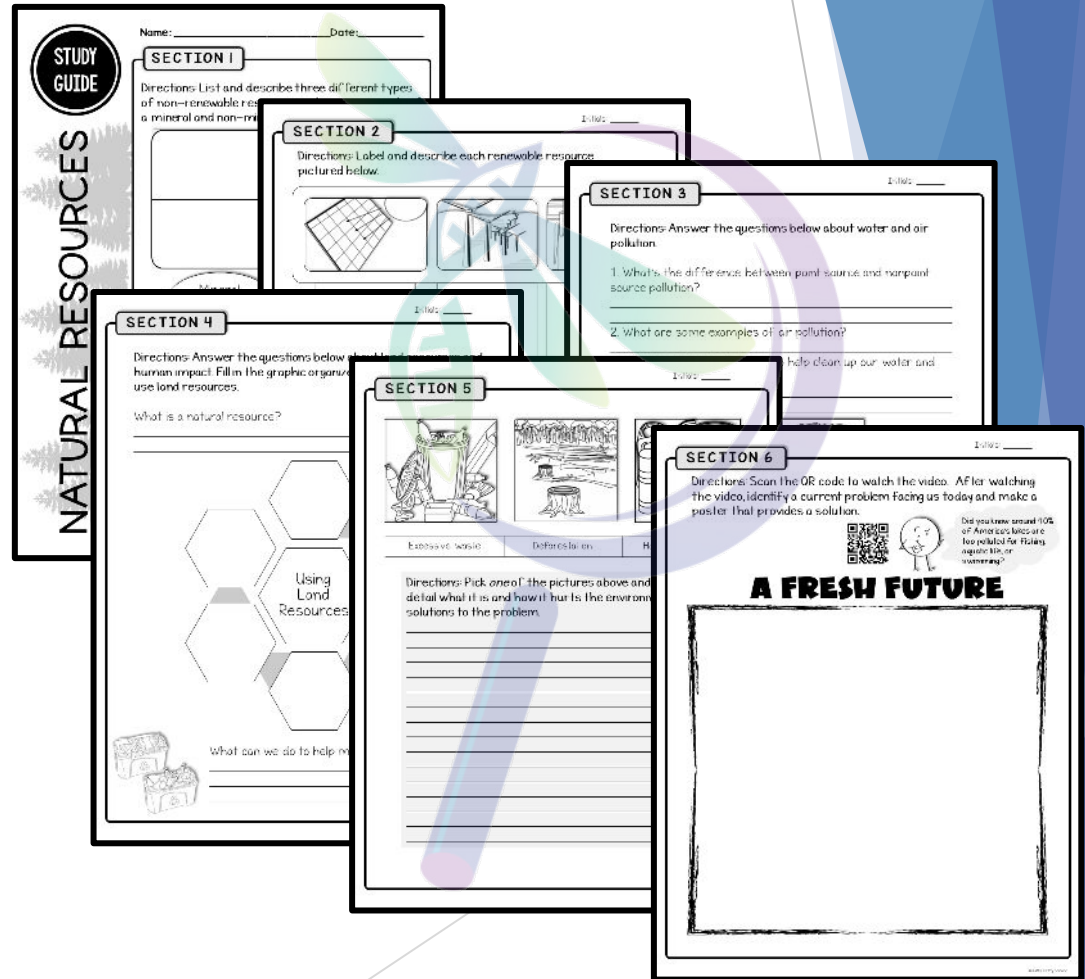
Natural Resources 4
Which of these converts light from the sun into thermal energy and distributes the heat using pumps and fans?
a. a solar cell
b. an active solar system
c. a solar plant
d. a passive solar system

Study Guides: Includes **print** or **digital** options

Nitty Gritty Science Study Guides are directly aligned to the notes and assessments offered by Nitty Gritty Science and include a variety of review strategies which meet the needs of your learners for independent study and indirect instruction.

Each study guide provides a combination of strategies which may include:

- Graphic organizers
- Vocabulary building
- Compare and contrast
- Problem solving
- Concept mapping
- Interpreting data
- Critical thinking
- Theme connection
- Matching
- Fill-in-the-blank
- Short answer
- Real world application
- QR videos with accompanying questions



Assessments:

Teachers can use a variety of assessments to evaluate student progress throughout the unit. The curriculum provides mini-quizzes for each Interactive Notebook chapter and an online assessments that goes with the instructional videos. The chapter test includes multiple choice, short answer, interpreting diagrams, and an essay.

Name _____ Date _____

Quas Energy & Mineral Resources (Non- renewables)

Matching

____ 1. fossil fuels ____ 2. coal ____ 3. oil ____ 4. non-renewable ____ 5. natural gas ____ 6. nuclear energy ____ 7. mineral resources ____ 8. non-metallic minerals	a. hydrocarbon molecule b. most common mineral c. deposits in extract d. formed from were buried e. fossil fuel f. one material produced from sources are replace the
---	--

Name _____

Quas Energy & Mineral Resources (Non- renewables)

Matching

____ 1. fossil fuels ____ 2. coal ____ 3. oil ____ 4. non-renewable ____ 5. natural gas ____ 6. nuclear energy ____ 7. mineral resources ____ 8. non-metallic minerals	a. hydrocarbon molecule b. most common mineral c. deposits in extract d. formed from were buried e. fossil fuel f. one material produced from sources are replace the
---	--

The image displays three overlapping copies of a chapter test document. The topmost page features a prominent red-bordered box containing the text: "EDITABLE CHAPTER TEST INCLUDES MULTIPLE CHOICE, FILL IN THE BLANK, INTERPRETING DIAGRAMS, & SHORT ANSWERS QUESTIONS". Below this, the test questions are visible, though some are blurred. The bottom-most page also contains a red-bordered box with the text: "ANSWER KEY INCLUDED — IMAGES ARE BLURRED FOR COPYRIGHT REASONS". The background of the entire image is a light blue grid pattern.

Terms of Use:



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

