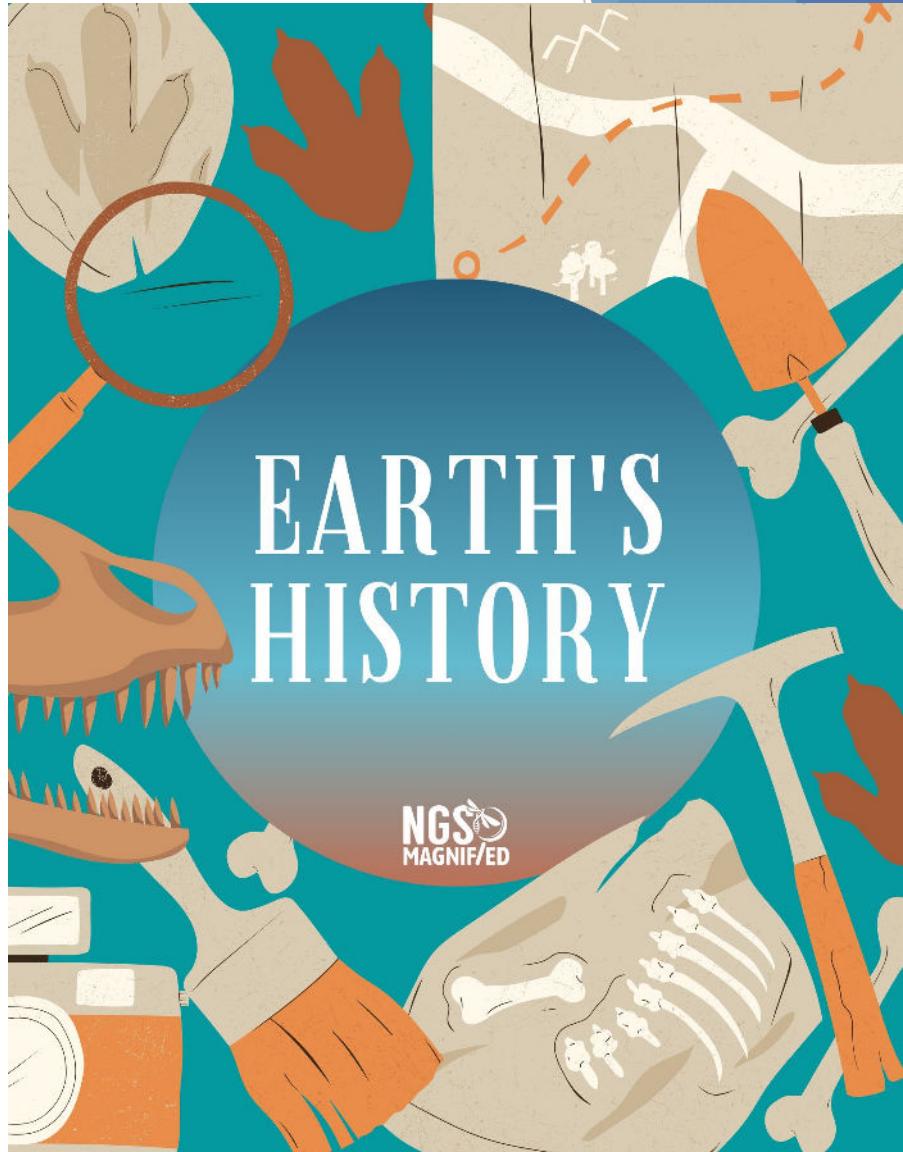




Earth's History

Earth's History 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	x				
	• Section 1 Notes – INB input		x			
	• INB Activity – INB output (homework if not completed in class)			x		
2	• Mini-quiz					x
	• Section 2 Notes – use PowerPoint	x				
	• INB Activity		x			
3	• Mini-quiz					x
4	• Guided Inquiry Lab – Student Led		x			
	• Section 3 Notes – use PowerPoint	x				
	• INB Activity		x			
5	• Mini-quiz					x
	• Section 4 Notes – use PowerPoint	x				
	• INB Activity		x			
6	• Mini quiz					x
7	• Science Stations			x		
	• Science Stations			x		
	• Final draft and testing for Creation Station (STEM)			x	x	
9	• Task Card Review (game-style, full class, partner)			x		
	• 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.

Topic 1: Content: A Trip Through Earth's Past

Lesson 1: Geology

Section 1: Determining Age of Rocks

Description:

Students will understand the geologists using index fossils to determine the age of layers of rock. They will be given 'sites' of excavation and will need to use the key and layers of rock to help them answer the questions.

Student printable's offered along with an answer key and mini-quiz.

Input:

Geologists use index fossils to determine the age of rock layers. If you find a fossil in a rock layer that was unrecorded on an index fossil list, then you can use the fossil to determine the age of the rock layer.

Output:

Geologists use index fossils to determine the age of rock layers. If you find a fossil in a rock layer that was unrecorded on an index fossil list, then you can use the fossil to determine the age of the rock layer.

Teacher Notes:

Geologists use index fossils to determine the age of rock layers. If you find a fossil in a rock layer that was unrecorded on an index fossil list, then you can use the fossil to determine the age of the rock layer.

Section 2: Determining Age of Rocks

Description:

Students will understand the geologists using index fossils to determine the age of layers of rock. They will be given 'sites' of excavation and will need to use the key and layers of rock to help them answer the questions.

Student printable's offered along with an answer key and mini-quiz.

Input:

Geologists use index fossils to determine the age of rock layers. If you find a fossil in a rock layer that was unrecorded on an index fossil list, then you can use the fossil to determine the age of the rock layer.

Output:

Geologists use index fossils to determine the age of rock layers. If you find a fossil in a rock layer that was unrecorded on an index fossil list, then you can use the fossil to determine the age of the rock layer.

Teacher Notes:

Geologists use index fossils to determine the age of rock layers. If you find a fossil in a rock layer that was unrecorded on an index fossil list, then you can use the fossil to determine the age of the rock layer.

Section 3: Index Fossils

Description:

Students will understand the geologists using index fossils to determine the age of layers of rock. They will be given 'sites' of excavation and will need to use the key and layers of rock to help them answer the questions.

Student printable's offered along with an answer key and mini-quiz.

Input:

Geologists use index fossils to determine the age of rock layers. If you find a fossil in a rock layer that was unrecorded on an index fossil list, then you can use the fossil to determine the age of the rock layer.

Output:

Geologists use index fossils to determine the age of rock layers. If you find a fossil in a rock layer that was unrecorded on an index fossil list, then you can use the fossil to determine the age of the rock layer.

Teacher Notes:

Geologists use index fossils to determine the age of rock layers. If you find a fossil in a rock layer that was unrecorded on an index fossil list, then you can use the fossil to determine the age of the rock layer.

Section 4: Earth's Eras

Description:

The final activity for this chapter is helping students break down the different eras and periods of the Proterozoic Era. Students will also enjoy adding cutouts to their fossilized time line to represent the Age of Fishes, Age of Reptiles and Age of Mammals.

Student printables, student cut-outs (color and black and white), a teacher answer key and a mini-quiz are included for this concept.

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.



FOSSILS

Trace Fossil	Petrified Fossil

Mold	Preserved Remains

Cast	Carbon Films

FOSSILS

Fossils -	
Mold	
Cast	
Petrified fossil	
Carbon film	
Trace fossil	

Some processes preserve the remains of organisms with little or no change such as those organisms that become trapped in ice, oil or amber.

Paleontologist -

Information gathered by paleontologists is called the _____, which provides evidence of:

-
-
-

The fossil record provides evidence to support the theory of _____.

Evolution -

Scientific theory -

Extinct -

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

Hyperlinked tabs so student can easily move through chapter for review

Students watch video < 6 min to complete notes.



For further exploration, click button(s) below:



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.

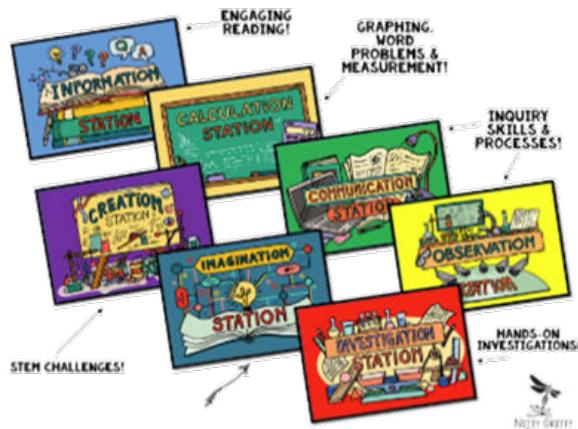
Demos, labs, & Science Stations

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

Demo, Labs, and Science Stations Includes:

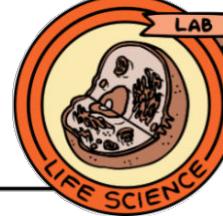
1. **SCIENCE STATION SIGNAGE** for all 7 stations is provided in color and in black and white (see preview) and all student answer sheets have icons that correspond with each station for ease of use.
2. **DEMONSTRATION** (teacher-led) allows teachers to invite scientific discussions and can help uncover 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



Teacher guide and answer key offered for every lab!

Easy-to-get materials!

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

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

Instructional Videos

Earth's History 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

Print Task Cards

21. DECIDE: On the geological time scale, eras are divided into _____.
a. ages c. indexes
b. periods d. seconds

22. COMPLETE: Explain why only the hard organisms leave fossils.

23. EXPLAIN: Explain what two criteria are needed.

24. DECIDE: The ____ were the first vertebrates.
a. snakes c. sharks
b. worms d. jawless fishes

25. COMPLETE: During the Permian Period, continents moved together to form a great landmass, or supercontinent called _____.
The era before the Mesozoic Era is the _____.
Identify the four major subdivisions of the geological time scale.

26. DESCRIBE: Describe how Earth's climate changed in the Quaternary Period.

27. EXPLAIN: Explain why there are very few fossils from the Precambrian time.

28. EXPLAIN: The Law of _____ states that the oldest layer of rock is on the bottom and each layer is older than it.

29. EXPLAIN: Identify the four major subdivisions of the geological time scale.

30. EXPLAIN: Explain why there are very few fossils from the Precambrian time.

31. DECIDE: The _____.
a. Quaternary c. Permian
b. Triassic d. Carboniferous

32. EXPLAIN: Explain why there are very few fossils from the Precambrian time.

33. DECIDE: The _____.
a. Quaternary c. Permian
b. Triassic d. Carboniferous

34. EXPLAIN: Explain why there are very few fossils from the Precambrian time.

35. COMPLETE: The era before the Mesozoic Era is the _____.
Identify the four major subdivisions of the geological time scale.

36. IDENTIFY: The _____.
a. Quaternary c. Permian
b. Triassic d. Carboniferous

Digital Task Cards

Digital Task Cards

21. A Trip Through Earth's History
Identify the four major subdivisions of the geological time scale.

22. A Trip Through Earth's History
The Law of _____ states that the oldest layer of rock is on the bottom and each layer is older than it.

23. A Trip Through Earth's History
Which of the following could contribute to a mass-extinction event?
a. a very humid summer
b. earthquake
c. volcanic eruption
d. cyclone

Study Guides: Includes print or digital options

NGS Magnified Study Guides are directly aligned to the notes and assessments offered by NGS Magnified and include a variety of review strategies that 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

STUDY GUIDE

DOUGH PAST

SECTION 1
Directions: Explain how Fossils picture below.
1. 
2. 
3. 

SECTION 2
Directions: Read each sentence and then label each statement that is True with a T and False with an F.
1. A paleontologist someone who studies fossils.
2. A fossil forms when living things die.
3. The term petrified means to turn into stone.
4. The structure of plants, preserved and found in a fossil.
5. A footprint is an example of a fossil.
6. If any animal is extinct, it can't be found.
7. A scientific theory is a concept that explains how something works.

SECTION 3
Dr. Bob is a geologist a scientist who studies all things related to the earth. Use the word bank below to help determine the age of rocks.
index fossils relative age law of superposition
inclusions absolute age unconformities
uncertain radioactive decay half-life

SECTION 4
Directions: Using the diagram for reference, fill out the table about the Earth's eras below.

Geological Time Scale	Period
Precambrian	Archean
Precambrian	Proterozoic
Precambrian	Mesozoic
Precambrian	Cenozoic

SECTION 5
Directions: Define each time period and list the major events of each epoch of early Earth.

Geological Time Scale	Period	Epoch
Precambrian	Archean	Eon
Precambrian	Proterozoic	Era
Precambrian	Mesozoic	Period
Precambrian	Cenozoic	Era

SECTION 6
Directions: Scan the QR code to watch the video. After watching the video, describe the job of a paleontologist, including the materials they use, what kinds of things they've found and what you've learned as a result of these findings.

DIGGING IN

QR code

Do you know the name of the scientist that made the first fossil?

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.

<p>Name _____</p> <p>Quiz: Determining Age of Rocks</p> <p>Matching</p> <p>1. relative age 2. absolute age 3. law of superposition 4. extrusions 5. intrusions 6. index Fossils 7. unconformity 8. radioactive dating</p>	<p>Date _____</p>
<p>1. relative age a. gap in geological time have been lost</p> <p>2. absolute age b. rock age concepts</p> <p>3. law of superposition c. method used to date rock by deformed sedimentary layers</p> <p>4. extrusions d. variety distribution organisms that are found in different layers of rock</p> <p>5. intrusions e. oldest layer of rock</p> <p>6. index Fossils f. number of years old magnet rocks on the surface</p> <p>7. unconformity g. law that orders layers of rock from oldest to youngest</p> <p>8. radioactive dating h. law that numbers layers of rock from youngest to oldest</p>	<p>ANSWER KEY INCLUDED — IMAGES ARE BLURRED FOR COPYRIGHT REASONS</p> <p>EDITABLE CHAPTER TEST INCLUDES MULTIPLE CHOICE, FILL IN THE BLANK, INTERPRETING DIAGRAMS, & SHORT ANSWERS QUESTIONS</p> <p>Chapter Test Chapter 10-12 Multiple Choice</p> <p>Choose the answer that best completes each statement.</p> <p>1. The theory that reflects the data that there is a discontinuity of species over time is the _____.</p> <ol style="list-style-type: none"> early life diversity continents evolution erosion <p>2. Below are the facts and concepts about biology. _____</p> <ol style="list-style-type: none"> biomes biomes biomes biomes <p>3. Long time ago, _____.</p> <ol style="list-style-type: none"> All living things made many living things. interactions drive adapt <p>4. The part of biology concerned with the study of living things is the _____.</p> <ol style="list-style-type: none"> environment ecology drive adapt <p>5. All of the following are characteristics of living things except _____.</p> <ol style="list-style-type: none"> growth movement reproduction death <p>6. Key to the study of biology is learning about the _____.</p> <ol style="list-style-type: none"> the environment the environment the environment all of the above <p>7. The information gathered from experiments is called the _____.</p> <ol style="list-style-type: none"> data measurements variables conclusions <p>8. A group of all the structures in a cell that carry out a specific function is called a _____.</p> <ol style="list-style-type: none"> organism cell system cellular system <p>9. Living things are _____.</p> <ol style="list-style-type: none"> interdependent dependent independent separable <p>10. The three common ways to solve math problems are called _____.</p> <ol style="list-style-type: none"> pure science applied science experimental science quantitative science <p>11. Qualitative research is used to _____.</p> <ol style="list-style-type: none"> graph or chart description of behavior quantitative data all of the above <p>12. What is the first thing a scientist does when conducting research?</p> <ol style="list-style-type: none"> Identify your teacher Identify your hypothesis Identify your variables Identify your instruments <p>13. How are or more of these terms used in science?</p> <ol style="list-style-type: none"> describing observing classifying classifying <p>14. _____ is the study of life.</p> <ol style="list-style-type: none"> biology physics chemistry mathematics <p>15. When classifying, put things into categories or group together. Items that are alike in some ways are _____.</p> <ol style="list-style-type: none"> similar different disjointed nothing <p>16. If a teacher breaks the first rule they are to do in science, what should the teacher do?</p> <ol style="list-style-type: none"> clean up the lab call the parents call the principal call the police <p>17. _____ is a _____.</p> <p>18. _____ is used to make small details of a diagram visible to a scientist.</p> <p>19. _____ is _____ used to possible dangers and identify safety equipment you should use.</p> <p>20. The smallest functional unit of life is the _____.</p> <p>21. The study of life is called _____.</p> <p>70 on-the-Block _____</p> <p>Complete each sentence with the correct vocabulary term.</p> <p>22. Counts or measurements are examples of data gathered by _____ research.</p> <p>23. _____ is _____ used to make small details of a diagram visible to a scientist.</p> <p>24. _____ is _____ used to possible dangers and identify safety equipment you should use.</p> <p>25. The smallest functional unit of life is the _____.</p>

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