

5E Lesson Plan

Presentation link: [ES3301 Life Science](#)

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Science / grade level: 5

Topic: How can fossils help us learn about life and environments in the past?

TEKS:

- <https://tea.texas.gov/index2.aspx?id=6148>
- Must connect to lesson objectives

RULE §112.16 Science, Grade 5, Adopted 2017

(9) Organisms and environments. The student knows that there are relationships, systems, and cycles within environments. The student is expected to:

(D) identify fossils as evidence of past living organisms and the nature of the environments at the time using models.

Lesson objective(s):

Learning Objectives (for Cognitive Domain)

Objectives:

SWBT 1: Identify what a fossil is.

SWBT 2: make connections between fossils and the environments that they would have lived in (ex. fish like animals live in the water)

SWBT 3: predict why some fossils of animals have certain features (ex. fish have gills because they lived in the water)

- *Must be **observable** and **measurable** (Bloom's Taxonomy)*

<https://www.cloud.edu/Assets/pdfs/assessment/revise-blooms-chart.pdf>

- Can add other learning objectives for affective and/or psychomotor domains

English Language Proficiency Standards (ELPS)

ELPS - <http://ritter.tea.state.tx.us/rules/tac/chapter074/ch074a.html#74.4>

(2) Cross-curricular second language acquisition/listening.

- (E) use visual, contextual, and linguistic support to enhance and confirm understanding of increasingly complex and elaborated spoken language;

(3) Cross-curricular second language acquisition/speaking

- (D) speak using grade-level content area vocabulary in context to internalize new English words and build academic language proficiency;
- (G) express opinions, ideas, and feelings ranging from communicating single words and short phrases to participating in extended discussions on a variety of social and grade-appropriate academic topics;

(5) Cross-curricular second language acquisition/writing.

- (C) spell familiar English words with increasing accuracy, and employ English spelling patterns and rules with increasing accuracy as more English is acquired;

Technology Integration

Technology Applications - <http://ritter.tea.state.tx.us/rules/tac/chapter126/index.html>

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Safety Concerns

- Students will be making a Geologic Sandwich in an activity called “The peanut butter and gummy fossil sandwich” in which they create the differ layers of time by placing different ingredients (bread, gummy worms, gummy bears, ect.) into the sandwich to develop a timeline. Students should know that eating during a lab can be dangerous and that all of the ingredients though they are food are now considered lab materials. In order to ensure that students do not eat in future labs this should be communicated to the students at the beginning of the lecture.
- If any student is allergic to peanut butter then there will be an alternative like jelly or cream cheese.
- Students will also be instructed to not play, run, or do anything with the plastic knives that's not required of them, to prevent harm towards others or themselves.
- During the lesson there will be transitions between the activity, lecture, and lab. The materials for the exploration activity should be set out on the teachers table to ensure there is no loss of materials, accidents, or confusion.

ENGAGEMENT

For the engagement we'll be playing a video called “Science BrainPOP Jr Land Fossils” on Youtube and ask the students questions to check for understanding throughout the video. The video defines fossils and the process in which they form. After the video is played we will ask the student three questions regarding fossils to peek their interests into the lesson for the day.

- Video link:
[\(52\) Brainpop Jr Fossils - YouTube](#)
- YouTube video titled “Science BrainPOP Jr Land Fossils” (video stops at 3:15 minutes).
- Questions after the video-
 - Can you give an example of a fossil?
 - Can humans become fossils?
 - Are fossils only found on land?

EXPLORATION

For the exploration portion we (the teachers) will be doing a sedimentary rock and fossil experiment called “The peanut butter and gummy fossil sandwich” by using bread, peanut butter, and different shapes of gummies. First, we will instruct the students to sit patiently in their seats and watch us as we model how fossils are made and explain what they tell us about the past. Thus, we will get out some materials like a paper plate, plastic fork, gloves, a loaf of bread, peanut butter, and different shapes of gummies and tell the students that this is not to be eaten by anyone. We will start off by placing one slice of bread on a paper plate and state that this will represent the first layer of rock (foundation) on earth. Then, the teachers (us) will place a thin layer of peanut butter on the first slice of bread and say that this is the soil, sand, etc. and then place four gummies that are both gummy bears, swedish fish, and worms. This process will go on until there are four layers total so that they are not overwhelmed by the amount of layers. This would also eliminate the bread slices from falling off and apart after it is assembled. As we (the teachers) model how to complete this fossil visual we will be thinking aloud by saying phrases like “since this is the first bread slice and there are more being added we now know that it's the oldest and each layer gets newer as we add slices of bread.” After we are done modeling how their activity is supposed to go we will tell the students that there will be a

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simple step by step guided paper handed out to each student before they are randomly selected in pairs to follow if needed. The teachers will tell the students that the steps are simple and that we followed each step as we modeled how to complete the activity.

Steps for "The peanut butter and gummy fossil sandwich"

activity:

Step 1- Students will gather the materials they will need for the experiment from the table that's in the front of the classroom.

Step 2- Put on gloves

Step 3- Students will pick who will be student A and B

Step 4- Student A will take out the paper plate.

Step 5- Student A will place a paper plate on a desk.

Step 6- Student B will take out a slice of bread.

Step 7- Student B will place the bread on the paper plate.

Step 8- Student A will use the plastic knife to scoop some peanut butter out of a paper cup.

Step 9- Student A will place a thin layer of peanut butter on the first slice of bread.

Step 10- Students will select two gummy worms, two gummy bears, and two Swedish fish from their packets.

Step 11- Students will place all the gummies on the first slice of bread.

- Students will repeat steps 6-11 until there are four layers of bread in total. Each student will take turns in adding a new layer to the sandwich.

- Students will repeat steps 6-11 until there are four layers of bread in total. Each student will take turns in adding a new layer to the sandwich.
- If a student is allergic to peanut butter then it will be replaced with jelly or cream cheese.

Following the teacher's modeled activity, students will be randomly selected into pairs and will then be instructed to employ the step by step guided worksheet (if needed) to create the sandwich in the same way that the teacher created the sandwich. Each of the student pairs will have access to a guide that indicates the order of the layers of the sandwich in case they miss a step. Once the sandwiches are complete the students will then go through the different layers in order to determine which organisms came first.

Students will have a worksheet to fill out with several questions:

Name:

Date:

"Peanut butter and gummy fossil sandwich" activity

Directions: Write 1-2 sentences for each question. Each student MUST complete and submit their OWN worksheet even if they are in pairs. People in pairs can ONLY have the same answers word for word.

1. Which animals (gummies) are older?
2. Which animals (gummies) are younger?
3. What are the bread slices supposed to be?
4. Is there a pattern you see when the sandwich is complete?
5. What does the sandwich tell us about fossils?

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- Every student (both students that are put into pairs) is required to fill out and submit a worksheet. In pairs the worksheets can be the same word for word answers, but both students have to submit a completed worksheet.

EXPLANATION



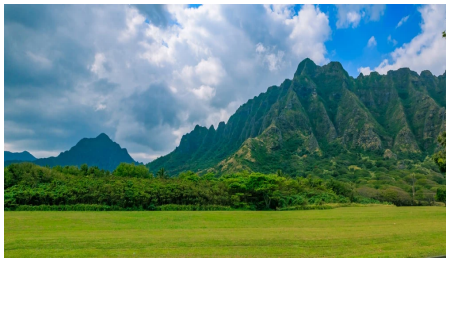
For the explanation aspect we (the teachers) will be doing a PowerPoint presentation on fossils and how they depict what the environment and organisms looked like in the past. Before we present we will hand out Powerpoint slide packets to the students to fill in the blanks for key vocabulary words. They will then be instructed to pay close attention to the slides so that they can fill in the blanks throughout the presentation. This will allow us (the teachers) to see if the students are focusing and paying attention to the presentation. During the presentation we will be connecting the activity called “The peanut butter and gummy fossil sandwich” from the exploration to the Powerpoint by stating how each layer had specific animals at a certain point in the past and how as an animal dies they don't just disappear. Rather, they leave evidence of when they were alive and how they lived. The presentation will include different environments and how animals in those specific areas lived, and looked.

ELABORATION

- Describe how students will develop a more sophisticated understanding of the concept.
- How is this knowledge applied in our daily lives?
- What activities/tasks will the students do in the classroom to reinforce/apply the new learning?
 - *Learning is applied to a new situation; use new vocabulary to explain concepts, etc.*

Students will be grouped by tables where they will be given 3 domains (land, water, and air) along with 3 different images of animal fossils (aquatic, terrestrial, and aerial) for students to determine in which domain they would spend most of their time in. Students will use the labeled features of the fossil to make the connection between animal and domain that they most likely inhabited. Students will be given a word-bank of features for them to include in their categorization so they are able to make connections between animals, features, and domains inhabited by animals.

Example:

Aerial (Sky)	Aquatic (Water)	Terrestrial (Land)
		



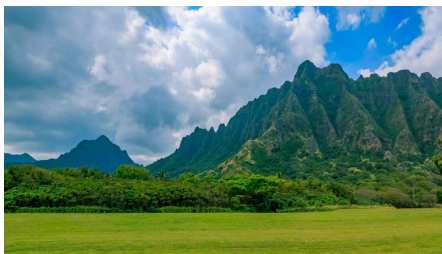



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<ul style="list-style-type: none"> - wings allow it to fly 	<ul style="list-style-type: none"> - gills allow for it to breathe - fins and tail to swim 	<ul style="list-style-type: none"> - arms allow for animal to walk across the land

EVALUATION

The students will be given an exit ticket that is similar to the assignment that they completed during the elaboration portion of the lesson. The exit ticket will have different animals with similar features that students will categorize based on their features. Students will need to include a couple of bullet points to explain why they chose to put the animal in that category.

Ex.

Aerial (Sky)	Aquatic (Water)	Terrestrial (Land)
		
		

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- wings allow it to fly	- gills allow for it to breathe - fins and tail to swim	- arms allow for animal to walk across the land
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Closure/Ending

The students will be instructed to take out their PowerPoint packet slides while the teachers turn the PowerPoint presentation on. The teachers will go over the correct terms for each fill in the blank and ask the students if they have any questions regarding today's lesson.

Modifications for Learners with Exceptionalities

- Students have preferential seating
- Allow for students to have extra time for quizzes
- Allow for students to have a quiet space to take the quiz
- Allow for students to demonstrate their understanding in a different form
- Include word bank for students when they are completing the powerpoint notes
- Provide students with instruction sheet
- Create lesson plan with additional time for students who may require it

Materials/Resources

- Loafs of bread
- Peanut butter (jelly or cream cheese as alternatives)
- Plastic Knives
- Paper plates
- Gloves
- Bag of gummy bears
- Bag of gummy worms
- Bag of Swedish fish
- Step by step worksheet
- Elaboration worksheet
- PowerPoint slide packets