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Taphonomy: Dead and Fossilized

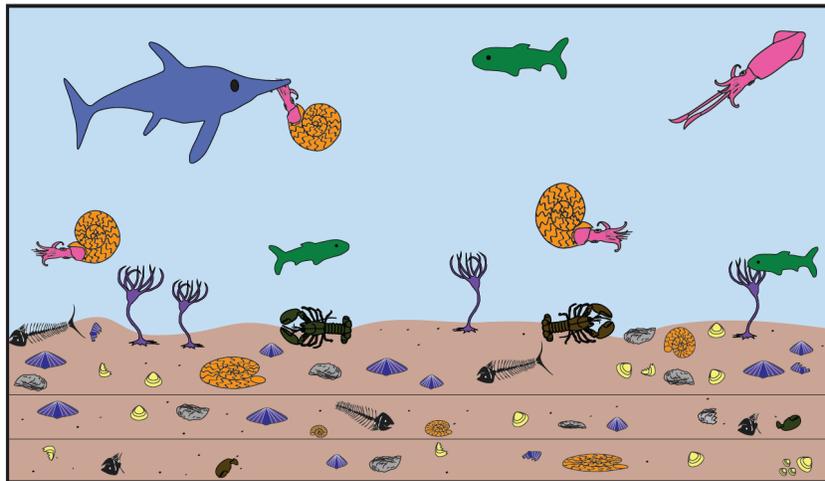
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Background: “Taphonomy: Dead and Fossilized” is a game that models the processes of fossilization, preservation of fossil specimens, and their collection. The objective of this lesson is to familiarize ourselves with the different aspects of the game. In this lesson, you will study and conceptualize the game cards, the game board, and the animals you will aim to turn into pristine fossils! As you learn about the game, you will be able to strategize and develop a game plan while also learning about preservation bias and studying the long-lasting effects of environmental interactions.

Directions: For this lesson, you will need one copy of “Taphonomy: Dead and Fossilized”. In groups of 4-6 people, separate the individual parts of the game (cards, tokens, game board) and use the game & rule book to complete the following three activities!

Taphonomy: Dead and Fossilized

An Educational Paleontology Board Game *High School Version*



For 2 to 8 players

*Designed by Rowan Martindale & Anna Weiss
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Activity 1: What makes a good fossil?

Instructions: Get to know your organisms! When it comes to fossilization, each organism has strengths and weaknesses. Some organisms are easily preserved and make great fossils; others fall apart easily. The points per fossil reflect these fossilization facts! It is your job as a player to understand how to best preserve your organisms. In the boxes below, classify the game organisms based on their descriptions in the rulebook (*pgs. 9-10*). Then, rank the organisms on the line at the top of the boxes.

More Likely to be Preserved as a Fossil

Less Likely to be Preserved as a Fossil



Disarticulates easily	Cannot be disarticulated
Soft Parts only	Has a skeleton or shell
Does not Remineralize	Part of the Organism Can be Remineralized
Cannot be dissolved by acidification	Acidification can Dissolve Part of the Organism

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Activity 2: Fossil Preservation vs. The Environment

Instructions: The Earth is always changing and managed by a set of complex interacting systems. Simply, everything is connected! For this activity, we will be looking at the cards in the game to understand how our fossils can be damaged or altogether destroyed! Grab the green and blue card decks and begin reading those cards! As you read, answer the following questions below:

- 1) What are 3 taphonomy (blue) cards you could play to improve your collection (protect your fossils and/or get more points)? Explain your strategy with these cards. (*Hint: You can find all the taphonomy cards in the rulebook, pg. 14-15*)

- 2) What are 3 taphonomy (blue) cards you can play to affect another player's collection? (Damage their fossils/lose points). Explain your strategy with these cards. (*See rulebook, pg. 14-15*)

- 3) Environmental Event cards (green) can make or break the game for you, as some of them have devastating effects for your fossils. Choose 2 Environmental Event cards and explain your strategy to prepare against them. (*Hint: Think about organism placement, characteristics, and taphonomy cards! See pg. 16-17 in the rulebook for all Environmental Event cards*)

- 4) Consider all the Environmental Effect cards (*pg. 16-17*). Each of these cards will have effects that last for millions of years...but how long do these events take to happen? Place each of these events on the timeline below, based on how long you think they take to happen.



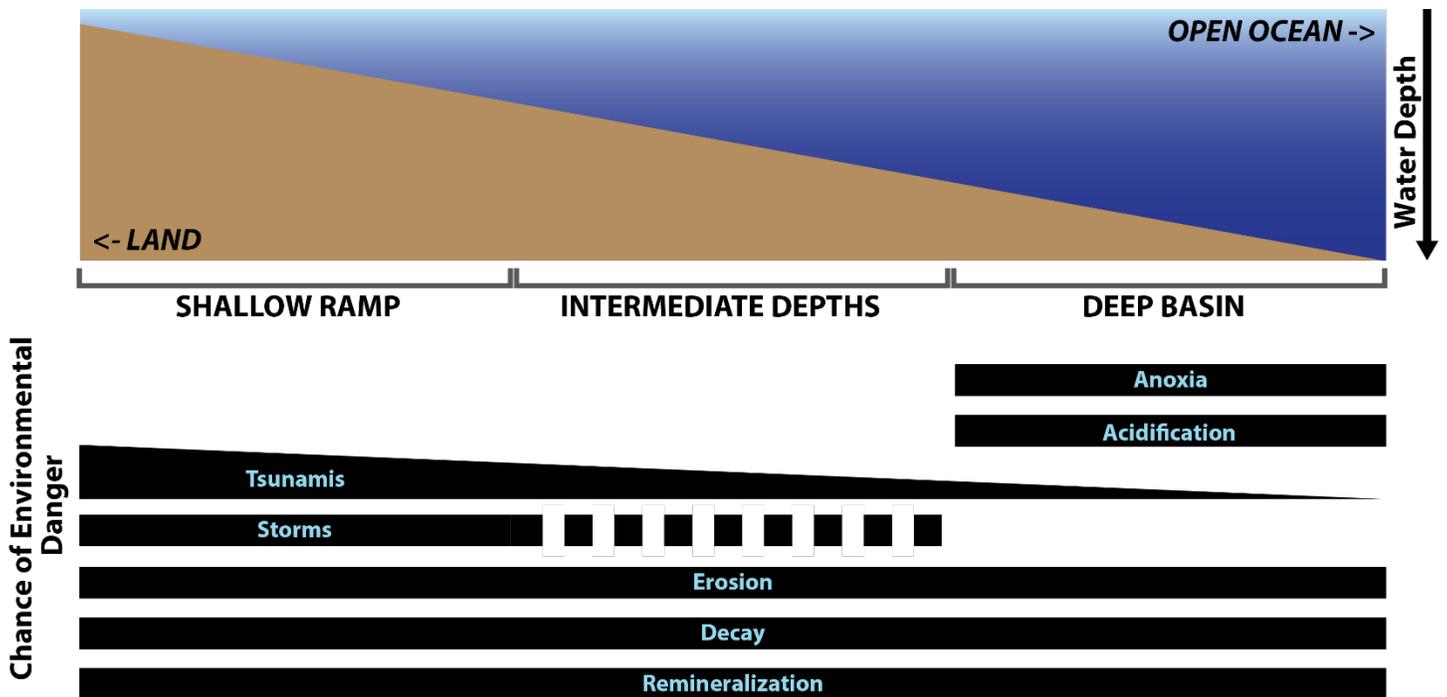
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Activity 3: Game-planning with the Game Board

Instructions: For this activity, take out the game board and reference *The Set Up* (pg. 3 in the rulebook) and the points system (pg. 20 in the rulebook). The gameboard simulates an ocean ramp, the zone with just enough sunlight for most marine life to live – and eventually die. Consider your 10 organisms at the start of the game from *The Set Up*; use everything you know to plan your organism placement for gameplay! Mark the figure below with the set-up you plan to use.



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Extension Activity – Contact a Paleontologist!

Geologic history is all around you! You may live in a fossil-rich area and may not even know it! For this activity, you will prepare an email that you could send to a local paleontologist and/or paleontology professor. In this email, you will come up with questions that you would ask the expert to plan and organize your own fossil-hunting trip. You can consider asking them about local rock units, tips for fossil collection in the field, and especially their own research and expertise!

On a separate sheet of paper, or using the space below, plan your email. For resources...

- 1) Begin with the Paleobiology Database Navigator, which has an interactive application to view fossils worldwide! These fossil discoveries are also reference the scientists who were involved in finding these fossils.
 - a. <https://paleobiodb.org/navigator/>
- 2) You can look up the geology or paleontology departments of your local college or university – they all have a staff directory with information about the expertise of the faculty.
- 3) Search for your local Geological Society for information on geologists, events, and local meetings
 - a. Full listing here: <https://geology.com/societies.htm>