

ROCKY SHORE ALGAE!

Topic

Algae, Plants

Duration

One session

Vocabulary

algae
blade
holdfast
leaf
photosynthesis
plant
root
stem
stipe
vascular system

STANDARDS

Practices

Analyzing and Interpreting
Data

Core Ideas

Variation of Traits

Crosscutting Concepts

Patterns

OCEAN LITERACY PRINCIPLES

OLP 5, OLP 6

FOCUS QUESTION

What is the difference between algae and plants?

OVERVIEW

Students recall the different types of rocky shore algae they have learned about in previous lessons. Students recall the different characteristics of algae at the rocky shore. Students examine photographs of algae and plants and identify the observable differences. Students discover the main differences between algae and plants. Students identify different types of rocky shore algae.

OBJECTIVES

Students will be able to:

- ★ Recall different types of rocky shore algae and their characteristics
- ★ Discover the difference between algae and plants
- ★ Identify different types of rocky shore algae

MATERIALS NEEDED

- ★ Algae or Plant? activity sheet for each student, if decided upon (page 175)
- ★ Algae! bingo activity sheets (pages 178–197)
- ★ A projector to display Algae or Plant? activity sheet, if decided upon
- ★ A whiteboard or SMART Board to record student feedback.

TEACHER PREPARATION

1. Make copies of Algae or Plant? activity sheet for each student, if decided upon.
2. Make one copy of Algae! bingo calling cards activity sheet and cut out calling cards (page 177).
3. Print out Algae! bingo board activity sheets for each student.
4. Have a projector available to display Algae or Plant? activity sheet, if decided upon.
5. Have a whiteboard or SMART Board available to record student feedback.





Teacher Tips

- ★ Display an Algae! bingo board activity sheet using a projector while playing the game to indicate the correct answer visually.
- ★ Have students write the correct name of each algae (or bacteria) on their Algae! bingo board activity sheet while playing the game.
- ★ Have students color each algae with the correct color while playing the Algae! bingo game.



Extension Suggestions

- ★ Take a nature walk and have students record the plants they observe using cameras or by drawing diagrams. When they return to the classroom, have students do research on at least three of their plants to learn about what they are, their special characteristics, and if they are actually plants or not.
- ★ Have students create a Venn Diagram on plants and algae.

BACKGROUND

Plants produce their own food using nutrients in the soil and sunlight by photosynthesis. Plants are multicellular. Plants have roots, stems and leaves. A plant's roots hold the plant in place. Most plants are immobile. A plant has a vascular system which allows for the uptake and transport of water and nutrients. Plants are mostly terrestrial.

Algae produce food with sunlight by photosynthesis and by absorbing nutrients from the water. Algae can be unicellular or multicellular. Many algae have holdfasts, stipes and blades (or fronds). Holdfasts are root-like organs that attach to substrates but do not absorb anything. Some algae are free-floating. Algae absorb nutrients directly from the water through surface tissues. Algae are mostly aquatic.

PROCEDURE

Part One

1. Ask students to recall as many types of algae and bacteria they have learned about from previous lessons. Record their answers on a whiteboard or SMART Board.
2. Review each algae and ask students to recall their characteristics. Record their answers. Remind students of the names of each algae reviewed in class and their characteristics if necessary.
3. Either display the Algae or Plant? activity sheet using a projector, or hand out a copy of the Algae or Plant? activity sheet to each student.
4. Have students examine each plant or algae one-by-one, and have them briefly discuss in partners whether they think it is a plant or algae, and why.
5. Have students share their inferences.
6. Explain to students whether they are correct or not, and why.

Part Two

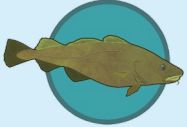
7. Inform students that they are going to be playing an algae bingo game.
8. Show students one of the Algae! bingo board activity sheets. Ask students to identify each algae before playing the game.
9. Pass out Algae! bingo board activity sheets to each student.
10. Have students circle the free space in the middle of their bingo board activity sheets.
11. Place the Algae! bingo calling cards in a hat or container and pick out one at a time, explaining to students to circle the correct algae called.





Books

- ★ *An Ocean Garden* by Josie Iselin
- ★ *Seaweeds* by David Thomas



Websites

- ★ Check out a video about rocky shore seaweed titled “OceanRunnerNH: Getting the Scoop on Seaweed,” on the Seacoast Science Center’s YouTube Channel.
- ★ Watch a BrainPOP video on algae and take the quiz! (Subscription required.)
- ★ Watch a slideshow created by The Children’s University of Manchester titled “What are Algae?” on The Children’s University of Manchester website under the science and micro-organisms tabs.



Scientist Notebook

- ★ Students can record the definition of algae. Students can write the differences of plants and algae.

PROCEDURE (CONTINUED)

12. Once a student or students has circled three-in-a-row they are to shout, “Algae!”
13. Play the game at least a few times so that each algae is “called” multiple times.

WRAP-UP

- ★ Ask students to identify the term “algae.”
- ★ Ask students to recall the differences between algae and plants.
- ★ Ask students to recall the main types of algae found at the rocky shore.

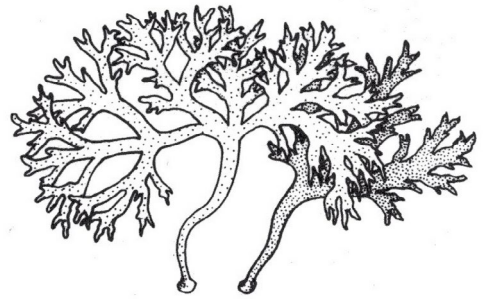


ALGAE OR PLANT?

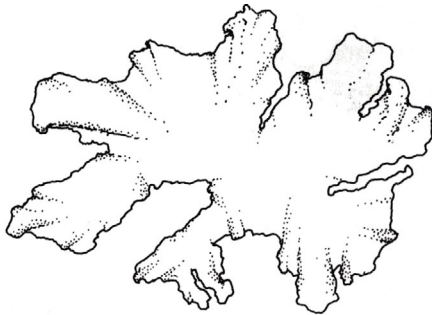
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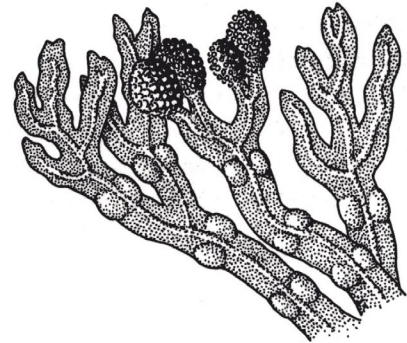
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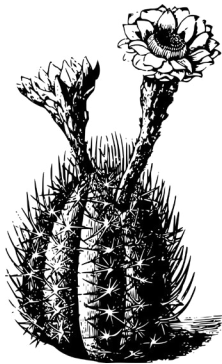
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5



6



7



8



ALGAE OR PLANT?

Answer Key

1. plant
2. algae
3. algae
4. algae
5. plant
6. plant
7. algae
8. plant



ALGAE! CALLING CARDS

Cyanobacteria

Irish Moss

Knotted Wrack

Rockweed

Horsetail Kelp

Shotgun Kelp

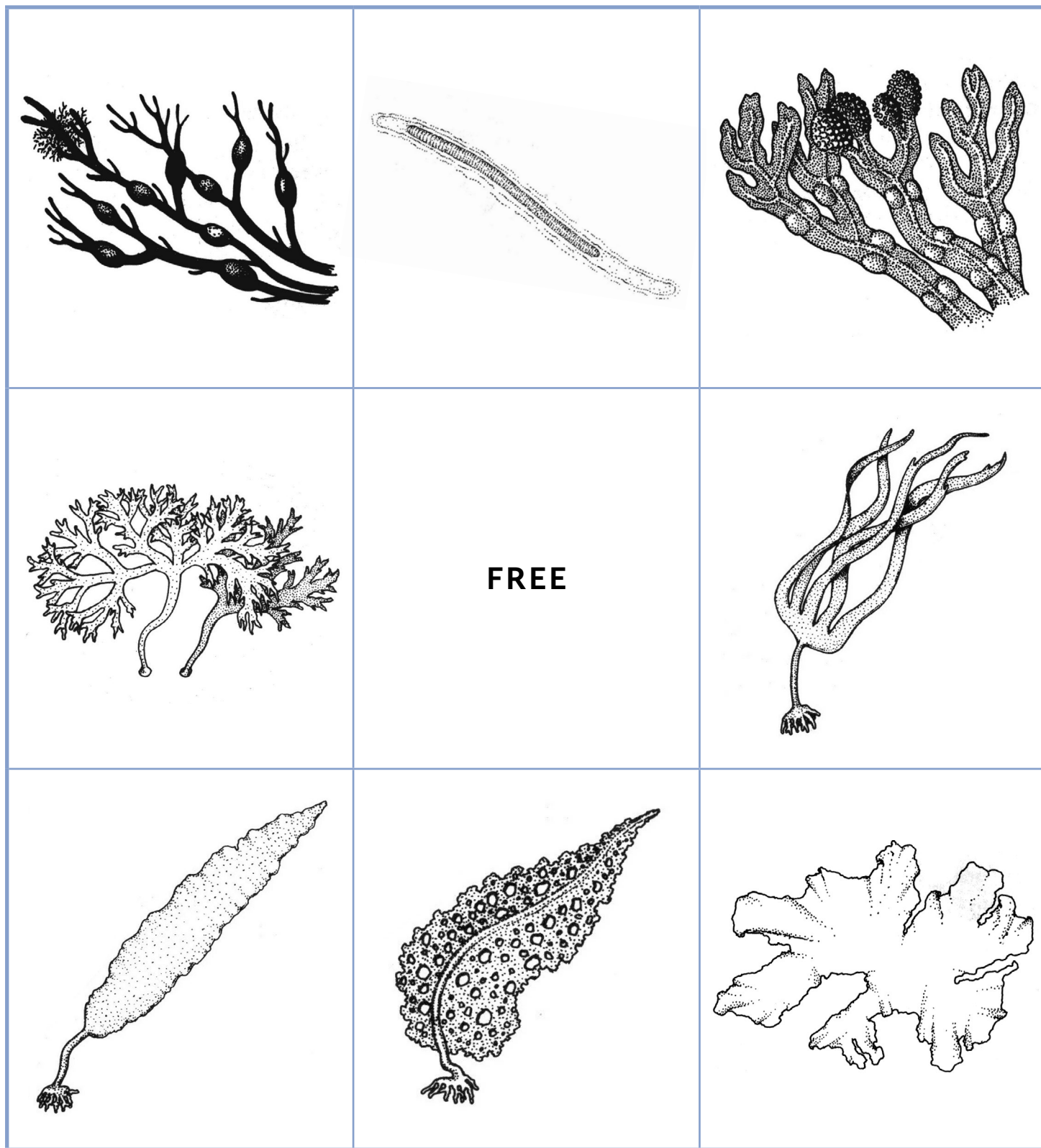
Sugar Kelp

Sea Lettuce



ALGAE!

Game Board



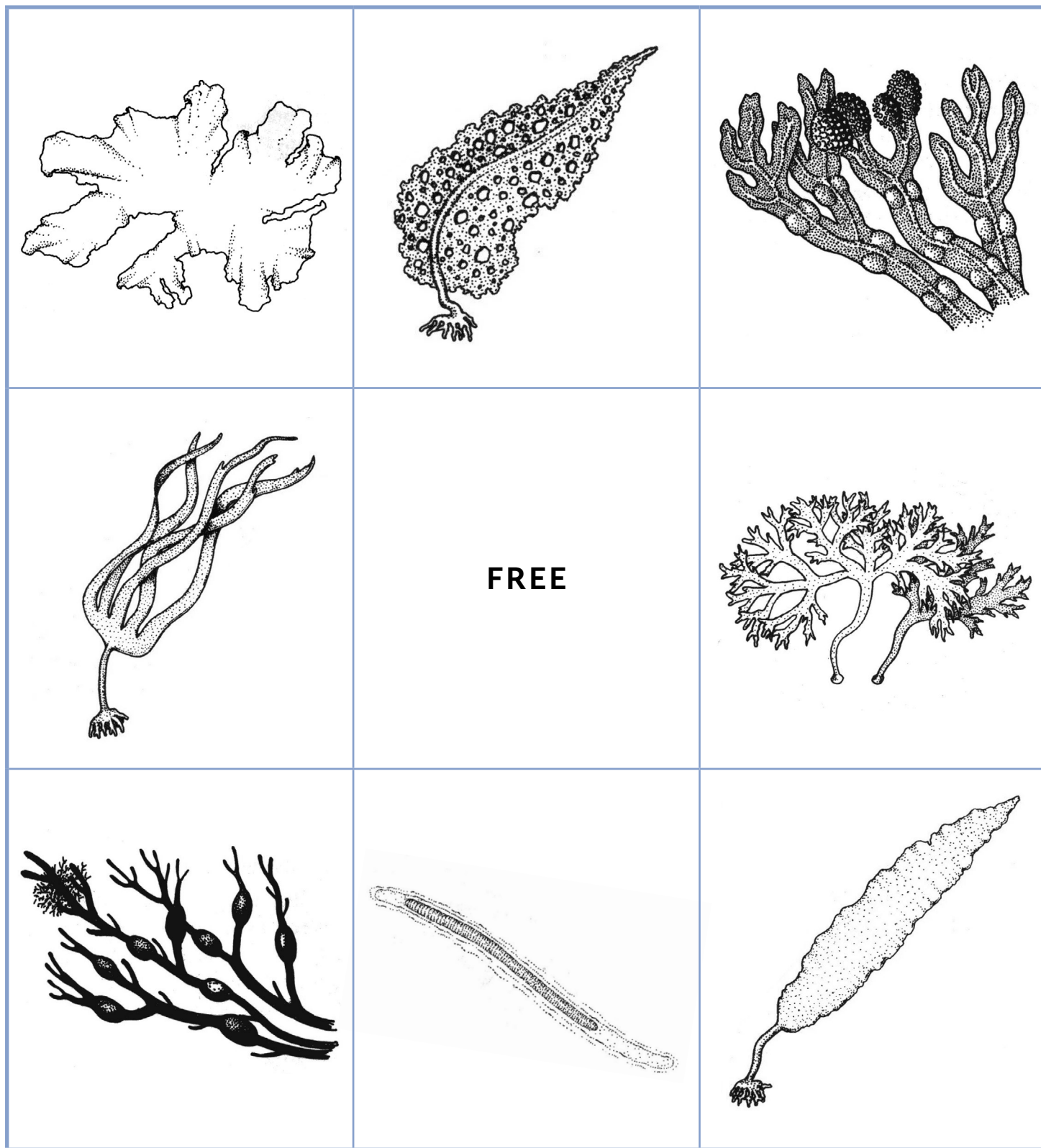
ALGAE!

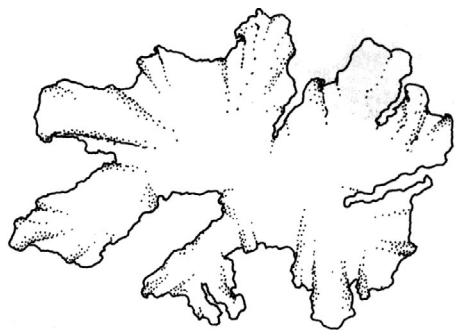
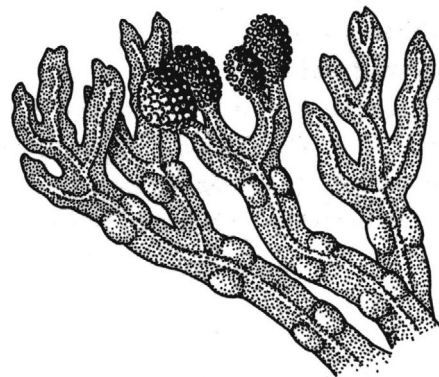
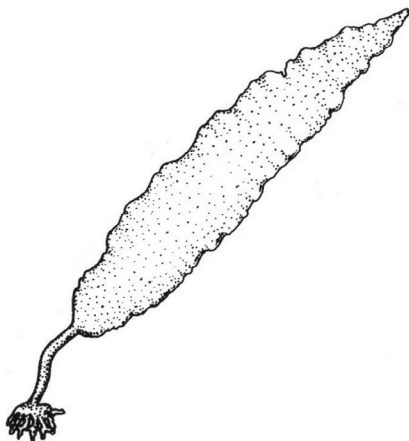
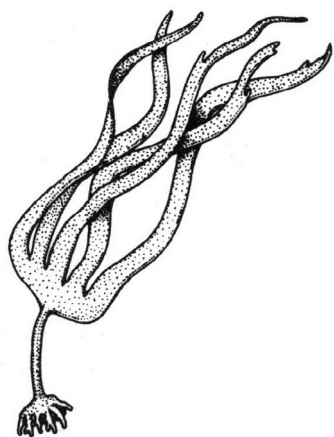
Game Board



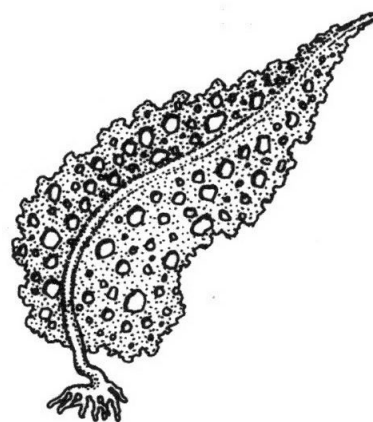
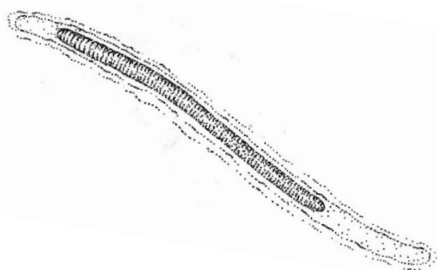
ALGAE!

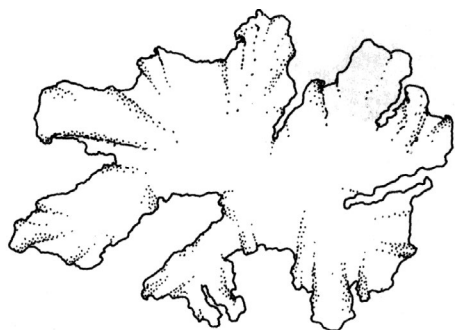
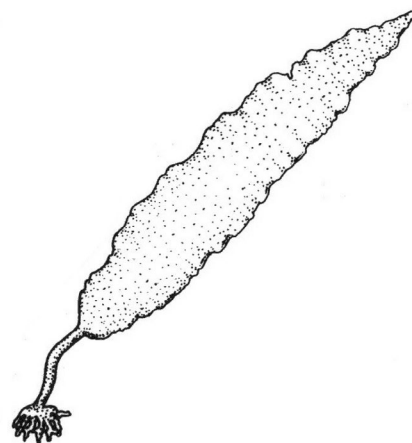
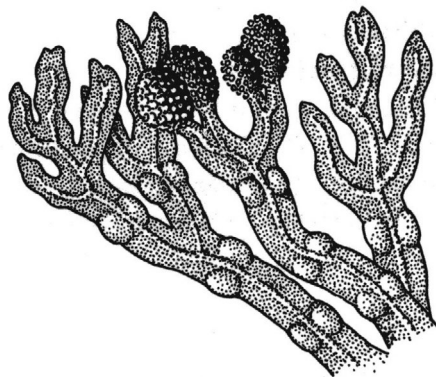
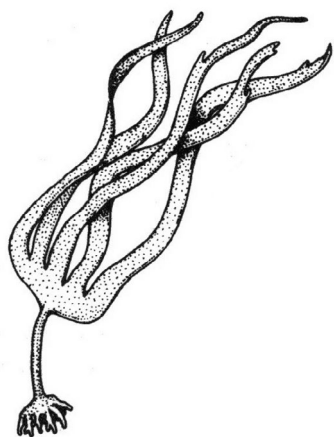
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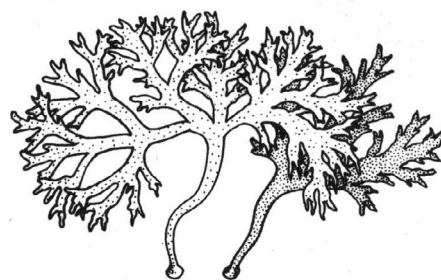
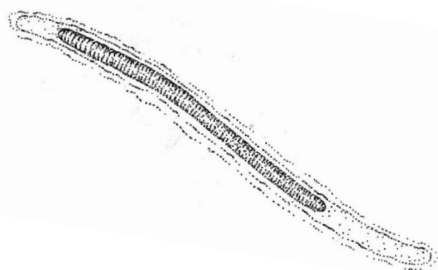
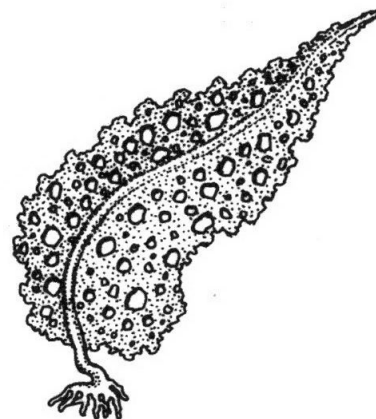


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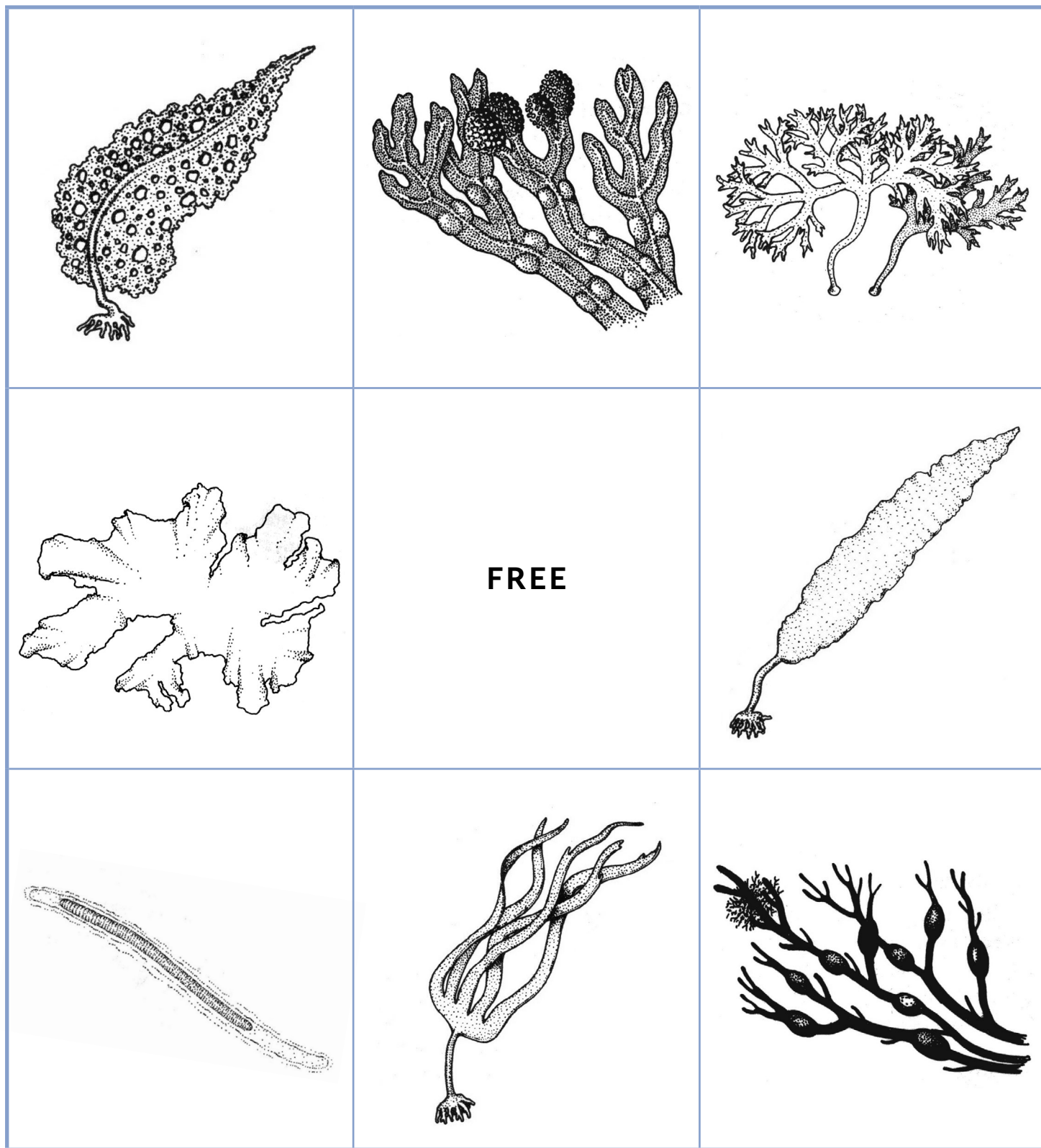


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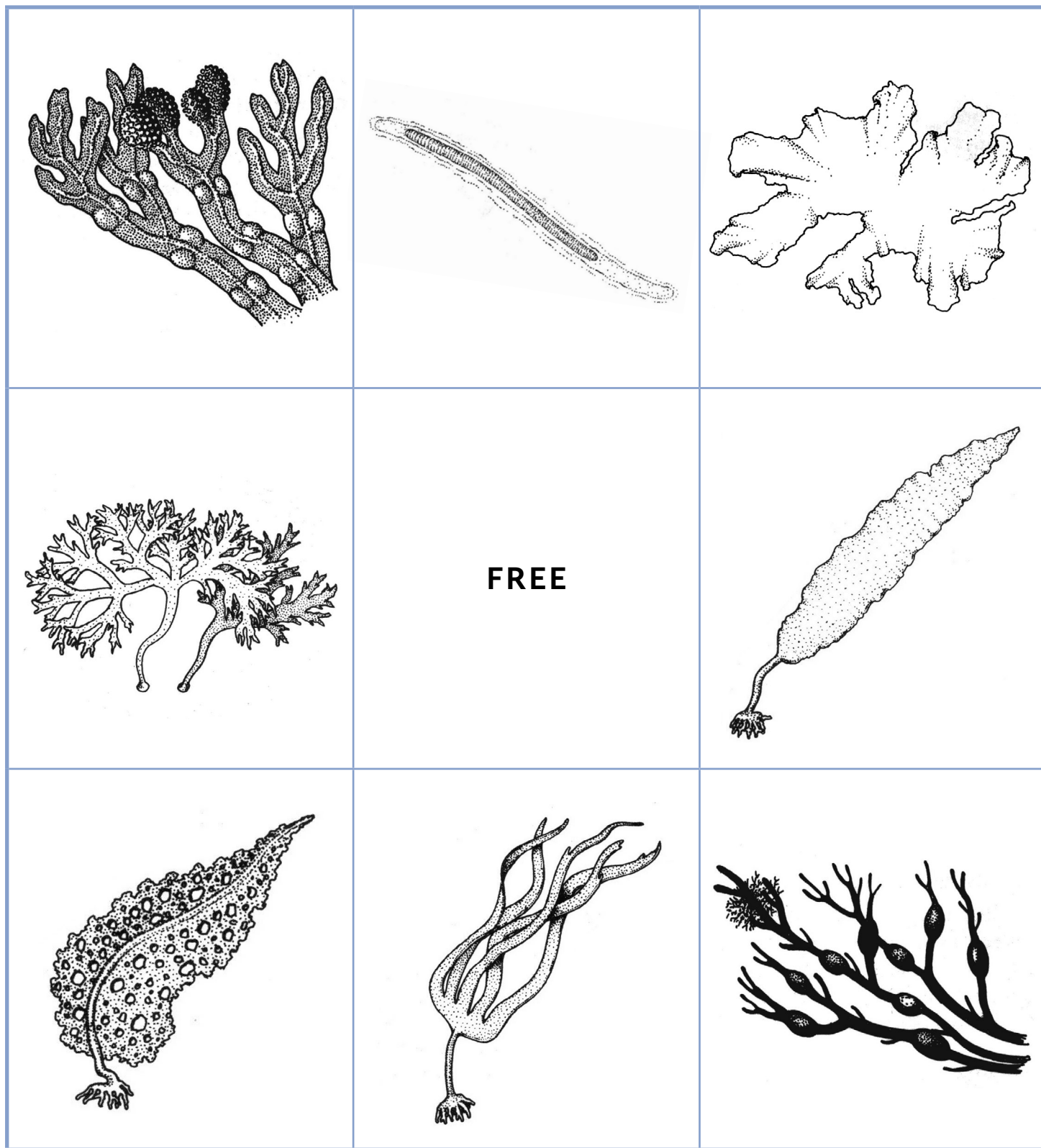
ALGAE!

Game Board



ALGAE!

Game Board



ALGAE!

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ALGAE!

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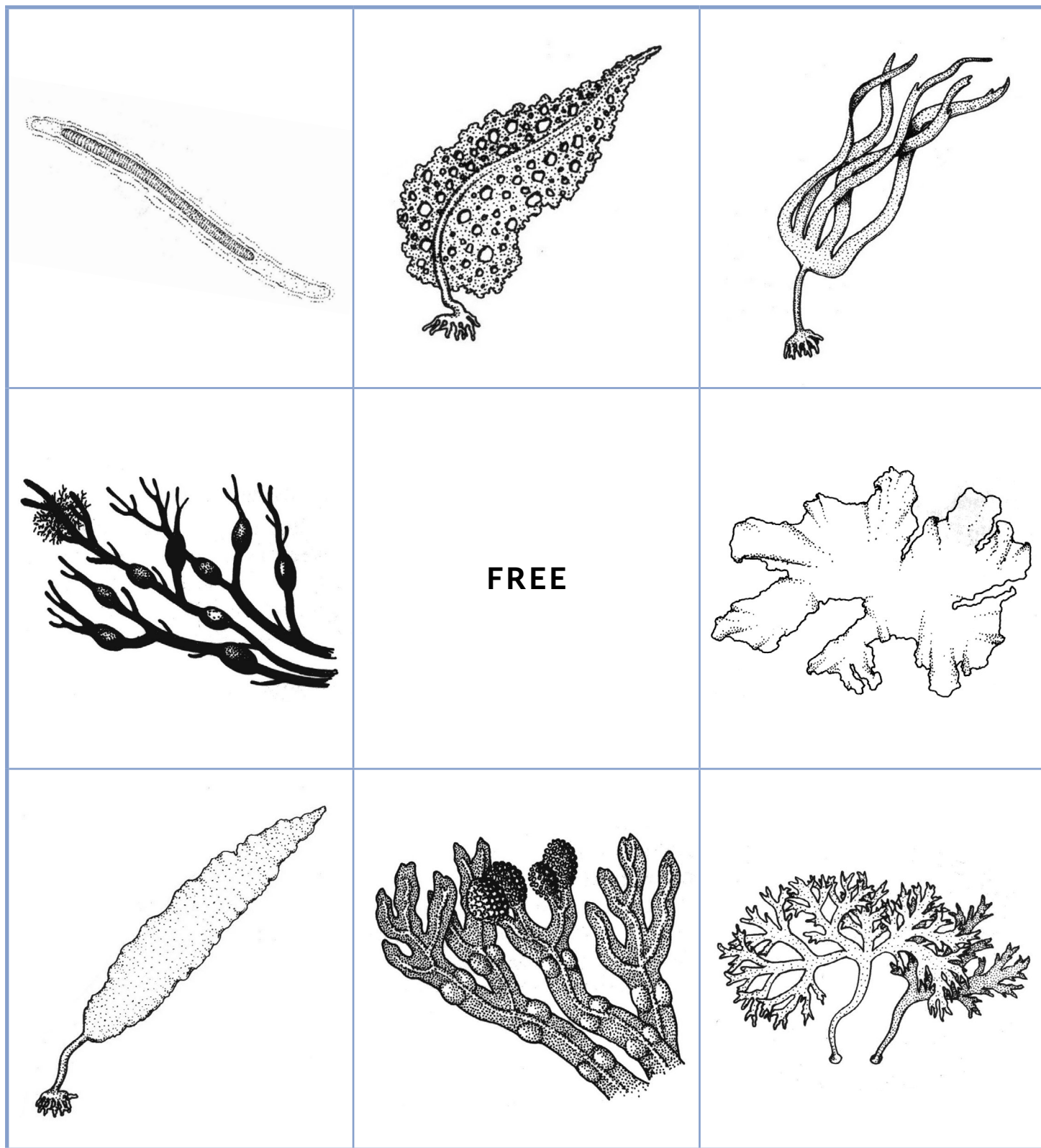
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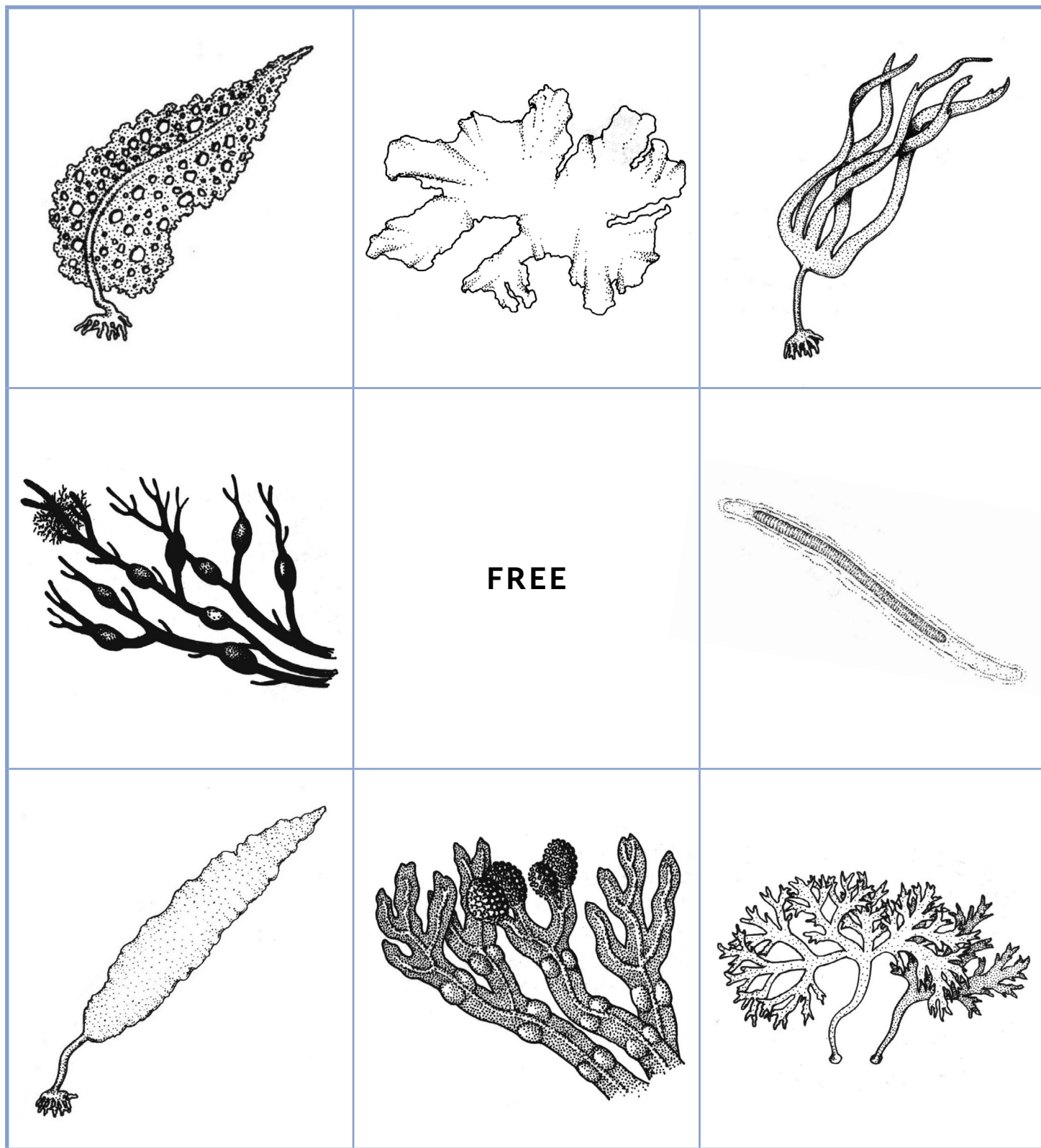
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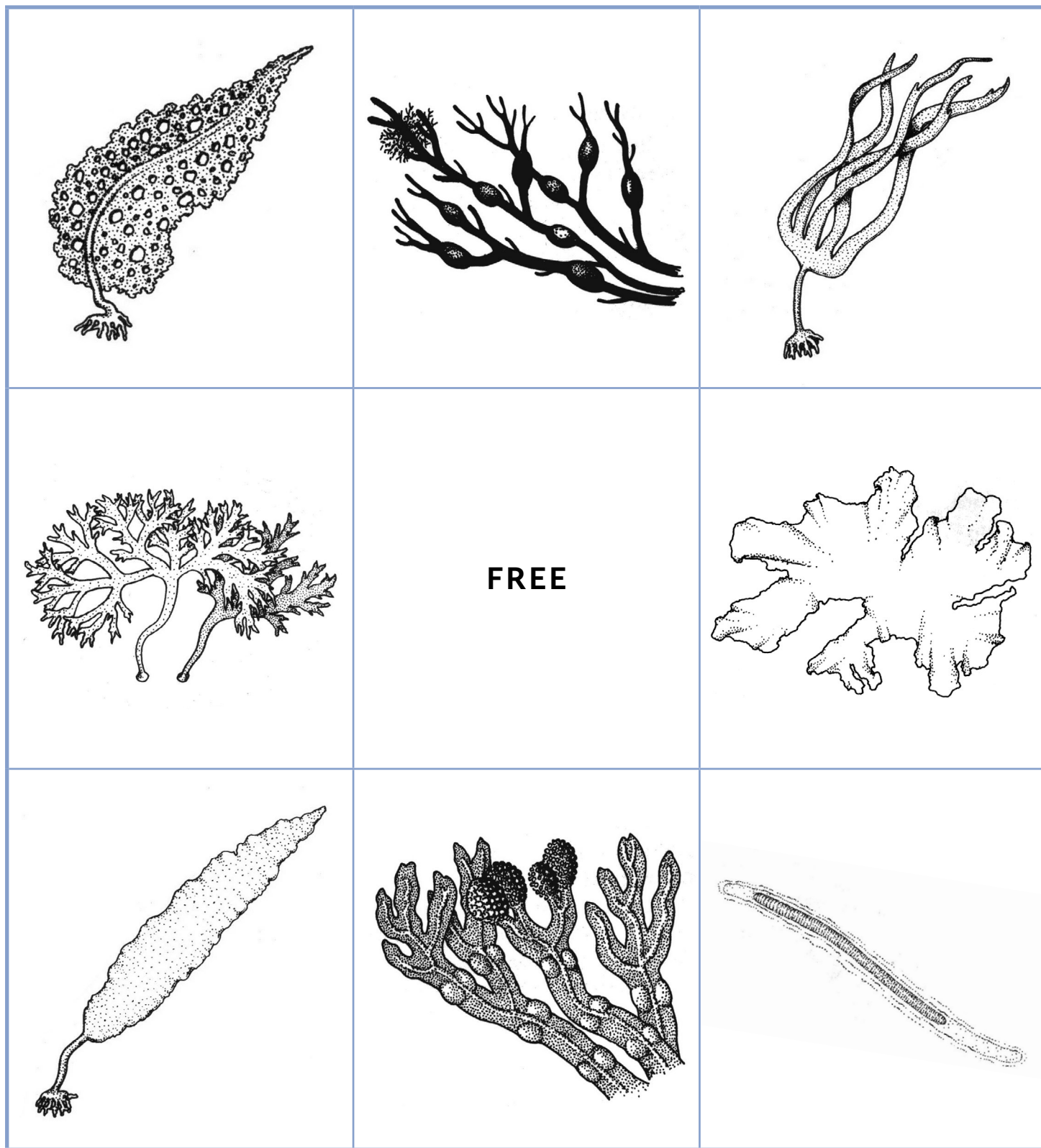
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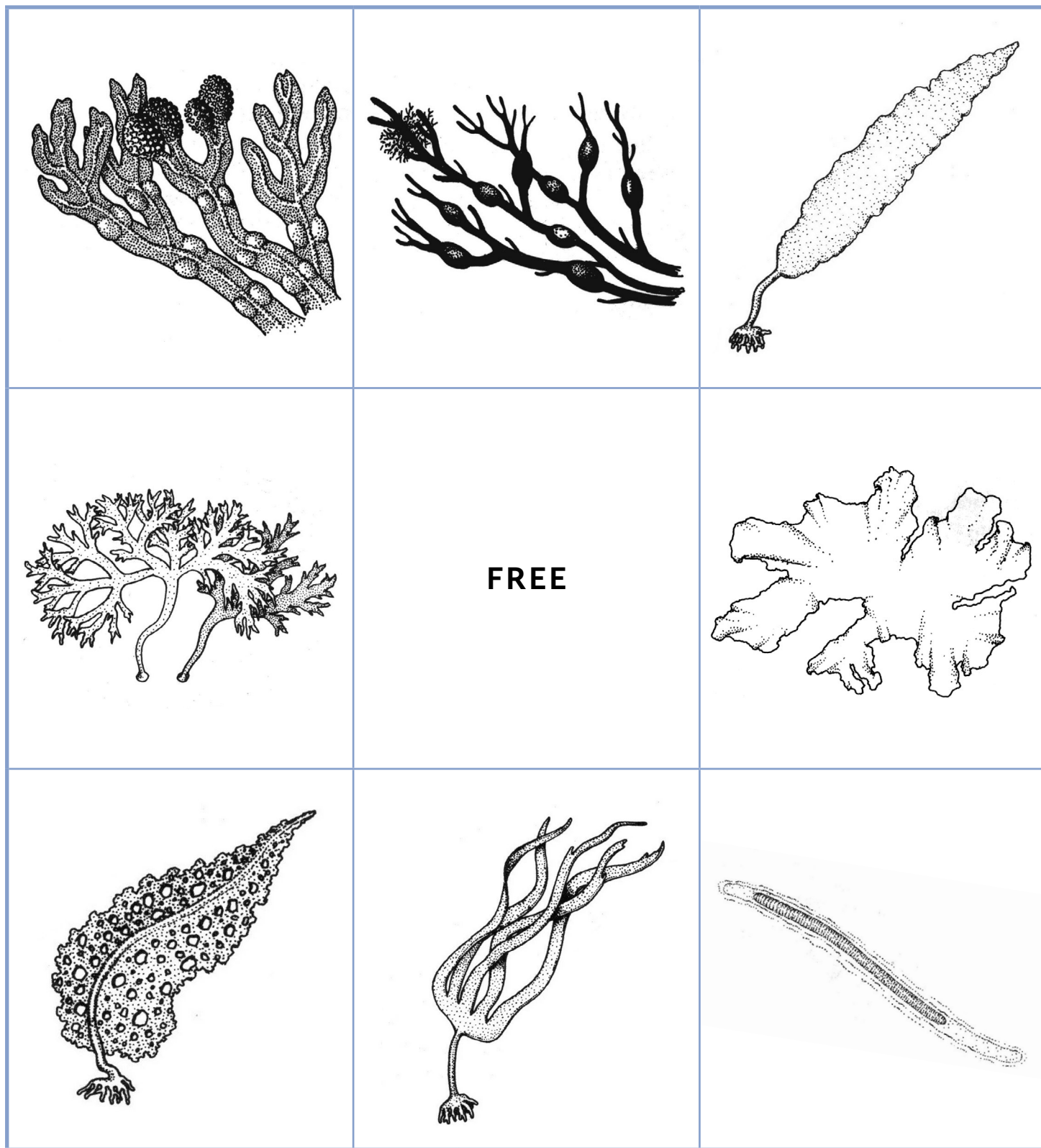
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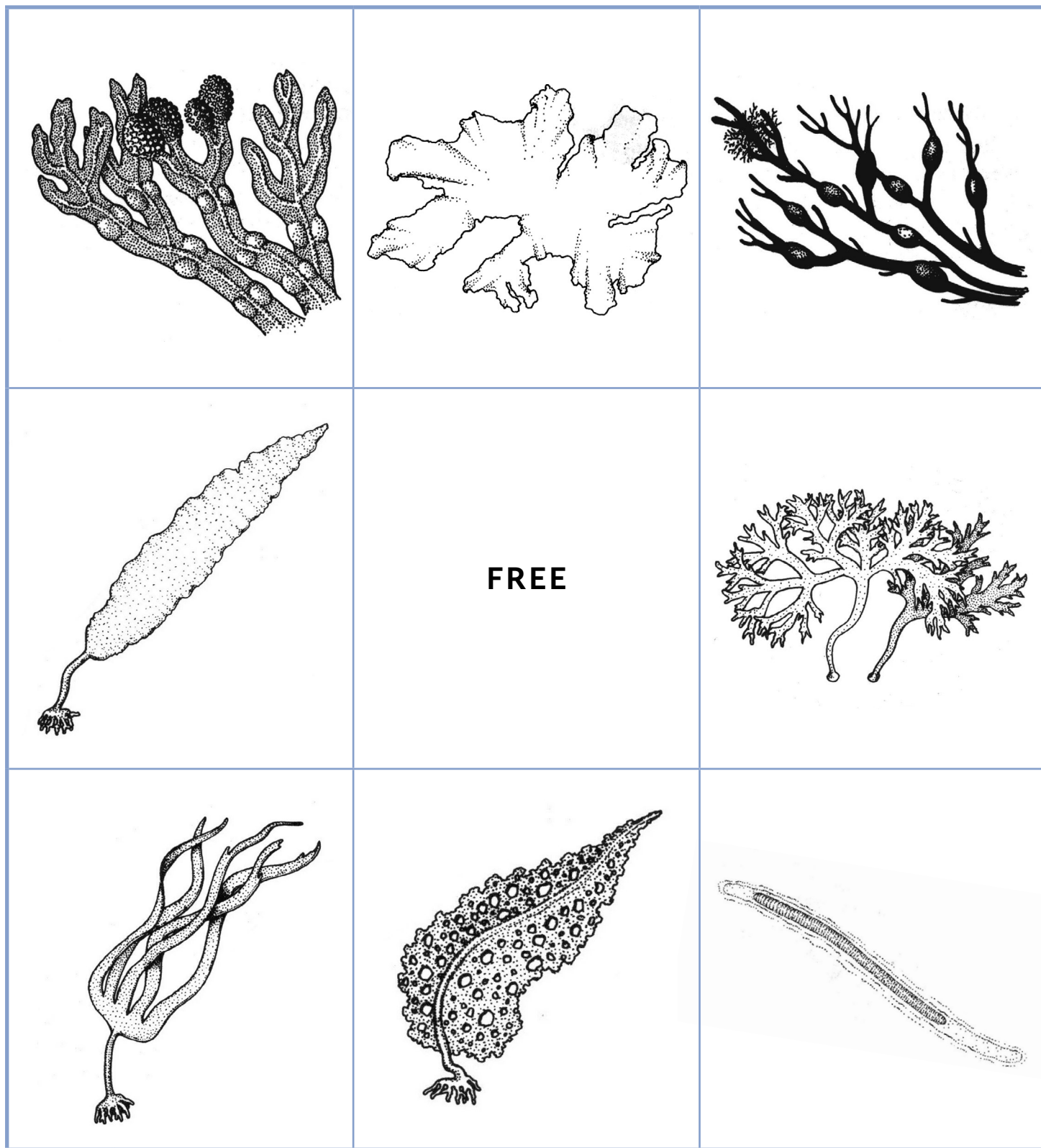


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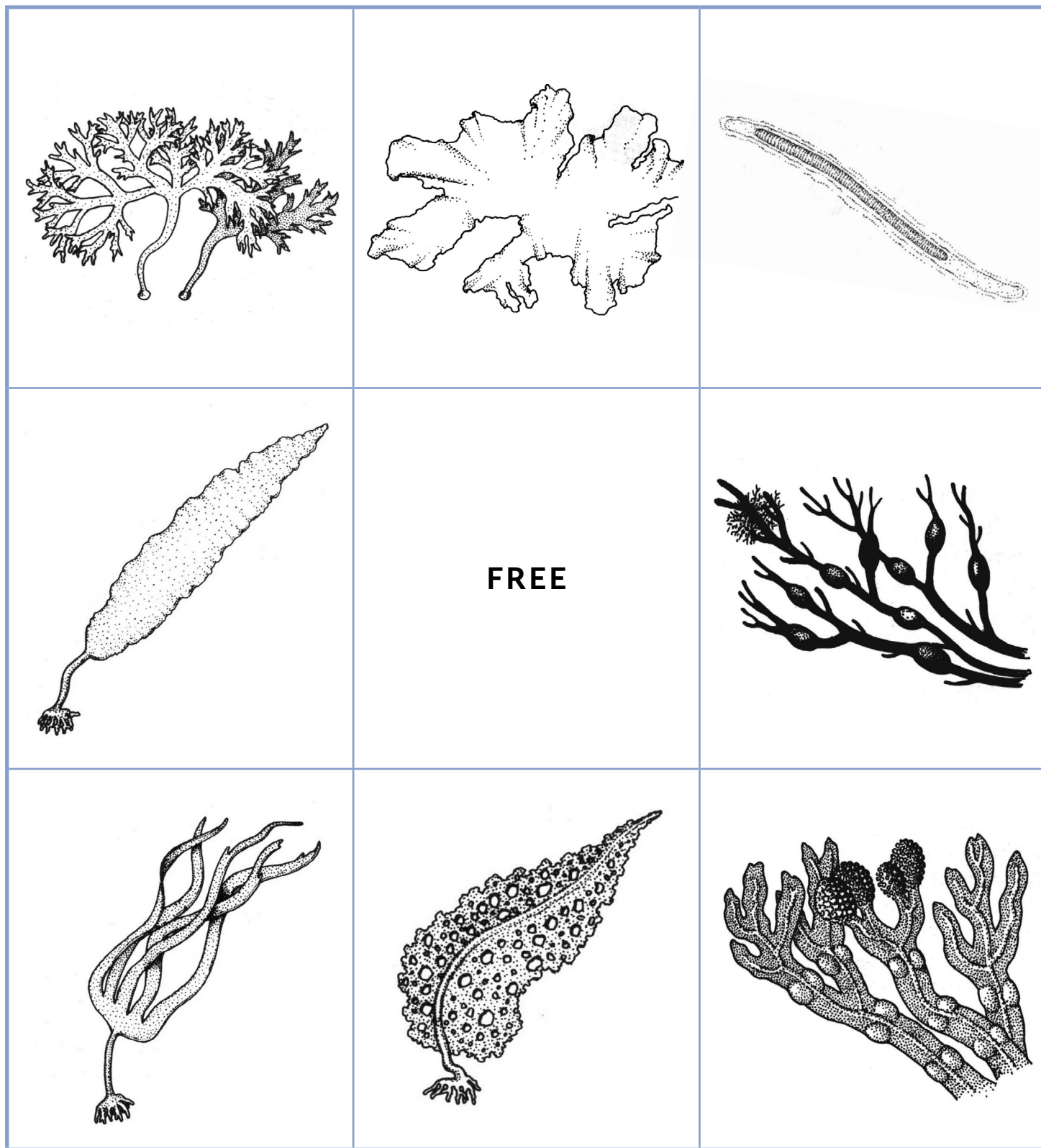






ALGAE!

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