

DIATOMS

MAIN RULEBOOK

Hidden in the water all around us are tiny lifeforms known as diatoms. These microscopic algae cells come in a variety of exquisite geometric shapes and patterns. Their cellular walls are made with silica, giving them a glassy, jewel-like quality.

Here at the Society of Microscopic Arts, we collect these diatoms and delicately arrange them on slides into beautiful mosaics that can only be truly seen and appreciated with a microscope. As part of your induction into the Society, we invite you to create your own microscopic mosaics.

WELCOME

In *Diatoms*, you are **Victorian naturalists** creating beautiful microscopic mosaics out of diatoms (single-cell algae).

As you play, you will **place Water tiles to form algae samples from which you will collect diatoms to arrange into a mosaic on your Microscope Slide board**. At the end of the game, everyone's mosaics will be scored and the best-scoring player will win first place.

Diatoms also includes a solo **Careers** mode that features the unique gameplay variant **Commissions**. To learn *Commissions*, first read this rulebook up to the *Arranging Diatoms* section (page 4), then refer to the *Careers* rulebook.

COMPONENTS

150 DIATOM
TILES



40 Circles, 35 Ovals, 30 Triangles,
25 Squares, 20 Stars, in five colors

33 WATER
TILES



STARTING
TILE



SCORE
PAD



50 sheets

18 COMMISSION
CARDS



Used in solo variant



4 FIELD
NOTEBOOKS



8 GUEST JUDGE
CARDS



4 MICROSCOPE
SLIDE BOARDS



5 PETRI DISHES
WITH LIDS



LENS
TOOL



WINNER'S
RIBBON



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more online at:
DiatomsTheGame.com

THE BASICS

Diatoms is played in a shared central area, representing an algae-filled pond, as well as on individual player **Microscope Slide** boards, representing a close-up view of a microscope slide.

During the game you **collect diatoms** from the shared algae-pond area by **placing hexagonal Water tiles** to form **Sample Points** – intersections of three tiles. You **arrange your collected diatoms** on your Slide, trying to maximize your mosaic's score for the judging at the end of the game.

Placing Water Tiles

On your turn, place one Water tile into the shared algae-pond area. Adjacent Water tiles must match algae colors where they touch. There are **five algae colors**: red, yellow, green, blue, and purple. Some Water tiles also have blank white spaces representing **empty water**, which can touch any color.

All Water tiles have one, two, or three colors of algae, except for the unique **Starting tile** which has all five plus empty water.

Every Water tile is two-sided except the Starting tile. The two sides are mirrors of one-another. You may use either side when placing your Water tile.



Creating Samples

The intersection of three Water tiles is called a **Sample Point**.

A Sample Point has six segments, which are grouped based on adjacent matching algae colors.

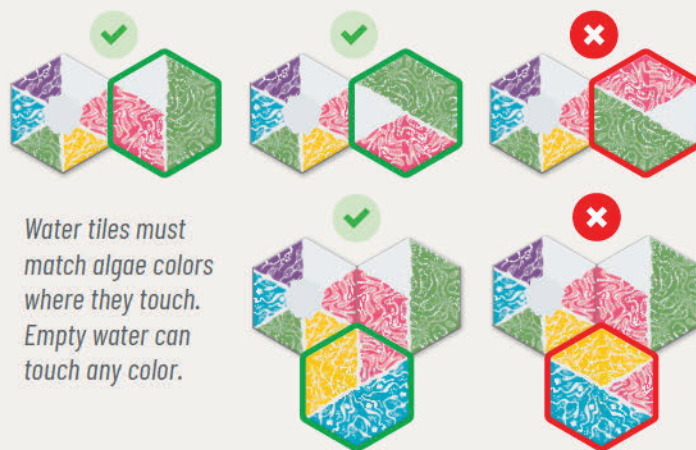
Each Sample Point you create will allow you to collect one or more diatoms. To determine what diatoms you collect from a Sample Point, you will look at the color and size of these algae groups. Empty water segments do not give diatoms.

There are **five possible diatom shapes** in each algae color: circle, oval, triangle, square, and star.

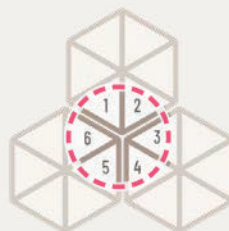


Microscope Slide with diatoms on it.

Over the course of the game, you create your own mosaic, filling about half of the spaces on your Microscope Slide with diatoms.



Water tiles must match algae colors where they touch. Empty water can touch any color.



A Sample Point is the intersection of three Water tiles.

Use the **Lens Tool** to help visualize your Sample Points.

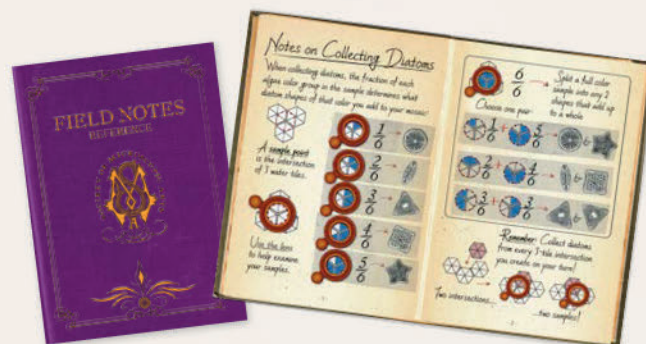


From this Sample Point, the player collects three diatoms: a yellow circle, red oval, and blue oval.

Collecting Diatoms from Samples

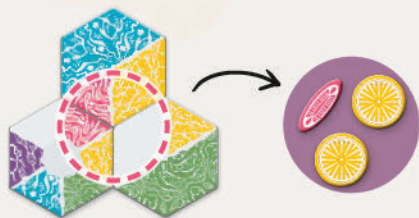
The first page of your **Field Notebook** has a visual guide to identifying diatoms:

- If the Sample Point has a **1/6** group, collect a **circle** of that color.
- If the Sample Point has a **2/6** group, collect the **2-pointed oval**.
- If the Sample Point has a **3/6** group, collect the **3-sided triangle**.
- If the Sample Point has a **4/6** group, collect the **4-sided square**.
- If the Sample Point has a **5/6** group, collect the **5-pointed star**.



Split Algae Samples

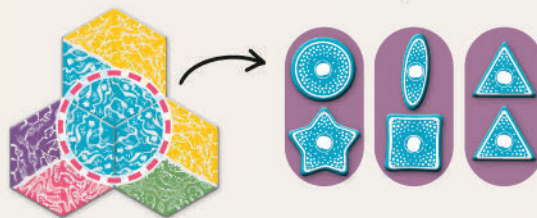
If your Sample Point contains **two separate groups of the same color algae**, collect a separate diatom for each group.



This Sample Point contains two algae colors but three diatoms – two yellow circles and one red oval.

Full Color Sample (6/6)

If your Sample Point is **all one color (6/6)**, split it into any **two fractions of that color that equal 1**. You **must** select a diatom pair where both diatoms are available, if possible.



When collecting a Full Sample, collect one set of three possible pairs: a circle & star ($1/6 + 5/6$), oval & square ($2/6 + 4/6$), or two triangles ($3/6 + 3/6$).

Multiple Samples

Each intersection of three tiles created by your newly placed tile is a Sample Point. Look carefully – it is sometimes possible to form more than one Sample Point in one move. **Collect diatoms from every Sample Point you form.**

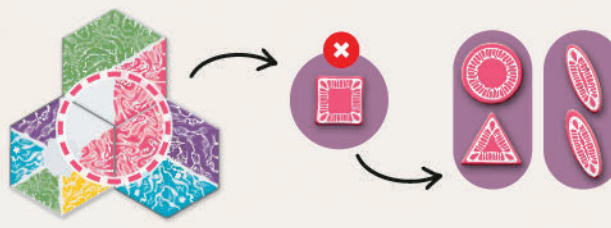


*This spot will create **two** Sample Points...*

*...which yield **four** diatoms total.*

Running Out of Diatoms

If there are no more of a particular diatom available, you must **split** it into any **two** smaller fractions of that color that total the original and are still available. **If you cannot split a diatom** – because it is a circle or because the split shapes are not available – you simply cannot collect it.

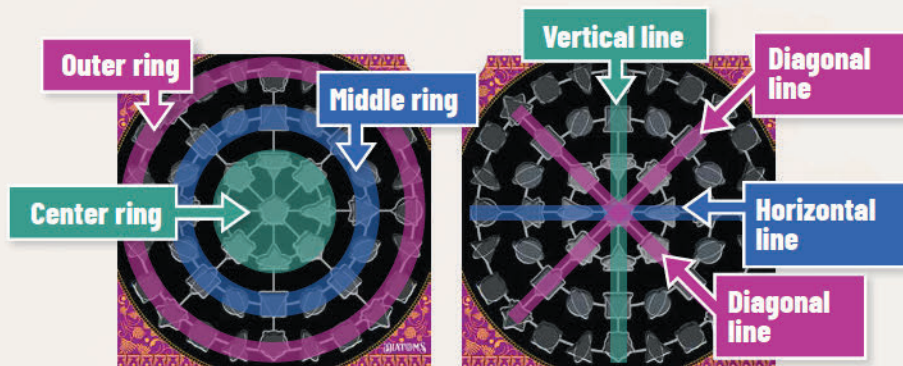


*If you would have collected a red square ($4/6$) but there are none left, you may take either a circle ($1/6$) and triangle ($3/6$), **OR** two ovals ($2/6$ & $2/6$) instead.*

Arranging Diatoms

After collecting diatoms, you will choose empty spaces on your own individual Microscope Slide Board to arrange your collected diatoms, creating your mosaic. Every space on your Microscope Slide Board can accept only one diatom of two possible shapes. Diatoms can be added to your Slide Board in any order. You will not fill your entire Slide Board during the game.

Lines between diatom spaces indicate that those spaces are considered **Connected**. Your mosaic has three Ring Regions—**Outer**, **Middle**, and **Center** (which includes the center space)—and four Center Lines of symmetry: **one Horizontal**, **one Vertical**, and **two Diagonal** lines.



Each space on your Slide Board can accept one of two shapes. For example, the highlighted space can take a circle or a star, in any color.

Choose, Place, Collect, Arrange.

Place your Water tiles strategically to collect the diatoms you need. Arrange your diatoms thoughtfully on your mosaic to maximize your score for the judging at the end of the game. The base game scoring rewards matching color sets, symmetric pairs on lines, and shape variety in rings.

Playing with Guest Judges

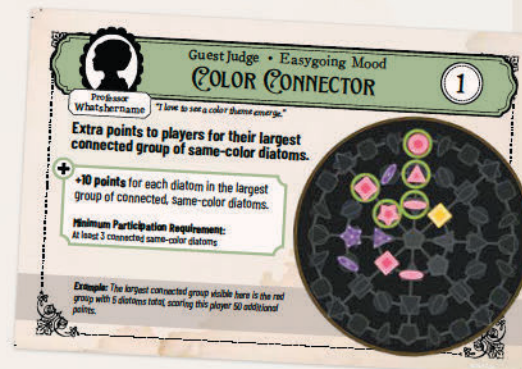
Guest Judge cards add optional scoring variations. They each come in two flavors:

Easygoing Mood Guest Judge (Green side):

- These guest judges are in a generous mood. They award extra points to players who achieve particular mosaic features they appreciate.

Persnickety Mood Guest Judge (Pink side):

- These guest judges are in a nit-picky mood. They award extra points to the players that best achieve their favorite features and deduct points from any players whose mosaics include their pet peeves.



GAME SETUP

- 1 **Place the diatoms**, separated by shape (or color), in the five **Petri Dishes**, within reach of all players.
- 2 Give each player a **Microscope Slide board**, a **Score Pad sheet**, and a **Field Notebook**. The Field Notebooks provide the base scoring for the game, and players can refer to these at any time during play.

Each player also needs a pen or pencil for end-game scoring.
- 3 **Find the Starting tile** and place it in the middle of the table. This is the start of the algae-pond area.
- 4 **Take one random Water tile.** Place it adjacent to the Starting tile such that the colors match where the two tiles touch.
- 5 Each player should **take two random Water tiles** and place those tiles in front of them, visible to all other players.
- 6 For 3 players, remove eight of the remaining Water tiles at random and set aside. For 2 players, remove 12 Water tiles. These tiles will not be used. **Stack the remaining Water tiles into two equal piles at random.** Place within reach of all players.
- 7 **Choose a first player. Give them the Lens Tool.** Can't decide? Then the player who last touched water should go first.



Guest Judge • *Persnickety Mood*
COLOR CONNECTOR 1

Professor or What? It's a game! "Don't just place your colors willy-nilly!"

Extra points to players for their largest connected group of same-color diatoms.

<ul style="list-style-type: none"> +1st Largest +100 points +2nd Largest +70 points +Participation (3+) +20 points 	<ul style="list-style-type: none"> -5 points for each placed diatom not connected to at least one other diatom of the same color.
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Example: The largest connected group here is the group of 5 red diatoms. Additionally, this player scores 10 points for their isolated purple and yellow diatoms.

- 8 **(Optional) Choose one Guest Judge card and pick their "Easygoing Mood" or "Persnickety Mood" side.** All players should have a chance to review the Guest Judge card and can refer to it at any time during play.
If this is your first game, do not play with a Guest Judge.

PLAYING THE GAME

Each player is creating their own diatom mosaic. The player with the highest-scoring mosaic at the end of the game wins. **You will have 8 turns (10 in a 2-player game)** to place Water tiles, form Sample Points, and collect diatoms to arrange on your Slide board. **Once all Water tiles have been played, everyone's mosaics will be scored using the base judging and any guest judge, and the winner declared.**

In general, the more diatoms of a particular color you have the more that color is worth at the end of the game, the more pairs of symmetric diatoms you have on each center line the more that line is worth at the end of the game, and the more different shapes you have in each ring the more that ring is worth at the end of the game.

On Your Turn: Choose, Place, Collect, Arrange.



Choose and draw into your hand the top Water tile from **one** of the two Water tile draw stacks. If either stack is empty, draw from the other. If both stacks are empty, you do not draw a tile.



Place one of the Water tiles from your hand so that it touches **at least one** already-placed Water tile in the algae-pond area. Remember that **adjacent Water tiles must match colors on all touching sides and empty water can touch any color.**



Collect diatoms from your Sample Point(s) from the Petri Dishes following the guide in your Field Notebook. You may use the Lens Tool to help visualize each sample as you collect. Remember that empty water spaces in a sample **do not** give diatoms.

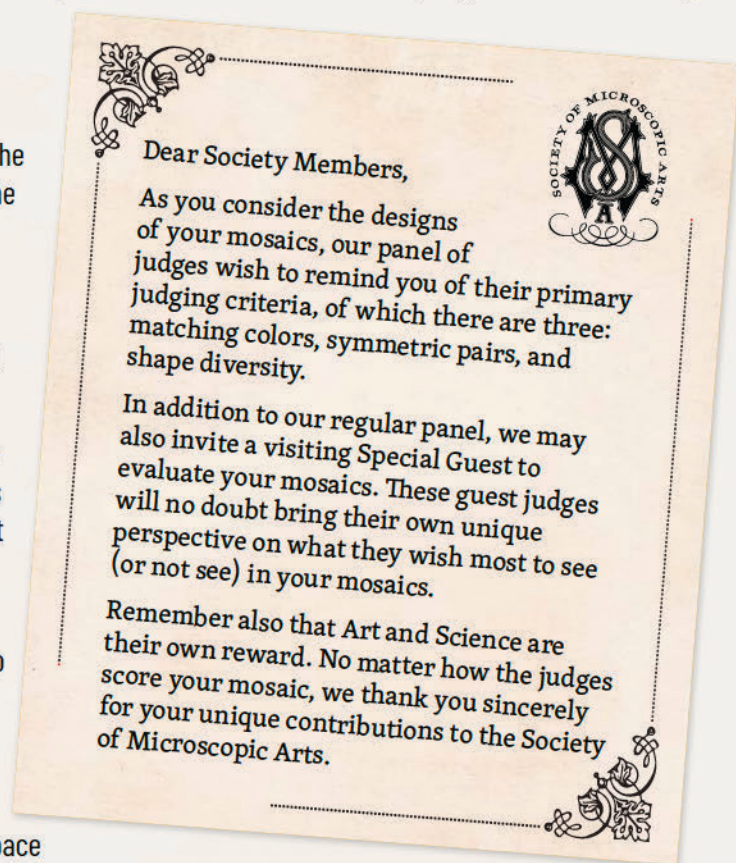


Pass the Lens Tool clockwise to the next player, who may begin their turn. Meanwhile, you have until the start of your next turn to **arrange** your collected diatom tokens onto your Slide board.

- Once you have placed a diatom, you cannot move it.
- A diatom may go in any open space that matches its shape.
- You must place each diatom you collect if there is an open space for it.
- If you don't have an open space for a diatom, you cannot place it. Return it to the Petri Dishes.
- You must arrange diatoms from your previous turn before starting your next turn. If play returns to you before you do so, finish placing your diatoms before you select and place your next Water tile. There is no penalty, except the impatience of your fellow players.



Final Turn Etiquette: On the final turn, a player after you may insist you complete your final diatom placement, as a courtesy to them, before they begin their turn.



END-OF-GAME

When all Water tiles have been placed, your mosaics are complete! It's time to see how they stand up to the judging. Use your Score sheet to first score your mosaic with the **three Base Scoring metrics**: matching colors, symmetric pairs, and different shapes. **Look at the Base Judging guides in your Field Notebook** for illustrative examples of each base scoring metric.

Next score the Guest Judge, if there is one. **Guest Judge scoring varies** based on the details on the Guest Judge card selected at the start of the game. Compare everyone's mosaics with the Guest Judge's scoring rubric. Award and deduct points as indicated. In the event of a tie with a Persnickety Judge, tied players all receive the points from that place and remaining players fill in the lower place(s).

Scoring Example

For **Matching Colors**, first count and record the number of diatoms of each color, then convert to points: 8+ of a color is 40 points, while 5+ is 20 points and 3+ is 5 points.

For **Symmetric Pairs**, each row on the Score Sheet scores one center line. For each line, look at the pair of shapes on the center ring first, then the pair on the middle ring, then the pair on the outer ring. Record points for the symmetry status of each pair: pairs that match shape AND color earn 15 points, while pairs that match either shape OR color earn 5 points.

For **Different Shapes**, count and record the number of shapes in each ring, then convert to points. Start with the center ring, then middle, then outer. If a ring contains all 5 shapes, it earns 40 points; 4 shapes earns 20 points; 2 or 3 shapes earns 5 points.

If playing with a **Guest Judge**, determine awarded points based on the judge's criteria on their card. If the judge is "persnickety," deduct points as indicated. This example player had the 2nd largest color group with 6 connected blue diatoms, earning 70 points. They also have 5 diatoms not touching others of the same color, earning -25 points in deductions.

JUDGING SHEET						
End-of-game Scoring						
MATCHING COLORS						
8+ = 40 pts 5+ = 20 pts 3+ = 5 pts						
COUNT	1	7	2	9	4	COLOR SCORE
POINTS	0	20	0	40	5	
SYMMETRIC PAIRS						
Same shape & color = 15 pts Same shape OR color = 5 pts						
CENTER PAIR	MIDDLE PAIR	OUTER PAIR	LINE TOTAL		SYMMETRY SCORE	
0	5	5	10			
5	5	5	15			
15	15	0	30			
0	5	0	5		60	
DIFFERENT SHAPES						
5 = 40 pts 4 = 20 pts 2+ = 5 pts						
●	✓	✓	✓	✓	✓	POINTS
○	✓	✓	✓	✓	○	40
○	✓	✓	✓	○	○	20
○	✓	✓	○	○	○	5
GUEST JUDGE						
AWARDED POINTS				70	GUEST JUDGE SCORE	
DEDUCTED POINTS				-25	45	
MOSAIC CREATED BY:					TOTAL	235
Sabrina C.						



Guest Judge • Persnickety Mood		1
COLOR CONNECTOR		
Profound: What else is there? "Don't just place your colors willy-nilly!"		
Extra points for players for their largest connected group of same-color diatoms.		
+1st Largest +100 points	-5 points for each placed diatom not connected to at least one other diatom of the same color.	
+2nd Largest +70 points		
+Participation (3+) +20 points		
Example: The largest connected group here is the group of 6 red diatoms. Additionally, this player loses 10 points for their isolated purple and yellow diatoms.		



Awarding the Winner's Ribbon & Collecting Career Spaces

The highest-scoring mosaic is declared the winner! Place the **First Place Ribbon** on the mosaic and take a commemorative photo. In the event of a tie, the tied player with the fewest diatoms in total on their board wins. If still tied, they share the victory.

Collecting Career Spaces (🏆): If you are tracking your Diatoms career (See the Career rulebook), collect one 🏆 at the end of each multiplayer game of Diatoms. If you place first in the game, collect an additional 🏆 for your win.



Print more score sheets
DiatomsTheGame.com

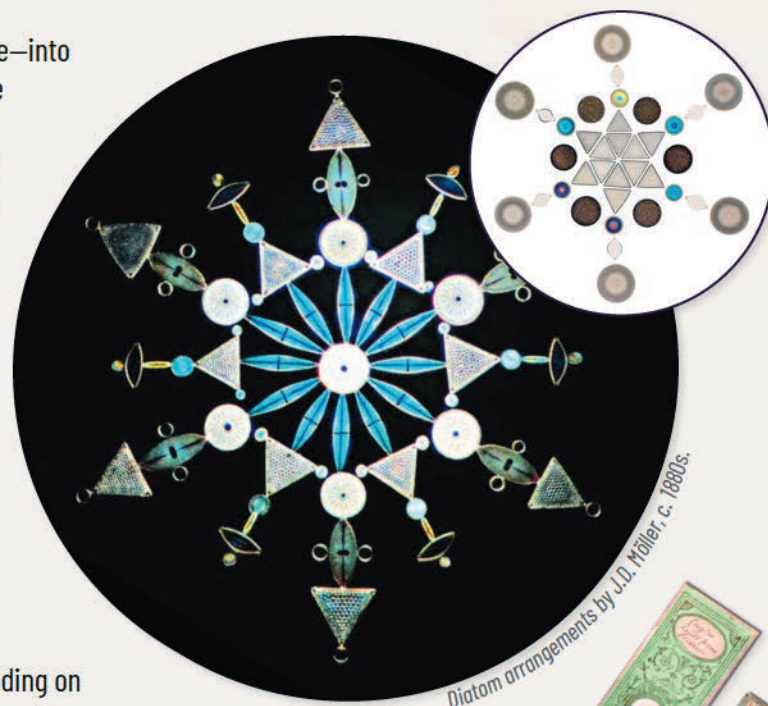
DISCOVER AN OBSCURE VICTORIAN ARTFORM

Diatom mosaics are real! The arranging of diatoms—single-cell algae—into microscopic mosaics was a practice of scientific art that began in the Victorian era. During this time, significant advancements were being made in the capabilities and affordability of the microscope. With the increase in microscope use, a small industry of slide preparation took hold. Individuals and companies would create premade slides to sell to collectors and scientists.

While most of these slides were simple displays of microscopic specimens, by the mid-1800s a more artistic approach emerged. Diatoms and other microscopic elements—such as butterfly scales, tiny sponges, or even microscopic photographs—were arranged into elaborate designs, often featuring radial patterns. To complete these mosaics, creators had to collect water samples, pick out and clean individual diatoms from these samples, then delicately arrange them into patterns, affixing them to the slides using special glues.

The varied colors of the diatoms seen in these mosaics change depending on how they are lit and photographed. Diatom mosaics are often shown using darkfield microscopy, where the background is black, or brightfield microscopy, where the background is bright white.

Another unusual practice of this time was that of wrapping slides in decorative papers, sometimes with intricate linework and bright colors that often included labels for the slide's contents and preparer's name.



Examples of microscope slides from late 1800s: typical slide (above) and two decorative papered slides (right).

The photos shown here are among those that inspired Diatoms. Papered slides and darkfield Möller arrangement photos by Howard Lynk. Brightfield Möller arrangement photo by Jef Schoors.

GAME CREDITS

Design, Development, & Production: **Sabrina Culyba**

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Illustration: **Nim Ben-Reuven**

Insert Design: **Matt Healey**

Special Thanks to Diatoms Commissioner **Carolyn Haskell**, our **playtesters**, all our **Kickstarter backers**, and **Astra Logical** for their support bringing this algae art game to life!



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