



mesa

cape

mouth of the river

**Landform Mat**  
**Guide to Presentation**  
2020 edition

# Landform Mat

*(suitable for children 6 to 9 years of age)*

*The Landform Mat was designed by Sharon Duncan and Freida Hammett to extend the lessons of land and water forms in a Montessori classroom. We recommend that you work through all of the lessons included with this guide to help the children learn about the land and water forms, master the nomenclature, practice directional orientation, and understand the abstractions needed to represent the land and water forms cartographically and topographically.*

## Contents of Landform Mat:

- Guide to Presentation
- Landform Mat and storage bag
- 3 Control Charts (1 blank, 1 for landforms, 1 for water forms)
- Landform Mat Command Cards (25 for Level One, 20 for Level Two, and 25 for Level Three)
- wood command card box
- 16 three-part cards for land and water forms
- 16 white land and water form labels
- wood models: boat, plane, car, mountain, and mesa
- wood scale ruler

Copies of the control charts and the blackline masters for the Landform Mat can be downloaded from the Landform Mat section of the A - Z PDF library on our website ([wasecabiomes.org](http://wasecabiomes.org)).

## Additional Related Products:

- *Cardinal Points (sold separately)*

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## Land and Water Forms

**You will need:** a globe, brown modeling clay (or potters clay for outside), pitcher of water dyed blue with food coloring, butter knife, a small spatula, 2 baking pans\*

**Purpose:** To explore what forms occur when land and water meet and the names these forms are given.

1. Bring out a globe for the children to look at closely. Encourage them to notice the places where land is surrounded by water. Ask them to find water surrounded by land somewhere on the globe.
2. Spread the clay in the bottom of one of the pans.
3. Cut a closed shape in the middle of the clay. Lift it out and place it in the middle of the second pan.
4. Pour water in the hole from the cutout in the first pan. Explain that this forms a lake - water surrounded by land.
5. Pour water in the second pan. Explain that this is an island - land surrounded by water.
6. Repeat the process creating a gulf and a peninsula, a bay and a cape, a strait and an isthmus, and a system of lakes and an archipelago.
7. Place the activity on the shelf with waterproof labels and a sponge so that the child can pour and name independently.

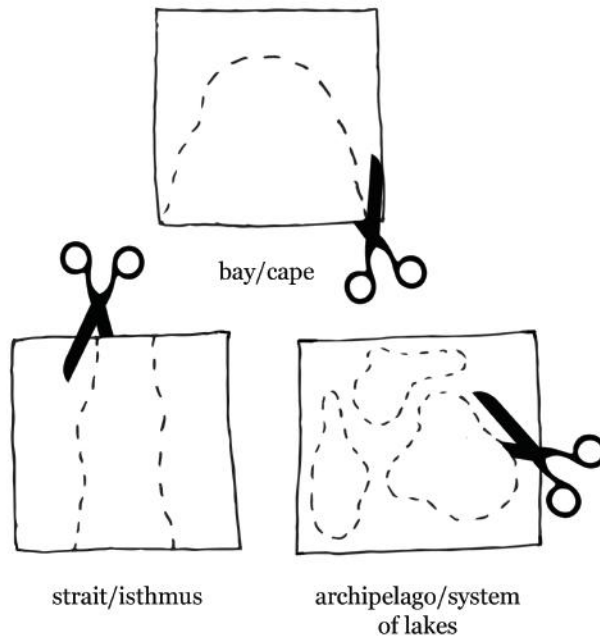
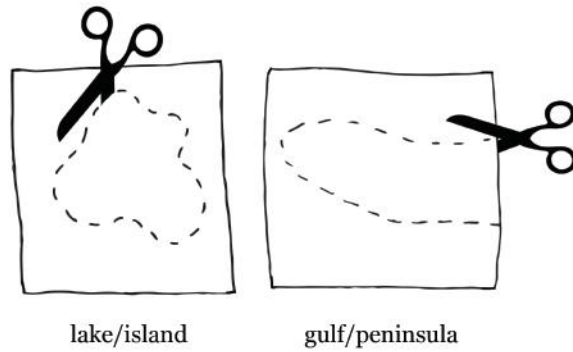
*\* Note: Darkroom pans with spouts can make replacing water easier.*

## Land and Water Form Books

**You will need:** brown and blue construction paper cut into 4 x 5" rectangles, white paper cut into 5 x 6" rectangles, glue or glue sticks, scissors, stapler

**Purpose:** To reinforce the names of the land and water forms introduced in the Land and Water Forms lesson. To further explore the abstraction of maps.

1. Put a rectangle of brown paper on top of a rectangle of blue paper.
2. Cut a shape out of the middle of the stacked paper rectangles without cutting to the edges. (See the following illustrations for cutting samples for the land and water forms.)
3. Take the stacked paper pieces apart and transpose the colors so that you have a lake and an island.
4. Glue the lake and the island onto separate pieces of white paper, leaving room at the bottom to write their respective labels.
5. Cut the rest of the land and water forms from the brown and blue stacked rectangles. After each set is cut, take the shapes apart, transpose the colors, and glue them onto the white paper (making sure to leave room at the bottom to write labels).
6. Staple the sheets together to make a Land and Water Form book.



- Lake/Island: Cut a shape out of the middle of the stacked paper rectangles without cutting to the edges.
- Gulf/Peninsula: Start cutting from a short side. Cut a long shape that ends on the same side you started from.
- Bay/Cape: Start cutting from near a corner on a long side. Cut a large shape that ends near the other corner of the side you started from.
- Strait/Isthmus: Start by cutting from a short side. Cut along the full length to the opposite side. Repeat this cut a few inches over on the paper.
- Archipelago/System of Lakes: Cut several shapes out of the middle of the rectangles without cutting to the edges of the paper.

## Introducing the Landform Mat Three-Part Cards

**You will need:** the lake, island, gulf, peninsula, bay, cape, system of lakes, and archipelago three-part cards, the blackline masters for these cards, colored pencils

**Purpose:** To review the land and water forms introduced in the previous lessons. To introduce the three-part cards for the Landform Mat.

1. Bring out the eight large three-part cards for the land and water forms they have been working with and lay them out in a row across the mat.
2. Place the corresponding small picture cards in a stack with the text side facing up. Read, or have a child read, the first text card. Which land or water form does the card describe? Have them match it to the large picture card. (The picture on the back can be used to check that the answer is correct.)
3. After working through all of the cards, they can be placed on the shelf for independent practice.
4. You may also print and cut copies of the blackline masters for these cards for the children to color and write a description on the back in their own words.

## Landform Mat First Lesson

*This lesson may be broken up into several presentations.*

**You will need:** Landform Mat, Control Charts, all of the three-part cards, small piece of paper, all of the wood models, the white labels, copies of the blank control chart, copies of the blackline masters for the three-part cards, colored pencils

**Purpose:** To reinforce the names of the land and water forms and become familiar with the imaginary landscape of the Landform Mat before working with the Landform Mat Command Cards.

1. Lay out the Landform Mat. Have the child distinguish between the land and the water on the mat. Note the way the land and the water meet. Trace the coastline.
2. Have the child show you an island, a lake, a peninsula, etc. on the mat. You may refer to the control charts as needed.\*
3. Place the mountain on the mat at the source of the river. Talk about how rain falls on the mountain and runs off to form a river. Name it both the "mountain" and the "source of the river."
4. Trace the river to the lake. Discuss how a manmade lake is formed from a river. Where would the dam be placed to make the lake on the mat? Make a dam out of a small piece of paper and have the child place it where it would make a lake behind it on the river.
5. Follow the river farther to where it meets a large body of water. Name that the "mouth of the river."

\* There are hard copies of the Control Charts included with the Landform Mat materials. You may also copy them from the pages at the end of this guide or print them from the masters for the materials that can be downloaded from the Landform Mat section of our A - Z PDF Library on our website ([wasecabiomes.org](http://wasecabiomes.org)).

6. Bring out the mesa. Talk about how mesas are formed by erosion. Softer types of rock can wash away from a hill. This may leave an elevated place with a flat top - a mesa.
7. Continue to point out, name, and review the definition for each land and water form. Make sure to discuss how that part of the mat's landscape fits the description.
8. Introduce the colored labels from the three-part cards. Together, use the brown labels to name each type of landform on the mat. Then, name the water forms with the blue labels.
9. After removing the brown and blue labels from the mat, use the white labels as the next step in difficulty for naming the land and water forms.
10. Introduce the wood vehicles. Give a few commands for them such as, "Fly around the island" or "Drive to the system of lakes."
11. Before you place all of the materials on the shelf for independent work, show the child that the three-part cards can be matched to the mat. They may work with them alone or with another child to reinforce the definitions for the land and water forms and get more familiar with the mat.
12. Copies of the blank control chart may be placed on the shelf to color and label. You may also print and cut copies of the blackline masters for the rest of the three-part cards so that the children can color them and write a description on the back in their own words.

### **Orientation to the Cardinal Directions**

**You will need:** a compass, a globe, labels for directions, and a compass rose on paper (or our Cardinal Points)

**Purpose:** To learn about the four cardinal directions. To learn how to orient oneself by the cardinal directions.

*Please note this lesson is a primer for cardinal directions and orientation. If your students are already comfortable with these, you can feel free to skip ahead to the Landform Mat Command Card lessons.*

1. Bring out the globe and ask, "Where is the North Pole?"
2. Explain that north is a direction that you can move in on the surface of the Earth. "If you walked in the direction of north, you would, eventually, reach the North Pole."
3. Take out the compass. Explain that there is a North Magnetic Pole. The needle of the compass points toward that magnet. Show the children the compass and point in the direction it is pointing. Walk with the children in that direction and place the north label on the wall when you reach it.
4. Turn to face the opposite direction. Explain that this direction is called south. Walk south and place that label on the wall.
5. Turn to face north again. Explain that if you are facing north, east is to your right. Turn to the right to face east and walk in that direction to place the east label on the wall.
6. Turn to face north again. Explain that if you are facing north, west is to the left. Turn to the left to face west and walk in that direction to place the west label on the wall.

## Landform Mat Command Cards: Level One

**You will need:** Landform Mat, Command Cards for Level One, a compass, all of the wood models

**Purpose:** To actively engage the child in identifying land and water forms and navigating in and around them.

*Note: The command cards are designed in three levels of difficulty. Level One corresponds to the second period of the three period Montessori lesson where the child has plenty of practice with pointing to the place or things with the name given.*

1. Lay out the Landform Mat. Explore the mat with the plane, boat, and car. Discuss where each can travel.
2. Have the child choose a vehicle and go to some land and water forms you name.
3. Bring the compass to the mat. Orient the mat so that north on the compass rose points in the same direction as the compass and towards the north label in the classroom.
4. Have the child move a vehicle north. Then, south. Have it travel east and, then, west.
5. Have the child pick a command card and carry out the instructions.
6. Do a few more of the command cards together. Once familiar with the Level One cards, have the child work independently, or with another child, through the rest of the Level One cards.

## Landform Mat Command Cards: Level Two

**You will need:** Landform Mat, Control Charts, Command Cards for Level Two, all of the wood models, a compass

**Additional materials for activities suggested by cards:** the labels from the three-part cards (or the white labels), paper, scissors

**Purpose:** To master land and water form identification. To actively engage in navigating to and from the land and water forms on the mat with directional guidance.

*Note: The command cards are designed in three levels of difficulty. Level Two uses the third period when the child will be asked to supply the name.*

1. Ask the child to name, or take a vehicle to, each land and water form. If she shows proficiency, ask her to name as many as she knows. Show her the Control Charts and discuss how to find the names of some she could not name.
2. Show the compass rose on the mat. Point out that there is a direction in between north and east. It is called northeast. Have the child name the other directions in between the cardinal points.
3. Have the child travel in her chosen vehicle northeast. Then have her travel southeast, northwest, and southwest.
4. Have the child pick a command card and carry out the instructions.
5. Do a few more of the command cards together. Once familiar with the Level Two cards, have the child work independently, or with another child, through the rest of the Level Two cards. (The labels, paper, and scissors may be required to complete some of the command card tasks.)

## Landform Mat Command Cards: Level Three

**You will need:** Landform Mat, standard ruler, wood scale ruler, Command Cards for Level Three, all of the wood models

**Additional materials for activities suggested by cards:** paper, large brown paper, blank labels, copies of the blank Control Chart, scissors, pencil, blue marker (or blue colored pencil)

**Purpose:** To exercise their knowledge of land and water forms and directional guidance by planning journeys and giving directions. To introduce the concept of scale in the representation of land and water forms on maps.

*Note: The command cards are designed in three levels of difficulty. Level Three uses higher forms of understanding outlined in Bloom's Taxonomy to include application and synthesis wherein a child is using their knowledge of the nomenclature to create something original or applied.*

1. Discuss how people give each other directions to get from one place to another. Give the child some simple directions one command at a time, such as "Begin at the end of the peninsula and go to the system of lakes." Try two-step commands and, then, three-step commands.
2. Have the child tell you where a certain place on the mat is using directions in relation to other land and water forms. It can be a secret place that you try to guess with the clues given. Ask questions to encourage them to be more specific, such as "Is it north or south of the mesa?"
3. Have the child move the vehicle between two specific points. Show them how to consult the compass rose to determine the direction in which they moved.
4. Discuss how maps are flat models of places that illustrate where land and water meet. Emphasize that maps are much smaller than the actual places they illustrate. Bring out a standard ruler to show an inch. Give the child some idea, relative to their experience, of the distance of a mile. Explain that we can make a map to show a mile as a much shorter distance. On the Landform Mat, we can imagine that an inch is a mile. Bring out the wood scale ruler. Practice measuring distance between two points. Demonstrate how to hold a place with your finger and move the ruler to measure more than four miles with the ruler.
5. Have the child pick a command card and carry out the instructions.
6. Do a few more of the command cards together. Once familiar with the Level Three cards, have the child work independently, or with another child, through the rest of the Level Three cards using the additional materials for activities suggested by the cards.

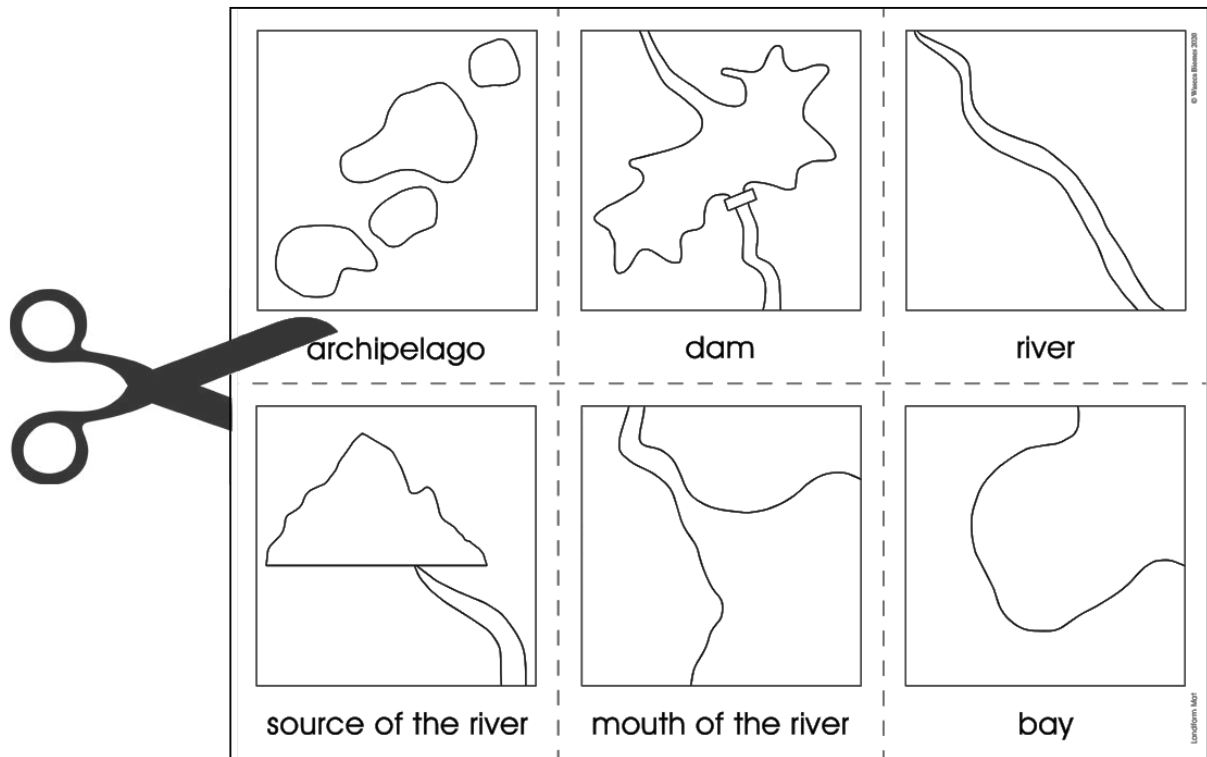


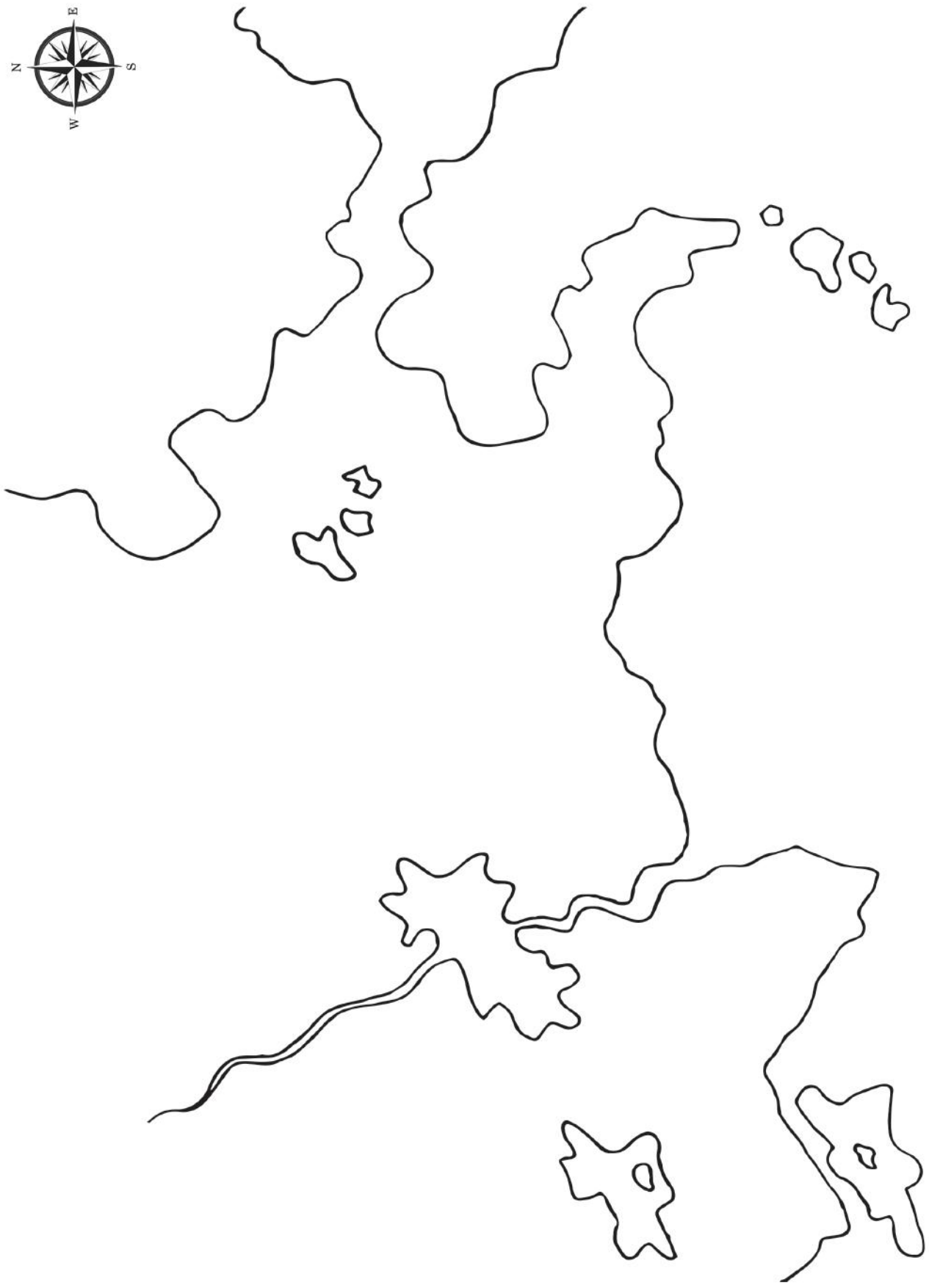
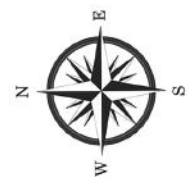
## Extensions

- Set up clay in a kiddie pool to create an imaginary landscape. Then, add water. Discuss what land and water forms have been made.
- Use the mountain and mesa as an introduction to topographic maps. Have the children make a three-dimensional topographic map out of cardboard.
- Expand upon the imaginary landscape the child creates with the Level Three Command Cards. This can be an entirely open-ended activity that incorporates imaginary biomes and lifeforms that adapt to the conditions therein. They may want to write a play or story that can be illustrated about their land.
- Make a large map of your geographical area. Make labels to name any rivers, lakes, or other land and water forms. Write command cards patterned after those of the Landform Mat.

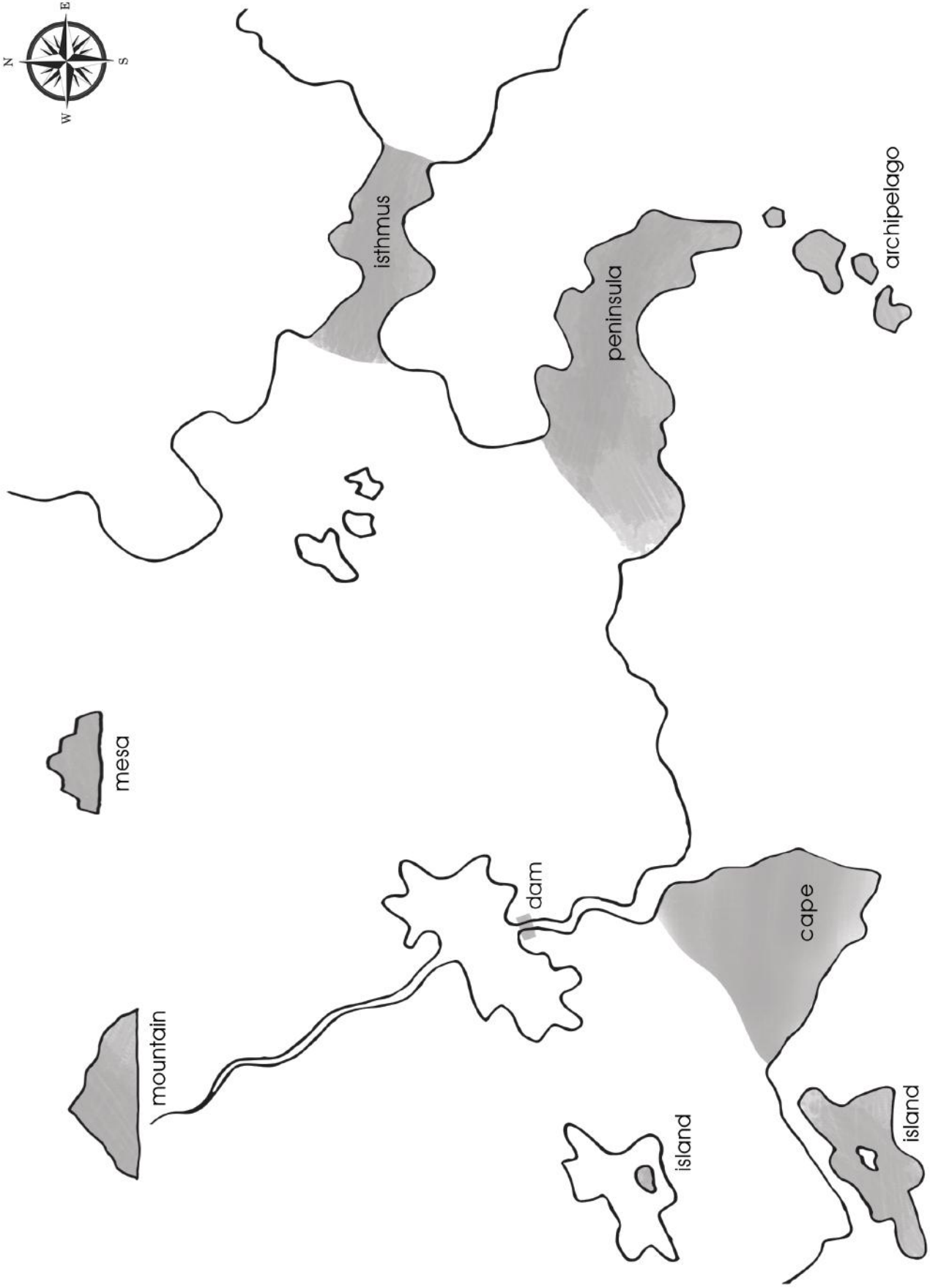
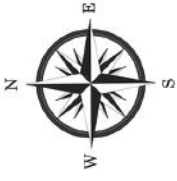
## Blackline Masters

*The blackline masters for the Landform Mat can be downloaded from the Landform Mat section of the A - Z PDF library on our website ([wasecabiomes.org](http://wasecabiomes.org)). The first three pages are the three control charts. The pages that follow are labeled blackline illustrations of each of the three-part cards. They may be printed and copied for the children to use to make their own cards. Each page should be cut down to card size along the dashed lines.*

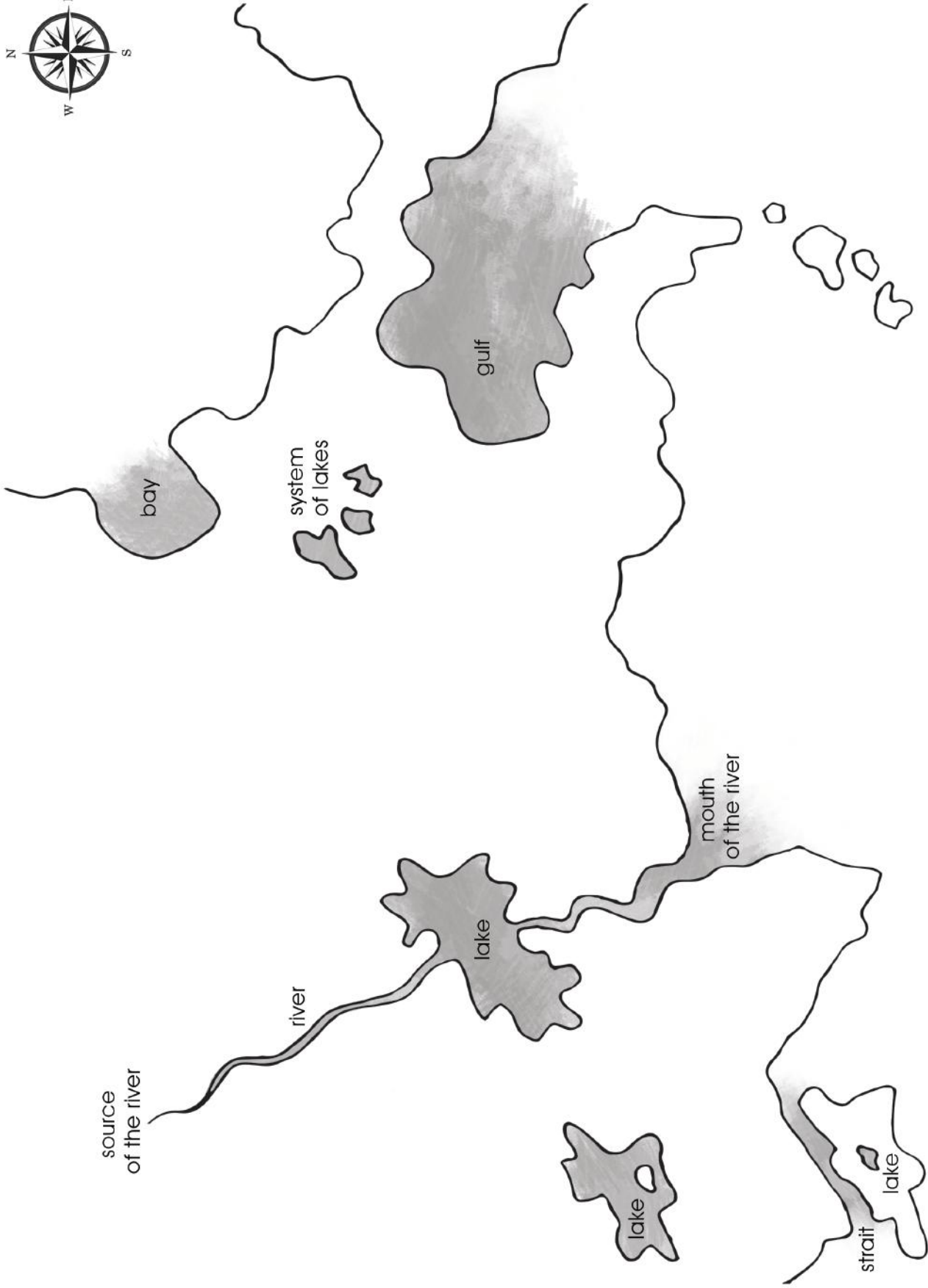
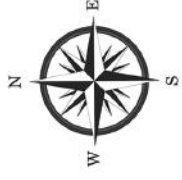




Landform Mat Control Chart



Landform Mat Control Chart - Landforms



Landform Mat Control Chart - Water Forms