



Coral Reef Habitat Mat Bundle

Guide to Presentation

2020 Update

Coral Reef Habitat Mat Bundle

(suitable for children 6 to 12 years of age)

Contents of Coral Reef Habitat Mat:

- Guide to Presentation
- Coral Reef Habitat Mat with storage bag
- 34 Coral Reef Fact File cards with wooden box
- 35 cutout animals
- Coral Reef Habitat Mat Control Chart
- Food Chain Chart with cutout sun, 6 Relationship Discs, and 17 Energy Transfer Arrows
- Parts of a Coral Polyp three-part cards
- The Emperor Has to Wait storytelling sequence cards
- Grammar Labels with wooden box
- Grammar Sentences with wooden box
- Math Word Problems with wooden box
- lidded wooden storage box with dividers and tray

Guide to Presentation Table of Contents:

Coral Reef Habitat Mat Control Chart	1
Icons	2
First Presentation: The Ecosystem	2
Second Presentation: Coral	3
Third Presentation: Other Invertebrates	3
Fourth Presentation: Vertebrates	4
Fifth Presentation: Plant and Animal Relationships	4
Sixth Presentation: Storytelling	5
Seventh Presentation: Grammar Labels	5
Eighth Presentation: Grammar Sentence Strips	6
Ninth Presentation: Word Problems	7

CORAL REEF HABITAT MAT CONTROL CHART



marine zooplankton



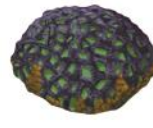
marine phytoplankton



staghorn coral



staghorn coral (at night)



pineapple coral



toadstool leather coral



table coral



mushroom coral



cabbage coral



grooved brain coral



deepwater sea fan



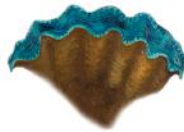
tube sponge



feather star



magnificent sea anemone



giant clam



giant barrel sponge



crown-of-thorns starfish



fuchsia flatworm



Christmas tree worm



Pacific cleaner shrimp



blue linckia sea star



pygmy seahorse



bluestriped fangblenny



bluestreak cleaner wrasse



blue tang



yellowstripe fairy basslet



steephead parrotfish



one spot foxface rabbitfish



emperor angelfish



ocellaris clownfish



bluestripe snapper



pajama cardinalfish



blue ribbon eel

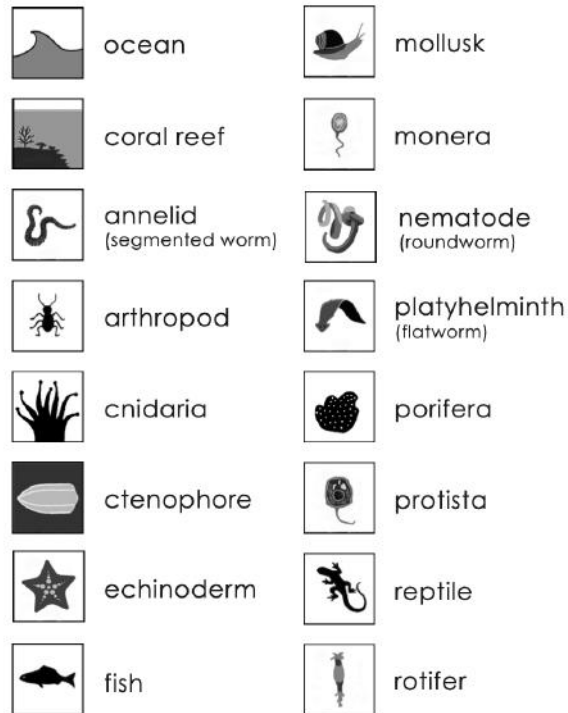


green sea turtle



blacktip reef shark

icons



First Presentation: The Ecosystem

You will need: Coral Reef Habitat Mat, an atlas showing the location of the Great Barrier Reef.

Purpose: To learn about a coral reef ecosystem.

1. Unroll the Coral Reef Habitat Mat. Encourage the children to make observations of the picture. Name the place as a coral reef. Explain that there is a very large reef called the Great Barrier Reef off the north coast of Australia. Look at the size of it and compare it to your state.
2. Discuss how coral reefs have shallow water with filtered sunlight. Talk about the anatomy of a coral and how the reef builds up over time. Discuss how the coral gets its color from the algae living inside of it and the symbiotic relationship that the coral has with the algae.
3. Look at the mat and find different kinds of coral. Talk about the unseen phytoplankton and zooplankton in the water that the coral eats at night by extending its polyps.

Second Presentation: Coral

You will need: Coral Reef Habitat Mat, Parts of a Coral Polyp three-part cards, cutout animals (marine phytoplankton, marine zooplankton, staghorn coral, pineapple coral, toadstool leather coral, table coral, mushroom coral, cabbage coral, grooved brain coral, and deepwater sea fan).

Purpose: To familiarize the children with the various types of coral that can be found in a reef and what they eat.

1. Discuss how plants take energy from the Sun to make food. Animals cannot live without plants. Where are the plants in the coral reef? Find the phytoplankton disc.
2. Look at the Parts of a Coral Polyp three-part cards. Find where the zooxanthellae live in the coral. Explain how they take energy from the Sun to make food for themselves and the coral.
3. Find the piece illustrating the staghorn coral polyps at night. Explain that during the night the polyps open and catch zooplankton. Find the zooplankton disc. What do zooplankton eat? Phytoplankton.
4. Find all of the coral among the cutout animal pieces, read the name of each coral, and have the children match them to the corals on the mat. Discuss how coral is an animal even though some of the corals may look like plants. They are invertebrates from the phylum Echinoderm. Notice the diversity of coral on the mat.

Third Presentation: Other Invertebrates

You will need: Coral Reef Habitat Mat, cutout animals, Coral Reef Fact File Cards.

Purpose: To explore the diversity of invertebrates in a coral reef.

1. After the Second Presentation, sort out the remaining pieces into vertebrates and invertebrates. Set the vertebrates aside to be used the Fourth Presentation (Invertebrates: tube sponge, feather star, magnificent sea anemone, giant clam, giant barrel sponge, crown-of-thorns starfish, fuchsia flatworm, Christmas tree worm, Pacific cleaner shrimp, and blue linckia sea star).
2. Younger children can match each animal to its corresponding picture on the mat as the guide names the animal. The guide may limit the number in the beginning. A three-period lesson to learn the names of the animals can follow. Place the animals across the room and have the child retrieve them and match them to the mat.
3. Older children can find the Fact File Card for each animal as it is introduced and either read or listen to learn interesting facts about the animal. If the invertebrate phylums have been introduced, the children can identify the representatives of the phylums.

Fourth Presentation: Vertebrates

You will need: Coral Reef Habitat Mat, cutout animals, Coral Reef Fact File Cards.

Purpose: To explore the diversity of vertebrates in a coral reef.

1. Find all of the vertebrate pieces (pygmy seahorse, bluestriped fangblenny, bluestreak cleaner wrasse, yellowstripe fairy basslet, steephead parrotfish, one spot foxface rabbitfish, emperor angelfish, ocellaris clownfish, blue tang, bluestripe snapper, pajama cardinalfish, blue ribbon eel, green sea turtle, blacktip reef shark). Sort them out by the classes. Which classes are not represented and do not live in this ecosystem?
2. Younger children can match each animal to its corresponding picture on the mat as the guide names the animal. The guide may limit the number in the beginning. A three-period lesson to learn the names of the animals can follow. Instead of merely pointing to the animal, have the child make the animal fly, swim, crawl, dive, etc.
3. Older children can find the Fact File Card for each animal as it is introduced and either read or listen to learn interesting facts about the animal.

Fifth Presentation: Plant and Animal Relationships

You will need: Coral Reef Fact File Cards, cutout animals, Food Chain Chart, Relationship Discs, Energy Transfer Arrows.

Purpose: To establish an understanding of transfers of energy in a food chain. To help the children explore the relationships between the living things in a coral reef ecosystem.

1. Make a food pyramid of the plants and animals by placing the phytoplankton at the bottom of the work mat. On the next row, place animals that only eat plants. On the next row, place animals that eat those animals. At the top of the food pyramid place the shark. Use the Fact File Cards to determine what eats what.
2. Next, use the side of the Food Chain Chart with four places around the sun. Ask the children where energy comes from. Note the sun in the middle of the chart. Follow the arrow to the green circle. Ask what goes there. Find the phytoplankton disc and place it on the green circle. Follow the arrow to the next black circle. Find an animal that eats the plant and place it there. Follow the arrow to the next circle and find an animal that eats that animal. Continue around the sun, following the arrows. Ask the children, or explain how, the energy from the animals goes back to the plants from the waste they produce and their bodies when they die. Use the other side of the chart for greater challenge.
3. Older students may use the Relationship Discs to illustrate the relationships between specific species. The + sign indicates that a plant or animal receives energy. The - sign indicates that it loses energy. The 0 indicates no loss or gain of energy. Choose two species from the wooden pieces and place the appropriate discs beside each to illustrate their particular relationship. For example in a predator/prey relationship, the blacktip reef shark has the + sign and the bluestripe snapper has the - sign. Students might do research to find symbiotic relationships where both species benefit (two + signs). In competitive relationships (two - signs), both species lose energy. Competitive

species will find a niche in the ecosystem where they can avoid competition because of this energy loss.

4. You can further the lesson using the Energy Transfer Arrows. These arrows have written descriptions of common actions in energy transfers. For example, "gives energy to" can be used to describe the Sun's energy transfer to a plant. It can also be used to describe an animal eating a plant. There are 12 phrases on the Energy Transfer arrows. Not all may be applicable to this ecosystem, but they can be used with the animals included, further animals that the children research, and for Food Chain activities for other ecosystems.

Sixth Presentation: Storytelling

You will need: animal cutouts (bluestreak cleaner wrasse, parrotfish, emperor angelfish, one spot foxface rabbitfish, tube sponge, bluestriped fangblenny, and Pacific cleaner shrimp), The Emperor Has to Wait storytelling sequence cards, Coral Reef Habitat Mat.

Purpose: To actively engage the children in enacting contextual relationships between the animals.

1. Take out the relevant cutout animals and identify them.
2. Put the picture cards in sequential order and, referring to the text cards, tell the story The Emperor Has to Wait as you place the cards down in front of the child from left to right.
3. After the child has practiced reenacting the story to the point of becoming familiar with the sequence of action, invite the child to "perform" the story and tell it at the same time.
4. Once the child can confidently tell the story, ask if she would like to gather a small audience for a performance.
5. The story may also be told by the child on the circle, inviting classmates to play the different animals in the story and listen for the storyteller's narrative to determine their action.

Seventh Presentation: Grammar Labels

You will need: animal cutouts, Grammar Labels, Fact File Cards.

Purpose: To practice grammar skills while learning about the animals of the coral reef ecosystem.

Note: The following steps are to be introduced in separate lessons and may be practiced independently between lessons. You may wish to fill the box with the parts of speech as they are introduced.

1. Take out the noun cards (they are black) and match them to the wooden pieces. Some nouns name places that can be matched to locations on the mat. This step may be repeated using the cards as sight words for reading practice.
2. After matching the noun cards, take out the article cards (light blue) and "introduce" each noun with an appropriate article. Notice that any plural nouns require the article the. Make a distinction between the use of a and an.

3. Take out the adjective cards (blue) and read them. Ask the children if that word describes any of the nouns. Have them place the adjectives with the matching article and noun to make a phrase. Experiment with placement to see if it makes sense.
4. Choose 10 to 15 noun cards and find appropriate adjectives for them. Invite children to match the nouns with an adjective.
5. Take out the verb cards (red). Have the children perform the actions. Find a noun to match the verb. Add an article and, possibly, an adjective to make a sentence.
6. Choose 10 to 15 noun cards and find appropriate verbs for them. Invite children to match the noun with a verb.
7. Choose a cutout animal and place it in various positions in relation to the coral (ex. under, above, in). Make a sentence, such as "The shark is above the coral." using the green preposition cards. Change the preposition and change the position of the animal to match. Choose an action verb such as swims and experiment with other prepositions.
8. Build a sentence beginning with the action. Add the subject. Who or what performed the action? Next, add an adverb (orange cards). How, when, or where was the action performed?
9. Make a list of 5 or 6 animals that live in the coral reef using a conjunction (pink cards) between each name. Show the children how you can replace all but the last and with commas.
10. At any of the above levels, the children may work independently to compose a sentence about the animals in the Coral Reef using the Grammar Labels. Have extra colored strips to use to make words that are not included. Use the Fact File Cards as a reference for information about the animals.

Eighth Presentation: Grammar Sentence Strips

You will need: Coral Reef Habitat Mat, animal cutouts, Grammar Labels, Grammar Sentences, Grammar Symbols*, Grammar Stencil*.

Purpose: To practice identifying the parts of speech.

* sold separately

Note: The following steps are to be introduced in separate lessons and may be practiced independently between lessons.

1. Begin with the blue phrase strips. Have the child read the phrase and match it to the corresponding wooden piece. Have the child find the noun in the phrase and place the noun Grammar Symbol (black triangle) above it. Find the article that introduces the noun and place the article Grammar Symbol (smallest blue triangle) above it. Find the adjective that describes the noun and place the adjective Grammar Symbol (large blue triangle) above it. The corresponding Grammar Labels can be sorted from the box prior to the lesson so that the child might build the phrase using cards from stacks of articles, adjectives, and nouns. The phrase can then be copied and symbolized using the Grammar Stencil.

2. Using the red sentence strips, have the child read the sentence and perform the action with the cutout animal. Use the Grammar Labels to build the sentences word by word. Symbolize and record the sentence by drawing the symbols above the words.
3. Using the green strips, have the child read the sentence and place the cutout animals on the mat in the positions indicated. Use the Grammar Labels to build the sentences word by word. Symbolize and record the sentence by drawing the symbols above the words.
4. Using the orange sentence strips, have the child read the sentence and perform the action in the manner indicated. Use the Grammar Labels to build the sentences word by word. Symbolize and record the sentence by drawing the symbols above the words.

Ninth Presentation: Word Problems

You will need: Coral Reef Habitat Mat, Math Word Problems on three levels, Coral Reef Fact File Cards.

Purpose: To introduce the use of math to gain a deeper understanding of ecological principles and to experience math in a relevant context.

1. Level One word problems involve the four operations and can be used with concrete materials such as the Bank Game or Stamp Game to find the answer. In the beginning, the guide may work with the students to help them understand the problem and how to find the answer. Some problems involve comparisons of height and weight.
2. Level Two word problems involve added steps in the process of finding the answer using the basic operations.
3. Level Three word problems involve decimals, percentages, and ratios for older students. You will also find problems that require calculations of square footage and adding units of measure