**Concepts**
There are many different types of crustaceans. Crabs, lobsters, shrimp, prawns, and barnacle are some types of crustaceans. Crustaceans share many of the same physical characteristics, but some have unique features of their own. All animals including crustaceans have special needs that ensure their survival.

**Standards Addressed**
2.1.1  
2.3.1  
2.5.1

**Duration**
1 hour

**Source Material**
MARE Sandy Shores

**Vocabulary**
Crustaceans  
Antennae  
Exoskeleton  
Invertebrate

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**Crustacean Critters**

**Summary**
Students will have the opportunity to work with live hermit crabs in their classroom. They will learn what it takes to keep a hermit crab, as well as, all other animals happy and healthy in their habitat.

**Objectives**
- Students will discover the four basic things that all animals need to survive.
- Students will be able to identify the abiotic and biotic components of a hermit crabs sandy shore habitat.
- Students will be able to describe how hermit crabs are adapted to live on the sandy shore habitat.

**Materials**

**Activity 1: Habitat Huddle**
1 large piece of chart paper or board in front of classroom

**Activity 2: Crustacean Drawing**
5-10 pictures or specimens (can be bought at the market or just use toy models) of different types of crustaceans such as crabs, lobsters, hermit crabs, and shrimp.
2 pieces of chart paper  
Drawing paper for each student

**Making Connections**
Students may recall seeing different types of crustacean during visits to the sandy shore. Learning about the different kinds of crustaceans and how their similar or different will help students to identify the various adaptations and characteristics that make the sandy shore a suitable habitat for some and not for others.

**Teacher Prep for Activity**

**Activity 1: Habitat Huddle**
Make a habitat huddle chart. You could use either the board in front of your class or a piece of white chart paper and hang it up in the front.

**Activity 2: Crustacean Drawings**
Find 5-10 pictures of different crustaceans. Make a chart titles Crustacean Body Parts on paper or the board. Under the title make two columns: on the left side write Part All Crustaceans Have and on the right side write Special Parts Only Some Crustaceans Have. Write out the key concepts from the end of this lesson on a piece of chart paper.
Background (for teacher)

All crustaceans share some similar characteristics. Crustaceans are types of arthropods like insects. They are all invertebrates meaning that they do not have a backbone. All crustaceans have 10 legs. They have hard outer coverings called exoskeletons that are used to protect themselves from predators. The exoskeleton is not a shell but rather a hard outside skeleton. This hard crusty outside is how they got the name crustacean. They also have jointed legs and segmented bodies. There are many different types of crustaceans including shrimp, crabs, lobster, prawns, and barnacles. Most of them live in the ocean or in fresh water like a pond. However, some have adapted to live on the land. All crustaceans have two pairs of antennae, a three-part body including a head, thorax, and abdomen.

Crabs are one type of crustacean that has five pairs of legs (10 total). The first pair of their legs are their large pincers. They usually move sideways but can move in all directions. There are two different groups of crabs: true crabs and false crabs. Hermit crabs are false crabs because they have different physical characteristics than true crabs. For example, they do not have the hard outer exoskeleton. The main difference is that hermit crabs use shells to protect their bodies.

Procedure

Activity 1: Habitat Huddle (This should take ~30 minutes)

Main Question: What does it take to be a crab?

1. To begin the activity, read, define, and write the new vocabulary words on your sandy shores vocabulary list (HINT: you may need to consult the background for the next lesson if you are not sure of the definitions). Be sure that the students understand that a habitat is a home that includes everything that an animal needs to survive.
2. Put the students into groups of 2 and have them spread out throughout the classroom where they feel comfortable. Assign each student either #1 or #2.
3. Explain that you will be asking them questions and that each person will have a chance to share their answers and ideas. Buddy #1 will answer first while Buddy #2 listens and then shares Buddy #1’s ideas with the rest of the class. Then they will switch roles.
4. Ask Buddy #1 the first question from the list below. Give them 30-60 seconds to talk about their ideas to Buddy #2.
5. Ask Buddy #2’s to share those ideas with the rest of the class and list them in words or pictures on your habitat huddle chart that you hung in front of the class.
6. Switch roles and remind the students that only one person talks while the other listens. Pose question #2 for Buddy #2 to answer. Give them 30-60 seconds and then ask them to share, again listing their responses on the chart.
7. Repeat steps 4-8 until all the questions have been asked and responses have been recorded on the chart.

List of Questions:

1. What things do animals need to have in their habitat in order to survive? (food, water, shelter, mate, plants, air, etc.)
2. We are studying the sandy shore habitat. What are some animals that might live there? Describe what one of those animals looks like.
3. Imagine that you are a crab that lives on a sandy shore. Describe what your home might look like.
4. What would you eat and where would you find water? How would you protect yourself from being eaten by something else?
**Activity 2: Crustacean Drawings (This should take ~30 minutes)**

1. Separate the students into groups of four (larger groups may be necessary for bigger classes) and have the groups spread out in the classroom.
2. Distribute a different picture or example (model, dead casing, actual one form seafood market, etc.) of a crustacean to each of the small groups.
3. Give each student one piece of white/drawing paper and a pencil to each student.
4. Tell the students that each group will become an expert on the animal in their picture, BUT that all the animals are a kind of crustacean. They will need to find out what all the crustaceans have in common and what is different or special about each one.
5. Have them sit with their group around the picture. Explain that each student must draw and label all the parts of the body that they can see. If they do not know the names, then have them make up a name that describes the part.
6. Display the drawings around the room and have a volunteer from each group explain their labels and drawings. As they are describing their body parts, ask them to tell you where to list those features on your Crustacean Body Parts chart in front of the class. Should it go on the left side for parts all crustaceans share or the other for special parts only some crustaceans have. Keep the chart for reference in the next lesson.
7. To end the lesson, review the key concepts from the day:
   (HINT: it may help to have them written on paper and read them aloud together at the end):

   **A habitat is a home and has everything an animal needs to survive.**

   **Each kind of animal has its own special needs for food, water, air, and shelter.**

**Assessments**
Crustacean drawings complete with labels

**Resources**
edhelper.com/AnimalReadingComprehension_23_1.html
http://atschool.eduweb.co.uk/sirrobhitch.suffolk/key/shrimps&.htm

**Literature Connections**
**A House for Hermit Crab by Eric Carle**
This book provides an excellent resource to help the students start thinking about hermit crabs that can be found on the sandy shore. The students will hear general information about the hermit crab and its home. It provides an excellent introduction to the next lesson and can be used to get the students excited about working with real live hermit crabs in your next session.

**Pagoo by Holling Clancy**
This book provides an excellent story about a hermit crab named Pagoo. It tells the story of Pagoo as he grows and learns about life in the sea. The illustrations alone can provide the students with a lot of information about hermit crabs.
### Sandy Shores

**Concepts**
Hermit crabs are some of the most colorful and engaging crustaceans found on the rocky and sandy shore. Hermit crabs, like all other animals, need the same basic things to survive: food, water, oxygen, and shelter. These things are essential for them to lead a happy and healthy life in their habitat.

**Standards Addressed**
- 2.1.1
- 2.3.1
- 2.5.1

**Duration**
1 hour

**Source Material**
MARE Sandy Shores

**Vocabulary**
- Molting

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### Hermit Crabs in the Classroom

**Summary**
Students will have the opportunity to observe and handle live hermit crabs in their classroom. They will learn the proper behavior and handling procedures for live animals. They will identify all the necessary components of their habitat and how hermit crabs are adapted to life on the sandy shore.

**Objectives**
- Students will learn through real interactions with hermit crabs about their physical and behavioral characteristics.
- Students will learn the proper procedures on how to handle and treat live animals.

**Materials**
1 hermit crab and habitat for each group (See teacher prep for further materials and instructions)
1 piece of drawing paper

**Making Connections**
Students may recall personal experiences they have had with live animals. Through this hands-on interaction they will learn how to treat live animals at home and on the sandy shore.

**Teacher Prep for Activity**
Put together the hermit crab habitats with the crabs in them for each group (instructions based on having 4 or 5 groups):
You will need 4 or 5 clear plastic animal homes, which can be purchased for $5 or less at a local pet store. Be sure that the homes have a ventilated top. For each home you will need some abiotic and biotic components. For example, sand, rocks, empty shells, food (lettuce is best), water (put in a small dish or bottle lid), and some other vegetation, wood, etc. to add to the habitat. Be sure to include sources of all four basic needs for survival (food, water, shelter, and oxygen). You will need one hermit crab for each home. These can be purchased online or collected if put back when finished.

**Background (for teacher)**
Hermit crabs are crustaceans. A hermit crab is a type of crab that does not have a hard shell. It is not a “true” crab because it uses other animal’s old shells for protection. For this reason, hermit crabs are called “false” crabs. As hermit crabs grow, they move from their shell that has become too small into larger available shells. This is called molting and is the reason why empty, larger shells must always be available for them to move to. Hermit crabs have gills that
they need to keep wet at all times in order to breathe, which is why they must be provided with water at all times. However, they cannot be constantly submerged in water because they can drown. It is best to have only one hermit crab in a home at a time (for this lesson) to ensure that there will be no competition for empty shells or space.

**Procedure**

1. Tell the students that today they will be observing live hermit crabs in class. Remind the students to look, listen, smell, and do not touch unless given permission. (HINT: students should be reminded that these critters do have claws and should be handled very carefully. Explain that the hermit crabs should only be picked up by their shells and they should never put their fingers near their claws. If a student were to get pinched, running their finger or hand under lukewarm water should release the crab.) (~5 minutes)

2. Separate the students into groups and ask them to tell you questions they have or things they would like to know about hermit crabs. Make a list of their questions on chart paper or on the board. Some examples of questions students may have are (there are many more): (~10 minutes)
   - How many legs do they have?
   - How many legs are outside and inside their shell?
   - What does it use the different legs for?
   - How does it find food?
   - What does it eat?
   - How do they get in and out of their shells?
   - Does it know we are watching it?
   - What happens when it gets scared?
   - Does it like its habitat or home?

3. Give each group one hermit crab habitat with the crab already inside. Give each group about 5 or 10 minutes to make observations and discoveries about their hermit crabs on their own. Have each group decide on one observation to share with the class. Move around the room during this time to ensure proper treatment of the animals and to help the students make good observations. You may want to make statements like:
   - Let’s get down a little closer and see if we notice anything else.
   - Look closely and with a careful eye to observe their movements and home.
   - Pay attention to when they are out moving, and when they go back in their shell.
   - How many things can you find on your hermit crab?
   - Tell me what you see and can count. Show me what you mean.
   - Do you hear any noises?
   - Give me some words to describe your hermit crab.

**After a few minutes, if you feel confident that the students will be responsible and treat the hermit crabs properly you may allow them to take them out and put them on the desks. Students often like to hold them in their hands and feel them, but do not force students who are scared to do so. Often this hands-on approach brings forth new observations! (~15 minutes)

3. After the initial observation period have the students look at the Crustacean Body Parts chart from the last session. Ask the question:
   - How many of the basic crustacean parts they can find? (~ 5 minutes)

4. Refer back to their list of questions and work through each one to find out if they have learned the answer through their own observations. Circle the questions that they do not yet have answers for. (~10 minutes)
5. Let each group pick a circled question to figure out a way they might be able to answer it. Give them time to come up with ideas or methods for how they might find the answer. Have them share their ideas with the rest of the class and discuss ways they may be able to refine their investigation. (HINT: When asking them to do this portion of the activity, it is fun to tell them they should pretend that they are real scientists to get them excited) (~10 minutes)

6. Tell the students to make sure their hermit crabs are safely back in their homes with all the things they need to survive an instruct them to place in an area of the room you have chosen where they will be undisturbed. (~ 5 minutes)

7. Congratulate the students on their excellent handling and care skills during the activity and for thinking like real scientists!

Assessments
Questions formed
Creative ideas on how to answer those question & verbal discussion

Resources
www.enchantedlearning.com

Art Connection
Distribute one blank sheet of white paper or drawing paper to each student. Ask them to get out their crayons or colored pencils. Explain that scientists often use drawings as a way to communicate about an animal. Have them draw their hermit crabs – they should draw them big and include as many details as possible. They should use the actual colors they observed in their hermit crab and include anything extra that would help them identify their hermit crab. Display the pictures around the room.
(HINT: it may be necessary to allow the students to observe their hermit crabs again while completing their drawing to get the most accurate depiction. Instruct them that they can just observe their hermit crab while he is still safely in his home. Do Not get them out again)