

## Structures, Processes, Responses

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### Lesson Overview

In this lesson students will learn that *behavioral responses* refer to how animals cope with changes in their environments. Animals may respond to environmental stimuli through behaviors that include hibernation, migration, defense, and courtship.

### Standards Addressed

SC 2005	6-3.5 Illustrate animal behavior responses (including hibernation, migration, defense, and courtship) to environmental stimuli.
SC 2014	6.L.4B.3 Construct explanations of how animal responses (including hibernation, migration, grouping, and courtship) to environmental stimuli allow them to survive and reproduce.
NGSS	MS-LS 1-4 Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively.

### Disciplinary Literacy Best Practices

Concept Maps  
Graphic Organizers  
Give Me Five  
Most Important Point  
Muddiest Point

### Lesson Plan

Time Required – One day for discussion and planning, Two or more days for research

Disciplinary Vocabulary – hibernation, migration, defense, courtship

Materials Needed:

- Animal books and/or computer lab
- 5 W's Graphic Organizer(1 per student if used as handout)
- Concept Map (1 per student if used as handout)
- Chart paper or student notebooks
- Post it Notes

Assessment: Graphic Organizer, Concept Maps, Muddiest Point

## Engage

- Display a list of types of responses to stimuli:
  - List A
    - Blinking
    - Panting
    - Sweating
    - Shivering
  - List 2
    - Hibernating
    - Migrating
    - Living in groups
    - Using a stinger
- Tell them that this is a list of various animal responses to stimuli.
- Ask students: What is the difference in the two groups of responses?
- List A shows physical responses and List B shows behavioral responses. Ask students to suggest some other behavioral responses.

## Explore

- Have cooperative groups produce a **Concept Map** of behavioral responses to review what they know and remember from earlier experiences (sample map is included with possible categories and sample responses).
- The map included can be used as a handout or a sample. You might want to model the drawing of the map using the board and have students complete their own in their notebooks or on chart paper.
- After groups have had time to complete their maps, allow them to post them.
- Take observations and questions from the class and scribe them for all to see.
  - You could vary the map by having them develop two “circles” off of the labeled sections. One could be for students to scribe “what they know about hibernation, migration”, etc. and the other would be for “what we wonder” about hibernation, migration, etc. They can then research to find out specifically what they wonder as well as the key information about each behavior.
- Tell students that they will continue to explore behavioral responses of animals by researching one animal and then illustrating what they learned by completing a 5 W’s **Graphic Organizer**.
- Provide students with a 5 W’s **Graphic Organizer**. (See sample included along with sample responses). Students can sketch or include picture of animal in center oval.
- Provide students with access to resources on animals (books, computer, etc).
- Decide how you want to assign animals (provide a list for them to choose from, or allow them to select an animal they want to know more about, etc.)
- Suggestion: 1 animal per student. This allows for research on a larger variety of animals.
- <http://www.nationalgeographic.com/kids-world-atlas/animals.html>
  - This National Geographic Site provides slides of information about many animals and students can do their research using just this site. There are videos available too but the slides provide time to read the information and take notes on the animal.

- Allow two days for the students to work on their research and then ask them to briefly share what they learned about the responses of their animal and show how they illustrated it.

### Explain

- As students share, have cooperative groups return to their concept maps from earlier and add information based on each presentation. *For example:* If they did not include bears as an example of hibernation and a student uses bears as an example, then the students should add that to their map. If the presenting student answers an “I wonder” question, then students add that information to their map.
- After all have presented, give each student 4 index cards and have them write the words migration, hibernation, defense, and courtship on the cards, 1 per card.
- Develop statements about each of these behavioral responses. Use the support document as needed.
- Read the statements to the class and have the students hold up the index card with the correct category/term being described. Listen carefully for misconceptions and the need for clarification. Sample statements:
  - This is a state of greatly reduced body activity, used to conserve food. (hibernation)
  - Monarch butterflies exhibit this response. (migration)
  - Protective coloration used by some animals. (defense—camouflage)
  - Often sensory cues (color, odors, etc) are used. (courtship)
- Students return to their concept map one more time and add any new learning or correct any misconceptions.
- Use the **Give Me Five** strategy to call on five students to share the **Most Important Point** of their learning from today. **Give Me Five** is used to hold students accountable. They cannot raise their hands, therefore any student can be call upon to give an important point they learned. By sharing what they think is the most important point, the teacher can listen for misconceptions and correct understandings from the students.
- To bring closure to the lesson, give each student a post-it-note. Ask them to share their Muddiest Point with you. This can be anything they don’t clearly understand or they still have questions about but no answers. Ask students to stick them to the door frame as they are leaving.

### Extend

- You may want to show these two short videos showing examples of camouflage and migration.
  - <http://video.nationalgeographic.com/video/player/kids/animals-pets-kids/reptiles-kids/chameleon-babies-kids.html>
  - <http://video.nationalgeographic.com/video/player/kids/animals-petskids/birds-kids/hummingbird-kids.html>

### **Teacher Reflections and Biographical Information**

In this lesson students will learn about behavioral responses of animals. They will expand their knowledge about hibernation, migration and defense mechanisms. In addition, they will examine courtship as a behavioral response.

This lesson originally appeared in the SC Standards Support System (S3) Curriculum. As part of the IQMS project, we adapted it by supplementing additional disciplinary literacy strategies to support student understanding of the content.

Lesson Author: Adapted from the SC Standards Support System (S3) Curriculum by Alice Gilchrist. Mrs. Gilchrist was a classroom teacher, a Science Educational Specialist and now serves as Coordinator of the Western S<sup>2</sup>TEM Centers SC.

## Teacher Information for usage of the 5W Graphic Organizer

### Topic: Behavior Responses (Sample Responses for 5 W's graphic organizer)

**Who?** Snakes

**What process?** Hibernation-- a state of greatly reduced body activity,

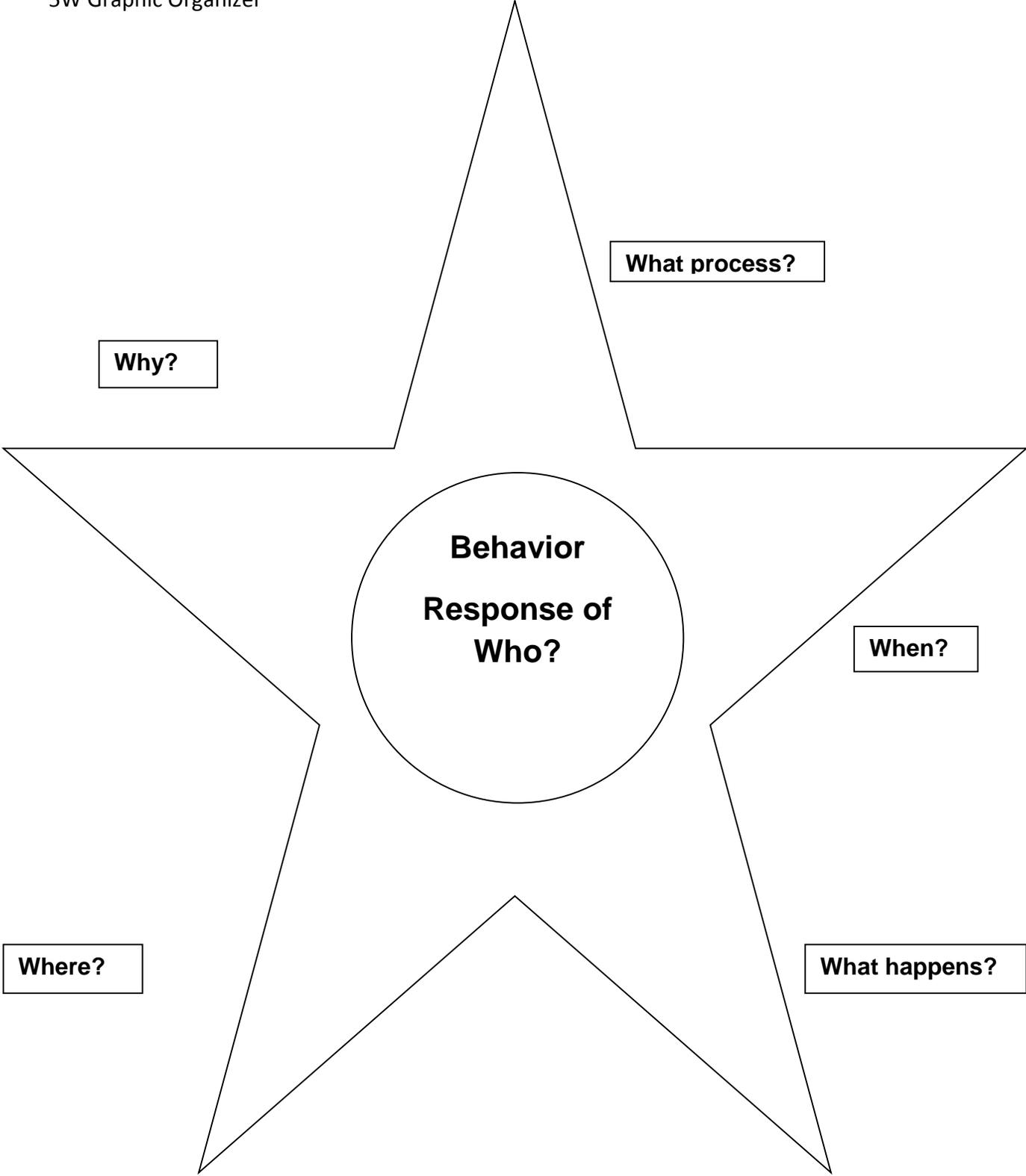
**When?** part or all of the winter.

**Where?** underground

**What Happens?** body temperature drops, its heartbeat and breathing slow down, and it uses very little energy.

**Why?** for coping with changes in the environment, used to conserve food stored in the body.

5W Graphic Organizer



Concept Map Sample

