What is an animal adaptation? How do animals survive in the Polar Regions?

I. **Content:** Students will define the term “animal adaptations”, and explore animal adaptations of polar animals. In addition, they will discover how animals in the Polar Regions stay warm in the harsh climate, and identify that where animals live determines what traits they have. Students will use investigate animal adaptations through literature, videos, and an experiment.

II. **Learning Goals:**
- Students will be able to define “animal adaptations” written and orally.
- Students will be able to identify different characteristics that polar animals have that help them stay warm in the Polar Regions.
- Students will be able to recognize how traits such as fur and blubber insulate polar animals.

III. **Rationale:** Students have created a KWL chart demonstrating questions that they want to answer during this unit. They have already discovered the cause of the Polar Regions’ cold, harsh temperatures, and now they will be moving onto another one of their questions; “how do animals stay warm in the Polar Regions?”. Students will discover the answer to this question through an interactive read-aloud, a class discussion, and an experiment. The students will gain the background needed for the experiment through the read-aloud and the class discussion, because they currently do not have a lot of background knowledge about animal adaptations. Therefore, students will define and identify animal adaptations in the Polar Regions before the experiment, and will focus on if these adaptations are more helpful for the animals to have on land or in water, rather than discovering the adaptations themselves.

IV. **Assessments:**
- Students will engage in an in-class discussion.
- Students will engage in turn and talks.
- Students will complete a worksheet which will assess their background knowledge, as well as demonstrate their understanding of the experiment.

V. **Personalization:** My class is full of a variety of learners – three quarters of my class are English Language Learners (ELLs), and six students are on individualized education plans (IEPs) – therefore, I need to make sure all students are able to understand the content. In this lesson, I will use a lot of visuals, including video clips to go along with the read-aloud. In addition, throughout the read-aloud I will stop and make connections to things that are relatable to all students; for example, when talking about how polar bears use their fur for insulation, I will compare it to when students put jackets on in the wintertime to stay warm. The read-aloud I have chosen for this lesson does a nice job of relating the science to the students, and gives them a lot of opportunity to make personal connections to the science of heat and insulation. In the worksheet, I will provide sentence starters for all students, and encourage low ELL’s to draw pictures and labels where they can, if writing is too challenging.
### VI. Activity Description and Agenda:

#### Day 1:

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<th>Student Will</th>
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| Review material from previous lesson. Refer to KWL chart and question students had asked, “how do animals stay warm in the Polar Regions?” Tell students they will be answering that question in this lesson. Introduce the term animal adaptation and see if students can brainstorm what they think it might mean. | Brainstorm with their table what they think animal adaptation means. Talk to a partner about examples of animal adaptations. Engage in a class discussion adding to a vocabulary chart. | • Vocabulary sheet  
• Markers |
| Transition students to the rug. Read *The Magic School Bus In the Arctic*. Stop at certain spots to discuss the science and how insulation works – relate it to things the students know (wearing jackets and winter gear). | Listen to the story with comprehension, and respond thoughtfully to questions based on the read-aloud. | • *Magic School Bus In the Arctic* |
| Introduce the “blubber glove” experiment to the students. Have them complete the first page (define animal adaptation, and list two ways polar bears stay warm). | Complete the first page of the worksheet. | • Experiment worksheet |
| Play two clips from *The Magic School Bus in the Arctic* episode. (The clip about the Polar Bear fur and the clip about the blubber) | Students will talk to each other about how the Polar Bear and Walrus keep their heat in. Think about which trait they think would work better in the water (blubber or fur). | • *The Magic School Bus in the Arctic* episode |

#### Day 2:

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<td>Review material from previous day (insulation)</td>
<td>Review material from previous day.</td>
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and animal adaptations).

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| Go over the experiment procedure with the students, and the worksheet. Split the students into 5 groups. Have them get started and try out the blubber glove, fur glove, and empty glove. | Fill out experiment worksheet, and participate in experiment! Decide if fur or blubber would be better in the water. | • Bowls of ice water  
  • Blubber glove (shortening, zip-loc bags)  
  • Fur glove (cotton balls, zip-loc bags)  
  • Empty glove (zip-loc bag) |
| Review results of the experiment and add new information to KWL chart.   | Engage in class discussion based on the results of the experiment. Add to the KWL chart based on the new knowledge learned. | • Ongoing KWL chart  
  • Markers  
  • Completed experiment worksheets |

VII. Learning Standards:
Prek-2 Life Science - Identify the ways in which an organism’s habitat provides for its basic needs (plants require air, water, nutrients, and light; animals require food, water, air, and shelter).