

Holyoke Public Schools
Science Curriculum Map
Grade 5
Adaptations Unit

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Holyoke Public Schools

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Overview of Curriculum Maps

Goals:

1. To ensure that students are exposed to a rigorous curriculum in every school and every grade
2. To have consistent instruction and assessment district wide
3. To prepare students for the MCAS test
4. To explain what is expected to be covered in each Science unit of study

Expectations:

The district's expectation is for students to successfully meet the Massachusetts Science and Technology/Engineering Standards, through the use of the English Language Proficiency Benchmarks and Outcomes (ELPBO) to support instruction for English Language Learners (ELLs). Strategies for teaching ELLs are good teaching practice for all learners. In order to help facilitate this teachers are required to follow curriculum maps.

Accountable Talk:

To promote learning, explore solutions, and justify reasoning, conversations between students and students or students and teacher must be accountable - accountable to the learning community, to the science discipline, and to rigorous thinking.

Feedback to Students:

Feedback needs to happen daily in the classroom. There are many ways to give feedback. Conferencing, observations, questions asked during the workshop, and written responses to students' work and notebook entries.

FIVE ESSENTIAL PRACTICES FOR TEACHING ENGLISH LANGUAGE LEARNERS

The five essential practices for teaching English language learners are practices developed by America's Choice to support the literacy needs of ELL students. These practices are a result of current second language acquisition research, literacy development, and effective classroom practices. (*America's Choice: Teaching English Language Learners: Literacy*)

Essential Practice 1	Classroom Applications
<p data-bbox="224 768 781 835">Develop Oral Language through Meaningful Conversation and Context.</p> <p data-bbox="224 913 808 1346">Oral language is the foundation of literacy and a main tool for learning and interacting in both academic and social settings. Natural exposure and planned experiences with oral language facilitates increases expression and understanding of the second language. Oral language also supports vocabulary development in context, paving the way for better comprehension and production. Exposure to rich oral and written language environments is vital for developing literacy and language skills.</p>	<ul data-bbox="878 751 1552 1554" style="list-style-type: none">• Develop oral language through meaningful conversation by planning language experiences and building consistent time to engage conversation.• Enunciate and rephrase difficult works allow extra time for practice and repetition.• Demonstrate and orally explain activities step-by step. Rephrase difficult instructions• Use think-alouds. Verbally share the comprehension thought process.• Provide opportunity for practice: allow extra time for practice and repetition in oral, reading, and writing activities with appropriate feedback.• Allow students to respond through Turn and Talk activities, oral, choral reading and re-reading.• Use audio recording of a text to provide extended to provide extended literacy opportunities where students listen to the reading of a text independently while developing fluency, accuracy, and language acquisition.• Plan daily read-alouds to model literacy strategies and to scaffold fluency, accuracy, and independent reading.

Essential Practice 2	Classroom Applications
<p>Teach Targeted Skills through Contextualized and Explicit Instruction Full literacy is a fluid combination of oral, reading, and writing skills. These skills must be taught through explicit and contextualized instruction that scaffolds learning. Contextualized instruction provides students with extra linguistic clues that support understanding not only of the content but also of the language being used in the lesson. Combining contextualized practices with the knowledge of phonemic awareness, phonics skills, language structures and functions, text patterns, and literary devices such as metaphors, analogies, figurative language, and unfamiliar cultural concepts, will aid students in achieving stronger literacy skills. Explicit skills give the students the tools they need to comprehend increasingly complex literacy demands.</p>	<ul style="list-style-type: none"> • Use clues of context to make instruction meaningful. Teach skills and strategies using materials, books or writing that students know and understand • Use Big Books or shared reading to teach phonics, vocabulary and language features. • Use student or teacher writing models to teach craft, spelling, and language use conventions. • Teach phonemic awareness within a context. ELL children must attach meaning and experience to phonemes they may never have heard before. Teach phonemic awareness while explicitly teaching vocabulary, meaning, or within-a-story context. • Understand the linguistic background native language and address these issues specifically. • Pay special attention to sounds of letters. Languages have different linguistic features. For example, while the vowel sounds in English vary, Spanish vowel sounds are consistent. Students will transfer what they know about one language and automatically, and sometimes incorrectly, apply it to English. • Use meaningful activities to teach phonemic awareness, such as language games, Word Walls, word banks, songs, poems, and rhymes that focus on particular sounds or letters.

Essential Practice 3	Classroom Applications
<p>Build Vocabulary through Authentic and Meaningful Experiences with Words</p> <p>Developing and deepening a student's understanding of new words is essential for English language learners. Building vocabulary in the context of literature, experiences, and modeled writing ensures that students will own the new words they encounter. Vocabulary building is a lifelong process and students must learn ways to integrate and approach new and challenging words. Discussing, playing with, and using new words allow students to gain new vocabulary through meaningful, and therefore memorable, experiences.</p>	<ul style="list-style-type: none"> • Vocabulary development must be taught intentionally. Since word knowledge correlates with reading comprehension and meaning-making strategies used in decoding, it must be a focus for instruction. • Vocabulary development must be taught in context. Connect word knowledge with background knowledge and instructional context. ELL students need both meaning and context to acquire new vocabulary. • Facilitate and plan activities that support the three main ways vocabulary is learned: <ol style="list-style-type: none"> 1. Through meaningful conversations with adults and other students. 2. Listening to adults read at slightly higher levels than the student's independent level. 3. Read extensively on their own at their reading level. • Pre-teach vocabulary words, prefixes/suffix, context clues, and cognates. Build students' skill box with vocabulary and give them tools to understand and connect new vocabulary. • Use content Word Walls or word webs. Support cognitive structuring for ELLs by connecting new vocabulary to themes, ideas, or generalizations. • Explicitly focus on and teach academic language. Students need to be consistently exposed to formal or content specific language and vocabulary. • Explicitly teach the building blocks of language. Students need to learn the connecting and transition words of the English language ("however," "in conclusion", etc.)Teach them in context and teach them explicitly. • Focus teaching Tier 2 words, as well as essential Tier 1 words. Although most explicit vocabulary instruction should focus on Tier 2 words (words with a high frequency in the written language, example: examine), ELLs need instruction around Tier 1, or basic spoken words as well.

Essential Practice 4	Classroom Applications
<p>Build and Activate Background Knowledge</p> <p>Learning is based on establishing neural connections in the brain, drawing on previous experience, background knowledge, and prior and current environments. It is both the teacher's and the student's job to facilitate these connections in order to construct meaning and understand new ideas and concepts while expanding on their own world knowledge. Actively fostering these connections will enable students to more easily interpret their surroundings and assign meaning to new concepts while expanding their own</p>	<ul style="list-style-type: none"> • Elicit student's experience and comments. Connect school, literary and personal events through talking, writing, and reading. • Consider the cultural background of students when selecting literacy materials such as books and poems. Support language development of ELL students by giving them new English words for experiences that are close to home. Using materials that represent their cultural background increases motivation and supports participation. • Discuss and build language around universal themes. Connect new language to universal experiences. • Build content-based word banks and webs. Connect new language to other known words, experiences, and ideas to support cognitive structuring. • Use native language and value home culture. View home cultures as a resource, rather than a liability. • Use hands-on experience based instruction in all academic areas. Language can be built upon common classroom experiences. • Encourage students to make connections before, during and after reading/ • Find out what students know, and build on their experience.

Essential Practice 5	Classroom Applications
<p>Teach and Use Meaning-Making Strategies Intentionally teaching meaning-making strategies provides students with a toolbox to approach future learning challenges. Meaning-making strategies vary from helping students comprehend text to various strategies students can use to understand English-dependent lessons. Modeling appropriate behaviors to students gives them the tools to be autonomous learners and supplies them with options they can use to interpret environmental input, both academically and socially.</p>	<ul style="list-style-type: none"> • Explicitly teach student meaning-making strategies. Model for students how to visualize, make connections, monitor for meaning, determine importance, etc. • Provide opportunities for practice. Sustain daily work periods in reading and writing for students to practice these strategies. • Systematically assess students and adjust instruction. Monitor progress and use data to adjust the focus of mini-lessons, conferences and small-group instruction. • Model activities and thinking for certain skills. Students need to see and experience what is expected of them before they perform a task. • Beginning ELLs need more than just phonics and English Language Development instruction. EXPOSE STUDENTS RIGHT AWAY TO COMPREHENSION STRATEGIES. Waiting to address skills in chronological order hinders academic growth and English proficiency. • Teach students how to help themselves in English-dependent lessons. Model your thinking and how you approach problems. Build students cognitive toolbox by explicitly teaching the ways to help themselves during difficult language situations.

This unit should take 10 weeks to complete...this is assuming that the class meets 5 days per week with a class period of 60 minutes/day.

Resources:

Plants in Their Habitats: National Geographic Theme Set (Rain Forest, Deserts, Temperate Forest and Wetlands)

Animals in Their Habitat: National Geographic Theme Set (Forest Animals, Ocean Animals, Desert Animals & Rain Forest Animals)

Life Cycles: National Geographic Theme Sets (Giant Panda, Monarch Butterflies, Poison Dart Frogs & Komodo Dragons)

Big Idea: Organisms have adapted to their environment over time/ Organismos se han adaptado a su medio ambiente a través del tiempo

Massachusetts Science and Technology/Engineering Standards

LSS #6. Give examples of how inherited characteristics may change over time as adaptations to changes in the environment that enable organisms to survive, e.g., shape of beak or feet, placement of eyes on head, length of neck, shape of teeth, color.

MCAS item analysis (What should students be able to do?)

- ✓ Know how some physical adaptations have enabled organisms to survive (shape of beak or feet, placement of eyes, length of neck, shape of teeth, and color)
- ✓ Know how some physical characteristics have helped organisms survive in different environments (desert versus tropical, or aquatic versus terrestrial)
- ✓ Be able to list features (characteristics) of an organism that help them survive and be able to explain how these features enable an organism to survive in their natural environment
- ✓ Recognize plant structural adaptations that help them survive

LSS # 5. Differentiate between observed characteristics of plants and animals that are fully inherited and characteristics that are affected by the climate or environment.

MCAS item analysis (What should students be able to do?)

- ✓ Be able to identify characteristics that are inherited
- ✓ Recognize traits that are not inherited

Guiding Questions: What are physical adaptations?/ ¿Cuáles son las adaptaciones físicas? How do physical adaptations help organisms survive in different environments?/¿Cómo ayudar a las adaptaciones físicas organismos sobrevivir en ambientes diferentes? (2 weeks)

Engage:

- Have a few teachers on your team dressed for the wrong season (for example if it is a warm day, wear a winter coat with hat and gloves). The idea is to get kids to talk about how we change what we wear as a result of the weather. Animals can not put on clothes like humans so they need to **adapt/adaptar** to the changes in the

weather and climate. Or see website, to create an animal with your student's input for a specific type of environment.

<http://www.accessexcellence.org/AE/ATG/data/released/0542-BehmLisa/>

The goal is to get students to talk about **adaptations/adaptaciones**. Ask students if they ever had to adapt to a situation? Adaptation basically means organisms change in order to better live in their **environment/entorno**.

*Employ words, phrases, and sentences in social interactions in everyday topics.
(S.2.10)

Explore:

- Students read *Plants in Their Habitats*: National Geographic Theme Set and *Animals in Their Habitats*: National Geographic Theme Set. (Each Theme Set includes four books written at different reading levels). Students work in groups, each group learns about the different types of plants and animals that live in a specific type of **habitat**: desert/desierto, forest/bosques, rainforest/selva, and wetlands and oceans/ los humedales y los océanos. Students make a table (four columns) and record 1) the type of environment, 2) the climate (the temperature and amount of rainfall/cantidad de lluvia or precipitation/precipitación), 3) list examples of different types of plants and animals found in that environment, and 4) list some of the physical adaptations that help these plants and/or animals survive in the specific environment. Students share their findings with the class, and create a class chart which will be left up and referred to and added to as needed throughout this unit.

<http://www.mbgnet.net/bioplants/adapt.html>

*W.2.2.e. Write brief summaries of information gathered through research.

- Students add the following vocabulary terms to their glossaries: **habitat, environment/entorno, adaptations/adaptaciones, & adapt/adaptar**
*Identify words in English that are frequently used in the student's first language.
(S.1.8)
*Clarify meanings of words, using dictionaries, glossaries, and other resources.
(S.1.24)

Explain:

- Each student writes a paragraph (includes a topic sentence, details and a conclusion) about how physical adaptations help organisms survive in different environments. Students may refer to the books: *Plants in Their Habitats*: National Geographic Theme Set and *Animals in Their Habitats*: National Geographic Theme Set.

*W.1.6.a. Identify the organizational structure of a writing task (such as *compare-and-contrast, supported opinion, classification, persuasion or argument, cause-and-effect*).

Extend:

- Free Presentations in PowerPoint format & Interactive Games
<http://animals.pppst.com/>

- How fast can you match up animals with their adaptations?
http://www.ecokidsonline.com/pub/eco_info/topics/climate/adaptations/index.cfm
 *S.3.9. Identify important information about academic content, using prior knowledge and/or visual cues as needed.

Guiding Question: How have some adaptations helped organisms to survive?/ ¿Cómo han ayudado a algunas adaptaciones de los organismos para sobrevivir? (2 days)

Engage:

- At one time, giraffes/jirafas came in a variety of neck lengths/longitudes del cuello. Some giraffes had much shorter/más corto necks than modern giraffes. Brainstorm with students why short-necked giraffes did not survive. (*elicit prior knowledge*)
 *Employ words, phrases, and sentences in social interactions in everyday topics. (S.2.10)

Explore:

- Thumb Activity: Ask students what they think it would be like to do various tasks without the use of their thumbs. Students work in pairs. Students tape their thumbs to the palm of their hand. Students try to pick up a pencil, write their name, and open a jar with and without the use of their thumbs. Students record their **predictions/predicciones** and **observations/ observaciones** in their science journal. Discuss with the class how an opposable thumb/ pulgar oponible (moves in the opposite direction to the other fingers) is a useful **physical adaptation/adaptación física**.
<http://www.accessexcellence.org/AE/AEPC/WWC/1991/opposable.php>
http://www3.nsta.org/main/news/stories/science_and_children.php?news_story_ID=49036
 Each group presents their experience to the class.
 *Recount prior experiences and events of interest, using familiar sentences. (S.2.9)
- Students add the following vocabulary terms to their glossaries: **physical adaptation/adaptación física, observations/ observaciones, & predictions/predicciones**.
 *Identify words in English that are frequently used in the student's first language. (S.1.8)

Explain:

- Students do a Quick Write in their journals. Compare and contrast how humans and dogs are able to use tools.
 *W.2.7.a. Write short accounts of personal or familiar experiences, including academic topics.

Guiding Question: What traits (characteristics) are inherited?/ ¿Qué rasgos (características) son hereditarios? (1 day)

Engage:

- Pair each student with a partner. Distribute the "An Inventory of My Traits/ Un inventario de mis rasgos" activity sheet (see appendix) to each student. Have each student help their partner determine their specific traits. Next...on the board, or chart paper, list each observed trait and the number of times it was observed in your class. Discuss the data with students. Students write a reflection about the activity in their journals.

http://www.wyomingagclassroom.org/resources/pdf/5_6/inherited_traits.pdf

*S.2.5. Ask and answer concrete questions about familiar content.

*R.6.2.c. Visually represent data gathered through research (such as in a *graph, chart, timeline*).

Guiding Question: How have birds physically adapted in relation to their type of food supply?/ ¿Cómo se han adaptado físicamente a las aves en relación con su tipo de suministro de alimentos? (1 week)

Explore:

- 5E Lesson plan (in binder): Bird Beak Activity/ Pico de Aves de la actividad. This is an activity designed to provide students with a hands-on activity to help them explore animal adaptations, namely the shape of a bird's beak in relation to their food source. Set up 8 stations where students try using 3 different types of sample beaks at each station to pick up a food source. Students record the time it takes them with each sample beak (repeat several times) and calculate the average time it takes for each beak. Students construct a bar graph of the averages.

<http://www.eduref.org/Virtual/Lessons/Science/Animals/ANM0116.html>

*S.1.3. Demonstrate comprehension of vocabulary essential for grade-level content learning, using pictures, actions, and/or objects.

*W.2.7.a. Write short accounts of personal or familiar experiences, including academic topics.

Extend:

- Interactive bird gallery:
<http://www.vtaide.com/png/bird-adaptations3.htm>
- Identifying Birds By Their Beaks lesson plan and poster:
<http://www.nps.gov/grko/forteachers/upload/Identifying%20Birds%20by%20Their%20Beaks%20lesson%20plan.pdf>
- Bird photo gallery:
<http://www.birdphotography.com/index.html>

*S.3.9. Identify important information about academic content, using prior knowledge and/or visual cues as needed.

Guiding Questions: How does the shape of teeth help animals survive? How does the location of the eyes help animals survive?/ ¿Cómo la forma de los dientes los animales ayudan a sobrevivir? ¿De qué manera la ubicación de los ojos los animales ayudan a sobrevivir? (1 week)

Explore:

- Students read about **predator/depredador** and **prey/presa** using available books and the internet. Tell students to focus on the shape of the teeth/forma de los dientes and the location of the eyes/ubicación de los ojos the animal has. Make a class chart of some of the differences between predators and prey.
 - *S.12.a. Identify cognates in printed, grade-level, academic content vocabulary terms.
 - *R.5.12.a. Identify and represent graphically main ideas, supporting ideas, and supporting details in text.

Explain:

- In their journals, students compare and contrast the shape of teeth of predators and prey.
 - *W.2.7.d. Write a short explanation of a process that includes a topic sentence, details, and a conclusion.

Explore:

- Students work in groups to make a table with a column that list the type of animal (cat, fish, bird, etc.), another column that list the location of the eyes/ ubicación de los ojos (top of head, front or side of head), another column that list the shape of teeth/forma de los dientes, and the last column whether the animal is a predator or prey. Students should have access to pictures of animals for this activity, books, the internet and or magazines.
 - *Employ words, phrases, and sentences in social interactions in everyday topics. (S.2.10)
- Students add the following vocabulary terms to their glossaries: **predator/depredador** and **prey/presa**.
 - *Identify words in English that are frequently used in the student's first language. (S.1.8)
 - *Clarify meanings of words, using dictionaries, glossaries, and other resources. (S.1.24)

Explain:

- In their journals, students compare and contrast the location of eyes of predators and prey.
 - *W.2.7.d. Write a short explanation of a process that includes a topic sentence, details, and a conclusion.
- Arts Integration. Student work in small groups, they select a type of animal and act out the way the animal moves/animal se mueve without talking. The rest of the class

tries to guess what kind of animal they are imitating/imitar.

*S.1.3. Demonstrate comprehension of vocabulary essential for grade-level content learning, using pictures, actions, and/or objects.

- Students play the game "Who am I?" Each student gets a picture of an animal/animales from their teacher (the pictures should be placed on a string that can be placed on the students back). The picture is placed on the students back so they can not see it. Students pair up with another student and ask each other questions, such as. Do I have sharp teeth/dientes afilados? Do I have fur/pieles? Am I a predator/ depredador? Do I live in a cold climate/ clima frío? Sample questions should be posted for beginning ELL students. Only yes or no questions can be asked. The game continues until all students have figured out what animal they are.

*S.1.3. Demonstrate comprehension of vocabulary essential for grade-level content learning, using pictures, actions, and/or objects.

Extend:

- There are six animals hiding behind this curtain. Can you tell if they are predators, prey, or both just by reading clues about their parts?

<http://www.lpzoo.com/education/zebra/student/formfunction/l.html>

*S.3.9. Identify important information about academic content, using prior knowledge and/or visual cues as needed.

Guiding Question: How does color help organisms to survive?/ ¿Cómo de color ayudar a los organismos para sobrevivir? (2 days)

Engage & Explore:

- Students read about Camouflage (use available books, or the internet).
*R.5.9.a. Identify text features (such as *preface, glossary, table of contents, appendix, index, chapter summary, footnotes, bibliography*) as sources for specific information.
- Students create a paper moth/polilla de papel that is camouflaged/ camuflado with something in the classroom. A partner class sends in "birds/aves" to try and find them.

<http://www.eduref.org/Virtual/Lessons/Science/Animals/ANM0085.html>

Explain:

- Students write in their journals. Students explain how some animals use camouflage to help them survive. Use a sentence stem for beginning ELL students, such as: Animals can hide safely in their environment by...
* W.1.5.b. List new words and phrases related to the topic of a writing task.
*Organize information to be expressed in writing in a way that makes sense for the purpose and audience. (W.1.3)

Extend:

- Katydid camouflage to a wide variety of environments. Can you find the katydid in each picture?
<http://www.thewildones.org/Animals/camo.html>
- Click on an environment for a hidden animal search
<http://www.harcourtschool.com/activity/camouflage/camouflage.html>
- Find the camouflaged animals in the pictures
<http://www.longhorn-cattle.com/camo.html>
- Animal camouflage pictures
<http://animals.howstuffworks.com/animal-facts/animal-camouflage-pictures.htm>
*S.3.9. Identify important information about academic content, using prior knowledge and/or visual cues as needed.

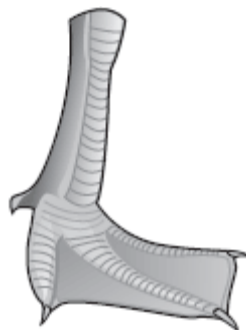
Evaluate: (released MCAS test questions) (2 days)

- The questions may be used as a pre/post test, to help students practice MCAS questions, to help students learn how to answer multiple choice questions and/or open-response questions.
 - *Respond to factual and inferential questions that are based on academic content. (S.3.39)
 - *After writing or dictating a composition, identify words and phrases that could be added to make the thought clearer (W.3.4)

Q. A tuna is an ocean fish that is well adapted to catching small, fast-moving prey. Which of the following adaptations **most** helps a tuna swim fast to catch its prey? (LS #6)

- A. large fins
- B. sharp teeth
- C. small gills
- D. tough scales

Q. The picture below shows the foot of a certain species of bird. (LS #6)



In which of the following environments is this species **best** adapted for survival?

- A. desert
- B. freshwater lake
- C. meadow
- D. tropical rain forest

Q. The picture below shows a bird. (LS #6)



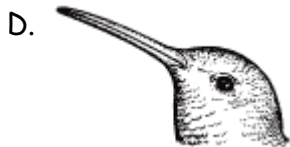
From the shape of its beak and the length of its legs, this bird is best adapted for feeding on which of the following?

- A. insects that feed on plants
- B. small fish in shallow water
- C. nuts from riverside trees and plants
- D. birds in ground nests

Q. The picture below shows a flower with a long slender bloom.



The size and shape of a bird's beak are related to the type of food that the bird eats. Which of the following beaks is suitable for drinking nectar located deep within flowers such as the one shown above? (LS #6)



Q. Naomi has a pet dog. Which of the following characteristics did the dog **most likely** inherit from its parents? (LS # 5)

- A. its weight
- B. its favorite food
- C. the color of its fur
- D. the place where it lives

Q. Rayna is collecting seeds from a sunflower. She notices that most of the leaves on the sunflower plant have patterns of holes made by chewing insects, as shown in the picture below. (LS #5)



Next year, she will plant the sunflower seeds that she has collected. How many of the sunflower plants that grow are expected to inherit the chewed leaf pattern?

- A. all of the plants
- B. most of the plants
- C. half of the plants
- D. none of the plants

Q. A healthy red-flowered tulip plant is shown below. (LS #5)



Which of the following would occur first as a result of a drought?

- A. The tulip's leaves would wilt.
- B. The tulip's flowers would turn blue.
- C. The tulip's stems would grow longer.
- D. The tulip would produce more flowers.

Open-Response Question. This question should be used to help students learn how to answer open-response questions. First, give the question to students and let them answer the question. Next, remove the scores on the samples of student work and give your students the samples of student work with the rubric and have them score the samples. After they score the work and the class discusses the correct scores, have you students go back to their original answers and revise their answers. The goal is for all students to get a perfect score!

*Organize information to be expressed in writing in a way that makes sense for the purpose and audience. (W.1.3)

Q. Penguins are birds that have webbed feet and very small wings. They are unable to fly, but can use their wings as paddles. They also have thick, oily feathers and a thick layer of fat. Most penguins are black and white in color. (LS #6)

- a. List **two** features of penguins that help them survive
- b. Explain how these features help penguins survive in their natural environment.

Scoring Guide and Sample Student Work

Score	Description
4	The response demonstrates a thorough understanding of how adaptations help an organism survive. Two correct features must be listed. These features must connect to a survival benefit. Two correct explanations for how or why each feature (listed in part a) would benefit the penguin's survival.
3	The response provides a general understanding of how adaptations help an organism survive.
2	The response demonstrates a limited understanding of how adaptations help an organism survive.
1	The response demonstrates a minimal understanding of how adaptations help an organism survive.
0	The item is incorrect, or lists one feature or one or two explanations only.

2005 MCAS: Grade 5 Science and Technology/Engineering
Question 39 - Score Point 4

A. 1 There black and white color
2 There webbed feet

B. 1 There color is camafiasie
2 There webbed feet helps them swim
very fast allowing them to escape predators.

2005 MCAS: Grade 5 Science and Technology/Engineering
Question 39 - Score Point 3

a. Their layer of fat. Their webbed feet.

b. Their layer of fat keeps them warm in the
freezing weather. It also keeps them warm when their
swimming. Their webbed feet help the swim. They
also help to grip on the ice so they don't slip

2005 MCAS

Grade 5 Science and Technology/Engineering

Question 39 - Score Point 2

Penguins would need alot of feather to keep them warm. They should also have better wing for they can go places with out there feet seeting real cold from the ice and snow.

2005 MCAS: Grade 5 Science and Technology/Engineering

Question 39 - Score Point 1

A. Webbed feet and Very small wings
B. Webbed feet and, very small wings help the perown swim.

2005 MCAS: Grade 5 Science and Technology/Engineering

Question 39 - Score Point 0

I think thay can swif.v with there webbed and there feet. Because thay can use them alot of times when thay go swimming.

Big Idea: Plants adapt to their environment/ Las plantas se adaptan a su entorno

Massachusetts Science and Technology Learning Standards

LSS #3. Recognize that plants and animals go through predictable life cycles that include birth, growth, development, reproduction, and death.

MCAS item analysis (What do students need to know?)

- ✓ Know the complete life cycle of a plant

LSS #7. Give examples of how changes in the environment (drought, cold) have caused some plants and animals to die or move to new locations (migration).

MCAS item analysis (What do students need to know?)

- ✓ Be able to explain how environmental changes (drought, cold weather, introduction of an invasive species) may cause some plants and animals to die

LSS #9. Recognize plant behaviors, such as the way seedlings' stems grow toward light and their roots grow downward in response to gravity. Recognize that many plants and animals can survive harsh environments because of seasonal behaviors, e.g., in winter, some trees shed leaves, some animals hibernate, and other animals migrate.

MCAS item analysis (What do students need to know?)

- ✓ Know how to interpret a data table
- ✓ Know that roots grow down in response to gravity
- ✓ Know that plants respond to light
- ✓ Know how to design an experiment (controlling variables)
- ✓ Recognize seasonal behavior

Guiding Questions: How do plants behave?/ ¿Cómo se comportan las plantas? What kinds of environmental changes may cause some plants to die?/ ¿Qué tipo de cambios ambientales pueden causar que algunas plantas a morir? (3 days)

Engage:

- Ask students what plants need to **survive/sobrevivir** (elicit prior knowledge). Brainstorm about how plants can **adapt/adaptar** to a particular environment to insure their survival and protect themselves from seasonal changes/los cambios estacionales in the environment (like cold winters/inviernos fríos in Massachusetts).
 - *S.2.5. Ask and answer concrete questions about familiar content.
 - * S.1.5. Employ vocabulary essential for grade-level content learning.
 - *From the Massachusetts English Language Proficiency and Outcomes for English Language Learners (ELPBO)

Explore:

- Inquiry-based Activity. Students will form groups to conduct an experiment to observe how plant seedlings behave. Students will plant at least three containers with seeds (suggestion: radish seeds or bean seeds grow quickly) to test the effects of sunlight, water or soil, on the growth of seedlings. Tell students that they must record everything they do in their science journals. Discuss with students how to set up an **experiment/experimento**. How will they collect data?

What will they measure? How will they be able to compare results with others? Discuss variables, what will they change in their experiment, and what needs to stay the same for all their containers.

*S.1.3. Demonstrate comprehension of vocabulary essential for grade-level content learning, using pictures, actions, and/or objects.

- Students add the following vocabulary terms to their glossaries:

survive/sobrevivir, & experiment/experiment.

*Identify words in English that are frequently used in the student's first language. (S.1.8)

Demonstration:

- Students observe a chive plant that is put in a sunny window. Hopefully it will bend towards the light. After a few days, turn the plant around and have students observe what happens. The chive plant should respond to the light and bend towards the light again.

*S.3.9. Identify important information about academic content, using prior knowledge and/or visual cues as needed.

Explain:

- After the students have collected data for some time. Have students write a paragraph that has a conclusion that supports the data they collected in their plant experiment.

*W.2.7.c. Write a conclusion that supports the details provided in a written paragraph.

Extend:

- Students can watch movie clips on plant phototropism (response to light) and gravitropism (response to gravity).

<http://www.juliantrubin.com/encyclopedia/botany/tropism.html>

*S.3.9. Identify important information about academic content, using prior knowledge and/or visual cues as needed.

Evaluate: (released MCAS questions)

- The questions may be used as a pre/post test, to help students practice MCAS questions, to help students learn how to answer multiple choice questions and/or open-response questions.

*Respond to factual and inferential questions that are based on academic content. (S.3.39)

Q. Which of the following **best** represents one particular stage in a life cycle? (LS #3)

- A. a fish swimming
- B. a seed sprouting
- C. a leaf growing
- D. a dog eating

Q. A student has decided to investigate whether the number of flowers on a plant will increase if the water supply to the plant is increased. She has five pots of geranium plants to use in her experiment. (LS #9) What factor in the experiment should be varied for the five plants in order to answer the student's question?

- A. age of seedlings
- B. temperature of water
- C. volume of water
- D. number of hours in sunlight

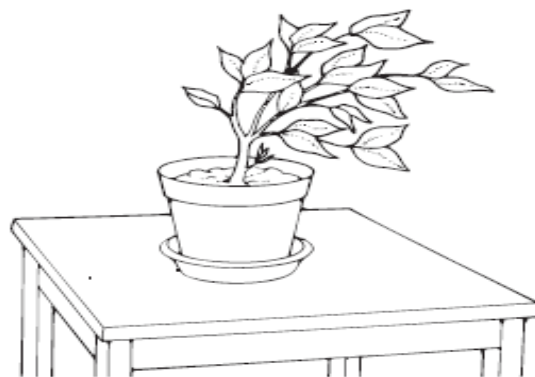
Q. The marsh willow herb is a plant native to the northeastern United States. It grows best in damp habitats. Which of the following environmental changes would **most likely** cause a decrease in the marsh willow herb population in an area? (LS #7)

- A. a rainstorm lasting several weeks
- B. a drought lasting twelve months
- C. unusually low temperatures during the month of July
- D. unusually high temperatures during the month of January

Q. Tomato plants grow in warm weather. If the temperature drops below 32°F for two days in a row, what will **most likely** happen to the tomato plants? (LS #9)

- A. They will die.
- B. They will migrate.
- C. They will hibernate.
- D. They will grow faster.

Q. The picture below shows a plant that is bending as it grows. (LS #9)



What **most likely** caused the plant to bend this way?

- A. fertilizer
- B. gravity
- C. heat
- D. light



Big Idea: Organisms respond to stimuli received from their environment/ Organismos responder a los estímulos recibidos de su entorno

Massachusetts Science and Technology Learning Standards

LSS #8. Describe how organisms meet some of their needs in an environment by using behaviors (patterns of activities) in response to information (stimuli) received from the environment. Recognize that some animal behaviors are instinctive (e.g., turtles burying their eggs), and others are learned (e.g., humans building fires for warmth, chimpanzees learning how to use tools).

MCAS item analysis (What do students need to know?)

- ✓ Know the difference between instinctive and learned behavior
- ✓ Recognize some examples of instinctive and learned behavior

Guiding Questions: What are some examples of instinctive animal behavior? What are some examples of learned animal behavior?/ ¿Cuáles son algunos ejemplos de la conducta animal instintiva? ¿Cuáles son algunos ejemplos de la conducta animal aprendido? (2 weeks)

Engage:

- Ask students if they have a pet. If they do, have them describe some funny things their pets do. As they tell their behaviors, ask them to decide if it is a **behavior/ comportamiento** their pet has **learned/aprendido** (playing dead, rolling over, coming to their food dish at the sound of a rustling bag) or if it is behavior that is **instinctive/instintivo** to their species/especies (barking at cats, playing with their tails, pouncing). Teachers should make a T-chart and record the behavior and label each as learned or instinctive. Students should copy the T-chart in their journals.
*W.1.3.a. Organize ideas related to a writing topic using graphic representations.
- Students add the following vocabulary terms to their glossaries: **learned/aprendido, behavior/ comportamiento, & instinctive/instintivo**.
*Identify words in English that are frequently used in the student's first language. (S.1.8)

Explore:

- Students read *Life Cycles*: National Geographic Theme Sets (Giant Panda, Monarch Butterflies, Poison Dart Frogs and Komodo Dragons). (Each Theme Set includes four books written at different reading levels). Students learn the difference between inherited behaviors and learned behaviors.
- **Inquiry-Based Activity**. Students design and carry out an experiment to study insect **response/respuesta** (behavior) to **stimuli/estímulos**. Students may use either mealworms or pillbugs. Refer to the GET OUT curriculum we did with Enchanted Circle Theater and the Hitchcock Center (see appendix). Help students

to create investigable/investigable questions (what would happen if...?). Students should **predict/ predecir** what they think will happen in their investigation. Use the following scaffold: I predict that _____, because_____. Requiring students to use the word because prompts students to explain the reasoning behind their predictions. Students may draw a diagram or picture of their prediction. Each group must develop a data collection sheet. Each group is responsible for preparing a brief oral and visual report of their results to the rest of the class.

*S.4.2. Plan, rehearse, and orally present information in a brief report, using visual cues.

*R.6.2.c. Visually represent data gathered through research.

Evaluate: (MCAS released questions)

- o The questions may be used as a pre/post test, to help students practice MCAS questions, to help students learn how to answer multiple choice questions and/or open-response questions.

*Respond to factual and inferential questions that are based on academic content. (S.3.39)

*After writing or dictating a composition, identify words and phrases that could be added to make the thought clearer (W.3.4)

Q. Which of the following activities is the **best** example of instinctive behavior in an animal? (LS #8)

- A. A dog sits when told to sit by its owner.
- B. A bird avoids an insect that has a bad taste.
- C. A newly hatched sea turtle walks toward the ocean.
- D. A chimpanzee uses a stick to pull termites from a tree stump.

Open-Response Question: This question should be used to help students learn how to answer open-response questions. First, give the question to students and let them answer the question. Next, remove the scores on the samples of student work and give your students the samples of student work with the rubric and have them score the samples. After they score the work and the class discusses the correct scores, have you students go back to their original answers and revise their answers. The goal is for all students to get a perfect score!

*Organize information to be expressed in writing in a way that makes sense for the purpose and audience. (W.1.3)

Q. During the fall, changes in the environment in Massachusetts cause many animals to prepare for the coming winter season. (LS #8)

- a) Describe **two** changes in the environment in Massachusetts during the fall that cause animals to prepare for the winter.
- b) Identify **one** way that animals in Massachusetts prepare to survive the winter. Explain how this helps the animals to survive the winter.

Scoring Guide and Sample Student Work

Score	Description
<u>4</u>	The response demonstrates a thorough understanding of how organisms meet some of their needs in an environment by using behaviors in response to information received from the environment. The response clearly describes two changes in the environment that cause animals to prepare for the winter. The response also correctly identifies one way that animals prepare to survive the winter and clearly explains how this helps the animals to survive.
<u>3</u>	The response demonstrates a general understanding of how organisms meet some of their needs in an environment by using behaviors in response to information received from the environment.
<u>2</u>	The response demonstrates a limited understanding of how organisms meet some of their needs in an environment by using behaviors in response to information received from the environment.
<u>1</u>	The response demonstrates a minimal understanding of how organisms meet some of their needs in an environment by using behaviors in response to information received from the environment.
<u>0</u>	The response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.

Note: There are 2 sample student responses for Score Point 4.

2007 MCAS: Grade 5 Science and Technology/Engineering
Question 39 - Score Point 4

4
1) The weather gets colder 2) The trees lose their leaves.
3) Some animals gain more fur which helps them stay warmer.

2007 MCAS: Grade 5 Science and Technology/Engineering

Question 39 - Score Point 4

(A) Two environment changes in the fall would probably be the coldness it starts out very warm and hot sometimes but when fall starts to come to an end the warmness leaves and the coldness comes. So I would say coldness would be one of them and the other... Also the ground and everywhere is covered. So if birds want to make a nest in the winter they cannot because there is snow everywhere and they know that from experience so they move West for the winter to another state that is hotter and they can make home in.

(B) Some animals stay for winter in Massachusetts so before winter comes they gather up food for them and their family's they store it everywhere in their mouths behind trees there's a lot of places they store it. This helps them so they don't have to go looking for food in the cold winter.

2007 MCAS: Grade 5 Science and Technology/Engineering

Question 39 - Score Point 3

a. One change is that it gets colder, and the animals need to grow thicker coats. And the second change is that they need to store nuts, berries, and food for winter.

b. One way they prepare is by storing food. This helps the animal to survive because they would starve if they ran out of food in winter.

2007 MCAS: Grade 5 Science and Technology/Engineering
Question 39 - Score Point 2

A) one change is the cold weather and lot of snow could make the animals prepare for the winter.

B) the cold weather because the animals don't have a lot of fur.

2007 MCAS: Grade 5 Science and Technology/Engineering
Question 39 - Score Point 1

Here are some reasons of describing two changes in the environment in Massachusetts.

A) The animals would have to grow fur, and they would have to find shelter.

B) They would have to hunt for food that way they wouldn't starve to death.

Those are some reasons of describing two changes in the environment in Massachusetts.

2007 MCAS: Grade 5 Science and Technology/Engineering
Question 39 - Score Point 0

a. they are alive in the winter and they get ready the month of june

b. they walk around

Big Idea: Animals adapt to their environment/ Los animales se adaptan a su entorno

Massachusetts Science and Technology Learning Standards

LSS #7. Give examples of how changes in the environment (drought, cold) have caused some plants and animals to die or move to new locations (migration).

MCAS item analysis (What do students need to know?)

- ✓ Know why animals migrate
- ✓ Be able to explain how environmental changes (drought, cold weather, introduction of an invasive species) may cause some plants and animals to die

LSS #9. (the 2nd part of the standard) Recognize that many plants and animals can survive harsh environments because of seasonal behaviors, e.g., in winter, some trees shed leaves, some animals hibernate, and other animals migrate.

MCAS item analysis (What do students need to know?)

- ✓ Recognize seasonal behavior

LSS #4. Describe the major stages that characterize the life cycle of the frog and butterfly as they go through metamorphosis.

MCAS item analysis (What do students need to know?)

- ✓ Know the life cycle of frogs and butterflies

LSS #10. Give examples of how organisms can cause changes in their environment to ensure survival. Explain how some of these changes may affect the ecosystem.

MCAS item analysis (What do students need to know?)

- ✓ Know that leaves on trees in the forest block sunlight on the forest floor
- ✓ Know that beavers change the local ecosystem when they dam up rivers
- ✓ Recognize that overpopulation of one organism in an ecosystem impacts the available food supply for that organism
- ✓ Recognize that animals help spread seeds in an ecosystem, which could change the distribution of plants in that ecosystem over time

Guiding Questions: Why do animals migrate/¿Por qué migran los animales? What seasonal behaviors do organisms have to survive harsh environments?/¿Qué comportamientos estacionales hacen los organismos tienen que sobrevivir ambientes hostiles? (1 week)

Engage:

- Ask students what they know about monarch butterfly **migration/la migración** de la mariposa monarca and salmon migration/la migración del salmón in the Connecticut River. (elicit prior knowledge)
*S.2.5. Ask and answer concrete questions about familiar content.

Explore:

- **Salmon Life Cycle Activity:** Give students cut-outs of each of the Atlantic Salmon Life Cycle stages (eggs, alevin, fry, parr, smolt, and adult salmon/ los huevos, alevines, alevines, Parr, alevines y salmones adultos) with their description and ask each student to read about their part of the **life cycle/ ciclo vital**. Ask students to

try and get in groups with other students and figure out the correct order of the salmon's life cycle. Once students have had a chance to figure out the order, review the correct order with the students. Teachers should provide pictures of the different steps in the life cycle to go along with each description.

*S.3.38 Participate in reaching consensus in groups.

*R.3.4.b. Identify words and phrases that signal steps of a process in a text (such as first, second, last).

SALMON LIFE CYCLE

EGGS - Pea-sized orange eggs are deposited in riverbed gravel in autumn, and hatch the following early spring. As the eggs develop, the eyes of the developing wild salmon can be seen through the semi-transparent membrane.

ALEVIN - The partly transparent alevin hatch and remain hidden in the riverbed gravels, feeding from the attached yolk sac. They are about 2 cm or less than 1 inch in length.

FRY - Wriggling up from the gravels, fry begin feeding on microscopic life in the stream. They eventually reach a length of 5 to 8 cm./2 to 3in. before transforming into parr.

PARR - The vertical markings, called 'parr marks' appear, with a single red dot between. Parr remain in the river for 2 to 6 years, depending on water temperatures and food availability.

SMOLT - At a length of 12 to 24 cm/4.7 to 9.5 in. a springtime transformation of the parr takes place into smolt. A silvery sheen replaces the parr marks, and internally they undergo a complex transformation to survive in saltwater. On the downstream journey the odors of the smolt's native river are imprinted on its memory, to be recalled when it returns to spawn.

ADULT - Silvery hunters, adult wild salmon live one or more years at sea. Most populations follow lengthy migration routes to waters off southwestern Greenland where they grow rapidly on a diet of crustaceans and small fish. Other feeding grounds exist, such as waters surrounding the Faroe Islands north of Scotland, and some populations may stay closer to home rivers, such as those from the inner Bay of Fundy Rivers. Wild salmon that return after one year at sea are called grilse.

http://www.krisweb.com/krisshoopscot/krisdb/html/krisweb/aqualife/atlantic_salmon_lifecycle.htm

Explain:

- Have students write a story about the life cycle of an animal. Students should write from the perspective of the animal. Students may refer to the *Life Cycles: National Geographic Theme Sets (Giant Panda, Monarch Butterflies, Poison Dart Frogs & Komodo Dragons)*.

*W.2.11.b. Write a story that contains the basic elements of a story.

Explore:

- **Research:** Students work in groups using a variety of resources, such as the internet, encyclopedias, and other books to learn more about one specific type of animal that **migrates/ migra** (such as: Humpback Whale, Green Sea Turtle, Monarch Butterfly, Caribou, Hummingbirds, Canada Geese, Salmon, Zebras, etc.). Each group picks a different animal. Set up four centers for students to find information. Use the jigsaw method, where each student has to find the information to fill in one of the following boxes. Students go to centers and then come back and share information with their group.

Animal's Adaptations (Is it a physical or behavioral adaptation?)	Migration Patterns Draw a picture of the migration route
Habitat	Why does animal migrate?

Students must give details about their animal's migration patterns. Students make a poster presentation, create a play, or write a research paper to share their findings with the class, while the teacher and students record information in a table.

* S.1.5. Employ vocabulary essential for grade-level content learning.

*W.1.3.a. Organize ideas related to a writing topic using graphic representations.

*W.2.8.f. Write brief research reports with clear focus and supporting detail.

*S.4.4. Maintain focus on a topic during an oral presentation.

- Students add the following vocabulary terms to their glossaries: **life cycle & migrates**.

*Identify words in English that are frequently used in the student's first language. (S.1.8)

- **Arts Integration: Migration Game.** Using the information already gathered on various migratory animals from the previous activity, students write down on index cards the name of a migratory animal and the general route of migration. For example, humpback whales are longitudinal migrants that move from Alaska to Hawaii each year. Have students set up the room so that it represents the western hemisphere of the earth, marking the equator, north, east, south, west, and the major land masses. This game is played like charades except the students act out the migration patterns of the animals and the other teams guess the animals. One

team picks a card and demonstrates how the animal moves during its migration. Allow the students a little time to consult and prepare exactly what they want to present. The other teams have to guess what animal it is based on the clues presented. Clues could include where the animal is located or students can pretend to be the animal, etc.

*S.1.3. Demonstrate comprehension of vocabulary essential for grade-level content learning, using pictures, actions, and/or objects.

Explain:

- Students list three different types of animals that migrate and explain why they migrate. For ELL students use a sentence or paragraph stem.

*S.2.5. Ask and answer concrete questions about familiar content.

*W.2.1.d. Write lists and short notes for a specified informational purpose.

Extend:

- Students track the monarch butterfly's migration using "**Journey North**". This is a seasonal behavior, as the monarch butterfly can not survive the cold winters of New England. In a unique partnership, students and scientists across North America track the monarch butterfly's migration from Mexico.

<http://www.learner.org/jnorth/images/graphics/monarch/sl/cycle/A01.html>

*S.3.9. Identify important information about academic content, using prior knowledge and/or visual cues as needed.

Guiding Question: How can organisms change the environment?/ ¿Cómo pueden los organismos cambian el medio ambiente? (3 days)

Engage:

- Read out loud and discuss "A River Ran Wild" by Lynne Cherry. Discuss the impact of humans on the river. Students compare and contrast the impact of humans of wildlife, plants and the use of land and water.

*R.5.11.d. Identify comparison and contrast organization in text.

Explain:

- Students write in their journals about the impact that humans have on the environment. Students should use specific examples and explain how humans have changed the environment.

*W.2.7.a. Write short accounts of personal or familiar experiences, including academic topics.

Evaluate: (MCAS released questions)

- The questions may be used as a pre/post test, to help students practice MCAS questions, to help students learn how to answer multiple choice questions and/or open-response questions.

*Respond to factual and inferential questions that are based on academic content. (S.3.39)

Q. Which of the following structures does a frog develop as it changes from a tadpole to an adult frog? (LS#4)

- A. eyes
- B. heart
- C. lungs
- D. tail

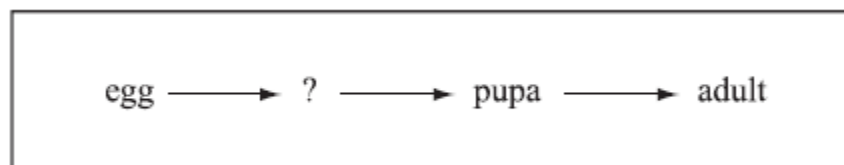
Q. Which of the following animals goes through metamorphosis? (LS #4)

- A. alligator
- B. frog
- C. lizard
- D. turtle

Q. Starting from an egg, a butterfly goes through four stages in its life cycle. (LS #4)

- a. Draw the life cycle of a butterfly, showing the four stages in order.
- b. Label **each** of the four stages.
- c. Draw arrows to connect the stages in the correct order.

Q. The diagram below names three of the four stages in the life cycle of a butterfly. (LS #4)



Which of the following pictures shows the stage that is missing in the diagram?

A.



B.



C.

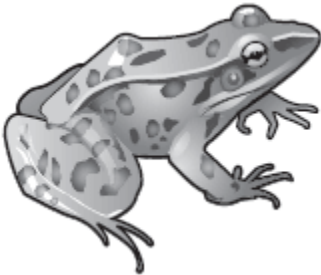


D.



Q. Which of the following pictures shows a stage in a frog's life cycle when it breathes entirely through gills? (LS #4)

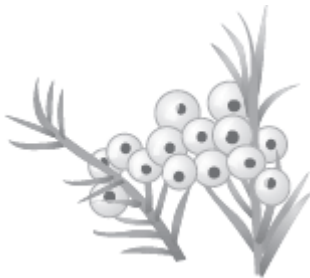
A.



B.



C.



D.



Q. Female seals usually return to the same beaches year after year to give birth. If they are repeatedly disturbed by humans at those beaches, how will the seals **most likely** respond? (LS #7)

- A. They will change color.
- B. They will give birth to more pups.
- C. They will hunt for food more often.
- D. They will give birth at different beaches.

Q. Which of the following **best** explains why many species of birds in New England fly south for the winter months? (LS #9)

- A. to find a place to hibernate
- B. to move away from strong sunlight
- C. to find an environment with more food
- D. to move away from crowded environments

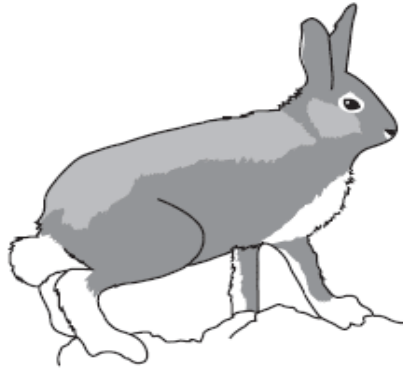
Q. Each year, humpback whales migrate from the coast of Antarctica to the north coast of Australia. The map below shows the whales' migration route. (LS #7)



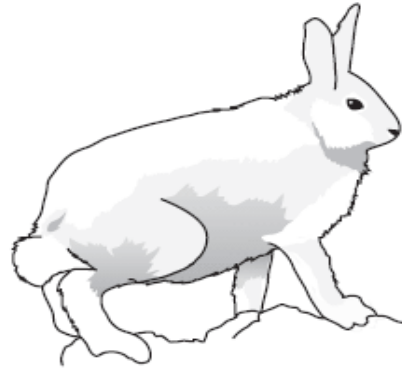
Which of the following are the whales **most likely** responding to when they begin to migrate?

- A. the force of gravity
- B. a shift in ocean waves
- C. a change in water temperature
- D. the approach of stormy weather

Q. The pictures below show the change in the fur of an arctic hare from summer to winter. (LS # 9)



Fur in summer

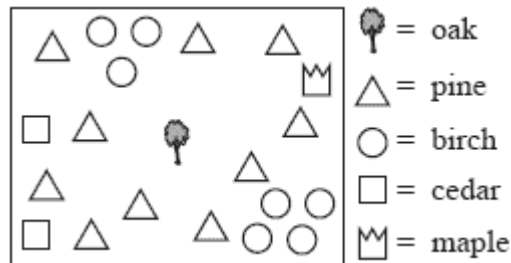


Fur in winter

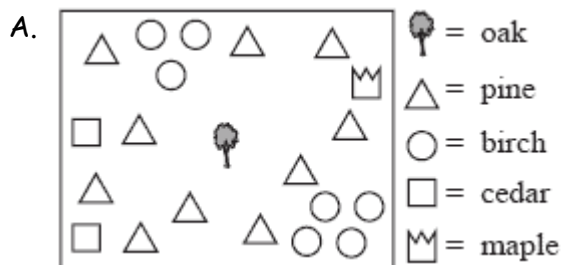
Which of the following statements **best** describes how this change helps arctic hares?

- A. It lowers their body temperature.
- B. It protects their eyes from sunlight.
- C. It helps them move on slippery ice.
- D. It makes them less visible to predators.

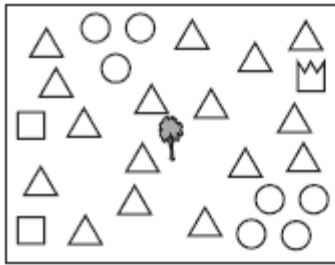
Q. The diagram below represents the distribution of trees in an area of a forest. (LS #10)








When squirrels move into the area, they gather acorns from the one oak tree in this area and hide them in the ground over a wide area. Which of the following **best** represents this same area of the forest 20 years later?

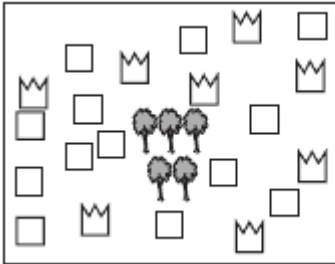







B.



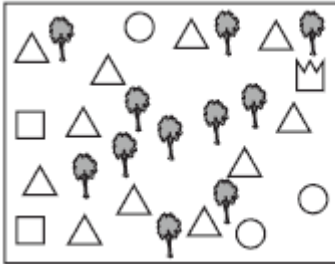
-  = oak
-  = pine
-  = birch
-  = cedar
-  = maple






C.



-  = oak
-  = pine
-  = birch
-  = cedar
-  = maple

D.



-  = oak
-  = pine
-  = birch
-  = cedar
-  = maple

An Inventory of My Traits

How similar are you and your partner? Complete this inventory and compare it with your partner's inventory.

1. I am a:	Male	Female
2. I have detached earlobes.	Yes	No
3. I have a hitchhiker's thumb.	Yes	No
4. I can roll my tongue.	Yes	No
5. I have dimples.	Yes	No
6. I am right handed.	Yes	No
7. I cross my left thumb over my right.		
	Yes	No
8. I have freckles	Yes	No
9. I have naturally curly hair.	Yes	No
10. I have a cleft chin.	Yes	No
11. I have allergies.	Yes	No
12. I can see the colors red and green (color blindness).		
	Yes	No
13. I have a widow's peak.	Yes	No

Grade 5 Science Unit: Plant/Animal Adaptations

[What are Camouflage and Mimicry? \(The Science of Living Things\)](#)

by Bobbie Kalman and John Crossingham (Paperback - Mar 2001)

Reading level: Ages 9-12

Paperback: 32 pages **Publisher:** Crabtree Publishing Company (March 2001) **Language:** English

ISBN-10: 0865059624 **ISBN-13:** 978-0865059627

[Mimicry and Camouflage in Nature](#) by Ruth Soffer (Paperback - Jan 21, 2002)

Reading level: Ages 9-12

Paperback: 32 pages **Publisher:** Dover Publications; illustrated edition edition (January 21, 2002)

Language: English **ISBN-10:** 0486418677 **ISBN-13:** 978-0486418674

[Camouflage: Changing to Hide \(Nature's Changes\)](#) by Bobbie Kalman (Paperback - April 2005)

Reading level: Ages 4-8

Paperback: 32 pages **Publisher:** Crabtree Publishing Company (April 2005) **Language:** English **ISBN-10:** 0778723062 **ISBN-13:** 978-0778723066

[Animal and Plant Mimicry](#) by Dorothy Hinshaw Patent (School & Library Binding - Aug 1978)

Reading level: Baby-Preschool

School & Library Binding: 126 pages **Publisher:** Holiday House (August 1978) **Language:** English

ISBN-10: 0823403319 **ISBN-13:** 978-0823403318

[Mimicry and Camouflage \(Nature Watch Series\)](#) by Jill Bailey (Hardcover - Aug 1988)

Reading level: Ages 9-12

Hardcover: 61 pages **Publisher:** Facts on File (August 1988) **Language:** English **ISBN-10:** 0816016577 **ISBN-13:** 978-0816016570

[Mimicry and Camouflage \(Hoff, Mary King. World of Wonder.\)](#) by Mary King Hoff (Library Binding - Aug 2002) **Reading level:** Ages 4-8

Library Binding: 32 pages **Publisher:** Creative Education; 1 edition (August 2002) **Language:** English

ISBN-10: 1583412379 **ISBN-13:** 978-1583412374

[HIDING OUT \(Camouflage in the Wild\)](#) by Art Wolfe (Hardcover - Sep 7, 1993)

Reading level: Ages 9-12

Hardcover: 32 pages **Publisher:** Knopf Books for Young Readers; 1st edition (September 7, 1993)

Language: English **ISBN-10:** 0517593920 **ISBN-13:** 978-0517593929

[Predator and Prey \(Prowlers, Book 3\)](#) by Christopher Golden (Mass Market Paperback - Dec 1, 2001)

Reading level: Young Adult

Mass Market Paperback: 304 pages **Publisher:** Pocket Pulse (December 1, 2001) **Language:** English

ISBN-10: 0743403665 **ISBN-13:** 978-0743403665

[Predators and Prey](#) by Marcia S. Freeman (Paperback - Oct 2003)

Paperback: 19 pages **Publisher:** Newbridge Educational Publishing (October 2003) **Language:**

English **ISBN-10:** 140073259X **ISBN-13:** 978-1400732593

[Birds of Prey \(Solway, Andrew. Wild Predators.\)](#) by Andrew Solway (Paperback - Sep 15, 2005)

Reading level: Ages 9-12

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[Who's for Dinner? Predators and Prey \(Animal Planet\)](#) by Inc. Discovery Communications (Paperback - Mar 24, 1998)

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[Predators and Prey \(Secrets of the Rainforest\)](#) by Michael Chinery (Hardcover - Jun 9, 2000)
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[Do Not Disturb: The Mysteries of Animal Hibernation and Sleep](#) by Margery Facklam and Pamela Johnson (School & Library Binding - Dec 1988)
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