



4TH GRADE SCIENCE BUNDLE

Differentiated Passages

Rock Layers

Differentiated Passages 



4th Grade NGSS 4-ESS1-1


Renewable & Non-Renewable Energy

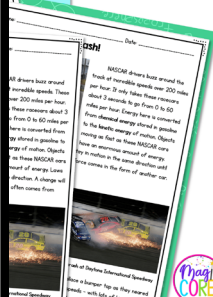
Differentiated Passages 



4th Grade NGSS 4-ESS2-2


Motion Energy

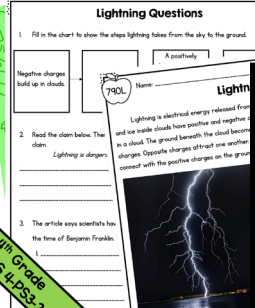
Differentiated Passages 



4th Grade NGSS 4-ESS1-1


Energy Transfer


Differentiated Passages 



4th Grade NGSS 4-ESS2-2


Light and Vision

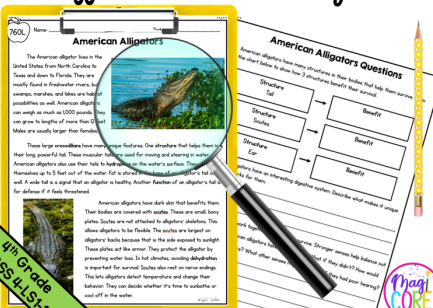
Differentiated Passages 



4th Grade NGSS 4-ESS1-1


Internal and External Structures

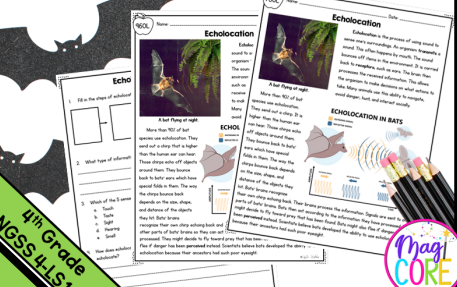
Differentiated Passages 



4th Grade NGSS 4-LS1-1


Animal Senses

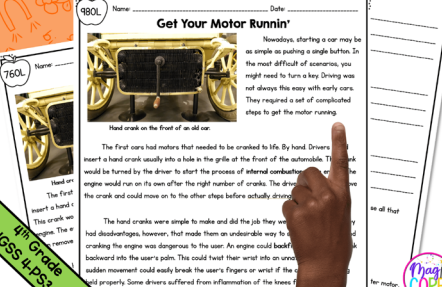
Differentiated Passages 



4th Grade NGSS 4-LS1-2


Energy Conversion

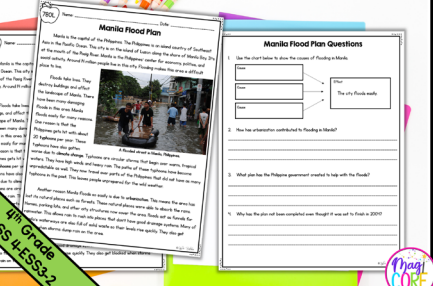
Differentiated Passages 



4th Grade NGSS 4-ESS1-1

Natural Hazard Design Solution

Differentiated Passages 



4th Grade NGSS 4-ESS2-2

4th Grade NGSS



ABOUT LEXILE LEVELS



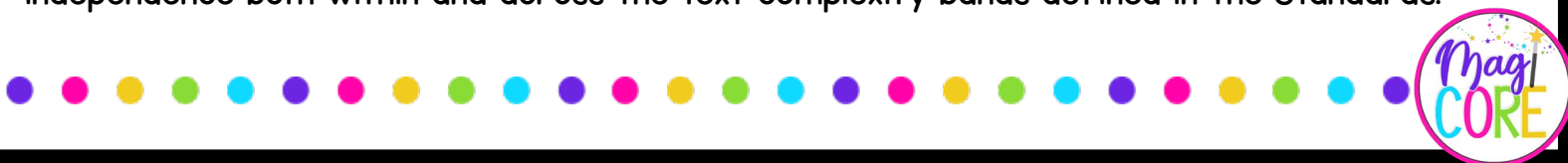
MagiCore Learning, LLC is a certified Lexile® Partner. These texts are officially measured and approved by Lexile and MetaMetrics® to ensure appropriate rigor and differentiation for students.

The Lexile Framework® for Reading measures are scientific, quantitative text levels. When the Lexile of a text is measured, specific, measurable attributes of the text are considered, including, but not limited to, word frequency, sentence length, and text cohesion. These are difficult attributes for humans to evaluate, so a computer measures them.

Common Core State Standards uses Lexile level bands as one measure of text complexity. Text complexity ranges ensure students are college and career ready by the end of 12th grade. Lexile measures help educators scaffold and differentiate instruction as well as monitor reading growth.

Grade Band	Lexile® Bands Aligned to Common Core Expectations
K-1	N/A
2-3	420L-820L
4-5	740L-1010L
6-8	1185L-1385L

Keep in mind when using any leveled text that many students will need scaffolding and support to reach text at the high end of their grade band. According to Appendix A of the Common Core Standards, “It is important to recognize that scaffolding often is entirely appropriate. The expectation that scaffolding will occur with particularly challenging texts is built into the Standards’ grade-by-grade text complexity expectations, for example. The general movement, however, should be toward decreasing scaffolding and increasing independence both within and across the text complexity bands defined in the Standards.”



Evidence from Rock Layers

4th grade

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1. How to Use This Resource
2. Rock Layers (790L, 970L)
3. Cliffs at Whanganui (780L, 960L)
4. The Grand Canyon (780L, 950L)
5. Badlands National Park (780L, 980L)
6. Topanga Canyon Formation (780L, 980L)
7. Andes Mountains Fossils (750L, 960L)

Each passage set includes two differentiated passages on a fourth-grade level (one at the beginning of the band, one towards the end) and a question set geared towards comprehension and science mastery. The first question is differentiated to include a fill-in-the-blank diagram (lower complexity) or an open-ended diagram (higher complexity).

How to Use This Resource

This resource was created with the NGSS Science Standards in mind. It includes six differentiated passages aligned to the following standard:

4-ESS1-1: Evidence from Rock Layers

Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time.

Clarification Statement: Examples of evidence from patterns could include rock layers with marine shell fossils above rock layers with plant fossils and no shells, indicating a change from land to water over time; and a canyon with different rock layers in the walls and a river in the bottom, indicating that over time a river cut through the rock.

Assessment Boundary: Assessment does not include specific knowledge of the mechanism of rock formation or memorization of specific rock formations and layers. Assessment is limited to relative time.

Here are some suggestions for using these passages:

- Use as independent work after you have taught an overview of this standard. Assign the different levels based on the passage students can read and comprehend independently.
- Use as a reading center to reinforce key comprehension and science concepts at the same time!
- Use as a homework or review packet.
- Use as an intervention for students who need to revisit science concepts.



Rock Layers

Earth gives us clues about its history in its rock layers, or **strata**. There are three types of rocks found on Earth. **Igneous rocks** are made when molten rock cools and turns into a solid. **Metamorphic rocks** are the result of existing rocks being changed by heat, pressure, mineral-rich fluids, or a combination of these. **Sedimentary rocks** are formed from pieces of rock that are loosened by weathering. These pieces, or **sediments**, get buried deeply, creating layers like a cake. These layers get pressed together. They become cemented into larger rocks. Most of the rocks at the surface of Earth are sedimentary.



Each layer of sedimentary rock is a different color in this photograph

The fossils in the layers provide evidence about the plant and animal life that existed on Earth during different time periods. The fossils can be compared to what an area is like more recently. They show us how Earth has changed over time.

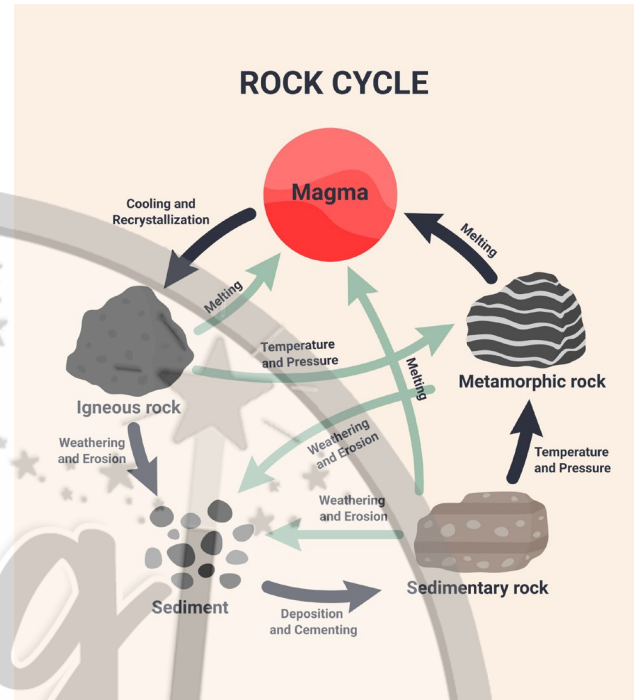


Diagram of the rock cycle.

Fossils are often found in sedimentary rock layers. The layers at the bottom are the oldest. The ones closer to the surface are the youngest. Think about cake again. The bottom layer goes down first then frosting or filling is added. A new layer of cake is placed on top of that. This is called the **law of superposition**. It allows scientists to figure out the age of the rock



Visible fault lines in rock layers.

Rock layers are made in an organized way. Rocks are originally laid down horizontally when they get deposited from above. Picture cake batter being poured into a pan. See it spread out into an even layer. This is

called the **law of original horizontality**. Sometimes scientists find rock layers that are not horizontal. The layers have all been shifted. The shift creates a break in the horizontal pattern. This tells scientists that some event happened to disrupt the layers. Examples of events that can affect original horizontality are an earthquake along a **fault line** or mountains building from shifting **continental plates**. Layers that are not horizontal tell a story. They help scientists figure out what was happening long ago.

Paying attention to layers of rock found on Earth allows humans to learn more about the planet's past. As scientists continue to study rock layers, more of Earth's secrets are revealed.

Rock Layers Questions

1. Use the chart below to name and define the main types of rocks presented in the text.

Type of Rock	Definition
Igneous	
	Made when existing rocks are changed by heat, pressure, mineral-rich fluids
Sedimentary	

2. Which of the following are events that can affect original horizontality? (choose all that apply)

- a. Heavy rain
- b. Earthquakes
- c. Tsunamis
- d. Mountains shifting

3. Look at the image from the article again. Imagine scientists found fossils at point A and at point B. Which fossils would be older? Use text evidence in your answer.



Rock Layers

Earth gives us clues about its history in its rock layers, or **strata**. There are three types of rocks found on Earth. **Igneous rocks** are made when molten rock cools and turns into a solid. **Metamorphic rocks** are the result of existing rocks being changed by heat, pressure, mineral-rich fluids, or a combination of these. **Sedimentary rocks** are formed from pieces of rock that are loosened by weathering. These pieces, or **sediments**, get buried deeply, creating layers like a cake. These layers get pressed together and become cemented into larger rocks. Most of the rocks at the surface of Earth are sedimentary.

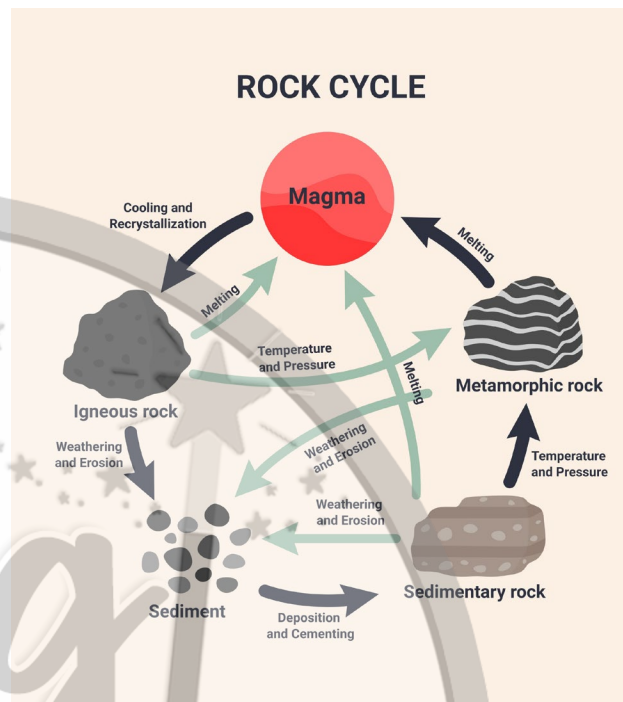


Diagram of the rock cycle.



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provide evidence about the plant and animal life that existed on Earth during different time periods. The fossils can be compared to what an area is like more recently and show us how Earth has changed over time.

Fossils are often found in sedimentary rock layers. The layers at the bottom are the oldest while the ones closer to the surface are the youngest. Thinking about cake again, the bottom layer goes down first then frosting or filling is added. A new layer of cake is placed on top of that. This is called the **law of superposition**, and it allows scientists to figure out the age of the rock layers. The fossils in the layers



Visible fault lines in rock layers.

Rock layers are created in an organized way. As rocks get deposited from above, they are originally laid down horizontally. Picture cake batter being poured into a pan and spread out into an even layer. This is called the **law of original horizontality**.

Sometimes scientists find rock layers that are not horizontal. The layers have all been shifted, creating a break in the horizontal pattern. This tells scientists that some event happened to disrupt the layers. Examples of events that can affect original horizontality are an earthquake along a **fault line** or mountains building from shifting **continental plates**. Like fossils, layers that are not horizontal tell a story that helps scientists figure out what was happening long ago.

Paying attention to layers of rock found on Earth allows humans to learn more about the planet's past. As scientists continue to study rock layers, more of Earth's secrets are revealed.

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Renewable and Non-Renewable Energy

4th grade

Table of Contents

1. How to Use This Resource
2. Renewable and Non-renewable Energy (780L, 980L)
3. Wind Energy (790L, 990L)
4. Coal as Energy (770L, 980L)
5. Petroleum Energy (790L, 980L)
6. Hydropower (770L, 990L)
7. Solar Power (760L, 970L)

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How to Use This Resource

This resource was created with the NGSS Science Standards in mind. It includes six differentiated passages aligned to the following standard:

4-ESS3-1: Renewable and Non-renewable Energy

Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment. (Cause and Effect)

Clarification Statement: Examples of renewable energy resources could include wind energy, water behind dams, and sunlight; non-renewable energy resources are fossil fuels and fissile materials. Examples of environmental effects could include loss of habitat due to dams, loss of habitat due to surface mining, and air pollution from the burning of fossil fuels.

Assessment Boundary: None

Here are some suggestions for using these passages:

- Use as independent work after you have taught an overview of this standard. Assign the different levels based on the passage students can read and comprehend independently.
- Use as a reading center to reinforce key comprehension and science concepts at the same time!
- Use as a homework or review packet.
- Use as an intervention for students who need to revisit science concepts.



Renewable and Non-renewable Energy

Surviving on Earth means depending on the planet's **natural resources**. A natural resource is any material or organism from Earth that people can use. Natural resources also play a role in **economics** and **industry**. They bring in large amounts of money. Some of the most common natural resources are air, water, soil, wildlife, forests, minerals, and **fossil fuels**. These natural resources are not evenly distributed around the globe. Some places have big supplies of a certain resource while others have very little of it.

Natural resources are divided into two categories. One category is **renewable resources**. These resources never run out or can be grown again. They are easily replenished so they can continue to be used. Resources such as air and water are renewable because they move in cycles. Trees are also renewable. They can be planted again as seeds and regrown.

Sunlight is another renewable resource we aren't likely to run out of during our lifetimes. All of these renewable resources provide energy and other products humans use. They are mostly environmentally friendly if properly gathered.



Solar panels on the roof of a home.

The second category of natural resources is **non-renewable resources**. These resources cannot be replaced once they've been used. Non-renewable resources are usually found in the ground. They include fossil fuels such as coal and oil. Fossil fuels are our main sources of energy. They are relatively cheap. These materials don't regrow, though. Making more of them isn't something that can be done within our lifetimes. They take millions of years to form. Non-renewable resources have mostly been easy to find. We could, however, face a time when they are all gone. Humans are using these resources for energy faster than they can be mined.



Smoke escaping from a coal-fired power plant.

Humans use both renewable and non-renewable resources as energy. Shifting to more renewable ones is something people are thinking more about lately. Non-renewable resources have limited supplies. They can cause pollution of our environment. Ways for getting and using them are already in place, however. We've become used to them. Renewable resources, on the other hand, cause little to no pollution if carefully used. They have the ability to last far longer than non-renewable resources. Renewable resources are expensive, though. They also don't have the ability to meet the needs of the global population alone at the present time. Renewable resources are also not as reliable as non-renewable ones. They depend on things such as the wind blowing or the sun shining.

The demand for natural resources is on the rise with populations increasing around the world. Science and technology focused on making the best use of natural resources for energy need to be explored to keep us powered into the future.

Renewable and Non-renewable Resources Questions

1. There are 2 types of natural resources. What are they?

1. _____

2. _____

2. Label the images below as renewable or non-renewable:



3. What is the problem with relying on fossil fuels as our main source of energy?

4. Why should we focus on shifting to using more renewable resources?

Renewable and Non-renewable Energy

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Internal and External Structures

4th grade

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3. Roses (750, 950L)
4. American Alligators (760L, 910L)
5. Sunflowers (740L, 950L)
6. Whales (760L, 950L)
7. Water Lilies (760L, 940L)

Each passage set includes two differentiated passages on a third-grade level (one at the beginning of the band, one towards the end) and a question set geared towards comprehension and science mastery. The first question is differentiated to include a fill-in-the-blank diagram (lower complexity) or an open-ended diagram (higher complexity).

How to Use This Resource

This resource was created with the NGSS Science Standards in mind. It includes six differentiated passages aligned to the following standard:

4-LS1-1: Internal and External Structures

Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. (Systems and System Models)

Clarification Statement: Examples of structures could include thorns, stems, roots, colored petals, heart, stomach, lung, brain, and skin.

Assessment Boundary: Assessment is limited to macroscopic structures within plant and animal systems.

Here are some suggestions for using these passages:

- Use as independent work after you have taught an overview of this standard. Assign the different levels based on the passage students can read and comprehend independently.
- Use as a reading center to reinforce key comprehension and science concepts at the same time!
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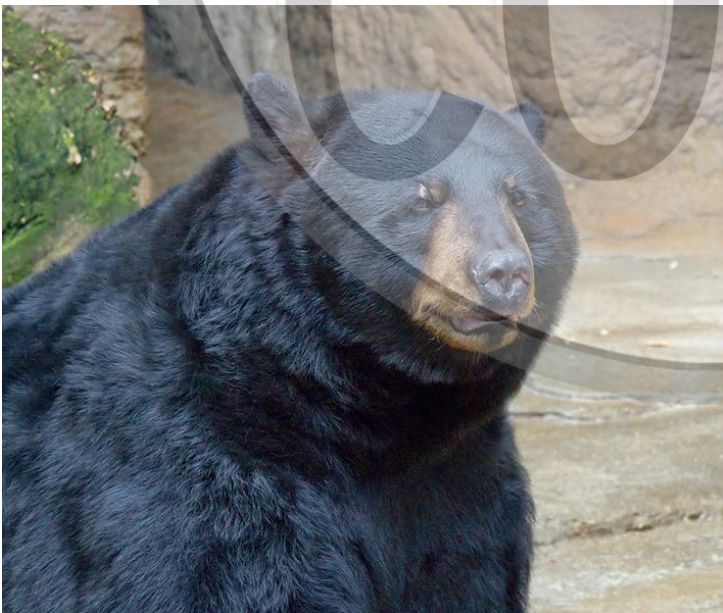


Black Bears

One of the most common bears in North America is the black bear. They are mostly found in Canada and the United States. They have been known to live in Mexico as well. Adult black bears are about 5-6 feet tall. They weigh about 200-600 pounds. They are smaller than grizzly bears and are capable of eating both meat and plants.



Black bears have many **structures** that help them succeed. Their fur is usually black but can be other colors. It is made of shaggy layers. These layers keep black bears warm during cold winters. Lighter-colored fur is usually found in sunnier locations. Less heat is absorbed when the fur is not dark. This allows the bears to feed longer in sunlight. Fur also protects the skin under the fur from getting scratched on the brush in the forest.



Another structure that black bears have is their eyes. They are small and positioned toward the front of the head. This gives black bears greater depth perception. Black bear eyes can also move freely. They don't have to move their entire head to see in different directions. It was believed bears had poor eyesight. Black bears actually see about as well as humans do. They can see in color, and their night vision is very sharp. Sensing movement in the forest is easy for them. It helps to track both prey and predators.

One of the reasons it was thought bears had poor eyesight is because of another structure – the nose. Black bears' strongest sense is their smell. A scent can be picked up from over a mile away. Black bears don't have to rely so much on their vision. Their noses do a better job than their eyes in helping them find food in the forest. They can better avoid predators and navigate more easily through their habitat.



Teeth and claws are two structures of black bears that have many **functions**. Both are used for defense. Teeth and claws also aid in growth. They play roles in getting and eating food. Biting and clawing trees also involve black bears' teeth and claws. Scientists believe black bears mark trees to establish territories. The marks also guide them in new stretches of forest and send signals about breeding.

Black bears also have many body **systems** that have important jobs. The **circulatory system**, for example, includes **internal** structures. These structures include the heart, blood, blood vessels, and arteries. These all work together to move nutrients, waste, white blood cells, and oxygen around the black bear's body. A black bear's circulatory system has more red blood cells that can hold more oxygen than humans. This lets black bears stay underwater longer. They can better hunt prey in this manner.

Structures that are found outside and inside black bear bodies allow them to survive on planet Earth. Without them, black bears would not be as well suited to their environment.

Black Bears Questions

1. Black bears have many structures in their bodies that help them survive. Fill in the chart below to show how 3 structures benefit their survival.

Structure Fur	→	Benefit
Structure Eyes	→	Benefit
Structure Nose	→	Benefit

2. Black bears also have internal structures that help them survive. Explain an internal structure of black bears and how it works.

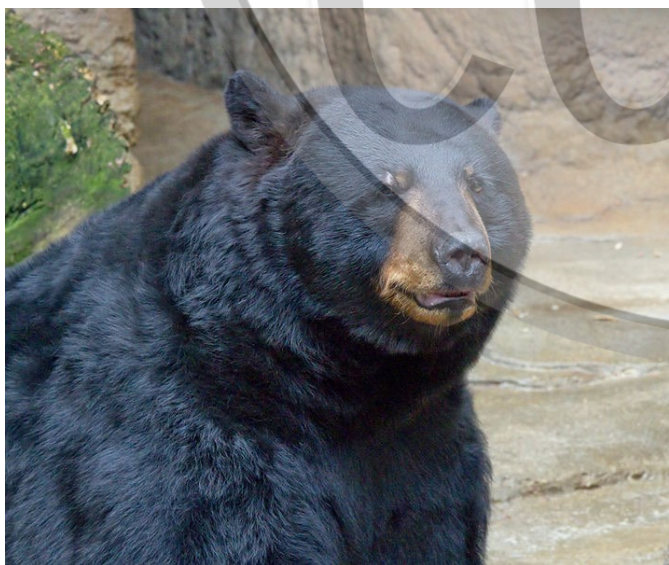
3. An animal's senses work together to help them survive. Stronger senses help balance out weaker senses. Black bears have good eyesight. What if they didn't? How would this affect the bears? What other senses might help them if they had poor eyesight?

Black Bears

One of the most common bears in North America is the black bear. They are mostly found in Canada and the United States, but they have been known to live in Mexico as well. Adult black bears are about 5-6 feet tall and weigh about 200-600 pounds. They are smaller than grizzly bears and are capable of eating both meat and plants.



Black bears have many **structures** that help them be successful. Their fur, which is usually black but can be other colors, is made of shaggy layers. These layers keep black bears warm during the cold winter months. Lighter-colored fur is usually found in sunnier and warmer locations so less heat is absorbed. This allows the bears to feed longer in sunlight. Fur also protects the skin under the fur from getting scratched by the brush black bears walk through in the forest.



Another structure that black bears have is their eyes. They are rather small, but they are positioned toward the front of the head which allows for greater depth perception. Black bear eyes can also move freely, unlike a deer that has to move its entire head to see in different directions. At one time, it was believed bears had poor eyesight. In reality, black bears see about as well as humans do. Their up-close vision is better than their long-distance eyesight. They

can see in color, and their night vision is very sharp. Detecting movement in the forest is easy for them, which helps them track both prey and predators.

One of the reasons it was thought bears had poor eyesight is because of another structure – the nose. Black bears' strongest sense is their smell. A scent can be picked up from over a mile away. With such a powerful sniffer, black bears don't have to rely so much on their vision. Their noses do a better job than their eyes in helping them find food in the forest, avoid predators, and navigate through their habitat.



Teeth and claws are two structures of black bears that perform many **functions**. Both are used for defense when necessary. Teeth and claws also aid in growth because they play roles in getting and eating food. Biting and clawing trees also involve black bears' teeth and claws. Scientists believe black bears mark trees in this manner to establish territories, guide them in unfamiliar stretches of forest, and communicate about breeding.

Black bears also have many body **systems** that have important jobs. The **circulatory system**, for example, includes **internal** structures such as the heart, blood, veins, capillaries, and arteries. These all work together to move nutrients, waste, white blood cells, and oxygen around the black bear's body. A black bear's circulatory system has more red blood cells that can hold more oxygen than humans. This lets black bears stay underwater longer so they can better hunt prey.

Structures that are found outside and inside black bear bodies allow them to survive on planet Earth. Without them, black bears would not be as well suited to their environment as they are.

Black Bears Questions

1. Black bears have many structures in their bodies that help them survive. Fill in the chart below to show how 3 structures benefit their survival.

Structure	→	Benefit
Structure	→	Benefit
Structure	→	Benefit

2. Black bears also have internal structures that help them survive. Explain an internal structure of black bears and how it works.

3. An animal's senses work together to help them survive. Stronger senses help balance out weaker senses. Black bears have good eyesight. What if they didn't? How would this affect the bears? What other senses might help them if they had poor eyesight?

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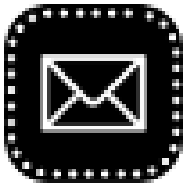
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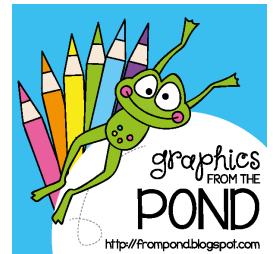
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